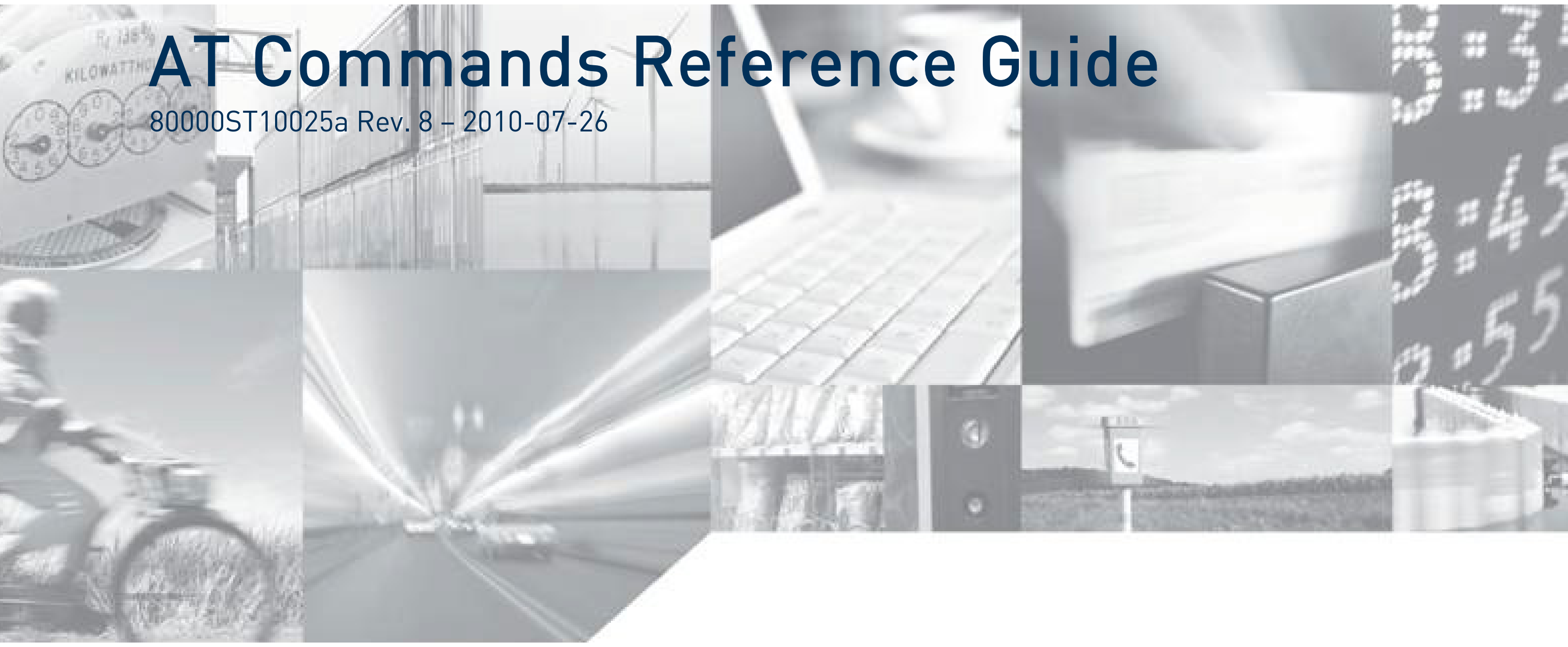
Telit wireless solutions

AT Commands Reference Guide

80000ST10025a Rev. 8 – 2010-07-26



Making machines talk.

APPLICABILITY TABLE

This document is related to the following products:

PRODUCT	P/N
GT863-PY	3990150471
GT864-QUAD	4990150069
GT864-PY	4990150070
GM862-QUAD-PY	GM862PYT732xxxx
GM862-QUAD	GM862QUD732xxxx
GM862-GPS	GM862GPS732xxxx
GC864-PY	GC864PYT732xxxx
GC864-QUAD	GC864QUD732xxxx
GC864-QUAD	GC864QUD003xxxx
GC864-QUAD V2	GC864Q2D003xxxx
GC864-DUAL	GC864DUA727xxxx
GC864-DUAL V2	GC864D2A003xxxx
GE863-PY	GE863PYT732xxxx
GE863-QUAD	GE863QUD732xxxx
GE863-GPS	GE863GPS732xxxx
GE863-PRO^3	GE863P3x732xxxx
GE864-PY	GE864PYT732xxxx
GE864-QUAD	GE864QUD732xxxx
GE864-QUAD	GE864QUD003xxxx
GE864-QUAD Automotive	GE864AUT732xxxx
GE864-QUAD Automotive V2	GE864AUT003xxxx
GE864-QUAD ATEX	GE864AEX003xxxx
GE864-QUAD V2	GE864Q2D003xxxx
GE864-DUAL V2	GE864D2A003xxxx
GE865-QUAD	GE865QUD003xxxx

SW Version
7.03.02 / 7.02.07 10.0x.xx3

NOTE:

This document substitute any issue of the AT Commands Reference Guide for GC864-DUAL document 80300ST10037a.

Contents

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1. Introduction

1.1. Scope

This document is aimed in providing an detailed specification and a comprehensive listing as a reference for the whole set of AT command

1.2. Audience

Readers of this document should be familiar with Telit modules and their ease of controlling by means of AT Commands.

1.3. Contact Information, Support

For general contact, technical support, to report documentation errors and to order manuals, contact Telit Technical Support Center (TTSC) at:

TS-EMEA@telit.com
TS-NORTHAMERICA@telit.com
TS-LATINAMERICA@telit.com
TS-APAC@telit.com

Alternatively, use:
http://www.telit.com/en/products/technical-support-center/contact.php
For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:
http://www.telit.com
To register for product news and announcements or for product questions contact Telit Technical Support Center (TTSC).
Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.
Telit appreciates feedback from the users of our information.

1.4. Document Organization

This document contains the following chapters:

Chapter 1: "Introduction" provides a scope for this document, target audience, contact and support information, and text conventions.

Chapter 2: "Overview" about the aim of this document and implementation suggestions.

Chapter 3: "AT Commands" The core of this reference guide.

1.5. Text Conventions

Danger – This information MUST be followed or catastrophic equipment failure or bodily injury may occur.

Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.

Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.6. Related Documents

- 3GPP TS 27.007 specification and rules
  http://www.3gpp.org/ftp/Specs/archive/27_series/27.007/

- 3GPP TS 27.005 specification and rules
  http://www.3gpp.org/ftp/Specs/archive/27_series/27.005/

- Hayes standard AT command set

1.7. Document History

Revision	Date	SW release	Changes
ISSUE #0	2006-08-04	7.02.01	Initial release
ISSUE #1	2006-10-26	7.02.02	3.2.2.1 +CME ERROR: - ME Error Result Code: updated 3.2.2.2 +CMS ERROR - Message Service Failure Result Code: updated 3.2.6 Factory and user profile: updated -“GPS Commands Set” total update -updated the following commands description under SELINT 0, SELINT 1 and SELINT 2 paragraph: +COPN, +CCFC, +CCWA, +CPIN, +CIND, +CNMI, +COPS, +CMEE, #SKTD, #AUTOATT, +CALA, +CAOC, +CACM, +CAMM, +CPUC, S12 -updated under SELINT 0 and SELINT 1 command +CPAS, #FTPOPEN, \Q, #CSURV, #CSURVC -updated the following commands only under SELINT 2: +CMUX, +CLCC, +CMGL, +CMGR, #LSCRIPT -removed from the AT commands table under SELINT 0 and SELINT 1 the following commands: #CBC and #EMAILMSG -added new commands (for SELINT 2): #EXECSCR, #STARTMODESCR
ISSUE #2	2007-03-16	7.02.03	-Revision of the whole document form. -Added new commands: #ENS, +WS46, +CPOL, +PACSP, #SPN, #SLED, #SLEDSAV, #VAUXSAV, #V24CFG, #V24, #AXE, #ACALEXT, #MBN, #MWI, #SPKMUT, multisocket commands, SIM toolkit commands, $GPSS, $GPSCON, $GPSPRG, $GPSPS, $GPSWK -3.2.6 Factory and user profile: updated -Removed AT commands for camera and #I2S1 -Updated following AT commands: +CNUM, +CPIN, +CPBW, +CPBS, +CLIP, #STGI, #FTPOPEN, $GPSACP,
ISSUE #3	2007-08-10		Update list of products to which this document can be applied
ISSUE #4	2007-11-19	7.02.04	Added new commads: #CEER, #SMSMODE, #Z, #TEMPMON, #HFRECG, #HSRECG, #PRST, #PSEL, #PSAV, #PSET, #SHFAGC, #SHFNR, #SHSAGC, #SHSEC, #SHSNR, #SHSSD, #GSMAD, #CSURVP, #CSURVPC Added: 3.5.7.12 Telefonica OpenGate M2M AT Commands Set
ISSUE #5	2008-07-09	7.02.05 / 7.03.00	modified description of AT#SD and AT#SL, … New commands +CGEREP #TSVOL #REGMODE #TXMONMODE #SIMDET #ENHSIM

			#TTY #CPUMODE #GSMCONT #CGPADDR #NWSCANTMR #OSC32KHZ #CACHEDNS #DNS #ICMP #TCPMAXDAT #TCPREASS
ISSUE #6	2009-08-03	SW 7.03.01 / 7.02.06 SW 10.0.1	- Applied new layout. - Deleted ME Error Result Code [566 – 573] (§3.2.2.1) - Reorganized the availability table (merged columns by family of product, exported GPS commands to their own table). - Updated the commands whose values are automatically stored in NVM. Specified those for the SW 10.xx.xxx platform. - Added/edited the following commands: #ACAL, #ATRUN, #AXE, #BIQUADIN, #CCLK, #CEER, #CESTHLCK, #CFLO, #CGDATA, #CGPADDR, #CPASMODE, #EMAIL, #EVMONI, #SMSATRUN, #SMSATRUNCFG, #SMSATWL, #TCPATRUNCFG, #TCPATRUNL, #TCPATRUNFRWL, #TCPATRUNAUTH, #TCPATRUND, #TCPATRUNCLOSE, #TCPATRUNCMDSEQ, #TCPATCONSER, #ATRUNDELAY, #ENAEVMONI, #ENAEVMONICFG, #FASTCCID, #FTPAPP, #FTPFSIZE, #FTPGET, #FTPGETPKT, #FTPPUT, #FTPRECV, #FTPREST, #GPIO, #GPPPCFG, #GSMAD, #GSMCONT, #HFMICG, #HFRECG, #HSMICG, #HSRECG, #I2CWR, #I2CRD, #JDR, #LCSCRIPT, #MONI, #NITZ, #OAP, #OTASNAP, #OTASUAN, #CMGS, #CMGW, #PING, #PSMRI, #QSS, #REBOOT, #SA, #SCFG, #SCFGEXT, #SD, #SERVINFO, #SGACTAUTH, #SGACTCFG, #SIMDET, #SKTD, #SKTL, #SL, #/, #SLUDP, #SMOV, #SPCM, #SRECV, #SS, #SSEND, #STARTMODESCR, #SWLEVEL, #TEMPMON, #TONEEXT, #TSVOL, #VAUX, #V24MODE, #V24CFG, #Z, $GPSACP, $GPSAP, $GPSCON, $GPSPS, $GPSWK, +CCLK, +CEER, +CFUN, +CGPADDR, +CGSMS, +CMGD, +CMGW, +CNMI, +CPBS, +CSMP, +DS, +VTS, S0. - Deleted commands: AT\B, AT\K, AT\N. - Specified SW10.xx.xxx default values
ISSUE #7	2010-05-07	SW 7.03.02 / 7.02.07 SW 10.0.2	- New commands added for SW 7.03.02 / 7.02.07: #SCFGEXT2, #CMGLCONCINDEX, #CODECINFO, #GSMCONTCFG, #SNUM, #SSENDEXT, +CMAR - New commands added for SW 10.0.2: #PADFWD, #PADCMD; new parameters for CFUN: CFUN=1,1 - Updated Timeout Table par. 3.2.4 - Removed note 18 - Updated Table Factory Profile and User Profile par. 3.3.1 - Deleted commands: &G, &Q - Updated commands: #JDR, #FTPDELE, +CNMI, #CMGW,

			#OTASUAN, #I2CWR, #I2CRD, #ATS38, #GSMAD, +CFUN, &D, #E2ESC, #TXMONMODE, #SNUM, #STIA, #FTPFSIZE, #COPSMODE, # SCFGEXT, #SCFGEXT2, #SD, #SELINT, #ADC, #DVI, #EMAILD, #EVMONI, #GPPPCFG, #MSCLASS, #SEMAIL, #SPCM, #SWLEVEL, #TONEEXT, #UDTSET, +CMER, #E2ESC, #SLUDP, #SIMATR
ISSUE#8	2010-07-26	SW 7.03.02 / 7.02.07 SW 10.0.3	- Updated commands: #SCFGEXT2, S38, #SEMAIL, #EMAILD, #CSURVF, +CMAR, #CCLK, +CMGL, +CFUN, #FTPOPEN, #OTASNAP, #OTASUAN, #AUTOBND, #STIA, #STGI, +CLCC, +CNMI, +CPMS, +CSAS, #PLMNMODE, #SMSMODE, #REGMODE, #AUTOBND, #ENHSIM, #SWLEVEL, #NITZ, #STIA, #JDR, #TSVOL - New commands added for SW 10.0.3: +CPLS, +CGCMOD, #STTA, #CMEEMODE, #SGACTCFGEXT, #BASE64, #CEERNET, #ENHRST, #SII, #OTASETRI - Updated references specification from 07.05, 07.07, 03.40 to 27.005, 27.007, 23.040, etc

2. Overview

2.1. About the document

This document is to describe all AT commands implemented on the Telit wireless modules listed on the Applicabilty Table.

NOTE:

Telit suggests all the system developers to use always the newer AT Commands Interface Style defined by AT#SELINT=2; and in case you are starting a new design we highly recommend you to use the newer AT Commands Interface Style defined by AT#SELINT=2 which gives you a possibility to include all Telit's new features and also all future implementations.

Moreover, Telit suggests to use the following settings to get the performance most customers are looking for:

AT#SMSMODE=1
AT#REGMODE=1

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3. AT COMMANDS

The Telit wireless module family can be controlled via the serial interface using the standard AT commands[1]. The Telit wireless module family is compliant with:

1. Hayes standard AT command set, in order to maintain the compatibility with existing SW programs.
2. 3GPP TS 27.007 specific AT command and GPRS specific commands.
3. 3GPP TS 27.005 specific AT commands for SMS (Short Message Service) and CBS (Cell Broadcast Service)
4. FAX Class 1 compatible commands

Moreover Telit wireless module family supports also Telit proprietary AT commands for special purposes.
The following is a description of how to use the AT commands with the Telit wireless module family.

3.1. Definitions

The following syntactical definitions apply:

<CR>	**Carriage return character**, is the command line and result code terminator character, which value, in decimal ASCII between 0 and 255,is specified within parameter **S3**. The default value is 13.
<LF>	**Linefeed character**, is the character recognised as line feed character. Its value, in decimal ASCII between 0 and 255, is specified within parameter **S4**. The default value is 10. The line feed character is output after carriage return character if verbose result codes are used (**V1** option used) otherwise, if numeric format result codes are used (**V0** option used) it will not appear in the result codes.
<...>	Name enclosed in angle brackets is a syntactical element. They do not appear in the command line.
[...]	Optional subparameter of a command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear in the command line. When subparameter is not given in AT commands which have a Read command, new value equals to its previous value. In AT commands

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[1] The AT is an ATTENTION command and is used as a prefix to other parameters in a string. The AT command combined with other parameters can be set up in the communications package or typed in manually as a command line instruction.

which do not store the values of any of their subparameters, and so have not a Read command, which are called *action type* commands, action should be done on the basis of the recommended default setting of the subparameter.

3.2. AT Command Syntax

The syntax rules followed by Telit implementation of either Hayes AT commands, GSM commands and FAX commands are very similar to those of standard basic and extended AT commands. A special command (**#SELINT**, see §3.5.2.1.1) has been introduced in order to have an AT interface very close to the standard one.

There are two types of extended command:

- **Parameter type commands**. This type of commands may be "set" (to store a value or values for later use), "read" (to determine the current value or values stored), or "tested" (to determine ranges of values supported). Each of them has a test command (trailing **=?**) to give information about the type of its subparameters; they also have a Read command (trailing **?**) to check the current values of subparameters.

- **Action type commands**. This type of command may be "executed" or "tested".

- "executed" to invoke a particular function of the equipment, which generally involves more than the simple storage of a value for later use
- "tested" to determine:

(if the command **#SELINT**=*0 or* **#SELINT**=*1 has been issued, see §3.5.2.1.1)*
if subparameters are associated with the action, the ranges of subparameters values that are supported; if the command has no subparameters, issuing the correspondent Test command (trailing **=?**) raises the result code "**ERROR**".
Note: issuing the Read command (trailing **?**) causes the command to be executed.

(if the command **#SELINT**=*2 has been issued, see §3.5.2.1.1)*
whether or not the equipment implements the Action Command (in this case issuing the correspondent Test command - trailing **=?** - returns the **OK** result code), and, if subparameters are associated with the action, the ranges of subparameters values that are supported.

Action commands don't store the values of any of their possible subparameters.

Moreover:

- *(for* **#SELINT**=*0 or* **#SELINT**=*1 only)*

An enhanced test command (trailing **=??**) has been introduced to maintain backward compatibility for those commands whose subparameters changed the range of possible values from version to version.

- *(for* **#SELINT**=*2 only)*
  The response to the Test Command (trailing **=?**) may be changed in the future by Telit to allow the description of new values/functionalities

- *(for* **#SELINT**=*2 only)*
  If all the subparameters of a parameter type command **+CMD** (or **#CMD** or **$CMD**) are optional, issuing **AT+CMD=<CR>** (or **AT#CMD=<CR>** or **AT$CMD=<CR>**) causes the **OK** result code to be returned and the previous values of the omitted subparameters to be retained.

3.2.1. String Type Parameters

A string, either enclosed between quotes or not, is considered to be a valid string type parameter input. According to V25.ter space characters are ignored on the command line and may be used freely for formatting purposes, unless they are embedded in numeric or quoted string constants; therefore a string containing a space character has to be enclosed between quotes to be considered a valid string type parameter (e.g. typing **AT+COPS=1,0,"A1"** is the same as typing **AT+COPS=1,0,A1**; typing **AT+COPS=1,0,"A BB"** is different from typing **AT+COPS=1,0,A BB**).

When **#SELINT=0 (or 1)** mode is selected, a string not enclosed between quotes is changed in upper case (e.g. **mickey** become **MICKEY**), while a string enclosed between quotes is case sensitive.
When **#SELINT=2** mode is selected, a string is always case sensitive.

A small set of commands requires always to write the input string parameters within quotes: this is explicitly reported in the specific descriptions.

3.2.2. Command Lines

A command line is made up of three elements: the **prefix**, the **body** and the **termination character**.

The **command line prefix** consists of the characters "**AT**" or "**at**", or, to repeat the execution of the previous command line, the characters "**A/**" or "**a/**" or **AT#/** or **at#/**.
The **termination character** may be selected by a user option (parameter S3), the default being **<CR>**.

The basic structures of the command line are:

- **ATCMD1<CR>** where **AT** is the command line prefix, **CMD1** is the body of a **basic command** (nb: the name of the command never begins with the character "**+**") and **<CR>** is the command line terminator character
- **ATCMD2=10<CR>** where 10 is a subparameter
- **AT+CMD1;+CMD2=, ,10<CR>** These are two examples of **extended commands** (nb: the name of the command always begins with the character "**+**"[2]). They are delimited with semicolon. In the second command the subparameter is omitted.
- **+CMD1?<CR>** This is a Read command for checking current subparameter values
- **+CMD1=?<CR>** This is a test command for checking possible subparameter values

These commands might be performed in a single command line as shown below:

ATCMD1 CMD2=10+CMD1;+CMD2=, ,10;+CMD1?;+CMD1=?<CR>

anyway it is always preferable to separate into different command lines the basic commands and the extended commands; furthermore it is suggested to avoid placing several action commands in the same command line, because if one of them fails, then an error message is received but it is not possible to argue which one of them has failed the execution.

If command **V1** is enabled (verbose responses codes) and all commands in a command line has been performed successfully, result code **<CR><LF>OK<CR><LF>** is sent from the TA to the TE, if subparameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code **<CR><LF>ERROR<CR><LF>** is sent and no subsequent commands in the command line are processed.

If command **V0** is enabled (numeric responses codes), and all commands in a command line has been performed successfully, result code **0<CR>** is sent from the TA to the TE, if sub-parameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code **4<CR>** and no subsequent commands in the command line are processed.

In case of errors depending on ME operation, **ERROR** (or **4**) response may be replaced by **+CME ERROR: <err> or +CMS ERROR: <err>**.

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[2] The set of **proprietary AT commands** differentiates from the standard one because the name of each of them begins with either "**@**", "**#**", "**$**" or "*****". **Proprietary AT commands** follow the same syntax rules as **extended commands**

NOTE:

The command line buffer accepts a maximum of 80 characters. If this number is exceeded none of the commands will be executed and TA returns **ERROR**.

3.2.2.1. ME Error Result Code - +CME ERROR: <err>

This is NOT a command, it is the error response to +**Cxxx 3GPP TS 27.007** commands.
Syntax: **+CME ERROR: <err>**
Parameter: **<err>** - error code can be either numeric or verbose (see **+CMEE**).The possible values of **<err>** are reported in the table:

Numeric Format	Verbose Format
General errors:	
0	phone failure
1	No connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network time-out
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required

Numeric Format	Verbose Format
46	corporate personalization PIN required
47	corporate personalization PUK required
General purpose error:	
100	unknown
GPRS related errors to a failure to perform an Attach:	
103	Illegal MS (#3)*
106	Illegal ME (#6)*
107	GPRS service not allowed (#7)*
111	PLMN not allowed (#11)*
112	Location area not allowed (#12)*
113	Roaming not allowed in this location area (#13)*
GPRS related errors to a failure to Activate a Context and others:	
132	service option not supported (#32)*
133	requested service option not subscribed (#33)*
134	service option temporarily out of order (#34)*
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
Network survey errors: (only if command **#SELINT**=*0* or **#SELINT**=*1* has been issued - see §3.5.2.1.1):	
257	Network survey error (No Carrier)*
258	Network survey error (Busy)*
259	Network survey error (Wrong request)*
260	Network survey error (Aborted)*
Easy GPRS® related errors (only if command **#SELINT**=*0* or **#SELINT**=*1* has been issued - see §3.5.2.1.1):	
400	generic undocumented error
401	wrong state
402	wrong mode
403	context already activated
404	stack already active
405	activation failed
406	context not opened
407	cannot setup socket
408	cannot resolve DN
409	time-out in opening socket
410	cannot open socket
411	remote disconnected or time-out
412	connection failed
413	tx error
414	already listening
FTP related errors (only if command **#SELINT**=*0* or **#SELINT**=*1* has been issued - see §3.5.2.1.1):	
420	ok
421	connect
422	disconnect
423	error
424	wrong state
425	can not activate
426	can not resolve name
427	can not allocate control socket
428	can not connect control socket
429	bad or no response from server

Numeric Format	Verbose Format
430	not connected
431	already connected
432	context down
433	no photo available
434	can not send photo
Easy GPRS® related errors (only if command **#SELINT**=*2* has been issued - see §3.5.2.1.1):	
550	generic undocumented error
551	wrong state
552	wrong mode
553	context already activated
554	stack already active
555	activation failed
556	context not opened
557	cannot setup socket
558	cannot resolve DN
559	time-out in opening socket
560	cannot open socket
561	remote disconnected or time-out
562	connection failed
563	tx error
564	already listening
566	can not resume socket
567	wrong APN
568	wrong PDP
569	service not supported
570	QOS not accepted
571	NSAPI already used
572	LLC or SNDCP failure
573	network reject
FTP related errors (only if command **#SELINT**=*2* has been issued - see §3.5.2.1.1):	
600	generic undocumented error
601	wrong state
602	can not activate
603	can not resolve name
604	can not allocate control socket
605	can not connect control socket
606	bad or no response from server
607	not connected
608	already connected
609	context down
610	no photo available
611	can not send photo
612	resource used by other instance
Network survey errors: (only if command **#SELINT**=*2* has been issued - see §3.5.2.1.1):	
657	Network survey error (No Carrier)*
658	Network survey error (Busy)*
659	Network survey error (Wrong request)*
660	Network survey error (Aborted)*
SAP related errors: (only if command **#SELINT**=*2* has been issued - see §3.5.2.1.1):	

Numeric Format	Verbose Format
731	Unspecified
732	Activation command is busy
733	Activation started with CMUX off
734	Activation started on invalid CMUX
736	Remote SIM already active
737	Invalid parameter

*(values in parentheses are GSM 04.08 cause codes)

3.2.2.2. Message Service Failure Result Code - +CMS ERROR: <err>

This is NOT a command, it is the error response to +Cxxx 3GPP TS 27.005 commands.

Syntax: **+CMS ERROR: <err>**
Parameter: **<err>** - numeric error code.

The **<err>** values are reported in the table:

Numeric Format	Meaning
0...127	GSM 04.11 Annex E-2 values
128...255	3GPP TS 23.040 sub clause 9.2.3.22 values
300	ME failure
301	SMS service of ME reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode parameter
305	invalid text mode parameter
310	SIM not inserted
311	SIM PIN required
312	PH-SIM PIN required
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network service

Numeric Format	Meaning
332	network time-out
500	unknown error

3.2.3. Information Responses And Result Codes

The TA response, in case of verbose response format enabled, for the previous examples command line could be as shown below:

- information response to **+CMD1?**

  <CR><LF>+CMD1:2,1,10<CR><LF>
- information response to **+CMD1=?**

  <CR><LF>+CMD1(0-2),(0,1),(0-15)<CR><LF>
- final result code **<CR><LF>OK<CR><LF>**

Moreover there are other two types of result codes:

- *result codes* that inform about progress of TA operation (e.g. connection establishment **CONNECT**)
- *result codes* that indicate occurrence of an event not directly associated with issuance of a command from TE (e.g. ring indication **RING**).

Here the basic result codes according to ITU-T V25Ter recommendation

Result Codes	
Numeric form	Verbose form
0	OK
1	CONNECT or CONNECT <text>[3]
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200[4]
6	NO DIALTONE
7	BUSY
8	NO ANSWER

---

[3] For SELINT 0,1 <text> is only "300"; for SELINT 2 <text> can be"300", "1200", "2400", "4800", "9600", "14400" or "1200/75"

[4] Valid for SELINT 0,1 only

Result Codes	
10	CONNECT 2400[4]
11	CONNECT 4800[4]
12	CONNECT 9600[4]
15	CONNECT 14400[4]
23	CONNECT 1200/75[4]

3.2.4. Command Response Time-Out

Every command issued to the Telit modules returns a result response, if response codes are enabled (default). The time needed to process the given command and return the response varies, depending on the command type. Commands that do not interact with the SIM or the network, and only involve internal setups or readings, have an immediate response.Commands that interact with the SIM or the network could take many seconds to send a response, depending on SIM configuration (e.g., number of contacts stored in the phonebook, number of stored SMS), or on the network the command may interact with.

In the table below are listed only the commands whose interaction with the SIM or the network could lead to long response timings. When not otherwise specified, timing is referred to set command.
For phonebook and SMS writing and reading related commands, timing is referred to commands issued after phonebook sorting is completed.
For DTMF sending and dialling commands timing is referred to module registered on network ("AT+CREG?" answer is "+CREG: 0,1" or "+CREG: 0,5").
For Python commands, timing is referred to commands issued with module in idle, flash memory not full and not fragmented, and after the first Python command. The first Python command to be issued causes a system initialization that could last a couple of minutes. Baud rate is fixed at 115200.

Command	Estimated maximum time to get response (Seconds)
+COPS	30 (test command)
+CLCK	15 (SS operation) 5 (FDN enabling/disabling)
+CLAC	5
+CPWD	15 (SS operation) 5 (PIN modification)
+CLIP	15 (read command)
+CLIR	15 (read command)
+CCFC	15
+CCWA	15
+CHLD	30
+CPIN	5

Command	Estimated maximum time to get response (Seconds)
+CPBS	5 (FDN enabling/disabling)
+CPBR	5 (single reading) 15 (complete reading of a 250 records full phonebook)
+CPBF	10 (string present in a 250 records full phonebook) 5(string not present)
+CPBW	5
+CACM	5
+CAMM	5
+CPUC	5
+VTS	20 (transmission of full "1234567890*#ABCD" string with no delay between tones, default duration)
+CSCA	5 (read and set commands)
+CSAS	5
+CRES	5
+CMGS	60 after CTRL-Z for SMS not concatenated; 1 to get '>' prompt
+CMSS	60 after CTRL-Z; 1 to get '>' prompt
+CMGW	5 after CTRL-Z for SMS not concatenated; 1 to get '>' prompt
+CMGD	5 (single SMS cancellation) 25 (cancellation of 50 SMS)
+CMGR	5
+CMGL	20 (full listing of 50 SMS)
+CGACT	150
+CGATT	10
D	30 (voice call) Timeout set with ATS7 (data call)
A	30 (voice call) Timeout set with ATS7 (data call)
H	30
+CHUP	5
+COPN	10
+CPOL	10 (set command; read command of 84 records)
+CRSM	5
+FRH	Timeout set with ATS7
+FTH	Timeout set with ATS7
+FRM	Timeout set with ATS7
+FTM	Timeout set with ATS7
+FRS	Timeout set with the command itself

Command	Estimated maximum time to get response (Seconds)
+FTS	Timeout set with the command itself
#MBN	10
#TONE	5 (if no duration specified)
#ADC	5
#EMAILD	20
#EMAILACT	150
#SEMAIL	170 (context activation + DNS resolution)
#MSCLASS	15
#SPN	5
#STSR	10
#CCID	5
#GPRS	150
#SKTD	140 (DNS resolution + timeout set with AT#SKTCT)
#SKTOP	290 (context activation + DNS resolution + timeout set with AT#SKTCT)
#QDNS	20
#FTPOPEN	100
#FTPCLOSE	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPTYPE	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPDELE	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPPWD	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPCWD	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPLIST	500 (timeout set with AT#FTPTO, in case no response is received from server) + time to get listing
#FTPFSIZE	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPPUT	500 (timeout set with AT#FTPTO, in case no response is received from server)

Command	Estimated maximum time to get response (Seconds)
#FTPAPP	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPGET	500 (timeout set with AT#FTPTO, in case no response is received from server)
#FTPGETPKT	500 (timeout set with AT#FTPTO, in case no response is received from server)
#SGACT	150
#SH	3
#SD	140 (DNS resolution + connection timeout set with AT#SCFG)
#CSURV	10 to start data output; 120 seconds to complete scan
#CSURVC	10 to start data output; 120 seconds to complete scan
#CSURVU	10 to start data output; 120 seconds to complete scan
#CSURVUC	10 to start data output; 120 seconds to complete scan
#CSURVB	10 to start data output; 120 seconds to complete scan
#CSURVBC	10 to start data output; 120 seconds to complete scan
#CSURVP	10 to start data output; 120 seconds to complete scan
#CSURVPC	10 to start data output; 120 seconds to complete scan
#LSCRIPT	10 (40 files, 10 Kbyte each)
#REBOOT	5
#RSCRIPT	30 seconds for a 100 Kbyte file 30 seconds timeout and ERROR message if no bytes are received on the serial line
#WSCRIPT	35 seconds for a 100 Kbyte file 30 seconds timeout and ERROR message if no bytes are sent on the serial line and the file has not been completely sent
#DSCRIPT	120

Command	Estimated maximum time to get response (Seconds)
$GPSAI	5

3.2.5. Command Issuing Timing

The chain Command -> Response shall always be respected and a new command must not be issued before the module has terminated all the sending of its response result code (whatever it may be).
This applies especially to applications that “sense” the **OK** text and therefore may send the next command before the complete code **<CR><LF>OK<CR><LF>** is sent by the module.
It is advisable anyway to wait for at least 20ms between the end of the reception of the response and the issue of the next AT command.
If the response codes are disabled and therefore the module does not report any response to the command, then at least the 20ms pause time shall be respected.
During command mode, due to hardware limitations, under severe CPU load the serial port can loose some characters if placed in autobauding at high speeds. Therefore if you encounter this problem fix the baud rate with **+IPR** command.

3.3. Storage

3.3.1. Factory Profile And User Profiles

The Telit wireless modules stores the values set by several commands in the internal non volatile memory (NVM), allowing to remember this setting even after power off. In the NVM these values are set either as **factory profile** or as **user profiles**: there are **two customizable user profiles** and **one factory profile** in the NVM of the device: by default the device will start with user profile 0 equal to factory profile.
For backward compatibility each profile is divided into two sections, one **base section** which was historically the one that was saved and restored in early releases of code, and the **extended section** which includes all the remaining values.

The **&W** command is used to save the actual values of **both sections** of profiles into the NVM user profile.
Commands **&Y** and **&P** are both used to set the profile to be loaded at startup. **&Y** instructs the device to load at startup only the **base section**. **&P** instructs the device to load at startup the full profile: **base + extended sections**.

The **&F** command resets to factory profile values only the command of the base section of profile, while the **&F1** resets to factory profile values the full set of base + extended section commands.

The values set by other commands are stored in NVM outside the profile: some of them are stored always, without issuing any **&W**, some other are stored issuing specific commands (**+CSAS**, **#SLEDSAV**, **#VAUXSAV**, **#SKTSAV**, **#ESAV** and **$GPSSAV**); all of these values are read at power-up.

The values set by following commands are stored in the profile base section; if **#SELINT=2** they depend on the specific AT instance:

GSM DATA MODE	+CBST
AUTOBAUD	+IPR
COMMAND ECHO	E
RESULT MESSAGES	Q
VERBOSE MESSAGES	V
EXTENDED MESSAGES	X
FLOW CONTROL OPTIONS	&K, +IFC
DSR (C107) OPTIONS	&S
DTR (C108) OPTIONS	&D
DCD (C109) OPTIONS	&C
RI (C125) OPTIONS	\R
POWER SAVING	+CFUN
DEFAULT PROFILE	&Y0
S REGISTERS	S0;S2;S3;S4;S5;S7;S12;S25;S30;S38
CHARACTER FORMAT	+ICF

The values set by following commands are stored in the profile extended section and, if the newer AT command interface style has been selected (see **#SELINT=2**), they depend on the specific AT instance (see **+CMUX**):

+FCLASS	+ILRR	+DR
+CSCS	+CR	+CRLP
+CRC	+CSNS	+CVHU
+CREG	+CLIP	+CLIR
+CCWA	+CUSD	+CAOC
+CSSN	+CIND	+CMER
+CPBS	+CMEE	+CGREG
+CGEREP	+CMGF	+CSDH
+CNMI	#QSS	#ACAL[5]
#TEMPMON[6]	#ACALEXT	#ECAM

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[5] If **#SELINT=2** they depend on the CMUX 0 instance only

#SMOV	#MWI	#NITZ
#SKIPESC	#E2ESC	#STIA
$GPSNMUN	#CESTHLCK	#CFLO

The values set by following commands are stored in the profile extended section and they don’t depend on the specific AT instance (see **+CMUX**):

+CALM	+CRSL	+CMUT[5]
+CLVL[5]	+VTD	+CSCB[7]
#CAP[5]	#SRS[5]	#SRP[5]
#STM[5]	#DVI	#E2SMSRI
#DAC	#CODEC	#SHFEC[5]
#HFMICG[5]	#HSMICG	#SHFSD[5]
#SPKMUT	#NITZ	#E2SLRI
#SIMDET	#TEMPMON[6]	#PSEL
#HFRECG	#HSRECG	#SHFAGC
#SHSAGC	#SHSEC	#SHSNR
#SHFNR	#SHSSD	#TSVOL
#CPUMODE		

The following commands are referred to the SW 10.xx.xxx

+CALM	+CRSL	+CMUT[5]
+CLVL[5]	+VTD	+CSCB[8]
#CAP[5]	#SRS[5]	#SRP[5]
#STM[5]	#DVI	#E2SMSRI
#DAC	#CODEC	#SHFEC[5]
#HFMICG[5]	#HSMICG	#SHFSD[5]
#SPKMUT	#NITZ	#E2SLRI
#SIMDET	#TEMPMON[6]	#PSEL
#HFRECG	#HSRECG	#SHFAGC
#SHSAGC	#SHSEC	#SHSNR
#SHFNR	#SHSSD	#TSVOL
#CPUMODE	+CTZR	#SIMDET
+CSTF	+CSDF	+CTZU
+CAPD	+CCWE	+CSIL

---

[6] It is partially stored in NVM, moreover only a part of it can depend on the specific **CMUX** instance; see command description.

[7] +CSCB is still stored in the profile extended section only for backward compatibility issues: its actual storing and restoring are accomplished issuing **+CSAS** and **+CRES**

[8] +CSCB is still stored in the profile extended section only for backward compatibility issues: its actual storing and restoring are accomplished issuing **+CSAS** and **+CRES**

The values set by following commands are automatically stored in NVM, without issuing any storing command and independently from the profile (unique values), and are automatically restored at startup:

#SELINT	+COPS[9]	+CGCLASS
+CGDCONT	+CGQMIN	+CGQREQ
#REGMODE	#PLMNODE	#COPSMODE
#DIALMODE	#BND	#AUTOBND
#ENS	#SCFG	#JDR
#ENHSIM	#AUTOATT	#TXMONMODE
#TTY	#ICMP	#GSMCONT
#NWSCANTMR	#SMSMODE	#DNS
#TCPMAXDAT	#TCPREASS	#SWLEVEL
#CPASMODE	#FASTCCID	+CGSMS
#V24MODE		

The values set by following commands are stored in NVM on demand, issuing specific commands and independently from the profile:

+CSCA	+CSMP	+CSCB

stored by +CSAS[10] command and restored by +CRES[9] command

#SLED		

stored by #SLEDSAV[11] command

#VAUX		

stored by #VAUXSAV[12] command

#USERID	#PASSW	#PKTSZ
#DSTO	#SKTTO	#SKTSET
#SKTCT		

stored by #SKTSAV command and automatically restored at startup; factory default valutes are restored by #SKTRST command

#ESMTP	#EADDR	#EUSER

---

[9] It is partially stored in NVM; see command description.

[10] Both commands **+CSAS** (see §3.x.3.2.5) and **+CRES** (see §3.x.3.2.6) deal with non-volatile memory, intending for it either the NVM and the SIM storage.

[11] Valid for **#SELINT=2** only.

[12] Valid for **#SELINT=2** only.

#EPASSW		

stored by #ESAV command and automatically restored at startup; factory default valutes are restored by #ERST command.

$GPSP	$GPSD	$GPSAT
$GPSAP	$GPSS	$GPSCON

stored by $GPSSAV command and automatically restored at startup; factory default valutes are restored by $GPSRST command

3.4. AT Commands Availability Table

The following table lists the AT commands set and matches the availability of every single command versus the Telit wireless module family. It deals with backward compatibility issues too, showing the availability of every single command depending on selected interface style (**#SELINT**).

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
Command Line General Format – Command Line Prefixes								
AT	●	●	●	●	●	●	Starting A Command Line	45
A/	●	●	●	●	●	●	Last Comm Automatic Repetition Prefix	45
AT#/	●	●	●	●	●	●	Repeat last command	46
Hayes AT Commands – Generic Modem Control								
&F	●	●	●	●	●	●	Set To Factory-Defined Configuration	49
Z	●	●	●	●	●	●	Soft Reset	49
+FCLASS	●	●	●	●	●	●	Select Active Service Class	50
&Y	●	●	●	●	●	●	Designate A Default Reset Basic Profile	50
&P	●	●	●	●	●	●	Designate A Default Reset Full Profile	51
&W	●	●	●	●	●	●	Store Current Configuration	51
&Z	●	●	●	●	●	●	Store Telephone Number In The Module Internal Phonebook	51
&N	●	●	●	●	●	●	Display Internal Phonebook Stored Numbers	52
+GMI	●	●	●	●	●	●	Manufacturer Identification	52
+GMM	●	●	●	●	●	●	Model Identification	52
+GMR	●	●	●	●	●	●	Revision Identification	52
+GCAP	●	●	●	●	●	●	Capabilities List	53
+GSN	●	●	●	●	●	●	Serial Number	53

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
&V	●	●	●	●	●	●	Display Current Base Configuration And Profile	53
&V0	●	●	●	●	●	●	Display Current Configuration And Profile	53
&V1	●	●	●	●	●	●	S Registers Display	54
&V3	●	●	●	●	●	●	Extended S Registers Display	54
&V2	●	●	●	●	●	●	Display Last Connection Statistics	55
\V	●	●	●	●	●	●	Single Line Connect Message	55
+GCI	●	●	●	●	●	●	Country Of Installation	55
%L	●	●	●	●	●	●	Line Signal Level	55
%Q	●	●	●	●	●	●	Line Quality	56
L	●	●	●	●	●	●	Speaker Loudness	56
M	●	●	●	●	●	●	Speaker Mode	56
+CMAR	●	●	●	●	●	●	Master Reset	56
Hayes AT Commands – DTE-Modem Interface Control								
E	●	●	●	●	●	●	Command Echo	57
Q	●	●	●	●	●	●	Quiet Result Codes	57
V	●	●	●	●	●	●	Response Format	58
X	●	●	●	●	●	●	Extended Result Codes	59
I	●	●	●	●	●	●	Identification Information	60
&C	●	●	●	●	●	●	Data Carrier Detect (DCD) Control	60
&D	●	●	●	●	●	●	Data Terminal Ready (DTR) Control	61
\Q	●	●	●	●	●	●	Standard Flow Control	62
&K	●	●	●	●	●	●	Flow Control	62
&S	●	●	●	●	●	●	Data Set Ready (DSR) Control	63
\R	●	●	●	●	●	●	Ring (RI) Control	64
+IPR	●	●	●	●	●	●	Fixed DTE Interface Rate	64
+IFC	●	●	●	●	●	●	DTE-Modem Local Flow Control	66
+ILRR	●	●	●	●	●	●	DTE-Modem Local Rate Reporting	66
+ICF	●	●	●	●	●	●	DTE-Modem Character Framing	67
Hayes AT Commands – Call Control								
D	●	●	●	●	●	●	Dial	68
T	●	●	●	●	●	●	Tone Dial	73
P	●	●	●	●	●	●	Pulse Dial	73
A	●	●	●	●	●	●	Answer	73

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
H	•	•	•	•	•	•	Disconnect	73
O	•	•	•	•	•	•	Return To On Line Mode	74
Hayes AT Commands – Modulation Control								
+MS	•	•	•	•	•	•	Modulation Selection	74
%E	•	•	•	•	•	•	Line Quality Monitor And Auto Retrain Or Fallback/Fallforward	75
Hayes AT Commands – Compression Control								
+DS	•	•	•	•	•	•	Data Compression	75
+DR	•	•	•	•	•	•	Data Compression Reporting	76
Hayes AT Commands – S Parameters								
S0	•	•	•	•	•	•	Number Of Rings To Auto Answer	77
S1	•	•	•	•	•	•	Ring Counter	78
S2	•	•	•	•	•	•	Escape Character	78
S3	•	•	•	•	•	•	Command Line Termination Character	79
S4	•	•	•	•	•	•	Response Formatting Character	80
S5	•	•	•	•	•	•	Command Line Editing Character	81
S7	•	•	•	•	•	•	Connection Completion Time-Out	82
S10	•	•	•	•	•	•	Carrier off with firm time	83
S12	•	•	•	•	•	•	Escape Prompt Delay	83
S25	•	•	•	•	•	•	Delay To DTR Off	84
S30	•	•	•	•	•	•	Disconnect Inactivity Timer	85
S38	•	•	•	•	•	•	Delay Before Forced Hang Up	86
3GPP TS 27.007 – General								
+CGMI	•	•	•	•	•	•	Request Manufacturer Identification	87
+CGMM	•	•	•	•	•	•	Request Model Identification	87
+CGMR	•	•	•	•	•	•	Request Revision Identification	87
+CGSN	•	•	•	•	•	•	Request Product SN Identification	88
+CSCS	•	•	•	•	•	•	Select TE Character Set	88
+CIMI	•	•	•	•	•	•	Request IMSI	89
+CMUX	•	•	•	•	•	•	Multiplexing Mode	90
+WS46	•	•	•	•	•	•	PCCA STD-101 Select Wireless Network	90
3GPP TS 27.007 – Call Control								
+CHUP	•	•	•	•	•	•	Hang Up Call	91

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
+CBST	●	●	●	●	●	●	Select Bearer Service Type	91
+CRLP	●	●	●	●	●	●	Radio Link Protocol	93
+CR	●	●	●	●	●	●	Service Reporting Control	94
+CEER	●	●	●	●	●	●	Extended Error Report	95
+CRC	●	●	●	●	●	●	Cellular Result Codes	96
+CSNS	●	●	●	●	●	●	Single Numbering Scheme	97
+CVHU	●	●	●	●	●	●	Voice Hang Up Control	98
3GPP TS 27.007 – Network Service Handling								
+CNUM	●	●	●	●	●	●	Subscriber Number	98
+COPN	●	●	●	●	●	●	Read Operator Names	100
+CREG	●	●	●	●	●	●	Network Registration Report	100
+COPS	●	●	●	●	●	●	Operator Selection	104
+CLCK	●	●	●	●	●	●	Facility Lock/Unlock	107
@CLCK	●	●	●	●	●		Facility Improved Lock/Unlock	111
+CPWD	●	●	●	●	●	●	Change Facility Password	113
+CLIP	●	●	●	●	●	●	Calling Line Identification Presentation	114
+CLIR	●	●	●	●	●	●	Calling Line Identification Restriction	117
+CCFC	●	●	●	●	●	●	Call Forwarding Number And Conditions	119
+CCWA	●	●	●	●	●	●	Call Waiting	120
+CHLD	●	●	●	●	●	●	Call Holding Services	124
+CUSD	●	●	●	●	●	●	Unstructured Supplementary Service Data	126
+CAOC	●	●	●	●	●	●	Advice Of Charge	129
+CLCC	●	●	●	●	●	●	List Current Calls	131
+CSSN	●	●	●	●	●	●	SS Notification	133
+CCUG	●	●	●	●	●	●	Closed User Group Supplementary Service Control	135
+CPOL	●	●	●	●	●	●	Preferred Operator List	137
+CPLS						●	Selection of preferred PLMN list	137
3GPP TS 27.007 – Mobile Equipment Control								
+CPAS	●	●	●	●	●	●	Phone Activity Status	138
+CFUN	●	●	●	●	●	●	Set Phone Functionality	139
+CPIN	●	●	●	●	●	●	Enter PIN	141
+CSQ	●	●	●	●	●	●	Signal Quality	147

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
+CIND	●	●	●	●	●	●	Indicator Control	149
+CMER	●	●	●	●	●	●	Mobile Equipment Event Reporting	151
+CPBS	●	●	●	●	●	●	Select Phonebook Memory Storage	151
+CPBR	●	●	●	●	●	●	Read Phonebook Entries	153
+CPBF	●	●	●	●	●	●	Find Phonebook Entries	156
+CPBW	●	●	●	●	●	●	Write Phonebook Entry	158
+CCLK	●	●	●	●	●	●	Clock Management	161
+CALA	●	●	●	●	●	●	Alarm Management	163
+CRSM	●	●	●	●	●	●	Restricted SIM Access	168
+CALM	●	●	●	●	●	●	Alert Sound Mode	169
+CRSL	●	●	●	●	●	●	Ringer Sound Level	170
+CLVL	●	●	●	●	●	●	Loudspeaker Volume Level	172
+CMUT	●	●	●	●	●	●	Microphone Mute Control	173
+CACM	●	●	●	●	●	●	Accumulated Call Meter	174
+CAMM	●	●	●	●	●	●	Accumulated Call Meter Maximum	175
+CPUC	●	●	●	●	●	●	Price Per Unit And Currency Table	177
+CLAC	●	●	●	●	●	●	Available AT commands	178
+CALD	●	●	●	●	●	●	Delete Alarm	178
+CCID	●	●	●	●	●	●	Read ICCID (Integrated Circuit Card Identification)	179
3GPP TS 27.007 – Mobile Equipment Errors								
+CMEE	●	●	●	●	●	●	Report Mobile Equipment Error	179
+CMEEMODE						●	Set CMEE mode	180
3GPP TS 27.007 – Voice Control								
+VTS	●	●	●	●	●	●	DTMF Tones Transmission	181
+VTD	●	●	●	●	●	●	Tone Duration	182
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[13] GM862-GPS excluded.

[14] Command available only on GE864-QUAD and GC864-QUAD with SW 10.00.xxx

[15] Command not available on GE865-QUAD

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[16] Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

[17] Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

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#FTPTYPE	●	●	●	●	●	●	FTP Type	462
#FTPMSG	●	●	●	●	●	●	FTP Read Message	463
#FTPDELE	●	●	●	●	●	●	FTP Delete	463
#FTPPWD	●	●	●	●	●	●	FTP Print Working Directory	464
#FTPCWD	●	●	●	●	●	●	FTP Change Working Directory	465
#FTPLIST	●	●	●	●	●	●	FTP List	465
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#DSTO	●	●	●	●	●	●	Data Sending Time-Out	473
#SKTTO	●	●	●	●	●	●	Socket Inactivity Time-Out	475
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#SKTOP	●	●	●	●	●	●	Socket Open	478
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#CACHEDNS	●	●	●	●	●	●	DNS Response Caching	480
#DNS	●	●	●	●	●	●	Manual DNS Selection	481
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#SKTD	●	●	●	●	●	●	Socket Dial	488
#SKTL	●	●	●	●	●	●	Socket Listen	491
@SKTL	●	●	●	●	●		Socket Listen Improved	496
#E2SLRI	●	●	●	●	●	●	Socket Listen Ring Indicator	498
#FRWL	●	●	●	●	●	●	Firewall Setup	498
#GDATAVOL	●	●	●	●	●	●	GPRS Data Volume	501

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#TCPREASS	●	●	●	●	●	●	TCP Reassembly	503
#PING	●	●	●	●	●	●	Ping command	504
Custom AT Commands - E-Mail Management								
#ESMTP	●	●	●	●	●	●	E-mail SMTP Server	506
#EADDR	●	●	●	●	●	●	E-mail Sender Address	507
#EUSER	●	●	●	●	●	●	E-mail Authentication User Name	508
#EPASSW	●	●	●	●	●	●	E-mail Authentication Password	509
#SEMAIL	●	●	●	●	●	●	E-mail Sending With GPRS Context Activation	510
#EMAILACT	●	●	●	●	●	●	E-mail GPRS Context Activation	512
#EMAILD	●	●	●	●	●	●	E-mail Sending	515
#ESAV	●	●	●	●	●	●	E-mail Parameters Save	517
#ERST	●	●	●	●	●	●	E-mail Parameters Reset	517
#EMAILMSG	●	●	●	●	●	●	SMTP Read Message	518
Custom AT Commands - Easy Scan® Extension								
#CSURV	●	●	●	●	●	●	Network Survey	518
#CSURVC	●	●	●	●	●	●	Network Survey (Numeric Format)	525
#CSURVU	●	●	●	●	●	●	Network Survey Of User Defined Channels	531
#CSURVUC	●	●	●	●	●	●	Network Survey Of User Defined Channels (Numeric Format)	532
#CSURVB	●	●	●	●	●	●	BCCH Network Survey	534
#CSURVBC	●	●	●	●	●	●	BCCH Network Survey (Numeric Format)	535
#CSURVF	●	●	●	●	●	●	Network Survey Format	536
#CSURVNLF	●	●	●	●	●	●	<CR><LF> Removing On Easy Scan® Commands Family	537
#CSURVEXT	●	●	●	●	●	●	Extended Network Survey	537
#CSURVP	●	●	●	●	●	●	PLMN Network Survey	538
#CSURVPC	●	●	●	●	●	●	PLMN Network Survey (Numeric Format)	539
Custom AT Commands - SIM Toolkit								
#STIA	●	●	●	●	●	●	SIM Toolkit Interface Activation	539
#STGI	●	●	●	●	●	●	SIM Toolkit Get Information	546
#STSR	●	●	●	●	●	●	SIM Toolkit Send Response	553

COMMAND	GM862-QUAD, GM862-QUAD- PY, GM862-GPS	GE863-PRO[3]	GE863-QUAD, GE863-PY, GT863-PY GE863-SIM, GE863-GPS	GE864-QUAD Automotive	SW 7.03.xx2 GE864-QUAD, GE864-PY, GT864-QUAD, GT864-PY GC864-QUAD, GC864-PY, GC864-DUAL	SW 10.00.xx3 GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD Atex	Function	Page
#STTA						•	SIM Toolkit Terminal Attach	554
Jammed Detect & Report AT commands								
#JDR	•	•	•	•	•	•	Jammed Detect & Report	555
Custom AT Commands - Easy Script® Extension - Python Interpreter[18]								
#WSCRIPT	•		•	•	•	•	Write Script	559
#ESCRIPT	•		•	•	•	•	Select Active Script	561
#STARTMODESCR	•		•	•	•	•	Script Execution Start Mode	563
#EXECSCR	•		•	•	•	•	Execute Active Script	565
#RSCRIPT	•		•	•	•	•	Read Script	565
#LSCRIPT	•		•	•	•	•	List Script Names	567
#DSCRIPT	•		•	•	•	•	Delete Script	570
#REBOOT	•	•	•	•	•	•	Reboot	570
#CMUXSCR	•		•	•	•	•	CMUX Interface Enable	571
Custom AT Commands - SAP								
#RSEN	•	•	•	•	•	•	Remote SIM Enable	584

General Configuration Commands – AT Interface Backward Compatibility				
COMMAND	GM862- QUAD, GM862-QUAD- PY, GM862-GPS, GE863-QUAD, GE863-PY, GE863-SIM, GE863-GPS, GE864-QUAD, GC864-QUAD, GC864-PY, GE864-PY, GC864-QUAD V2, GE864-QUAD V2,	GE864-QUAD Automotive, GE863-PRO[3], GC864-DUAL, GE865-QUAD, GE864-QUAD Automotive V2, GE864-DUAL V2, GC864-DUAL V2, GE864-QUAD ATEX	Function	Page
#SELINT	•		Select Interface Style	48

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[18] Python is a registered trademark of the Python Software Foundation.

Custom AT Commands - GPS Application					
COMMAND	All the other modules	GM862-GPS	GE863-GPS	Function	Page
$GPSP	-	•	•	GPS Controller Power Management	572
$GPSR	-	•	•	GPS Reset	573
$GPSD	-	•	•	GPS Device Type Set	573
$GPSSW	-	•	•	GPS Software Version	577
$GPSAT	-	•	•	GPS Antenna Type Definition	574
$GPSAV	-	•	•	GPS Antenna Supply Voltage Readout	575
$GPSAI	-	•	•	GPS Antenna Current Readout	575
$GPSAP	-	•	•	GPS Antenna Protection	576
$GPSS[19]	-	•	•	GPS NMEA Serial Port Speed	577
$GPSNMUN	-	•	•	Unsolicited GPS NMEA Data Configuration	577
$GPSACP	-	•	•	GPS Actual Position Information	579
$GPSCON	-	•	•	Direct Access To GPS Module	580
$GPSPRG	-	•	•	Set The GPS Module In Programming Mode	581
$GPSPS	-	•	•	Set the GPS Module In Power Saving Mode	581
$GPSWK	-	•	•	Wake Up GPS From Power Saving Mode	582
$GPSSAV	-	•	•	Save GPS Parameters Configuration	583
$GPSRST	-	•	•	Restore Default GPS Parameters	583
$GPSCMODE	-	•	•	GPS Controller Disabled at Start-up With Charger Inserted	584

3.5. AT Commands References

3.5.1. Command Line General Format

3.5.1.1. Command Line Prefixes

3.5.1.1.1. Starting A Command Line - AT

AT - Starting A Command Line	SELINT 0 / 1 / 2
AT	The prefix **AT**, or **at**, is a two-character abbreviation (**ATtention**), always used to start a command line to be sent from TE to TA, with the only exception of AT#/ prefix
Reference	3GPP TS 27.007

3.5.1.1.2. Last Command Automatic Repetition - A/

A/ - Last Command Automatic Repetition	SELINT 0 / 1 / 2
A/	If the prefix **A/** or **a/** is issued, the MODULE immediately execute once again the body of the preceding command line. No editing is possible and no termination character is necessary. A command line may be repeated multiple times through this mechanism, if desired. If **A/** is issued before any command line has been executed, the preceding

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[19] Available for the GPS producs with the following Order-Num.: 3990250689 and 3990250690

A/ - Last Command Automatic Repetition	SELINT 0 / 1 / 2
	command line is assumed to have been empty (that results in an **OK** result code). Note: this command works only at fixed IPR. Note: the custom prefix AT**#/** has been defined: it causes the last command to be executed again too; but it doesn't need a fixed IPR.
Reference	V25ter

3.5.1.1.3. Repeat Last Command - AT#/

AT#/ - Repeat Last Command	SELINT 0 / 1 / 2
AT#/	The prefix is used to execute again the last received command.

3.5.2. General Configuration Commands

3.5.2.1. AT Interface Backward Compatibility

There are some slight modifications amongst the AT interfaces of Telit products. In order to keep backward compatibility and on the same time to give the opportunity to the customer to get competitor compatibility, Telit modules offer the specific command **#SELINT** to switch the behaviour of the device and its AT command interface. It is up to the user to select the AT interface he prefers.

The following table shows which AT commands interface can be applied and is default for the specific product:

Product	#SELINT=0	#SELINT=1	#SELINT=2
GT863-PY	●	●(default)	●
GT864-QUAD	●	●	●(default)
GT864-PY	●	●(default)	●
GM862-QUAD	●(default)	●	●
GM862-QUAD-PY	●	●(default)	●
GM862-GPS	●	●	●(default)

Product	#SELINT=0	#SELINT=1	#SELINT=2
GE863-QUAD	•	•(default)	•
GE863-PY	•	•(default)	•
GE863-SIM	•	•(default)	•
GE863-GPS	•	•	•(default)
GE863-PRO[3]			•(default)
GE864-QUAD	•	•	•(default)
GE864-QUAD V2			•(default)
GE864-QUAD ATEX			•(default)
GE864-PY	•	•	•(default)
GE864-QUAD Automotive and GE864-QUAD Automotive V2			•(default)
GC864-QUAD with and without SIM Holder	•	•	•(default)
GC864-PY with and without SIM Holder	•	•	•(default)
GC864-QUAD V2 with and without SIM Holder			•(default)
GC864-DUAL and GC864-DUAL V2			•(default)
GE865-QUAD			•(default)

3.5.2.1.1. Select Interface Style - #SELINT

#SELINT - Select Interface Style	**SELINT 0 / 1**
AT#SELINT[=<v>]	Set command sets the AT command interface style depending on parameter **<v>**. Parameter: **<v>** - AT command interface style 0 - switches the AT command interface of the products, to the GM862-GSM and GM862-GPRS interface style 1 - switches the AT command interface of the products, to the GM862-PCS, PYTHON, QUAD-PY, TRIZIUM and GE863-QUAD, PY interface style 2 - switches the AT command interface style of the product, to the new products like GE864, GC864 and the GPS products[20] Note: If parameter is omitted then the behaviour of Set command is the same as read command.
AT#SELINT?	Read command reports the current interface style.
AT#SELINT=?	Test command reports the available range of values for parameter **<v>**.
Note	It's suggested to reboot the module after every **#SELINT** setting.

#SELINT - Select Interface Style	**SELINT 2**
AT#SELINT=[<v>]	Set command sets the AT command interface style depending on parameter **<v>**. Parameter: **<v>** - AT command interface style 0 - switches the AT command interface of the products, to the GM862-GSM and GM862-GPRS interface style 1 - switches the AT command interface of the products, to the GM862-PCS, PYTHON, QUAD-PY, TRIZIUM and GE863-QUAD, PY interface style 2 - switches the AT command interface style of the product, to the new products like GE864, GC864 and the GPS products[12]
AT#SELINT?	Read command reports the current interface style.
AT#SELINT=?	Test command reports the available range of values for parameter **<v>**.
Note	It's suggested to reboot the module after every **#SELINT** setting.
Note	Issuing **AT#SELINT=<v>** when the 3GPP TS 27.010 multiplexing protocol control channel has been enabled (see **+CMUX**) causes an **ERROR** result

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[20] Under the **#SELINT=2**, all the new functionalities like CMUX, SAP, Multisocket are available. Moreover, all the AT commands have been improved according to the ETSI specifications.

#SELINT - Select Interface Style	**SELINT 2**
	code to be returned.
Note	Issuing **AT#SELINT=<v>** when the ENS functionality has been previously enabled (see **#ENS**) causes an **ERROR** result code to be returned.
Note	Issuing **AT#SELINT=<v>** when the SMS Commands Operation Mode has been previously enabled (see **#SMSMODE**) causes an **ERROR** result code to be returned.

3.5.3. Hayes Compliant AT Commands

3.5.3.1. Generic Modem Control

3.5.3.1.1. Set To Factory-Defined Configuration - &F

&F - Set To Factory-Defined Configuration	**SELINT 0 / 1 / 2**
AT&F[<value>]	Execution command sets the configuration parameters to default values specified by manufacturer; it takes in consideration hardware configuration switches and other manufacturer-defined criteria. Parameter: **<value>**: 0 - just the factory profile base section parameters are considered. 1 - either the factory profile base section and the extended section are considered (full factory profile). Note: if parameter **<value>** is omitted, the command has the same behaviour as **AT&F0**
Reference	V25ter.

3.5.3.1.2. Soft Reset - Z

Z - Soft Reset	**SELINT 0 / 1 / 2**
ATZ[<n>]	Execution command loads the base section of the specified user profile and the extended section of the default factory profile. Parameter: **<n>** 0..1 - user profile number Note: any call in progress will be terminated. Note: if parameter **<n>** is omitted, the command has the same behaviour as **ATZ0**.

Z - Soft Reset	SELINT 0 / 1 / 2
Reference	V25ter.

3.5.3.1.3. Select Active Service Class - +FCLASS

+FCLASS - Select Active Service Class	SELINT 0 / 1 / 2
AT+FCLASS=<n>	Set command sets the wireless module in specified connection mode (data, fax, voice), hence all the calls done afterwards will be data or voice. Parameter: **<n>** 0 - data 1 - fax class 1 8 - voice
AT+FCLASS?	Read command returns the current configuration value of the parameter **<n>**.
AT+FCLASS=?	Test command returns all supported values of the parameters **<n>**.
Reference	3GPP TS 27.007

3.5.3.1.4. Default Reset Basic Profile Designation - &Y

&Y - Default Reset Basic Profile Designation	SELINT 0 / 1 / 2
AT&Y[<n>]	Execution command defines the basic profiles which will be loaded on startup. Parameter: **<n>** 0..1 - profile (default is 0): the wireless module is able to store 2 complete configurations (see **&W**). Note: differently from command **Z<n>**, which loads just once the desired profile, the one chosen through command **&Y** will be loaded on every startup. Note: if parameter is omitted, the command has the same behaviour as **AT&Y0**

3.5.3.1.5. Default Reset Full Profile Designation - &P

&P - Default Reset Full Profile Designation	SELINT 0 / 1 / 2
AT&P[<n>]	Execution command defines which full profile will be loaded on startup. Parameter: **<n>** 0..1 – profile number: the wireless module is able to store 2 full configurations (see command **&W**). Note: differently from command **Z<n>**, which loads just once the desired profile, the one chosen through command **&P** will be loaded on every startup. Note: if parameter is omitted, the command has the same behaviour as **AT&P0**
Reference	Telit Specifications

3.5.3.1.6. Store Current Configuration - &W

&W - Store Current Configuration	SELINT 0 / 1 / 2
AT&W[<n>]	Execution command stores on profile **<n>** the complete configuration of the device. Parameter: **<n>** 0..1 - profile Note: if parameter is omitted, the command has the same behaviour of **AT&W0**.

3.5.3.1.7. Store Telephone Number - &Z

&Z - Store Telephone Number In The Wireless Module Internal Phonebook	SELINT 0 / 1 / 2
AT&Z<n>=<nr>	Execution command stores in the record **<n>** the telephone number **<nr>**. The records cannot be overwritten, they must be cleared before rewriting. Parameters: **<n>** - phonebook record **<nr>** - telephone number (string type) Note: the wireless module has a built in non volatile memory in which 10 telephone numbers of a maximum 24 digits can be stored

&Z - Store Telephone Number In The Wireless Module Internal Phonebook	SELINT 0 / 1 / 2
	Note: to delete the record **<n>** the command **AT&Z<n>=<CR>** must be issued. Note: the records in the module memory can be viewed with the command **&N**, while the telephone number stored in the record *n* can be dialed by giving the command **ATDS=<*n*>**.

3.5.3.1.8. Display Stored Numbers - &N

&N - Display Internal Phonebook Stored Numbers	SELINT 0 / 1 / 2
AT&N[<n>]	Execution command returns the telephone number stored at the **<n>** position in the internal memory. Parameter: **<n>** - phonebook record number Note: if parameter **<n>** is omitted then all the internal records are shown.

3.5.3.1.9. Manufacturer Identification - +GMI

+GMI - Manufacturer Identification	SELINT 0 / 1 / 2
AT+GMI	Execution command returns the manufacturer identification. Note: this is one of the commands whose output differs depending on the last **#SELINT** setting.
Reference	V.25ter

3.5.3.1.10. Model Identification - +GMM

+GMM - Model Identification	SELINT 0 / 1 / 2
AT+GMM	Execution command returns the model identification.
Reference	V.25ter

3.5.3.1.11. Revision Identification - +GMR

+GMR - Revision Identification	SELINT 0 / 1 / 2
AT+GMR	Execution command returns the software revision identification.
Reference	V.25ter

3.5.3.1.12. Capabilities List - +GCAP

+GCAP - Capabilities List	**SELINT 0 / 1 / 2**
AT+GCAP	Execution command returns the equipment supported command set list. Where: **+CGSM**: GSM ETSI command set **+FCLASS**: Fax command set **+DS**: Data Service common modem command set **+MS**: Mobile Specific command set
Reference	V.25ter

3.5.3.1.13. Serial Number - +GSN

+GSN - Serial Number	**SELINT 0 / 1 / 2**
AT+GSN	Execution command returns the device board serial number. Note: The number returned is not the IMSI, it is only the board number
Reference	V.25ter

3.5.3.1.14. Display Configuration And Profile - &V

&V - Display Current Base Configuration And Profile	**SELINT 0 / 1 / 2**
AT&V	Execution command returns some of the base configuration parameters settings. Note: this is one of the commands whose output differs depending on the last **#SELINT** setting. Note: the row of information about **CTS (C106) OPTIONS** is in the output of **&V** only for compatibility reasons and represents only a dummy value.

3.5.3.1.15. Display Configuration And Profile - &V0

&V0 - Display Current Configuration And Profile	**SELINT 0 / 1 / 2**
AT&V0	Execution command returns all the configuration parameters settings. Note: this command is the same as **&V**, it is included only for backwards compatibility. Note: this is one of the commands whose output differs depending on the last **#SELINT** setting.

&V0 - Display Current Configuration And Profile	SELINT 0 / 1 / 2
	Note: the row of information about **CTS (C106) OPTIONS** is in the output of **&V0** only for compatibility reasons and represents only a dummy value.

3.5.3.1.16. S Registers Display - &V1

&V1 - S Registers Display	SELINT 0 / 1 / 2
AT&V1	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: REG DEC HEX **<reg0>** **<dec>** **<hex>** **<reg1>** **<dec>** **<hex>** ... where **<reg*n*>** - S register number 000..005 007 012 025 038 **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

3.5.3.1.17. Extended S Registers Display - &V3

&V3 - Extended S Registers Display	SELINT 0 / 1 / 2
AT&V3	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: REG DEC HEX **<reg0>** **<dec>** **<hex>** **<reg1>** **<dec>** **<hex>** ... where **<reg*n*>** - S register number 000..005 007 012 025 030 038 **<dec>** - current value in decimal notation

&V3 - Extended S Registers Display	SELINT 0 / 1 / 2
	<hex> - current value in hexadecimal notation

3.5.3.1.18. Display Last Connection Statistics - &V2

&V2 - Display Last Connection Statistics	SELINT 0 / 1 / 2
AT&V2	Execution command returns the last connection statistics & connection failure reason.

3.5.3.1.19. Single Line Connect Message - \V

\V - Single Line Connect Message	SELINT 0 / 1 / 2
AT\V<n>	Execution command set single line connect message. Parameter: **<n>** 0 - off 1 - on

3.5.3.1.20. Country Of Installation - +GCI

+GCI - Country Of Installation	SELINT 0 / 1 / 2
AT+GCI=<code>	Set command selects the installation country code according to ITU-T.35 Annex A. Parameter: **<code>** 59 - it currently supports only the Italy country code
AT+GCI?	Read command reports the currently selected country code.
AT+GCI=?	Test command reports the supported country codes.
Reference	V25ter.

3.5.3.1.21. Line Signal Level - %L

%L - Line Signal Level	SELINT 0 / 1 / 2
AT%L	It has no effect and is included only for backward compatibility with landline modems

3.5.3.1.22. Line Quality - %Q

%Q - Line Quality	SELINT 0 / 1 / 2
AT%Q	It has no effect and is included only for backward compatibility with landline modems

3.5.3.1.23. Speaker Loudness - L

L - Speaker Loudness	SELINT 0 / 1 / 2
ATL<n>	It has no effect and is included only for backward compatibility with landline modems

3.5.3.1.24. Speaker Mode - M

M - Speaker Mode	SELINT 0 / 1 / 2
ATM<n>	It has no effect and is included only for backward compatibility with landline modems

3.5.3.1.25. Master Reset - +CMAR

+CMAR – Master Reset	SELINT 0 / 1
AT+CMAR=< phone lock code>	This command requests the MT to reset user data. The user data in the phone will be reset to default values. Parameters: **< phone lock code>** - string type representing an 8 digits security code. It must be verified before performing the master reset. Note: issuing the command will cause an NVM formatting. After the formatting is completed the module will automatically reboot. Note: the command is available for SELINT 0 and 1 only in 10.00.xx3 release and onwards.
AT+CMAR=?	Test command tests for command existence.

+CMAR – Master Reset	SELINT 2
AT+CMAR=< phone lock code>	This command requests the MT to reset user data. The user data in the phone will be reset to default values. Parameters: **< phone lock code>** - string type representing an 8 digits security

	code. It must be verified before performing the master reset. Note: issuing the command will cause an NVM formatting. After the formatting is completed the module will automatically reboot.
AT+CMAR=?	Test command tests for command existence.

3.5.3.2. DTE - Modem Interface Control

3.5.3.2.1. Command Echo - E

E - Command Echo	SELINT 0 / 1 / 2
ATE[<n>]	Set command enables/disables the command echo. Parameter: **<n>** 0 - disables command echo 1 - enables command echo (factory default) , hence command sent to the device are echoed back to the **DTE** before the response is given. Note: if parameter is omitted, the command has the same behaviour of **ATE0**
Reference	V25ter

3.5.3.2.2. Quiet Result Codes - Q

Q - Quiet Result Codes	SELINT 0 / 1
ATQ[<n>]	Set command enables or disables the result codes. Parameter: **<n>** 0 - enables result codes (factory default) 1 - every result code is replaced with a **<CR>** 2 - disables result codes Note: After issuing either **ATQ1** or **ATQ2** every information text transmitted in response to commands is not affected Note: if parameter is omitted, the command has the same behaviour as **ATQ0**
Example	*After issuing ATQ1*

Q - Quiet Result Codes	SELINT 0 / 1
	`AT+CGACT=?` **+CGACT: (0-1)** *a <cr> ends the response* After issuing ATQ2 `AT+CGACT=?` **+CGACT: (0-1) nothing is appended to the response**
Reference	V25ter

Q - Quiet Result Codes	SELINT 2
ATQ[<n>]	Set command enables or disables the result codes. Parameter: **<n>** 0 - enables result codes (factory default) 1 - disables result codes 2 - disables result codes (only for backward compatibility) Note: After issuing either **ATQ1** or **ATQ2** every information text transmitted in response to commands is not affected Note: if parameter is omitted, the command has the same behaviour of **ATQ0**
Example	*After issuing ATQ1 or ATQ2* `AT+CGACT=?` **+CGACT: (0-1) nothing is appended to the response**
Reference	V25ter

3.5.3.2.3. Response Format - V

V - Response Format	SELINT 0 / 1 / 2
ATV[<n>]	Set command determines the contents of the header and trailer transmitted with result codes and information responses. It also determines if result codes are transmitted in a numeric form or an alphanumeric form (see [§3.2.3 Information Responses And Result Codes] for the table of result codes). Parameter: **<n>** 0 - limited headers and trailers and numeric format of result codes

<table>
<tr><th>V - Response Format</th><th>SELINT 0 / 1 / 2</th></tr>
<tr><td></td><td>
<table>
<tr><td>information responses</td><td><b><text><CR><LF></b></td></tr>
<tr><td>result codes</td><td><b><numeric code><CR></b></td></tr>
</table>
1 - full headers and trailers and verbose format of result codes (factory default)
<table>
<tr><td>information responses</td><td><b><CR><LF></b>
<b><text><CR><LF></b></td></tr>
<tr><td>result codes</td><td><b><CR><LF></b>
<b><verbose code><CR><LF></b></td></tr>
</table>
Note: the <b><text></b> portion of information responses is not affected by this setting.

Note: if parameter is omitted, the command has the same behaviour of ATV0
</td></tr>
<tr><td>Reference</td><td>V25ter</td></tr>
</table>

3.5.3.2.4. Extended Result Codes - X

X - Extended Result Codes	SELINT 0 / 1 / 2
ATX[<n>]	Set command selects the result code messages subset used by the modem to inform the **DTE** of the result of the commands. Parameter: **<n>** - (factory default is 1) 0 - on entering dial-mode **CONNECT** result code is given; **OK**, **CONNECT**, **RING**, **NO CARRIER**, **ERROR**, **NO ANSWER** result codes are enabled . Dial tone and busy detection (**NO DIALTONE** and **BUSY** result codes) are disabled. 1..4 - on entering dial-mode **CONNECT <text>** result code is given; all the other result codes are enabled. Note: If parameter is omitted, the command has the same behaviour of **ATX0**
Note	For complete control on **CONNECT** response message see also **+DR** command.
Reference	V25ter

3.5.3.2.5. Identification Information - I

I - Identification Information	SELINT 0 / 1 / 2
ATI[<n>]	Execution command returns one or more lines of information text followed by a result code. Parameter: **<n>** 0 - numerical identifier 1 - module checksum 2 - checksum check result 3 - manufacturer 4 - product name 5 - DOB version Note: this is one of the commands whose output differs depending on the last **#SELINT** setting. Note: if parameter is omitted, the command has the same behaviour of **ATI0**
Reference	V25ter

3.5.3.2.6. Data Carrier Detect (DCD) Control - &C

&C - Data Carrier Detect (DCD) Control	SELINT 0 / 1 / 2
AT&C[<n>]	Set command controls the RS232 **DCD** output behaviour. Parameter: **<n>** 0 - **DCD** remains **high** always. 1 - **DCD** follows the Carrier detect status: if carrier is detected **DCD** is high, otherwise **DCD** is **low.** (factory default) 2 - **DCD off** while disconnecting Note: if parameter is omitted, the command has the same behaviour of **AT&C0**
Reference	V25ter

3.5.3.2.7. Data Terminal Ready (DTR) Control - &D

&D - Data Terminal Ready (DTR) Control	SELINT 0 / 1

&D - Data Terminal Ready (DTR) Control	SELINT 0 / 1
AT&D[<n>]	Set command controls the Module behaviour to the RS232 **DTR** transitions. Parameter: **<n>** 0 - device ignores **DTR** transitions (factory default) 1 - when the MODULE is connected, the **High** to **Low** transition of **DTR** pin sets the device in command mode, the current connection is NOT closed 2 - when the MODULE is connected , the **High** to **Low** transition of **DTR** pin sets the device in command mode and the current connection is closed 3 - device ignores **DTR** transitions 4 - **C108/1** operation is disabled 5 - **C108/1** operation is enabled; same behaviour as for **<n>=2** Note: if a connection has been set up issuing either **#SKTD** or **#SKTOP**, then **AT&D1** has the same effect as **AT&D2**. Note: if **AT&D2** has been issued and the **DTR** has been tied **low**, autoanswering is inhibited and it is possible to answer only issuing command **ATA.** Note: if parameter is omitted, the command has the same behaviour as **AT&D0**
Reference	V25ter

&D - Data Terminal Ready (DTR) Control	SELINT 2
AT&D[<n>]	Set command controls the Module behaviour to the RS232 **DTR** transitions. Parameter: **<n>** 0 - device ignores **DTR** transitions (factory default); if **+CVHU** current setting is **different from 2** then every setting **AT&D0** is equivalent to **AT&D5** 1 - when the MODULE is connected, the **High** to **Low** transition of **DTR** pin sets the device in command mode, the current connection is NOT closed; if **+CVHU** current setting is **different from 2** then issuing **AT&D1** is equivalent to **AT&D5** 2 - when the MODULE is connected , the **High** to **Low** transition of **DTR** pin sets the device in command mode and the current connection is closed; if **+CVHU** current setting is **different from 2** then issuing **AT&D2** is equivalent to **AT&D5** 3 - device ignores **DTR** transitions; if **+CVHU** current setting is **different from 2** then issuing **AT&D3** is equivalent to **AT&D5** 4 - **C108/1** operation is disabled; if **+CVHU** current setting is **different from 2** then issuing **AT&D4** is equivalent to **AT&D5**

&D - Data Terminal Ready (DTR) Control	**SELINT 2**
	5 - **C108/1** operation is enabled; same behaviour as for **<n>=2** Note: if a connection has been set up issuing either **#SKTD** or **#SKTOP**, then **AT&D1** has the same effect as **AT&D2**. If a connection has been set up issuing **AT#SD** then **AT&D1** and **AT&D2** have different effect, as described above. Note: if **AT&D2** has been issued and the **DTR** has been tied **Low**, autoanswering is inhibited and it is possible to answer only issuing command **ATA**. Note: if parameter is omitted, the command has the same behaviour of **AT&D0**
Reference	V25ter

3.5.3.2.8. Standard Flow Control - \Q

\Q - Standard Flow Control	**SELINT 0 / 1 / 2**
AT\Q[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - software bi-directional with filtering (**XON/XOFF**) 2 - hardware mono-directional flow control (only **CTS** active) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) Note: if parameter is omitted, the command has the same behaviour as **AT\Q0** Note: Hardware flow control (**AT\Q3**) is not active in command mode. Note: **\Q's** settings are functionally a subset of **&K**'s ones.
Reference	V25ter

3.5.3.2.9. Flow Control - &K

&K - Flow Control	**SELINT 0 / 1 / 2**
AT&K[<n>]	Set command controls the RS232 flow control behaviour.

&K - Flow Control	**SELINT 0 / 1 / 2**
	Parameter: **<n>** 0 - no flow control 1 - hardware mono-directional flow control (only **CTS** active) 2 - software mono-directional flow control (**XON/XOFF**) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) 4 - software bi-directional with filtering (**XON/XOFF**) 5 - pass through: software bi-directional without filtering (**XON/XOFF**) 6 - both hardware bi-directional flow control (both **RTS/CTS** active) and software bi-directional flow control (**XON/XOFF**) with filtering Note: if parameter is omitted, the command has the same behaviour as **AT&K0** Note: **&K** has no Read Command. To verify the current setting of **&K**, simply check the settings of the active profile issuing **AT&V**. Note: Hardware flow control (**AT&K3**) is not active in command mode.

3.5.3.2.10. Data Set Ready (DSR) Control - &S

&S - Data Set Ready (DSR) Control	**SELINT 0 / 1 / 2**
AT&S[<n>]	Set command controls the RS232 **DSR** pin behaviour. Parameter: **<n>** 0 - always **High** 1 - follows the GSM traffic channel indication. 2 - **High** when connected 3 - **High** when device is ready to receive commands (factory default). Note: if option 1 is selected then **DSR** is tied **High** when the device receives from the network the GSM traffic channel indication. Note: in power saving mode the **DSR** pin is always tied **Low**. Note: if parameter is omitted, the command has the same behaviour of **AT&S0** Note: If Selint=2 is selected, and option 1 and 2 are active, **DSR** will not tied

&S - Data Set Ready (DSR) Control		**SELINT 0 / 1 / 2**
	High in case of GSM voice connection	

3.5.3.2.11. Ring (RI) Control - \R

\R - Ring (RI) Control		**SELINT 0 / 1 / 2**
AT\R[<n>]	Set command controls the **RING** output pin behaviour. Parameter: **<n>** 0 - **RING** on during ringing and further connection 1 - **RING** on during ringing (factory default) 2 - **RING** follows the ring signal Note: to check the ring option status use the **&V** command. Note: if parameter is omitted, the command has the same behaviour of **AT\R0**	

3.5.3.2.12. Fixed DTE Interface Rate - +IPR

+IPR - Fixed DTE Interface Rate		**SELINT 0 / 1**
AT+IPR=<rate>	Set command specifies the **DTE** speed at which the device accepts commands during command mode operations; it may be used to fix the **DTE-DCE** interface speed. Parameter: **<rate>** 0 ..300 1200 2400 4800 9600 19200 38400 57600 115200 If **<rate>** is set to 0, then automatic speed detection is enabled and also character format (see **+ICF**) is set to auto-detect. (default) If **<rate>** is specified and not 0, **DTE-DCE** speed is fixed at that	

+IPR - Fixed DTE Interface Rate	**SELINT 0 / 1**
	speed, hence no speed auto-detection (autobauding) is enabled. Note: While in autobauding mode the 300 baud rate is not supported.
AT+IPR?	Read command returns the current value of **+IPR** parameter.
AT+IPR=?	Test command returns the supported serial port speed list.
Reference	V25ter

+IPR - Fixed DTE Interface Rate	**SELINT 2**
AT+IPR=<rate>	Set command specifies the **DTE** speed at which the device accepts commands during command mode operations; it may be used to fix the **DTE-DCE** interface speed. Parameter: **<rate>** 0 ..300 1200 2400 4800 9600 19200 38400 57600 115200 If **<rate>** is set to 0, then automatic speed detection is enabled and also character format (see **+ICF**) is set to auto-detect. (default) If **<rate>** is specified and not 0, **DTE-DCE** speed is fixed at that speed, hence no speed auto-detection (autobauding) is enabled. Note: While in autobauding mode the 300 baud rate is not supported.
AT+IPR?	Read command returns the current value of **+IPR** parameter.
AT+IPR=?	Test command returns the list of supported autodetectable **<rate>** values and the list of fixed-only **<rate>** values in the format: **+IPR**:(list of supported autodetectable **<rate>** values), (list of fixed-only **<rate>** values)
Reference	V25ter

3.5.3.2.13. DTE-Modem Local Flow Control - +IFC

+IFC - DTE-Modem Local Flow Control	**SELINT 0 / 1 / 2**
AT+IFC=<by_te>, <by_ta>	Set command selects the flow control behaviour of the serial port in both directions: from **DTE** to **modem** (**<by_ta>** option) and from **modem** to **DTE** (**<by_te>**) Parameters: **<by_te>** - flow control option for the data received by **DTE** 0 - flow control None 1 - **XON/XOFF** filtered 2 - **C105** (**RTS**) (factory default) 3 - **XON/XOFF** not filtered **<by_ta>** - flow control option for the data sent by **modem** 0 - flow control None 1 - **XON/XOFF** 2 - **C106** (**CTS**) (factory default) Note: Hardware flow control (**AT+IFC=2,2**) is not active in command mode. Note: This command is equivalent to **&K** command.
AT+IFC?	Read command returns active flow control settings. Note: If flow control behavior has been set with **AT&Kn** command with the parameter that is not allowed by **AT+IFC** the read command **AT+IFC?** will return: **+IFC: 0,0**
AT+IFC=?	Test command returns all supported values of the parameters **<by_te>** and **<by_ta>**.
Reference	V25ter

3.5.3.2.14. DTE-Modem Local Rate Reporting - +ILRR

+ILRR - DTE-Modem Local Rate Reporting	**SELINT 0 / 1 / 2**
AT+ILRR=<n>	Set command controls whether or not the **+ILRR: <rate>** information text is transmitted from the **modem** (module) to the **DTE**. Parameter: **<n>** 0 - local port speed rate reporting disabled (factory default) 1 - local port speed rate reporting enabled Note: If **AT+IPR=0** (in autobauding) local port speed reported will be 0.

+ILRR - DTE-Modem Local Rate Reporting	**SELINT 0 / 1 / 2**
	Note: this information if enabled is sent upon connection.
AT+ILRR?	Read command returns active setting of **<n>**.
AT+ILRR=?	Test command returns all supported values of the parameter **<n>**
Reference	V25ter

3.5.3.2.15. DTE-Modem Character Framing - +ICF

+ICF - DTE-Modem Character Framing	**SELINT 0 / 1 / 2**
AT+ICF=<format> [,<parity>]	Set command defines the asynchronous character framing to be used when autobauding is disabled. Parameters: **<format>** - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. 0 - autodetection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 5 - 7 Data, 1 Parity, 1 Stop **<parity>** - determines how the parity bit is generated and checked, if present; setting this subparameter is mandatory and has a meaning only if **<format>** subparameter is either 2 or 5. 0 - Odd 1 - Even
AT+ICF?	Read command returns current settings for subparameters **<format>** and **<parity>**. If current setting of subparameter **<format>** is neither 2 nor 5, the current setting of subparameter **<parity>** will always represented as 0.
AT+ICF=?	Test command returns the ranges of values for the parameters **<format>** and **<parity>**
Reference	V25ter

Example	*Auto detect*
	`AT+ICF = 0`
	`OK`
	
	8N2
	`AT+ICF = 1`
	`OK`
	
	8O1

+ICF - DTE-Modem Character Framing	SELINT 0 / 1 / 2

	`AT+ICF = 2,0`
	`OK`
	
	8E1
	`AT+ICF = 2,1`
	`OK`
	
	8N1
	`AT+ICF = 3`
	`OK`
	
	7O1
	`AT+ICF = 5,0`
	`OK`
	
	7E1
	`AT+ICF = 5,1`
	`OK`

3.5.3.3. Call Control

3.5.3.3.1. Dial - D

D – Dial	SELINT 0 / 1
ATD<number>[;]	Execution command starts a call to the phone number given as parameter. If “;” is present, a VOICE call to the given number is performed, regardless of the current value of the connection mode set by **+FCLASS** command. Parameter: **<number>** - phone number to be dialed Note: type of call (data, fax or voice) depends on last **+FCLASS** setting. Note: the numbers accepted are 0-9 and *,#,”A”, ”B”, ”C”, ”D”,”+”. Note: for backwards compatibility with landline modems modifiers “T”, ”P”, ”R”, ”,”, ”W”, “!”, “@” are accepted but have no effect.
ATD><str>[;]	Issues a call to phone number which corresponding alphanumeric field is **<str>**; all available memories will be searched for the correct entry. If “**;**” is present a **voice** call is performed. Parameter:

D – Dial	SELINT 0 / 1
	<str> - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks. Note: parameter **<str>** is case sensitive. Note: used character set should be the one selected with command Select TE character set **+CSCS**.
ATD><mem><n>[;]	Issues a call to phone number in phonebook memory storage **<mem>**, entry location **<n>** (available memories may be queried with **AT+CPBS=?**). If "**;**" is present a **voice** call is performed. Parameters: **<mem>** - phonebook memory storage; it must not be enclosed in quotation marks. SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list **<n>** - entry location; it should be in the range of locations available in the memory used.
ATD><n>[;]	Issues a call to phone number in entry location **<n>** of the active phonebook memory storage (see **+CPBS**). If ";" is present a **voice** call is performed. Parameter: **<n>** - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.
ATDL	Issues a call to the last number dialed.
ATDS=<nr>[;]	Issues a call to the number stored in the MODULE internal phonebook position number **<nr>**. If ";" is present a VOICE call is performed. Parameter: **<nr>** - internal phonebook position to be called (See either **&N** and **&Z**)
ATD<number>I[;] ATD<number>i[;]	Issues a call overwriting the CLIR supplementary service subscription default value for this call If ";" is present a VOICE call is performed. **I** - invocation, restrict CLI presentation **i** - suppression, allow CLI presentation

D – Dial	**SELINT 0 / 1**
ATD<number>G[;] ATD<number>g[;]	Issues a call checking the CUG supplementary service information for the current call. Refer to **+CCUG** command. If ";" is present a VOICE call is performed.
ATD*<gprs_sc>[*<addr>][*[<L2P>][*[<cid>]]]]#	This command is specific of GPRS functionality and causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. Parameters: **<gprs_sc>** - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS **<addr>** - string that identifies the called party in the address space applicable to the PDP. **<L2P>** - a string which indicates the layer 2 protocol to be used (see **+CGDATA** command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: 1 - PPP **<cid>** - a digit which specifies a particular PDP context definition (see **+CGDCONT** command).

Example	*To dial a number in SIM phonebook entry 6:*
	`ATD>SM6`
	`OK`
	
	To have a voice call to the 6-th entry of active phonebook:
	`ATD>6;`
	`OK`
	
	To call the entry with alphanumeric field "Name"*:*
	`ATD>"Name";`
	`OK`

Reference	V25ter.

D – Dial	**SELINT 2**
ATD<number>[;]	Execution command starts a call to the phone number given as parameter. If "**;**" is present, a **voice** call to the given number is performed, regardless of the current value of the connection mode set by **+FCLASS** command. Parameter: **<number>** - phone number to be dialed Note: type of call (**data**, **fax** or **voice**) depends on last **+FCLASS** setting.

D – Dial	**SELINT 2**
	Note: the numbers accepted are 0-9 and *,#,"A", "B", "C", "D","+". Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD><str>[;]	Issues a call to phone number which corresponding alphanumeric field is **<str>**; all available memories will be searched for the correct entry. If "**;**" is present a **voice** call is performed. Parameter: **<str>** - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks. Note: parameter **<str>** is case sensitive. Note: used character set should be the one selected with **+CSCS**.
ATD><mem><n>[;]	Issues a call to phone number in phonebook memory storage **<mem>**, entry location **<n>** (available memories may be queried with **AT+CPBS=?**). If "**;**" is present a **voice** call is performed. Parameters: **<mem>** - phonebook memory storage; it must not be enclosed in quotation marks. SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list MB - mailbox numbers stored on SIM, if this service is provided by the SIM (see **#MBN**). **<n>** - entry location; it should be in the range of locations available in the memory used.
ATD><n>[;]	Issues a call to phone number in entry location **<n>** of the active phonebook memory storage (see **+CPBS**). If "**;**" is present a **voice** call is performed. Parameter: **<n>** - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.
ATDL	Issues a call to the last number dialed.
ATDS=<nr>[;]	Issues a call to the number stored in the MODULE internal phonebook position number **<nr>**.

D – Dial	SELINT 2
	If “;” is present a **voice** call is performed. Parameter: **<nr>** - internal phonebook position to be called (See commands **&N** and **&Z**)
ATD<number>I[;] **ATD<number>i[;]**	Issues a call overwriting the CLIR supplementary service subscription default value for this call If “;” is present a **voice** call is performed. **I** - invocation, restrict CLI presentation **i** - suppression, allow CLI presentation
ATD<number>G[;] **ATD<number>g[;]**	Issues a call checking the CUG supplementary service information for the current call. Refer to **+CCUG** command. If “;” is present a **voice** call is performed.
ATD*<gprs_sc> **[*<addr>][*[<L2P>]** **[*[<cid>]]]]#**	This command is specific of GPRS functionality and causes the **MT** to perform whatever actions are necessary to establish communication between the **TE** and the external PDN. Parameters: **<gprs_sc>** - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS **<addr>** - string that identifies the called party in the address space applicable to the PDP. **<L2P>** - a string which indicates the layer 2 protocol to be used (see **+CGDATA** command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: 1 - PPP **<cid>** - a digit which specifies a particular **PDP** context definition (see **+CGDCONT** command).

Example	*To dial a number in SIM phonebook entry 6:*
	`ATD>SM6`
	`OK`
	
	To have a voice call to the 6-th entry of active phonebook:
	`ATD>6;`
	`OK`
	
	To call the entry with alphanumeric field “Name”:
	`ATD>”Name”;`
	`OK`

Reference	V25ter.

3.5.3.3.2. Tone Dial - T

T - Tone Dial	SELINT 0 / 1 / 2
ATT	Set command has no effect is included only for backward compatibility with landline modems.
Reference	V25ter.

3.5.3.3.3. Pulse Dial - P

P - Pulse Dial	SELINT 0 / 1 / 2
ATP	Set command has no effect is included only for backward compatibility with landline modems.
Reference	V25ter.

3.5.3.3.4. Answer - A

A - Answer	SELINT 0 / 1 / 2
ATA	Execution command is used to answer to an incoming call if automatic answer is disabled. Note: This command MUST be the last in the command line and must be followed immediately by a **<CR>** character.
Reference	V25ter.

3.5.3.3.5. Disconnect - H

H - Disconnect	SELINT 0 / 1 / 2
ATH	Execution command is used to close the current conversation (voice, data or fax). Note: this command can be issued only in command mode; when a data conversation is active the device is in on-line mode (commands are not sensed and characters are sent to the other party), hence escape sequence (see **register S2**) is required before issuing this command, otherwise if **&D1** option is active, **DTR** pin has to be tied **Low** to return in command mode.
Reference	V25ter.

3.5.3.3.6. Return To On Line Mode - O

O - Return To On Line Mode	SELINT 0 / 1
ATO	Execution command is used to return to on-line mode from command mode. If there's no active connection it returns **ERROR**. Note: After issuing this command, if the device is in conversation, to send other commands to the device you must return to command mode by issuing the escape sequence (see register **S2**) or tying low **DTR** pin if **&D1** option is active.
Reference	V25ter.

O - Return To On Line Mode	SELINT 2
ATO	Execution command is used to return to on-line mode from command mode. If there's no active connection it returns **NO CARRIER**. Note: After issuing this command, if the device is in conversation, to send other commands to the device you must return to command mode by issuing the escape sequence (see **register S2**) or tying low **DTR** pin if **&D1** option is active.
Reference	V25ter.

3.5.3.4. Modulation Control

3.5.3.4.1. Modulation Selection - +MS

+MS - Modulation Selection	SELINT 0 / 1 / 2
AT+MS=<carrier>[,<automode>[,<min_rate>[,<max_rate>]]]	Set command has no effect is included only for backward compatibility with landline modems. Parameters: **<carrier>** - a string which specifies the preferred modem carrier to use in originating or answering a connection V21 V22 V22B V23C V32 V34 **<automode>** - it enables/disables automatic modulation negotiation. 0 - disabled 1 - enabled. It has effect only if it is defined for the associated modulation.

+MS - Modulation Selection	**SELINT 0 / 1 / 2**
	<min_rate> - it specifies the lowest value at which the **DCE** may establish a connection. 0 - unspecified **<max_rate>** - it specifies the highest value at which the **DCE** may establish a connection. 0 - unspecified 300..14400 - rate in bps Note: to change modulation requested use **+CBST** command.
AT+MS?	Read command returns the current value of **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.
AT+MS=?	Test command returns all supported values of the **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.

3.5.3.4.2. Line Quality And Auto Retrain - %E

%E - Line Quality Monitor And Auto Retrain Or Fallback/Fallforward	**SELINT 0 / 1 / 2**
AT%E<n>	Execution command has no effect and is included only for backward compatibility with landline modems.

3.5.3.5. Compression Control

3.5.3.5.1. Data Compression - +DS

+DS - Data Compression	**SELINT 0 / 1 / 2**
AT+DS=[<n>]	Set command sets the V42 compression parameter. Parameter: **<n>** 0 - no compression, it is currently the only supported value; the command has no effect, and is included only for backward compatibility
AT+DS?	Read command returns current value of the data compression parameter.
AT+DS=?	Test command returns all supported values of the parameter **<n>**
Reference	V25ter

3.5.3.5.2. Data Compression Reporting - +DR

+DR - Data Compression Reporting	**SELINT 0 / 1 / 2**
AT+DR=<n>	Set command enables/disables the data compression reporting upon connection.

+DR - Data Compression Reporting	SELINT 0 / 1 / 2
	Parameter: **<n>** 0 - data compression reporting disabled; 1 - data compression reporting enabled upon connection. Note: if enabled, the following intermediate result code is transmitted before the final result code: **+DR: <compression>** (the only supported value for **<compression>** is "**NONE**")
AT+DR?	Read command returns current value of **<n>**.
AT+DR=?	Test command returns all supported values of the parameter **<n>**
Reference	V25ter

3.5.3.6. S Parameters

Basic commands that begin with the letter "**S**" are known as "**S-Parameters**". The number following the "**S**" indicates the "parameter number" being referenced. If the number is not recognized as a valid parameter number, an **ERROR** result code is issued.

If no value is given for the subparameter of an **S-Parameter**, an **ERROR** result code will be issued and the stored value left unchanged.

Note: what follows is a special way to select and set an **S-parameter**:

1. **ATS*n*<CR>** selects *n* as current parameter number. If the value of *n* is in the range (0, 2, 3, 4, 5, 7, 10, 12, 25, 30, 38), this command establishes **S*n*** as last selected parameter. Every value out of this range and less than 256 can be used but has no meaning and is maintained only for backward compatibility with landline modems.
2. **AT=<value><CR>** or **ATS=<value><CR>** set the contents of the selected **S-parameter**

Example:

ATS7<CR>	establishes **S7** as last selected parameter.
AT=40<CR>	sets the content of **S7** to 40
ATS=15<CR>	sets the content of **S7** to 15.

3. **AT?** returns the current value of the last **S-parameter** accessed

Reference	V25ter and RC56D/RC336D

3.5.3.6.1. Number Of Rings To Auto Answer - S0

S0 - Number Of Rings To Auto Answer	SELINT 0 / 1
ATS0[=<n>]	Set command sets the number of rings required before device automatically answers an incoming call. Parameter: **<n>** - number of rings 0 - auto answer disabled (factory default) 1..255 - number of rings required before automatic answer.
ATS0?	Read command returns the current value of **S0** parameter.
ATS0=?	Test command returns the range for **<n>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Note	Automatically answer is not enabled if current instance is in online mode
Reference	V25ter

S0 - Number Of Rings To Auto Answer	SELINT 2
ATS0=[<n>]	Set command sets the number of rings required before device automatically answers an incoming call. Parameter: **<n>** - number of rings 0 - auto answer disabled (factory default) 1..255 - number of rings required before automatic answer.
ATS0?	Read command returns the current value of **S0 parameter**.
Reference	V25ter

3.5.3.6.2. Ring Counter - S1

S1 - Ring Counter	**SELINT 0 / 1**
ATS1	**S1** is incremented each time the device detects the ring signal of an incoming call. **S1** is cleared as soon as no ring occur. Note: the form **ATS1** has no effect.
ATS1?	Read command returns the value of **S1** ring counter.
ATS1=?	Test command returns the range of values for **S1** ring counter without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S1 - Ring Counter	**SELINT 2**
ATS1	**S1** is incremented each time the device detects the ring signal of an incoming call. **S1** is cleared as soon as no ring occur. Note: the form **ATS1** has no effect.
ATS1?	Read command returns the value of this parameter.

3.5.3.6.3. Escape Character - S2

S2 - Escape Character	**SELINT 0 / 1**
ATS2[=<char>]	Set command sets the ASCII character to be used as escape character. Parameter: **<char>** - escape character decimal ASCII 0..255 - factory default value is 43 (+). Note: the escape sequence consists of three escape characters preceded and followed by ***n*** ms of idle (see **S12** to set ***n***).
ATS2?	Read command returns the current value of **S2** parameter.
ATS2=?	Test command returns the range for **<char>** without command echo and parenthesis
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S2 - Escape Character	**SELINT 2**
ATS2=[<char>]	Set command sets the ASCII character to be used as escape character.

S2 - Escape Character	SELINT 2
	Parameter: **<char>** - escape character decimal ASCII 0..255 - factory default value is 43 (+). Note: the escape sequence consists of three escape characters preceded and followed by ***n*** ms of idle (see **S12** to set ***n***).
ATS2?	Read command returns the current value of **S2** parameter. Note: the format of the numbers in output is always 3 digits, left-filled with 0s

3.5.3.6.4. Command Line Termination Character - S3

S3 - Command Line Termination Character	SELINT 0 / 1
ATS3[=<char>]	Set command sets the value of the character either recognized by the device as command line terminator and generated by the device as part of the header, trailer, and terminator for result codes and information text, along with **S4** parameter. Parameter: **<char>** - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII **CR**) Note: the "previous" value of **S3** is used to determine the command line termination character for entering the command line containing the **S3** setting command. However the result code issued shall use the "new" value of **S3** (as set during the processing of the command line).
ATS3?	Read command returns the current value of **S3** parameter.
ATS3=?	Test command returns the range for **<char>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

S3 - Command Line Termination Character	SELINT 2
ATS3=[<char>]	Set command sets the value of the character either recognized by the device as command line terminator and generated by the device as part of the header, trailer, and terminator for result codes and information text, along with **S4 parameter**. Parameter:

S3 - Command Line Termination Character	**SELINT 2**
	<char> - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII **<CR>**) Note: the "previous" value of **S3** is used to determine the command line termination character for entering the command line containing the **S3** setting command. However the result code issued shall use the "new" value of **S3** (as set during the processing of the command line)
ATS3?	Read command returns the current value of **S3 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.5.3.6.5. Response Formatting Character - S4

S4 - Response Formatting Character	**SELINT 0 / 1**
ATS4[=<char>]	Set command sets the value of the character generated by the device as part of the header, trailer, and terminator for result codes and information text, along with the **S3** parameter. Parameter: **<char>** - response formatting character (decimal ASCII) 0..127 - factory default value is 10 (ASCII **LF**) Note: if the value of **S4** is changed in a command line the result code issued in response of that command line will use the new value of **S4**.
ATS4?	Read command returns the current value of **S4** parameter.
ATS4=?	Test command returns the range for **<char>** without command echo and parenthesis
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

S4 - Response Formatting Character	**SELINT 2**
ATS4=[<char>]	Set command sets the value of the character generated by the device as part of the header, trailer, and terminator for result codes and information text, along with the **S3 parameter**. Parameter: **<char>** - response formatting character (decimal ASCII) 0..127 - factory default value is 10 (ASCII **LF**)

S4 - Response Formatting Character	SELINT 2
	Note: if the value of **S4** is changed in a command line the result code issued in response of that command line will use the new value of **S4**.
ATS4?	Read command returns the current value of S4 parameter. Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.5.3.6.6. Command Line Editing Character - S5

S5 - Command Line Editing Character	SELINT 0 / 1
ATS5[=<char>]	Set command sets the value of the character recognized by the device as a request to delete from the command line the immediately preceding character. Parameter: **<char>** - command line editing character (decimal ASCII) 0..127 - factory default value is 8 (ASCII **BS**).
ATS5?	Read command returns the current value of **S5** parameter.
ATS5=?	Test command returns the range for **<char>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

S5 - Command Line Editing Character	SELINT 2
ATS5=[<char>]	Set command sets the value of the character recognized by the device as a request to delete from the command line the immediately preceding character. Parameter: **<char>** - command line editing character (decimal ASCII) 0..127 - factory default value is 8 (ASCII **BS**)
ATS5?	Read command returns the current value of **S5 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.5.3.6.7. Connection Completion Time-Out - S7

S7 - Connection Completion Time-Out	**SELINT 0 / 1**
ATS7[=<tout>]	Set command sets the amount of time, in seconds, that the device shall allow between either answering a call (automatically or by **A** command) or completion of signalling of call addressing information to network (dialling), and establishment of a connection with the remote device. Parameter: **<tout>** - number of seconds 1..255 - factory default value is 60.
ATS7?	Read command returns the current value of **S7** parameter.
ATS7=?	Test command returns the range for **<tout>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

S7 - Connection Completion Time-Out	**SELINT 2**
ATS7=[<tout>]	Set command sets the amount of time, in seconds, that the device shall allow between either answering a call (automatically or by **A** command) or completion of signalling of call addressing information to network (dialling), and establishment of a connection with the remote device. Parameter: **<tout>** - number of seconds 1..255 - factory default value is 60
ATS7?	Read command returns the current value of **S7 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

1.1.1.1.1 – Carrier Off With Firm Time - S10

S10 –Carrier Off With Firm Time	**SELINT 0 / 1 / 2**
ATS10	Execution command has no effect and is included only for backward compatibility with landline modems

3.5.3.6.8. Escape Prompt Delay - S12

S12 - Escape Prompt Delay	SELINT 0 / 1
ATS12[=<time>]	Set command sets: 1) the minimum period, before receipt of the first character of the three escape character sequence, during which no other character has to be detected in order to accept it as valid first character; 2) the maximum period allowed between receipt of first, or second, character of the three escape character sequence and receipt of the next; 3) the minimum period, after receipt of the last character of the three escape character sequence, during which no other character has to be detected in order to accept the escape sequence as a valid one. Parameter: **<time>** - expressed in fiftieth of a second 20..255 - factory default value is 50. Note: after **CONNECT** result code it is possible to accept the first character of the three escape character sequence without having to wait for a minimum period to be passed.
ATS12?	Read command returns the current value of **S12** parameter.
ATS12=?	Test command returns the range for **<time>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S12 - Escape Prompt Delay	SELINT 2
ATS12=[<time>]	Set command sets: 1) the minimum period, before receipt of the first character of the three escape character sequence, during which no other character has to be detected in order to accept it as valid first character; 2) the maximum period allowed between receipt of first or second character of the three escape character sequence and receipt of the next; 3) the minimum period, after receipt of the last character of the three escape character sequence, during which no other character has to be detected in order to accept the escape sequence as a valid one. Parameter: **<time>** - expressed in fiftieth of a second 20..255 - factory default value is 50.

S12 - Escape Prompt Delay	SELINT 2
	Note: the minimum period **S12** has to pass after **CONNECT** result code too, before a received character is accepted as valid first character of the three escape character sequence.
ATS12?	Read command returns the current value of **S12 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s

3.5.3.6.9. Delay To DTR Off - S25

S25 - Delay To DTR Off	SELINT 0 / 1
ATS25[=<time>]	Set command defines the amount of time, in hundredths of second, that the device will ignore the **DTR** for taking the action specified by command **&D**. Parameter: **<time>** - expressed in hundredths of a second 0..255 - factory default value is 5. Note: the delay is effective only if its value is greater than 5.
ATS25?	Read command returns the current value of **S25** parameter.
ATS25=?	Test command returns the range for **<time>** without command echo and parenthesis. Note: the output depends on the choice made through **#SELINT** command.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S25 -Delay To DTR Off	SELINT 2
ATS25=[<time>]	Set command defines the amount of time, in hundredths of second, that the device will ignore the **DTR** for taking the action specified by command **&D**. Parameter: **<time>** - expressed in hundredths of a second 0..255 - factory default value is 5. Note: the delay is effective only if its value is greater than 5.
ATS25?	Read command returns the current value of **S25 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with

S25 -Delay To DTR Off	SELINT 2
	0s

3.5.3.6.10. Disconnect Inactivity Timer - S30

S30 - Disconnect Inactivity Timer	SELINT 0 / 1
ATS30[=<tout>]	Set command defines the inactivity time-out in minutes. The device disconnects if no characters are exchanged for a time period of at least **<tout>** minutes. Parameter: **<tout>** - expressed in minutes 0 - disabled, disconnection due to inactivity is disabled (factory default). 1..255 - inactivity time-out value.
ATS30?	Read command returns the current value of **S30** parameter.
ATS30=?	Test command returns the range for **<tout>** without command echo and parenthesis. Note: the output depends on the choice made through **#SELINT** command.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S30 -Disconnect Inactivity Timer	SELINT 2
ATS30=[<tout>]	Set command defines the inactivity time-out in minutes. The device disconnects if no characters are exchanged for a time period of at least **<tout>** minutes. Parameter: **<tout>** - expressed in minutes 0 - disabled, disconnection due to inactivity is disabled (factory default). 1..127 - inactivity time-out value
ATS30?	Read command returns the current value of **S30 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s

3.5.3.6.11. Delay Before Forced Hang Up - S38

S38 -Delay Before Forced Hang Up	SELINT 0 / 1
ATS38[=<delay>]	Set command sets the delay, in seconds, between the device's receipt of **H** command (or **ON**-to-**OFF** transition of **DTR** if device is programmed to follow the signal) and the disconnect operation.

S38 -Delay Before Forced Hang Up	SELINT 0 / 1
	Parameter: **<delay>** - expressed in seconds 0..254 - the device will wait **<delay>** seconds for the remote device to acknowledge all data in the device buffer before disconnecting (factory default value is 0). 255 - the device doesn't time-out and continues to deliver data in the buffer until the connection is lost or the data is delivered. Note: **<delay>** parameter can be used to ensure that data in device buffer is sent before device disconnects.
ATS38?	Read command returns the current value of **S38** parameter.
ATS38=?	Test command returns the range of supported values for **<delay>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

S38 -Delay Before Forced Hang Up	SELINT 2
ATS38=[<delay>]	Set command sets the delay, in seconds, between the device's receipt of **H** command (or **ON**-to-**OFF** transition of **DTR**) and the disconnect operation. Parameter: **<delay>** - acknowledge timer in units of seconds 0..254 - the device will wait **<delay>** seconds for the remote device to acknowledge all data in the device buffer before disconnecting (factory default value is 0). 255 - the device doesn't time-out and continues to attempt to deliver data in the buffer until the connection is lost or the data is delivered. Note: **<delay>** parameter can be used to ensure that data in device buffer is sent before device disconnects.
ATS38?	Read command returns the current value of **S38 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s

3.5.4. 3GPP TS 27.007 AT Commands

3.5.4.1. General

3.5.4.1.1. Request Manufacturer Identification - +CGMI

+CGMI - Request Manufacturer Identification	SELINT 0 / 1
AT+CGMI	Execution command returns the device manufacturer identification code without command echo. The output depends on the choice made through **#SELINT** command.
AT+CGMI?	Read command has the same behaviour as Execution command
Reference	3GPP TS 27.007

+CGMI - Request Manufacturer Identification	SELINT 2
AT+CGMI	Execution command returns the device manufacturer identification code without command echo. The output depends on the choice made through **#SELINT** command.
AT+CGMI=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007

3.5.4.1.2. Request Model Identification - +CGMM

+CGMM - Request Model Identification	SELINT 0 / 1
AT+CGMM	Execution command returns the device model identification code without command echo.
Reference	3GPP TS 27.007

+CGMM - Request Model Identification	SELINT 2
AT+CGMM	Execution command returns the device model identification code without command echo.
AT+CGMM=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007

3.5.4.1.3. Request Revision Identification - +CGMR

+CGMR - Request Revision Identification	SELINT 0 / 1
AT+CGMR	Execution command returns device software revision number without command echo.
AT+CGMR?	Read command has the same behaviour as Execution command
Reference	3GPP TS 27.007

+CGMR - Request Revision Identification	SELINT 2

+CGMR - Request Revision Identification	**SELINT 2**
AT+CGMR	Execution command returns device software revision number without command echo.
AT+CGMR=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007

3.5.4.1.4. Request Product Serial Number Identification - +CGSN

+CGSN - Request Product Serial Number Identification	**SELINT 0 / 1**
AT+CGSN	Execution command returns the product serial number, identified as the IMEI of the mobile, without command echo.
AT+CGSN?	Read command has the same behaviour as Execution command
Reference	3GPP TS 27.007

+CGSN - Request Product Serial Number Identification	**SELINT 2**
AT+CGSN	Execution command returns the product serial number, identified as the IMEI of the mobile, without command echo.
AT+CGSN=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007

3.5.4.1.5. Select TE Character Set - +CSCS

+CSCS - Select TE Character Set	**SELINT 0 / 1**
AT+CSCS [=<chset>]	Set command sets the current character set used by the device. Parameter: **<chset>** - character set "IRA" - ITU-T.50 "8859-1" - ISO 8859 Latin 1 "PCCP437" - PC character set Code Page 437. "UCS2" - 16-bit universal multiple-octet coded character set (ISO/IEC10646) Note: If parameter is omitted then the behaviour of Set command is the same as Read command.
AT+CSCS?	Read command returns the current value of the active character set.
AT+CSCS=?	Test command returns the supported values of the parameter **<chset>**. For compatibility with previous versions, Test command returns **+CSCS: ("IRA")** An enhanced version of Test command has been defined: **AT+CSCS=??**, that

+CSCS - Select TE Character Set	SELINT 0 / 1
	provides the complete range of values for **<chset>**.
AT+CSCS=??	Enhanced test command returns the supported values of the parameter **<chset>**
Reference	3GPP TS 27.007

+CSCS - Select TE Character Set	SELINT 2
AT+CSCS= [<chset>]	Set command sets the current character set used by the device. Parameter: **<chset>** - character set "GSM" - GSM default alphabet (3GPP TS 23.038) "IRA" - international reference alphabet (ITU-T T.50) "8859-1" - ISO 8859 Latin 1 character set "PCCP437" - PC character set Code Page 437 "UCS2" - 16-bit universal multiple-octet coded character set (ISO/IEC10646)
AT+CSCS?	Read command returns the current value of the active character set.
AT+CSCS=?	Test command returns the supported values for parameter **<chset>**.
Reference	3GPP TS 27.007

3.5.4.1.6. International Mobile Subscriber Identity (IMSI) - +CIMI

+CIMI - Request International Mobile Subscriber Identify (IMSI)	SELINT 0 / 1
AT+CIMI	Execution command returns the value of the Internal Mobile Subscriber Identity stored in the SIM without command echo. Note: a SIM card must be present in the SIM card housing, otherwise the command returns **ERROR**.
AT+CIMI?	Read command has the same behaviour as Execution command
Reference	3GPP TS 27.007

+CIMI - Request International Mobile Subscriber Identify (IMSI)	SELINT 2
AT+CIMI	Execution command returns the value of the Internal Mobile Subscriber Identity stored in the SIM without command echo. Note: a SIM card must be present in the SIM card housing, otherwise the command returns **ERROR**.
AT+CIMI=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007

3.5.4.1.7. Multiplexing Mode - +CMUX

+CMUX - Multiplexing Mode	**SELINT 2**
AT+CMUX= <mode> [,<subset>]	Set command is used to enable/disable the 3GPP TS 27.010 multiplexing protocol control channel. Parameters: **<mode>** multiplexer transparency mechanism 0 - basic option; it is currently the only supported value. **<subset>** 0 - UIH frames used only; it is currently the only supported value. Note: after entering the ***Multiplexed Mode*** an inactive timer of five seconds starts. If no CMUX control channel is established before this inactivity timer expires the engine returns to ***AT Command Mode*** Note: all the CMUX protocol parameter are fixed as defined in GSM07.10 and cannot be changed. Note: the maximum frame size is fixed: **N1=128**
AT+CMUX?	Read command returns the current value of **<mode>** and **<subset>** parameters, in the format: **+CMUX: <mode>,<subset>**
AT+CMUX=?	Test command returns the range of supported values for parameters **<mode>** and **<subset>**.
Reference	3GPP TS 27.007, 3GPP TS 27.010

3.5.4.1.8. Select Wireless Network - +WS46

+WS46 - PCCA STD-101 Select Wireless Network	**SELINT 2**
AT+WS46=[<n>]	Set command selects the cellular network (Wireless Data Service, WDS) to operate with the **TA** (WDS-Side Stack Selection). Parameter: **<n>** - integer type, it is the WDS-Side Stack to be used by the **TA**. 12 - GSM digital cellular
AT+WS46?	Read command reports the currently selected cellular network, in the format: **+ WS46: <n>**

AT+WS46=?	Test command reports the range for the parameter **<n>**.
Reference	3GPP TS 27.007

3.5.4.2. Call Control

3.5.4.2.1. Hang Up Call - +CHUP

+CHUP - Hang Up Call	**SELINT 0 / 1 / 2**
AT+CHUP	Execution command cancels all active and held calls, also if a multi-party session is running.
AT+CHUP=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.2.2. Select Bearer Service Type - +CBST

+CBST - Select Bearer Service Type	**SELINT 0 / 1**
AT+CBST [=<speed> [,<name> [,<ce>]]]	Set command sets the bearer service **<name>** with data rate **<speed>**, and the connection element **<ce>** to be used when data calls are originated. This setting is also used during mobile terminated data call setup, in case of single numbering scheme calls (refer **+CSNS**). Parameters: **<speed>** - data rate 0 - autobauding (automatic selection of the speed, factory default) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) **<name>** - bearer service name 0 - data circuit asynchronous (factory default) **<ce>** - connection element 0 - transparent 1 - non transparent (default)

+CBST - Select Bearer Service Type	SELINT 0 / 1
	Note: the settings **AT+CBST=0,0,0** **AT+CBST=14,0,0** **AT+CBST=75,0,0** are not supported. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command. Note: the following settings are recommended **AT+CBST=71,0,1** for mobile-to-mobile calls **AT+CBST=7,0,1** for mobile-to-fix calls
AT+CBST?	Read command returns current value of the parameters **<speed>**, **<name>** and **<ce>**
AT+CBST=?	Test command returns the supported range of values for the parameters.
Reference	3GPP TS 27.007

+CBST - Select Bearer Service Type	SELINT 2
AT+CBST= [<speed> [,<name> [,<ce>]]]	Set command sets the bearer service **<name>** with data rate **<speed>**, and the connection element **<ce>** to be used when data calls are originated. This setting is also used during mobile terminated data call setup, in case of single numbering scheme calls (refer **+CSNS**). Parameters: **<speed>** - data rate 0 - autobauding (automatic selection of the speed, factory default) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) **<name>** - bearer service name 0 - data circuit asynchronous (factory default)

+CBST - Select Bearer Service Type	**SELINT 2**
	<ce> - connection element 0 - transparent 1 - non transparent (default) Note: the settings **AT+CBST=0,0,0** **AT+CBST=14,0,0** **AT+CBST=75,0,0** are not supported. Note: the following settings are recommended **AT+CBST=71,0,1** for mobile-to-mobile calls **AT+CBST=7,0,1** for mobile-to-fix calls
AT+CBST?	Read command returns current value of the parameters **<speed>**, **<name>** and **<ce>**
AT+CBST=?	Test command returns the supported range of values for the parameters.
Reference	3GPP TS 27.007

3.5.4.2.3. Radio Link Protocol - +CRLP

+CRLP - Radio Link Protocol	**SELINT 0 / 1 / 2**
AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>]]]]]	Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls are originated Parameters: **<iws>** - IWF window Dimension 1..61 - factory default value is 61 **<mws>** - MS window Dimension 1..61 - default value is 61 **<T1>** - acknowledge timer (10 ms units). 39..255 - default value is 78 **<N2>** - retransmission attempts 1..255 - default value is 6 **<ver>** - protocol version 0
AT+CRLP?	Read command returns the current value of the RLP protocol parameters.
AT+CRLP=?	Test command returns supported range of values of the RLP protocol

+CRLP - Radio Link Protocol	**SELINT 0 / 1 / 2**
	parameters.
Reference	3GPP TS 27.007

3.5.4.2.4. Service Reporting Control - +CR

+CR - Service Reporting Control	**SELINT 0 / 1 / 2**
AT+CR=[<mode>]	Set command controls whether or not intermediate result code **+CR** is returned from **TA** to **TE**. Parameter: **<mode>** 0 - disables **+CR** reporting (factory default) 1 - enables **+CR** reporting: the intermediate result code is transmitted at the point during connect negotiation at which the **TA** has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before the intermediate result code **CONNECT** is transmitted. Its format is: **+CR: <serv>** where: **<serv>** ASYNC - asynchronous transparent SYNC - synchronous transparent REL ASYNC - asynchronous non-transparent REL SYNC - synchronous non-transparent. Note: this command replaces V.25ter [14] command Modulation Reporting Control (**+MR**), which is not appropriate for use with a GSM terminal.
AT+CR?	Read command returns whether or not intermediate result code **+CR** is enabled, in the format: **+CR: <mode>**
AT+CR=?	Test command returns the supported range of values of parameter **<mode>**.
Reference	3GPP TS 27.007

3.5.4.2.5. Extended Error Report - +CEER

+CEER - Extended Error Report	**SELINT 0 / 1**
AT+CEER	Execution command returns one or more lines of information text **<report>**

+CEER - Extended Error Report	**SELINT 0 / 1**
	offering the TA user an extended error report, in the format: **+CEER: <report>** This report regards some error condition that may occur: • the failure in the last unsuccessful call setup (originating or answering) • the last call release Note: if none of the previous conditions has occurred since power up then **"No error"** condition is reported
AT+CEER?	Read command reports a information text regarding some error condition that may occur
AT+CEER=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007, GSM 04.08

+CEER - Extended Error Report	**SELINT 2**
AT+CEER	Execution command returns one or more lines of information text **<report>** offering the TA user an extended error report, in the format: **+CEER: <report>** This report regards some error condition that may occur: • the failure in the last unsuccessful call setup (originating or answering) • the last call release Note: if none of the previous conditions has occurred since power up then **"Normal, unspecified"** condition is reported
AT+CEER=?	Test command returns **OK** result code.
Reference	3GPP TS 27.007, GSM 04.08

3.5.4.2.6. Cellular Result Codes - +CRC

+CRC - Cellular Result Codes	**SELINT 0 / 1**
AT+CRC=<mode>	Set command controls whether or not the extended format of incoming call indication is used. Parameter: **<mode>**

+CRC - Cellular Result Codes	**SELINT 0 / 1**
	0 - disables extended format reporting (factory default) 1 - enables extended format reporting When enabled, an incoming call is indicated to the **TE** with unsolicited result code: **+CRING:<type>** instead of the normal **RING**. where **<type>** - call type: DATA FAX - facsimile (TS 62) VOICE - normal voice (TS 11)
AT+CRC?	Read command returns current value of the parameter **<mode>**.
AT+CRC=?	Test command returns supported values of the parameter **<mode>**.
Reference	3GPP TS 27.007

+CRC - Cellular Result Codes	**SELINT 2**
AT+CRC= [<mode>]	Set command controls whether or not the extended format of incoming call indication is used. Parameter: **<mode>** 0 - disables extended format reporting (factory default) 1 - enables extended format reporting: When enabled, an incoming call is indicated to the **TE** with unsolicited result code **+CRING: <type>** instead of the normal **RING**. where **<type>** - call type: ASYNC - asynchronous transparent data SYNC - synchronous transparent data REL ASYNC - asynchronous non-transparent data REL SYNC - synchronous non-transparent data FAX - facsimile (TS 62)

+CRC - Cellular Result Codes	SELINT 2
	VOICE - normal voice (TS 11)
AT+CRC?	Read command returns current value of the parameter **<mode>**.
AT+CRC=?	Test command returns supported values of the parameter **<mode>**.
Reference	3GPP TS 27.007

3.5.4.2.7. Single Numbering Scheme - +CSNS

+CSNS - Single Numbering Scheme	SELINT 0 / 1 / 2
AT+CSNS= [<mode>]	Set command selects the bearer to be used when mobile terminated single numbering scheme call is established. Parameter values set with **+CBST** command shall be used when **<mode>** equals to a data service. Parameter: **<mode>** 0 - voice (factory default) 2 - fax (TS 62) 4 - data Note: if **+CBST** parameter is set to a value that is not applicable to single numbering calls, ME/TA shall map the value to the closest valid one. E.g. if user has set **<speed>=71**, **<name>=0** and **<ce>=1** (non-trasparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-trasparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.
AT+CSNS?	Read command returns current value of the parameter **<mode>**.
AT+CSNS=?	Test command returns supported values of parameter **<mode>**.
Reference	3GPP TS 27.007

3.5.4.2.8. Voice Hang Up Control - +CVHU

+CVHU - Voice Hang Up Control	SELINT 0 / 1
AT+CVHU[= <mode>]	Set command selects whether **ATH** or "**drop DTR**" shall cause a voice connection to be disconnected or not. Parameter:

+CVHU - Voice Hang Up Control	SELINT 0 / 1
	<mode> 0 - "**Drop DTR**" ignored but **OK** result code given. **ATH** disconnects. 1 - "**Drop DTR**" and **ATH** ignored but **OK** result code given. 2 - "**Drop DTR**" behaviour according to **&D** setting. **ATH** disconnects (factory default). Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.
AT+CVHU?	Read command reports the current value of the **<mode>** parameter, **+CVHU: <mode>**
AT+CVHU=?	Test command reports the range of supported values for parameter **<mode>**

+CVHU - Voice Hang Up Control	SELINT 2
AT+CVHU=[<mode>]	Set command selects whether **ATH** or "**drop DTR**" shall cause a voice connection to be disconnected or not. Parameter: **<mode>** 0 - "**Drop DTR**" ignored but **OK** result code given. **ATH** disconnects. 1 - "**Drop DTR**" and **ATH** ignored but **OK** result code given. 2 - "**Drop DTR**" behaviour according to **&D** setting. **ATH** disconnects (factory default).
AT+CVHU?	Read command reports the current value of the **<mode>** parameter, in the format: **+CVHU: <mode>**
AT+CVHU=?	Test command reports the range of supported values for parameter **<mode>**

3.5.4.3. Network Service Handling

3.5.4.3.1. Subscriber Number - +CNUM

+CNUM - Subscriber Number	SELINT 0 / 1
AT+CNUM	Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format: **+CNUM: <number>,<type>** where

+CNUM - Subscriber Number		**SELINT 0 / 1**
	<number> - string containing the phone number in the format **<type>** **<type>** - type of number: 129 - national numbering scheme 145 - international numbering scheme (contains the character "+").	
Reference	3GPP TS 27.007	

+CNUM - Subscriber Number		**SELINT 2**
AT+CNUM	If the ENS functionality has not been previously enabled (see **#ENS**) Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format: **+CNUM: <alpha>,<number>,<type>** If the ENS functionality has been previously enabled (see **#ENS**) Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format: **+CNUM: <alpha>,<number>,<type>[<CR><LF>** **+CNUM: <alpha>,<number>,<type>[…]]** where: **<alpha>** - alphanumeric string associated to **<number>**; used character set should be the one selected with **+CSCS**. **<number>** - string containing the phone number in the format **<type>** **<type>** - type of number: 129 - national numbering scheme 145 - international numbering scheme (contains the character "+").	
AT+CNUM=?	Test command returns the **OK** result code	
Reference	3GPP TS 27.007	

3.5.4.3.2. Read Operator Names - +COPN

+COPN - Read Operator Names		**SELINT 0 / 1**
AT+COPN	Execution command returns the list of operator names from the **ME** in the	

+COPN - Read Operator Names	**SELINT 0 / 1**
	format: **+COPN: <numeric1>,<alpha1>[<CR><LF><CR><LF>** **+COPN: <numeric2>,<alpha2>[...]]** where: **<numeric*n*>** - string type, operator in numeric format (see **+COPS**) **<alpha*n*>** - string type, operator in long alphanumeric format (see **+COPS**) Note: each operator code **<numeric*n*>** that has an alphanumeric equivalent **<alpha*n*>** in the ME memory is returned
Reference	3GPP TS 27.007

+COPN - Read Operator Names	**SELINT 2**
AT+COPN	Execution command returns the list of operator names from the **ME** in the format: **+COPN: <numeric1>,<alpha1>[<CR><LF>** **+COPN: <numeric2>,<alpha2>[...]]** where: **<numeric*n*>** - string type, operator in numeric format (see **+COPS**) **<alpha*n*>** - string type, operator in long alphanumeric format (see **+COPS**) Note: each operator code **<numeric*n*>** that has an alphanumeric equivalent **<alpha*n*>** in the ME memory is returned
AT+COPN=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.3.3. Network Registration Report - +CREG

+CREG - Network Registration Report	**SELINT 0 / 1**
AT+CREG[=[<mode>]]	Set command enables/disables network registration reports depending on the parameter **<mode>**. Parameter: **<mode>** 0 - disable network registration unsolicited result code (factory default) 1 - enable network registration unsolicited result code 2 - enable network registration unsolicited result code with network Cell

+CREG - Network Registration Report	**SELINT 0 / 1**
	identification data If **<mode>=1**, network registration result code reports: **+CREG: <stat>** where **<stat>** 0 - not registered, ME is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but ME is currently searching a new operator to register to 3 - registration denied 4 -unknown 5 - registered, roaming If **<mode>=2**, network registration result code reports: **+CREG: <stat>[,<Lac>,<Ci>]** where: **<Lac>** - Local Area Code for the currently registered on cell **<Ci>** - Cell Id for the currently registered on cell Note: **<Lac>** and **<Ci>** are reported only if **<mode>=2** and the mobile is registered on some network cell. Note: issuing **AT+CREG<CR>** is the same as issuing the Read command. Note: issuing **AT+CREG=<CR>** is the same as issuing the command **AT+CREG=0<CR>**.
AT+CREG?	Read command reports the **<mode>** and **<stat>** parameter values in the format: **+CREG: <mode>,<stat>[,<Lac>,<Ci>]** Note: **<Lac>** and **<Ci>** are reported only if **<mode>=2** and the mobile is registered on some network cell.
AT+CREG=?	Test command returns the range of supported **<mode>**

Example	`AT`
	`OK`
	`at+creg?`
	`+CREG: 0,2`
	
	`OK`
	(the MODULE is in network searching state)
	`at+creg?`
	`+CREG: 0,2`

+CREG - Network Registration Report	SELINT 0 / 1

	`OK`
	`at+creg?`
	`+CREG: 0,2`
	
	`OK`
	`at+creg?`
	`+CREG: 0,2`
	`OK`
	`at+creg?`
	`+CREG: 0,1`
	
	`OK`
	(the MODULE is registered)
	`at+creg?`
	`+CREG: 0,1`
	
	`OK`

Reference	3GPP TS 27.007

+CREG - Network Registration Report	SELINT 2
AT+CREG= **[<mode>]**	Set command enables/disables network registration reports depending on the parameter **<mode>**. Parameter: **<mode>** 0 - disable network registration unsolicited result code (factory default) 1 - enable network registration unsolicited result code 2 - enable network registration unsolicited result code with network Cell identification data If **<mode>=1**, network registration result code reports: **+CREG: <stat>** where **<stat>** 0 - not registered, ME is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but ME is currently searching a new operator to register to 3 - registration denied 4 -unknown 5 - registered, roaming

+CREG - Network Registration Report	SELINT 2
	If **<mode>=2**, network registration result code reports: **+CREG: <stat>[,<Lac>,<Ci>]** where: **<Lac>** - Local Area Code for the currently registered on cell **<Ci>** - Cell Id for the currently registered on cell Note: **<Lac>** and **<Ci>** are reported only if **<mode>=2** and the mobile is registered on some network cell.
AT+CREG?	Read command reports the **<mode>** and **<stat>** parameter values in the format: **+CREG: <mode>,<stat>[,<Lac>,<Ci>]** Note: **<Lac>** and **<Ci>** are reported only if **<mode>=2** and the mobile is registered on some network cell.
AT+CREG=?	Test command returns the range of supported **<mode>**

Example	`AT`
	`OK`
	`at+creg?`
	`+CREG: 0,2`
	
	`OK`
	(the MODULE is in network searching state)
	`at+creg?`
	`+CREG: 0,2`
	
	`OK`
	`at+creg?`
	`+CREG: 0,2`
	
	`OK`
	`at+creg?`
	`+CREG: 0,2`
	`OK`
	`at+creg?`
	`+CREG: 0,1`
	
	`OK`
	(the MODULE is registered)
	`at+creg?`
	`+CREG: 0,1`
	
	`OK`

Reference	3GPP TS 27.007
Note	There are situations in which the presentation of the **URC** controlled by **+CREG** is slightly different from ETSI specifications: e.g. it is possible to

+CREG - Network Registration Report	**SELINT 2**
	have an excessive presentation of the **URC +CREG: 4**. We identified this behaviour and decided to maintain it as default for backward compatibility issues. It is indeed possible to avoid it simply issuing **AT#REGMODE=1** (see **#REGMODE**): this puts the **Operation Mode** of **Registration Status Commands** in '**Enhanced Registration Operation Mode**' which is more formal.

3.5.4.3.4. Operator Selection - +COPS

+COPS - Operator Selection	**SELINT 0 / 1**
AT+COPS[= [<mode> [,<format> [,<oper>]]]]	Set command forces an attempt to select and register the GSM network operator. **<mode>** parameter defines whether the operator selection is done automatically or it is forced by this command to operator **<oper>**. The operator **<oper>** shall be given in format **<format>**. The behaviour of **+COPS** command depends on the last **#COPSMODE** setting. **(#COPSMODE=0)** Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (factory default) 1 - manual choice unlocked (network is kept as long as available, then it can be changed with some other suited networks to guarantee the service) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1, 4** or **5** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic (**<oper>** field shall be present); if manual selection fails, automatic mode (**<mode>=0**) is entered 5 - manual choice locked (network is kept fixed, if the chosen network is not available, then the mobile has no service) **<format>** 0 - alphanumeric long form (max length 16 digits) 1 - alphanumeric short form 2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)] **<oper>**: network operator in format defined by **<format>** parameter.

+COPS - Operator Selection	SELINT 0 / 1
	(#COPSMODE=1) Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (default) 1 - manual choice (**<oper>** field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1** or **4** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic (**<oper>** field shall be present); if manual selection fails, automatic mode (**<mode>=0**) is entered **<format>** 0 - alphanumeric long form (max length 16 digits) 2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)] **<oper>**: network operator in format defined by **<format>** parameter. Note: **<mode>** parameter setting is stored in NVM and available at next reboot, if it is not **3** (i.e.: set only **<format>** parameter). Note: if **<mode>=1 or 4** (or **5** if **#COPSMODE=0**), the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted) Note: **<format>** parameter setting is never stored in NVM Note: issuing **AT+COPS<CR>** is the same as issuing the Read command. Note: issuing **AT+COPS=<CR>** is the same as issuing the command **AT+COPS=0<CR>**.
AT+COPS?	Read command returns current value of **<mode>,<format>** and **<oper>** in format **<format>**; if no operator is selected, **<format>** and **<oper>** are omitted **+COPS: <mode>[, <format>, <oper>]**
AT+COPS=?	Test command returns a list of quadruplets, each representing an operator present in the network. The behaviour of Test command depends on the last **#COPSMODE** setting.

+COPS - Operator Selection	SELINT 0 / 1
	(#COPSMODE=0) The command outputs as many rows as the number of quadruplets, each of them in the format: **+COPS: (<stat> ,<oper (in <format>=0)>,””, <oper (in <format>=2)>)** where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden (#COPSMODE=1) The quadruplets in the list are separated by commas: **+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,, <oper (in <format>=2)>)s][,,(list of supported <mode>s), (list of supported<format>s)]** where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden Note: since with this command a network scan is done, this command may require some seconds before the output is given. Note: The value of parameter **<oper>** (in **<format>=0**) is the same as the former GM862 family products.
Reference	3GPP TS 27.007

+COPS - Operator Selection	SELINT 2
AT+COPS= [<mode> [,<format> [,<oper>]]]	Set command forces an attempt to select and register the GSM network operator. **<mode>** parameter defines whether the operator selection is done automatically or it is forced by this command to operator **<oper>**.

+COPS - Operator Selection	SELINT 2
	The operator **<oper>** shall be given in format **<format>**. Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (factory default) 1 - manual choice (**<oper>** field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1** or **4** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic (**<oper>** field shall be present); if manual selection fails, automatic mode (**<mode>=0**) is entered **<format>** 0 - alphanumeric long form (max length 16 digits) 2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)] **<oper>**: network operator in format defined by **<format>** parameter. Note: **<mode>** parameter setting is stored in NVM and available at next reboot, if it is not **3** (i.e.: set only **<format>** parameter). Note: if **<mode>=1 or 4**, the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted) Note: **<format>** parameter setting is never stored in NVM
AT+COPS?	Read command returns current value of **<mode>**,**<format>** and **<oper>** in format **<format>**; if no operator is selected, **<format>** and **<oper>** are omitted **+COPS: <mode>**[**, <format>, <oper>**]
AT+COPS=?	Test command returns a list of quadruplets, each representing an operator present in the network. The quadruplets in the list are separated by commas: **+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,, <oper (in <format>=2)>)s][,,(list of supported <mode>s), (list of supported<format>s)]** where **<stat>** - operator availability 0 - unknown 1 - available

+COPS - Operator Selection	SELINT 2
	2 - current 3 - forbidden Note: since with this command a network scan is done, this command may require some seconds before the output is given.
Reference	3GPP TS 27.007

3.5.4.3.5. Facility Lock/Unlock - +CLCK

+CLCK - Facility Lock/Unlock	SELINT 0 / 1
AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD**

+CLCK - Facility Lock/Unlock	**SELINT 0 / 1**
	<class> - sum of integers each representing a class of information (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **+CLCK: <status>** where **<status>** - current status of the facility 0 - not active 1 - active
AT+CLCK=?	Test command reports all the facility supported by the device.
Reference	3GPP TS 27.007
Note	The improving command **@CLCK** has been defined.

+CLCK - Facility Lock/Unlock	**SELINT 2**
AT+CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "PS" - PH-SIM (lock PHone to SIM card) MT asks password when other than current SIM card inserted; MT may remember certain amount of previously used cards thus not requiring password when they are inserted "PF" - lock Phone to the very First inserted SIM card (MT asks password when other than the first SIM card is inserted) "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home

+CLCK - Facility Lock/Unlock	SELINT 2
	country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation "PP" - service Provider Personalization "PC" - Corporate Personalization **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD** **<class>** - sum of integers each representing a class of information (default is 7) 1 - voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **+CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2> [...]]** where **<status>** - the current status of the facility 0 - not active 1 - active **<class*n*>** - class of information of the facility
AT+CLCK=?	Test command reports all the facilities supported by the device.
Reference	3GPP TS 27.007
Example	*Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:*

+CLCK - Facility Lock/Unlock	SELINT 2

	`AT+CLCK =”AO”,2`
	`+CLCK: <status>,1`
	`+CLCK: <status>,2`
	`+CLCK: <status>,4`

3.5.4.3.6. Facility Improved Lock/Unlock - @CLCK

@CLCK - Facility Improved Lock/Unlock	SELINT 0 / 1
AT@CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from

@CLCK - Facility Improved Lock/Unlock	**SELINT 0 / 1**
	the **DTE** user interface or with command Change Password **+CPWD** **<class>** - sum of integers each representing a class of information (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **@CLCK: <status>[,<class1>** **[<CR><LF>@CLCK: <status>,<class2>[…]]** where **<status>** - the current status of the facility 0 - not active 1 - active **<class*n*>** - class of information of the facility
AT@CLCK=?	Test command reports all the facilities supported by the device.
Reference	3GPP TS 27.007

Example	*Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:*
	
	`AT@CLCK =”AO”,2`
	`@CLCK: <status>,1`
	`@CLCK: <status>,2`
	`@CLCK: <status>,4`
	
	`OK`

3.5.4.3.7. Change Facility Password - +CPWD

+CPWD - Change Facility Password	**SELINT 0 / 1**
AT+CPWD=<fac>, <oldpwd>, <newpwd>	Execution command changes the password for the facility lock function defined by command Facility Lock **+CLCK**. Parameters: **<fac>** - facility "SC" - SIM (PIN request) "AB" - All barring services "P2" - SIM PIN2 **<oldpwd>** - string type, it shall be the same as password specified for the facility from the ME user interface or with command **+CPWD**. **<newpwd>** - string type, it is the new password Note: parameter **<oldpwd>** is the old password while **<newpwd>** is the new one.
AT+CPWD=?	Test command returns a list of pairs **(<fac>,<pwdlength>)** which presents the available facilities and the maximum length of their password **(<pwdlength>)**

Example	`at+cpwd=?`
	`+CPWD: ("SC",8),("AB",4),("P2",4)`
	
	`OK`

Reference	3GPP TS 27.007

+CPWD - Change Facility Password	**SELINT 2**
AT+CPWD=<fac>, <oldpwd>, <newpwd>	Execution command changes the password for the facility lock function defined by command Facility Lock **+CLCK**. Parameters: **<fac>** - facility

+CPWD - Change Facility Password	SELINT 2
	"SC" - SIM (PIN request) "AB" - All barring services "P2" - SIM PIN2 "PS"- SIM VO **<oldpwd>** - string type, it shall be the same as password specified for the facility from the ME user interface or with command **+CPWD**. **<newpwd>** - string type, it is the new password Note: parameter **<oldpwd>** is the old password while **<newpwd>** is the new one.
AT+CPWD=?	Test command returns a list of pairs **(<fac>,<pwdlength>)** which presents the available facilities and the maximum length of their password **(<pwdlength>)**

Example	`at+cpwd=?`
	`+CPWD: ("SC",8),("AB",4),("P2",8),("PS",8)`
	
	`OK`

Reference	3GPP TS 27.007

3.5.4.3.8. Calling Line Identification Presentation - +CLIP

+CLIP - Calling Line Identification Presentation	SELINT 0 / 1
AT+CLIP[=[<n>]]	Set command enables/disables the presentation of the CLI (Calling Line Identity) at the **TE**. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call. Parameters: **<n>** 0 - disables CLI indication (factory default) 1 - enables CLI indication If enabled the device reports after each **RING** the response: **+CLIP: <number>,<type>,"",128,<alpha>,<CLI_validity>** where: **<number>** - string type phone number of format specified by **<type>** **<type>** - type of address octet in integer format

+CLIP - Calling Line Identification Presentation	**SELINT 0 / 1**
	128 - both the type of number and the numbering plan are unknown 129 - unknown type of number and ISDN/Telephony numbering plan 145 - international type of number and ISDN/Telephony numbering plan (contains the character "**+**") **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with command Select **TE** character set **+CSCS**. **<CLI_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to interworking problems or limitation or originating network. Note: in the **+CLIP:** response they are currently not reported either the **subaddress** information (it's always **""** after the 2nd comma) and the **subaddress type** information (it's always **128** after the 3rd comma) Note: issuing **AT+CLIP<CR>** is the same as issuing the Read command. Note: issuing **AT+CLIP=<CR>** is the same as issuing the command **AT+CLIP=0<CR>**.
AT+CLIP?	Read command returns the presentation status of the CLI in the format: **+CLIP: <n>,<m>** where: **<n>** 0 - CLI presentation disabled 1 - CLI presentation enabled **<m>** - status of the CLIP service on the GSM network 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) Note: This command issues a status request to the network, hence it may take a few seconds to give the answer due to the time needed to exchange data with it.
AT+CLIP=?	Test command returns the supported values of the parameter **<n>**
Reference	3GPP TS 27.007

+CLIP - Calling Line Identification Presentation	SELINT 0 / 1
Note	The command changes only the report behaviour of the device, it does not change CLI supplementary service setting on the network.

+CLIP - Calling Line Identification Presentation	SELINT 2
AT+CLIP=[<n>]	Set command enables/disables the presentation of the CLI (Calling Line Identity) at the **TE**. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call. Parameters: **<n>** 0 - disables CLI indication (factory default) 1 - enables CLI indication If enabled the device reports after each RING the response: **+CLIP: <number>,<type>,"",128,<alpha>,<CLI_validity>** where: **<number>** - string type phone number of format specified by **<type>** **<type>** - type of address octet in integer format 128 - both the type of number and the numbering plan are unknown 129 - unknown type of number and ISDN/Telephony numbering plan 145 - international type of number and ISDN/Telephony numbering plan (contains the character "**+**") **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with command Select **TE** character set **+CSCS**. **<CLI_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to interworking problems or limitation or originating network. Note: in the **+CLIP:** response they are currently not reported either the **subaddress** information (it's always **""** after the 2nd comma) and the **subaddress type** information (it's always **128** after the 3rd comma)
AT+CLIP?	Read command returns the presentation status of the CLI in the format:

+CLIP - Calling Line Identification Presentation	SELINT 2
	+CLIP: <n>,<m> where: **<n>** 0 - CLI presentation disabled 1 - CLI presentation enabled **<m>** - status of the CLIP service on the GSM network 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) Note: This command issues a status request to the network, hence it may take a few seconds to give the answer due to the time needed to exchange data with it.
AT+CLIP=?	Test command returns the supported values of parameter **<n>**
Reference	3GPP TS 27.007
Note	The command changes only the report behaviour of the device, it does not change CLI supplementary service setting on the network.

3.5.4.3.9. Calling Line Identification Restriction - +CLIR

+CLIR - Calling Line Identification Restriction	SELINT 0 / 1
AT+CLIR[=[<n>]]	Set command overrides the CLIR subscription when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command. This command refers to CLIR-service (GSM 02.81) that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call. Parameter: **<n>** - facility status on the Mobile 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent) Note: issuing **AT+CLIR<CR>** is the same as issuing the Read command. Note: issuing **AT+CLIR=<CR>** is the same as issuing the command **AT+CLIR=0<CR>**.
AT+CLIR?	Read command gives the default adjustment for all outgoing calls (**<n>**) and also triggers an interrogation of the provision status of the CLIR service

+CLIR - Calling Line Identification Restriction	SELINT 0 / 1
	(**<m>**), where **<n>** - facility status on the Mobile 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent) **<m>** - facility status on the Network 0 - CLIR service not provisioned 1 - CLIR service provisioned permanently 2 - unknown (e.g. no network present, etc.) 3 - CLI temporary mode presentation restricted 4 - CLI temporary mode presentation allowed
AT+CLIR=?	Test command reports the supported values of parameter **<n>**.
Reference	3GPP TS 27.007
Note	This command sets the default behaviour of the device in outgoing calls.

+CLIR - Calling Line Identification Restriction	SELINT 2
AT+CLIR=[<n>]	Set command overrides the CLIR subscription when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command. This command refers to CLIR-service (GSM 02.81) that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call. Parameter: **<n>** - facility status on the Mobile 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent)
AT+CLIR?	Read command gives the default adjustment for all outgoing calls (**<n>**) and also triggers an interrogation of the provision status of the CLIR service (**<m>**), where **<n>** - facility status on the Mobile 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent)

+CLIR - Calling Line Identification Restriction	SELINT 2
	<m> - facility status on the Network 0 - CLIR service not provisioned 1 - CLIR service provisioned permanently 2 - unknown (e.g. no network present, etc.) 3 - CLI temporary mode presentation restricted 4 - CLI temporary mode presentation allowed
AT+CLIR=?	Test command reports the supported values of parameter **<n>**.
Reference	3GPP TS 27.007
Note	This command sets the default behaviour of the device in outgoing calls.

3.5.4.3.10. Call Forwarding Number And Conditions - +CCFC

+CCFC - Call Forwarding Number And Condition	SELINT 0 / 1 / 2
AT+CCFC=<reason>,<cmd>[,<number>[,<type>[,<class>[,,,<time>]]]	Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported. Parameters: **<reason>** 0 - unconditional 1 - mobile busy 2 - no reply 3 - not reachable 4 - all calls (not with query command) 5 - all conditional calls (not with query command) **<cmd>** 0 - disable 1 - enable 2 - query status 3 - registration 4 - erasure **<number>** - string type phone number of forwarding address in format specified by **<type>** parameter **<type>** - type of address octet in integer format : 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<class>** - sum of integers each representing a class of information which the command refers to; default 7 (voice + data + fax)

+CCFC - Call Forwarding Number And Condition	SELINT 0 / 1 / 2
	1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access **<time>** - time in *seconds* to wait before call is forwarded; it is valid only when **<reason>** "no reply" is enabled (**<cmd>**=1) or queried (**<cmd>**=2) 1..30 - automatically rounded to a multiple of 5 seconds (default is 20) Note: when **<cmd>=2** and command successful, it returns: **+CCFC: <status>,<class1>[,<number>,<type>[,,,<time>]][<CR><LF>** **+CCFC: <status>,<class2>[,<number>,<type>[,,,<time>]][...]]** where: **<status>** - current status of the network service 0 - not active 1 - active **<class*n*>** - same as **<class>** **<time>** - it is returned only when **<reason>**=2 ("no reply") and **<cmd>**=2. The other parameters are as seen before.
AT+CCFC=?	Test command reports supported values for the parameter **<reason>**.
Reference	3GPP TS 27.007
Note	When querying the status of a network service (**<cmd>=2**) the response line for 'not active' case (**<status>=0**) should be returned only if service is not active for any **<class>**.

3.5.4.3.11. Call Waiting - +CCWA

+CCWA - Call Waiting	SELINT 0 / 1
AT+CCWA[= [<n>[,<cmd> [,<class>]]]]	Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported. Parameters: **<n>** - enables/disables the presentation of an unsolicited result code:

+CCWA - Call Waiting	**SELINT 0 / 1**
	0 - disable 1 - enable **<cmd>** - enables/disables or queries the service at network level: 0 - disable 1 - enable 2 - query status **<class>** - is a sum of integers each representing a class of information which the command refers to; default is 7 (**voice + data + fax**) 1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: the response to the query command is in the format: **+CCWA: <status>,<class1>[<CR><LF>** **+CCWA: <status>,<class2>[...]]** where **<status>** represents the status of the service: 0 - inactive 1 - active **<class*n*>** - same as **<class>** Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CCWA: <number>,<type>,<class>,<alpha>,<cli_validity>** where **<number>** - string type phone number of calling address in format specified by **<type>** **<type>** - type of address in integer format **<class>** - see before **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with **+CSCS**. **<cli_validity>**

+CCWA - Call Waiting	SELINT 0 / 1
	0 - CLI valid 1 - CLI has been withheld by the originator 2 - CLI is not available due to interworking problems or limitations of originating network Note: if parameter **<cmd>** is omitted then network is not interrogated. Note: in the query command the class parameter must not be issued. Note: the difference between call waiting report disabling (**AT+CCWA = 0,1,7**) and call waiting service disabling (**AT+CCWA = 0,0,7**) is that in the first case the call waiting indication is sent to the device by network but this last one does not report it to the **DTE**; instead in the second case the call waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party. Note: The command **AT+CCWA=1,0** has no effect a non sense and must not be issued. Note: issuing **AT+CCWA<CR>** is the same as issuing the Read command. Note: issuing **AT+CCWA=<CR>** is the same as issuing the command **AT+CCWA=0<CR>**.
AT+CCWA?	Read command reports the current value of the parameter **<n>**.
AT+CCWA=?	Test command reports the supported values for the parameter **<n>**.
Reference	3GPP TS 27.007

+CCWA - Call Waiting	SELINT 2
AT+CCWA= [<n>[,<cmd> [,<class>]]]	Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported. Parameters: **<n>** - enables/disables the presentation of an unsolicited result code: 0 - disable 1 - enable **<cmd>** - enables/disables or queries the service at network level: 0 - disable 1 - enable 2 - query status **<class>** - is a sum of integers each representing a class of information which the command refers to; default is 7 (**voice + data + fax**)

+CCWA - Call Waiting		SELINT 2
	1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: the response to the query command is in the format: **+CCWA: <status>,<class1>[<CR><LF>** **+CCWA: <status>,<class2>[…]]** where **<status>** represents the status of the service: 0 - inactive 1 - active **<class*n*>** - same as **<class>** Note: the unsolicited result code enabled by parameter **<n>** is in the format:: **+CCWA: <number>,<type>,<class>,[<alpha>][,<cli_validity>]** where: **<number>** - string type phone number of calling address in format specified by **<type>** **<type>** - type of address in integer format **<class>** - see before **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with **+CSCS**. **<cli_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator 2 - CLI is not available due to interworking problems or limitations of originating network Note: if parameter **<cmd>** is omitted then network is not interrogated. Note: in the query command the class parameter must not be issued.	

+CCWA - Call Waiting	SELINT 2
	Note: the difference between call waiting report disabling (**AT+CCWA = 0,1,7**) and call waiting service disabling (**AT+CCWA = 0,0,7**) is that in the first case the call waiting indication is sent to the device by network but this last one does not report it to the **DTE**; instead in the second case the call waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party. Note: The command **AT+CCWA=1,0** has no effect a non sense and must not be issued..
AT+CCWA?	Read command reports the current value of the parameter **<n>**.
AT+CCWA=?	Test command reports the supported values for the parameter **<n>**.
Reference	3GPP TS 27.007

3.5.4.3.12. Call Holding Services - +CHLD

+CHLD - Call Holding Services	SELINT 0 / 1
AT+CHLD=<n>	Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection. Parameter: **<n>** 0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. 1 - releases all active calls (if any exist), and accepts the other (held or waiting) call 1X - releases a specific active call X 2 - places all active calls (if any exist) on hold and accepts the other (held or waiting) call. 2X - places all active calls on hold except call X with which communication shall be supported 3 - adds an held call to the conversation Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number. Note: where both a held and a waiting call exist, the above procedures apply

+CHLD - Call Holding Services	SELINT 0 / 1
	to the waiting call (i.e. not to the held call) in conflicting situation.
AT+CHLD=?	Test command returns the list of supported **<n>s**. +CHLD: (0,1,2,3) Note: consider what has been written about the Set command relating the actions on a specific call (X).
Reference	3GPP TS 27.007
Note	ONLY for VOICE calls

+CHLD - Call Holding Services	SELINT 2
AT+CHLD=[<n>]	Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection. Parameter: **<n>** 0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. (only from version D) 1 - releases all active calls (if any exist), and accepts the other (held or waiting) call 1X - releases a specific active call X 2 - places all active calls (if any exist) on hold and accepts the other (held or waiting) call. 2X - places all active calls on hold except call X with which communication shall be supported (only from version D). 3 - adds an held call to the conversation 4 - connects the two calls and disconnects the subscriber from both calls (Explicit Call Transfer (ECT)) Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number. Note: where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation.
AT+CHLD=?	Test command returns the list of supported **<n>s**. +CHLD: (0,1,1X,2,2X,3,4)

+CHLD - Call Holding Services	SELINT 2
Reference	3GPP TS 27.007
Note	ONLY for VOICE calls

3.5.4.3.13. Unstructured Supplementary Service Data - +CUSD

+CUSD - Unstructured Supplementary Service Data	SELINT 0 / 1
AT+CUSD[= [<n>[,<str> [,<dcs>]]]]	Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]). Parameters: **<n>** - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the **DTA** 1 - enable the result code presentation in the **DTA** **<str>** - USSD-string (when **<str>** parameter is not given, network is not interrogated) - If **<dcs>** indicates that GSM338 default alphabet is used **ME/TA** converts GSM alphabet into current TE character set (see **+CSCS**) - If **<dcs>** indicates that 8-bit data coding scheme is used: **ME/TA** converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to **TE** as two characters 2A (IRA 50 and 65). **<dcs>** - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0). Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CUSD: <m>[,<str>,<dcs>]** to the **TE**

+CUSD - Unstructured Supplementary Service Data	SELINT 0 / 1
	where: **<m>**: 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out Note: in case of successful mobile initiated operation, **DTA** waits the USSD response from the network and sends it to the **DTE** before the final result code. This will block the AT command interface for the period of the operation. Note: issuing **AT+CUSD<CR>** is the same as issuing the Read command. Note: issuing **AT+CUSD=<CR>** is the same as issuing the command **AT+CUSD=0<CR>**.
AT+CUSD?	Read command reports the current value of the parameter **<n>**
AT+CUSD=?	Test command reports the supported values for the parameter **<n>**
Reference	3GPP TS 27.007
Note	Only mobile initiated operations are supported

+CUSD - Unstructured Supplementary Service Data	SELINT 2
AT+CUSD=[<n>[,<str>[,<dcs>]]]	Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]). Parameters: **<n>** - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the **DTA** 1 - enable the result code presentation in the **DTA** 2 - cancel an ongoing USSD session (not applicable to read command response) **<str>** - USSD-string (when **<str>** parameter is not given, network is not interrogated)

+CUSD - Unstructured Supplementary Service Data	**SELINT 2**
	- If **<dcs>** indicates that GSM338 default alphabet is used **ME/TA** converts GSM alphabet into current TE character set (see **+CSCS**). - If **<dcs>** indicates that 8-bit data coding scheme is used: **ME/TA** converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65). **<dcs>** - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0). Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CUSD: <m>[,<str>,<dcs>]** to the TE where: **<m>**: 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out
AT+CUSD?	Read command reports the current value of the parameter **<n>**
AT+CUSD=?	Test command reports the supported values for the parameter **<n>**
Reference	3GPP TS 27.007
Note	Only mobile initiated operations are supported

3.5.4.3.14. Advice Of Charge - +CAOC

+CAOC - Advice Of Charge	SELINT 0 / 1
AT+CAOC[=[<mode>]]	Set command refers to the Advice of Charge supplementary services that enable subscriber to get information about the cost of calls; the command also includes the possibility to enable an unsolicited event reporting of the Current Call Meter (CCM) information. Parameter: **<mode>** 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting Note: the unsolicited result code enabled by parameter **<mode>** is in the format: **+CCCM: <ccm>** where: **<ccm>** - current call meter in home units, string type: three bytes of the CCM value in hexadecimal format (e.g. “00001E” indicates decimal value 30) Note: the unsolicited result code **+CCCM** is sent when the CCM value changes, but not more than every 10 seconds.

+CAOC - Advice Of Charge	**SELINT 0 / 1**
	Note: issuing **AT+CAOC<CR>** is the same as issuing the Read command. Note: issuing **AT+CAOC=<CR>** is the same as issuing the command **AT+CAOC=0<CR>**.
AT+CAOC?	Read command reports the value of parameter **<mode>** in the format: **+CAOC: <mode>**
AT+CAOC=?	Test command reports the supported values for **<mode>** parameter. Note: the representation format doesn't match the v.25ter §5.7.3 "Information text formats for test commands". The output is: **+CAOC: 0, 1, 2**
Reference	3GPP TS 27.007
Note	**+CAOC** command returns an estimate of the cost of the current call only, produced by the MS and based on the information provided by either AoCI or AOCC supplementary services; it is not stored in the SIM.

+CAOC - Advice Of Charge	**SELINT 2**
AT+CAOC= <mode>	Set command refers to the Advice of Charge supplementary services that enable subscriber to get information about the cost of calls; the command also includes the possibility to enable an unsolicited event reporting of the Current Call Meter (CCM) information. Parameter: **<mode>** 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting Note: the unsolicited result code enabled by parameter **<mode>** is in the format: **+CCCM: <ccm>** where: **<ccm>** - current call meter in home units, string type: three bytes of the CCM value in hexadecimal format (e.g. "00001E" indicates decimal value 30) Note: the unsolicited result code **+CCCM** is sent when the CCM value changes, but not more than every 10 seconds.

+CAOC - Advice Of Charge	SELINT 2
AT+CAOC?	Read command reports the value of parameter **<mode>** in the format: **+CAOC: <mode>**
AT+CAOC=?	Test command reports the supported values for **<mode>** parameter.
Reference	3GPP TS 27.007
Note	**+CAOC** command returns an estimate of the cost of the current call only, produced by the MS and based on the information provided by either AoCI or AOCC supplementary services; it is not stored in the SIM.

3.5.4.3.15. List Current Calls - +CLCC

+CLCC - List Current Calls	SELINT 0 / 1
AT+CLCC	Execution command returns the list of current calls and their characteristics in the format: **[+CLCC:<id1>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>** **[<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>** **[…]]]** where: **<id*n*>** - call identification number **<dir>** - call direction 0 - mobile originated call 1 - mobile terminated call **<stat>** - state of the call 0 - active 1 - held 2 - dialling (**MO** call) 3 - alerting (**MO** call) 4 - incoming (**MT** call) 5 - waiting (**MT** call)

+CLCC - List Current Calls	SELINT 0 / 1
	<mode> - call type 0 - voice 1 - data 2 - fax 9 - unknown **<mpty>** - multiparty call flag 0 - call is not one of multiparty (conference) call parties 1 - call is one of multiparty (conference) call parties **<number>** - string type phone number in format specified by **<type>** **<type>** - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: If no call is active then only **OK** message is sent. This command is useful in conjunction with command **+CHLD** to know the various call status for call holding.
Reference	3GPP TS 27.007

+CLCC - List Current Calls	SELINT 2
AT+CLCC	Execution command returns the list of current calls and their characteristics in the format: **[+CLCC:<id1>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>,<alpha>[<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>,<alpha>[…]]]** where: **<id*n*>** - call identification number **<dir>** - call direction 0 - mobile originated call 1 - mobile terminated call **<stat>** - state of the call 0 - active 1 - held 2 - dialing (**MO** call) 3 - alerting (**MO** call) 4 - incoming (**MT** call) 5 - waiting (**MT** call) **<mode>** - call type

+CLCC - List Current Calls	**SELINT 2**
	0 - voice 1 - data 2 - fax 9 - unknown **<mpty>** - multiparty call flag 0 - call is not one of multiparty (conference) call parties 1 - call is one of multiparty (conference) call parties **<number>** - string type phone number in format specified by **<type>** **<type>** - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with **+CSCS**. Note: If no call is active then only **OK** message is sent. This command is useful in conjunction with command **+CHLD** to know the various call status for call holding.
AT+CLCC=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.3.16. SS Notification - +CSSN

+CSSN - SS Notification	**SELINT 0 / 1**
AT+CSSN[= [<n>[,<m>]]]	It refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from **TA** to **TE**. Parameters: **<n>** - sets the **+CSSI** result code presentation status 0 - disable 1 - enable **<m>** - sets the **+CSSU** result code presentation status 0 - disable 1 - enable When **<n>=1** and a supplementary service notification is received after a mobile originated call setup, an unsolicited code: **+CSSI: <code1>**

+CSSN - SS Notification	**SELINT 0 / 1**
	is sent to **TE** before any other **MO** call setup result codes, where: **<code1>**: 1 - some of the conditional call forwarding are active 2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred When **<m>=1** and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code **+CSSU: <code2>** is sent to **TE**, where: **<code2>**: 0 - this is a forwarded call (**MT** call setup) 2 - call has been put on hold (during a voice call) 3 - call has been retrieved (during a voice call) Note: issuing **AT+CSSN<CR>** is the same as issuing the Read command. Note: issuing **AT+CSSN=<CR>** is the same as issuing the command **AT+CSSN=0<CR>**.
AT+CSSN?	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters **<n>**, **<m>**.
Reference	3GPP TS 27.007

+CSSN - SS Notification	**SELINT 2**
AT+CSSN=[<n> [,<m>]]	It refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from **TA** to **TE**. Parameters: **<n>** - sets the **+CSSI** result code presentation status 0 - disable 1 - enable **<m>** - sets the **+CSSU** result code presentation status 0 - disable

+CSSN - SS Notification	**SELINT 2**
	1 - enable When **<n>**=1 and a supplementary service notification is received after a mobile originated call setup, an unsolicited code: **+CSSI: <code1>** is sent to **TE** before any other **MO** call setup result codes, where: **<code1>**: 1 - some of the conditional call forwardings are active 2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred When **<m>=1** and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code: **+CSSU: <code2>** is sent to **TE**, where: **<code2>**: 0 - this is a forwarded call (**MT** call setup) 2 - call has been put on hold (during a voice call) 3 - call has been retrieved (during a voice call).
AT+CSSN?	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters **<n>**, **<m>**.
Reference	3GPP TS 27.007

3.5.4.3.17. Closed User Group - +CCUG

+CCUG - Closed User Group Supplementary Service Control	**SELINT 0 / 1**
AT+CCUG[=[<n>[,<index>[,<info>]]]]	Set command allows control of the Closed User Group supplementary service [GSM 02.85]. Parameters: **<n>** 0 - disable CUG temporary mode (factory default). 1 - enable CUG temporary mode: it enables to control the CUG information on the air interface as a default adjustment for all following outgoing calls.

+CCUG - Closed User Group Supplementary Service Control	**SELINT 0 / 1**
	<index> 0..9 - CUG index 10 - no index (preferential CUG taken from subscriber data) (default) **<info>** 0 - no information (default) 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG 3 - suppress OA and preferential CUG Note: issuing **AT+CCUG<CR>** is the same as issuing the Read command. Note: issuing **AT+CCUG=<CR>** is the same as issuing the command **AT+CCUG=0<CR>**.
AT+CCUG?	Read command reports the current value of the parameters
AT+CCUG=?	Test command reports the supported range of values for the parameters **<n>**, **<index>**, **<info>**
Reference	3GPP TS 27.007

+CCUG - Closed User Group Supplementary Service Control	**SELINT 2**
AT+CCUG= [<n>[,<index> [,<info>]]]	Set command allows control of the Closed User Group supplementary service [GSM 02.85]. Parameters: **<n>** 0 - disable CUG temporary mode (factory default). 1 - enable CUG temporary mode: it enables to control the CUG information on the air interface as a default adjustment for all following outgoing calls. **<index>** 0..9 - CUG index 10 - no index (preferential CUG taken from subscriber data) (default) **<info>** 0 - no information (default) 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG 3 - suppress OA and preferential CUG
AT+CCUG?	Read command reports the current value of the parameters
AT+CCUG=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.3.18. Preferred Operator List - +CPOL

+CPOL - Preferred Operator List	SELINT 2
AT+CPOL= [<index>][,<format> [,<oper>]]	Execution command writes an entry in the SIM list of preferred operators. Parameters: **<index>** - integer type; the order number of operator in the SIM preferred operator list 1..*n* **<format>** 2 - numeric **<oper>** **<oper>** - string type Note: if **<index>** is given but **<oper>** is left out, entry is deleted. If **<oper>** is given but **<index>** is left out, **<oper>** is put in the next free location. If only **<format>** is given, the format of the **<oper>** in the read command is changed.
AT+CPOL?	Read command returns all used entries from the SIM list of preferred operators.
AT+CPOL=?	Test command returns the whole **<index>** range supported by the SIM and the range for the parameter **<format>**
Reference	3GPP TS 27.007

3.5.4.3.19. Selection of preferred PLMN list - +CPLS

+CPLS – Selection of preferred PLMN list	SELINT 2
AT+CPLS=<list>	The execution command is used to select a list of preferred PLMNs in the SIM/USIM. Parameters: **<list>**: 0 - User controlled PLMN selector with Access Technology EFPLMNwAcT, if not found in the SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC) 1 - Operator controlled PLMN selector with Access Technology EFOPLMNwAcT 2 - HPLMN selector with Access Technology EFHPLMNwAcT
AT+CPLS?	Read command returns the selected PLMN selector **<list>** from the SIM/USIM.
AT+CPLS=?	Test command returns the whole index range supported **<list>**s by

	the SIM/USIM.

3.5.4.4. Mobile Equipment Control

3.5.4.4.1. Phone Activity Status - +CPAS

+CPAS - Phone Activity Status	SELINT 0 / 1
AT+CPAS	Execution command reports the device status in the form: **+CPAS: <pas>** Where: **<pas>** - phone activity status 0 - ready (device allows commands from **TA/TE**) 1 - unavailable (device does not allow commands from **TA/TE**) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from **TA/TE**, but the ringer is active) 4 - call in progress (device is ready for commands from **TA/TE**, but a call is in progress)
AT+CPAS?	Read command has the same effect as Execution command.
AT+CPAS=?	Test command reports the supported range of values for **<pas>**. Note: although **+CPAS** is an execution command, ETSI 07.07 requires the Test command to be defined.
Reference	3GPP TS 27.007

+CPAS - Phone Activity Status	SELINT 2
AT+CPAS	Execution command reports the device status in the form: **+CPAS: <pas>** Where: **<pas>** - phone activity status 0 - ready (device allows commands from **TA/TE**) 1 - unavailable (device does not allow commands from **TA/TE**) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from **TA/TE**, but the ringer is active) 4 - call in progress (device is ready for commands from **TA/TE**, but a call is

+CPAS - Phone Activity Status	**SELINT 2**
	in progress)
AT+CPAS=?	Test command reports the supported range of values for **<pas>**. Note: although **+CPAS** is an execution command, ETSI 07.07 requires the Test command to be defined.

Example	`ATD03282131321;`
	`OK`
	`AT+CPAS`
	`+CPAS: 4` *the called phone has answered to your call*
	
	`OK`
	`ATH`
	`OK`

Reference	3GPP TS 27.007

3.5.4.4.2. Set Phone Functionality - +CFUN

+CFUN - Set Phone Functionality	**SELINT 0 / 1**
AT+CFUN=<fun>	Set command selects the level of functionality in the **ME**. Parameter: **<fun>** - is the power saving function mode 0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible. Consequently, once you have set **<fun>** level 0, do not send further characters. Otherwise these characters remain in the input buffer and may delay the output of an unsolicited result code. The first wake-up event, or rising **RTS** line, stops power saving and takes the ME back to full functionality level **<fun>=1**. 1 - mobile full functionality with power saving disabled (factory default) 2 - disable TX 4 - disable either TX and RX 5 - mobile full functionality with power saving enabled Note: issuing **AT+CFUN=4** actually causes the module to perform either a network deregistration and a SIM deactivation. Note: if power saving enabled, it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity. Note: to place the module in power saving mode, set the **<fun>** parameter at value = 5 and the line **DTR** (RS232) must be set to **OFF**. Once in power saving, the **CTS** line switch to the **OFF** status to signal that the module is really in power saving condition.

+CFUN - Set Phone Functionality	**SELINT 0 / 1**
	During the power saving condition, before sending any AT command on the serial line, the **DTR** must be set to ON (0V) to exit from power saving and must be waited for the **CTS** (RS232) line to go in **ON** status. Until the **DTR** line is **ON**, the module will not return back in the power saving condition. Note: the power saving function does not affect the network behavior of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call arrives during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code
AT+CFUN?	Read command reports the current level of functionality.
AT+CFUN=?	Test command returns the list of supported values for **<fun>** For compatibility with previous versions, Test command returns **+CFUN: (1, 5)** An enhanced version of Test command has been defined: **AT+CFUN=??**, that provides the complete range of values for **<fun>**.
AT+CFUN=??	Enhanced test command returns the list of supported values for **<fun>**
Reference	3GPP TS 27.007

+CFUN - Set Phone Functionality	**SELINT 2**
AT+CFUN= [<fun>[,<rst>]]	Set command selects the level of functionality in the ME. Parameters: **<fun>** - is the power saving function mode 0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible. Consequently, once you have set **<fun>** level 0, do not send further characters. Otherwise these characters remain in the input buffer and may delay the output of an unsolicited result code. The first wake-up event, or rising **RTS** line, stops power saving and takes the ME back to full functionality level **<fun>=1**. 1 - mobile full functionality with power saving disabled (factory default) 2 - disable TX 4 - disable both TX and RX 5 - mobile full functionality with power saving enabled 7 - CYCLIC SLEEP mode: in this mode, the serial interface is periodically enabled while CTS is active. If characters are recognized on the serial interface, the ME stays active for 2 seconds after the last character was

+CFUN - Set Phone Functionality	SELINT 2
	sent or received. ME exits SLEEP mode only, if AT+CFUN=1 is entered 9 – just as 0 but with different wake-up events (see SW User Guide) **<rst>** - reset flag 0 - do not reset the ME before setting it to **<fun>** functionality level 1 – reset the device. The device is fully functional after the reset. This value is available only for <fun> = 1 and for 10.00.xxx release Note: issuing **AT+CFUN=4[,0]** actually causes the module to perform either a network deregistration and a SIM deactivation. Note: if power saving enabled, it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity. Note: to place the module in power saving mode, set the **<fun>** parameter at value = 5 and the line **DTR** (RS232) must be set to **OFF**. Once in power saving, the **CTS** line switch to the **OFF** status to signal that the module is really in power saving condition. During the power saving condition, before sending any **AT** command on the serial line, the **DTR** must be set to ON (0V) to exit from power saving and it must be waited for the **CTS** (RS232) line to go in **ON** status. Until the **DTR** line is **ON**, the module will not return back in the power saving condition. Note: the power saving function does not affect the network behaviour of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call incomes during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code
AT+CFUN?	Read command reports the current setting of **<fun>**.
AT+CFUN=?	Test command returns the list of supported values for **<fun>** and **<rst>**.
Reference	3GPP TS 27.007

3.5.4.4.3. Enter PIN - +CPIN

+CPIN - Enter PIN	SELINT 0 / 1
AT+CPIN[=<pin>[,<newpin>]]	Set command sends to the device a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the **<newpin>** is required. This second pin, **<newpin>**, will replace the old pin in the SIM. The command may be used to change the SIM PIN by sending it with both

+CPIN - Enter PIN	SELINT 0 / 1
	parameters **<pin>** and **<newpin>** when PIN request is pending; if no PIN request is pending the command will return an error code and to change the PIN the command **+CPWD** must be used instead. Parameters: **<pin>** - string type value **<newpin>** - string type value. To check the status of the PIN request use the command **AT+CPIN?** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT+CPIN?	Read command reports the PIN/PUK/PUK2 request status of the device in the form: **+CPIN:<code>** where: **<code>** - PIN/PUK/PUK2 request status code READY - ME is not pending for any password SIM PIN - ME is waiting SIM PIN to be given SIM PUK - ME is waiting SIM PUK to be given PH-SIM PIN - ME is waiting phone-to-SIM card password to be given PH-FSIM PIN - ME is waiting phone-to-very first SIM card password to be given PH-FSIM PUK - ME is waiting phone-to-very first SIM card unblocking password to be given SIM PIN2 - ME is waiting SIM PIN2 to be given; this **<code>** is returned only when the last executed command resulted in PIN2 authentication failure (i.e. **+CME ERROR: 17**) SIM PUK2 - ME is waiting SIM PUK2 to be given; this **<code>** is returned only when the last executed command resulted in PUK2 authentication failure (i.e. **+CME ERROR: 18**) PH-NET PIN - ME is waiting network personalization password to be given PH-NET PUK - ME is waiting network personalization unblocking password to be given PH-NETSUB PIN - ME is waiting network subset personalization password to be given PH-NETSUB PUK - ME is waiting network subset personalization unblocking password to be given PH-SP PIN - ME is waiting service provider personalization password to be given PH-SP PUK - ME is waiting service provider personalization unblocking

+CPIN - Enter PIN	SELINT 0 / 1
	password to be given PH-CORP PIN - ME is waiting corporate personalization password to be given PH-CORP PUK - ME is waiting corporate personalization unblocking password to be given Note: Pin pending status at startup depends on PIN facility setting, to change or query the default power up setting use either the **AT+CLCK=SC,<mode>, <pin>** command or the **AT@CLCK=SC,<mode>, <pin>** command.
AT+CPIN=?	Test command returns **OK** result code.

Example

```
AT+CMEE=1
OK
AT+CPIN?
+CME ERROR: 10                    error: you have to insert the SIM
AT+CPIN?
+CPIN: READY         you inserted the SIM and device is not waiting for PIN to be given

OK
```

Note

What follows is a list of the commands which are accepted when ME is pending SIM PIN or SIM PUK

A	#GPIO	#CSURVB	+CPIN
D	#ADC	#CSURVBC	+CSQ
H	#DAC	#CSURVF	+CCLK
O	#VAUX	#CSURVNLF	+CALA
E	#CBC	#CSURVEXT	+CRSM
I	#AUTOATT	#JDR	+CALM
L	#MONI	#WSCRIPT	+CRSL
M	#SERVINFO	#ESCRIPT	+CLVL
P	#COPSMODE	#RSCRIPT	+CMUT
Q	#QSS	#LSCRIPT	+CMEE
S	#DIALMODE	#DSCRIPT	+CGREG
T	#ACAL	#REBOOT	+CBC
V	#ACALEXT	#STARTMODESCR	+CSDH
X	#CODEC	#EXECSCR	+CNMI
Z	#SHFEC		+FMI
&C	#HFMICG	#PLMNMODE	+FMM
&D	#HSMICG	+FCLASS	+FMR
&F	#SHFSD	+GCAP	+FTS
&K	#BND	+GCI	+FRS
&N	#AUTOBND	+IPR	+FTM
&P	#RTCSTAT	+IFC	+FRM
&S	#USERID	+ILRR	+FTH

+CPIN - Enter PIN	SELINT 0 / 1

&V	#PASSW	+ICF	+FRH
&W	#PKTSZ	+MS	+FLO
&Y	#DSTO	+DS	+FPR
&Z	#SKTTO	+DR	+FDD
%E	#SKTSET	+CGMI	$GPSP
%L	#SKTOP	+CGMM	$GPSPS
%Q	#SKTCT	+CGMR	$GPSR
\Q	#SKTSAV	+GMI	$GPSD
\R	#SKTRST	+GMM	$GPSSW
\V	#ESMTP	+GMR	$GPSAT
#SELINT	#EADDR	+CGSN	$GPSAV
#CGMI	#EUSER	+GSN	$GPSAI
#CGMM	#EPASSW	+CHUP	$GPSAP
#CGMR	#SEMAIL	+CRLP	$GPSS
#CGSN	#EMAILD	+CR	$GPSNMUN
#CAP	#ESAV	+CRC	$GPSACP
#SRS	#ERST	+CSNS	$GPSWK
#SRP	#EMAILMSG	+CREG	$GPSSAV
#STM	#CSURV	+COPS	$GPSRST
#PCT	#CSURVC	+CLIP	$GPSCON
#SHDN	#CSURVU	+CPAS	$GPSPRG
#WAKE	#CSURVUC	+CFUN	
#QTEMP			

All the above commands, but the ones in the grayed cells, can be issued even if the SIM card is not inserted yet.

All the above commands, but **+CSDH** and **+CNMI**, can be issued even if ME is waiting for phone-To-SIM card password to be given

Reference	3GPP TS 27.007

+CPIN - Enter PIN	SELINT 2
AT+CPIN=<pin> [,<newpin>]	Set command sends to the device a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the **<newpin>** is required. This second pin, **<newpin>** will replace the old pin in the SIM. The command may be used to change the SIM PIN by sending it with both parameters **<pin>** and **<newpin>** when PIN request is pending; if no PIN request is pending the command will return an error code and to change the PIN the command **+CPWD** must be used instead.

+CPIN - Enter PIN	SELINT 2
	Parameters: **<pin>** - string type value **<newpin>** - string type value. To check the status of the PIN request use the command **AT+CPIN?** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT+CPIN?	Read command reports the PIN/PUK/PUK2 request status of the device in the form: **+CPIN: <code>** where: **<code>** - PIN/PUK/PUK2 request status code READY - ME is not pending for any password SIM PIN - ME is waiting SIM PIN to be given SIM PUK - ME is waiting SIM PUK to be given PH-SIM PIN - ME is waiting phone-to-SIM card password to be given PH-FSIM PIN - ME is waiting phone-to-very first SIM card password to be given PH-FSIM PUK - ME is waiting phone-to-very first SIM card unblocking password to be given SIM PIN2 - ME is waiting SIM PIN2 to be given; this **<code>** is returned only when the last executed command resulted in PIN2 authentication failure (i.e. **+CME ERROR: 17**) SIM PUK2 - ME is waiting SIM PUK2 to be given; this **<code>** is returned only when the last executed command resulted in PUK2 authentication failure (i.e. **+CME ERROR: 18**) PH-NET PIN - ME is waiting network personalization password to be given PH-NET PUK - ME is waiting network personalization unblocking password to be given PH-NETSUB PIN - ME is waiting network subset personalization password to be given PH-NETSUB PUK - ME is waiting network subset personalization unblocking password to be given PH-SP PIN - ME is waiting service provider personalization password to be given PH-SP PUK - ME is waiting service provider personalization unblocking password to be given PH-CORP PIN - ME is waiting corporate personalization password to be given PH-CORP PUK - ME is waiting corporate personalization unblocking password to be given

+CPIN - Enter PIN	SELINT 2
	Note: Pin pending status at startup depends on PIN facility setting, to change or query the default power up setting use the command **AT+CLCK=SC,<mode>,<pin>**
AT+CPIN=?	Test command returns **OK** result code.

Example

```
AT+CMEE=1
OK
AT+CPIN?
+CME ERROR: 10                    error: you have to insert the SIM
AT+CPIN?
+CPIN: READY          you inserted the SIM and device is not waiting for PIN to be given

OK
```

Note

What follows is a list of the commands which are accepted when ME is pending SIM PIN or SIM PUK

A	#DAC	#CSURVNLF	+CPIN
D	#VAUX	#CSURVEXT	+CSQ
H	#VAUXSAV	#JDR	+CIND
O	#CBC	#WSCRIPT	+CMER
E	#AUTOATT	#ESCRIPT	+CCLK
I	#MONI	#RSCRIPT	+CALA
L	#SERVINFO	#LSCRIPT	+CALD
M	#QSS	#DSCRIPT	+CRSM
P	#DIALMODE	#REBOOT	+CALM
Q	#ACAL	#CMUXSCR	+CRSL
S	#ACALEXT	#STARTMODESCR	+CLVL
T	#CODEC	#EXECSCR	+CMUT
V	#SHFEC	#RSEN	+CLAC
X	#HFMICG	#CCID	+CMEE
Z	#HSMICG		+CGREG
&C	#SHFSD	#PLMNMODE	+CBC
&D	#BND	#V24CFG	+CSDH
&F	#AUTOBND	#V24	+CNMI
&K	#RTCSTAT	+FCLASS	+FMI
&N	#USERID	+GCAP	+FMM
&P	#PASSW	+GCI	+FMR
&S	#PKTSZ	+IPR	+FTS
&V	#DSTO	+IFC	+FRS
&W	#SKTTO	+ILRR	+FTM
&Y	#SKTSET	+ICF	+FRM
&Z	#SKTOP	+MS	+FTH
%E	#SKTCT	+DS	+FRH
%L	#SKTSAV	+DR	+FLO
%Q	#SKTRST	+CGMI	+FPR

+CPIN - Enter PIN	**SELINT 2**

\Q	#SPKMUT	+CGMM	+FDD
\R	#ESMTP	+CGMR	$GPSP
\V	#EADDR	+GMI	$GPSPS
#SELINT	#EUSER	+GMM	$GPSR
#CGMI	#EPASSW	+GMR	$GPSD
#CGMM	#SEMAIL	+CGSN	$GPSSW
#CGMR	#EMAILD	+GSN	$GPSAT
#CGSN	#ESAV	+CMUX	$GPSAV
#CAP	#ERST	+CHUP	$GPSAI
#SRS	#EMAILMSG	+CRLP	$GPSAP
#SRP	#CSURV	+CR	$GPSS
#STM	#CSURVC	+CRC	$GPSNMUN
#PCT	#CSURVU	+CSNS	$GPSACP
#SHDN	#CSURVUC	+CREG	$GPSWK
#WAKE	#CSURVB	+COPS	$GPSSAV
#QTEMP	#CSURVBC	+CLIP	$GPSRST
#GPIO	#CSURVF	+CPAS	$GPSCON
#ADC		+CFUN	$GPSPRG

All the above commands, but the ones in the grayed cells, can be issued even if the SIM card is not inserted yet.

All the above commands, but **+CSDH** and **+CNMI**, can be issued even if ME is waiting for phone-To-SIM card password to be given

Reference	3GPP TS 27.007

3.5.4.4.4. Signal Quality - +CSQ

+CSQ - Signal Quality	**SELINT 0 / 1**
AT+CSQ	Execution command reports received signal quality indicators in the form: **+CSQ: <rssi>,<ber>** where **<rssi>** - received signal strength indication 0 - (-113) dBm or less 1 - (-111) dBm 2..30 - (-109)dBm..(-53)dBm / 2 dBm per step 31 - (-51)dBm or greater 99 - not known or not detectable

+CSQ - Signal Quality	**SELINT 0 / 1**
	<ber> - bit error rate (in percent) 0 - less than 0.2% 1 - 0.2% to 0.4% 2 - 0.4% to 0.8% 3 - 0.8% to 1.6% 4 - 1.6% to 3.2% 5 - 3.2% to 6.4% 6 - 6.4% to 12.8% 7 - more than 12.8% 99 - not known or not detectable Note: this command should be used instead of the **%Q** and **%L** commands, since GSM relevant parameters are the radio link ones and no line is present, hence **%Q** **%L** and have no meaning.
AT+CSQ?	Read command has the same effect as Execution command.
AT+CSQ=?	Test command returns the supported range of values of the parameters **<rssi>** and **<ber>**. Note: although **+CSQ** is an execution command without parameters, ETSI 07.07 requires the Test command to be defined.
Reference	3GPP TS 27.007
	SELINT 2
AT+CSQ	Execution command reports received signal quality indicators in the form: **+CSQ: <rssi>,<ber>** where **<rssi>** - received signal strength indication 0 - (-113) dBm or less 1 - (-111) dBm 2..30 - (-109)dBm..(-53)dBm / 2 dBm per step 31 - (-51)dBm or greater 99 - not known or not detectable **<ber>** - bit error rate (in percent) 0 - less than 0.2% 1 - 0.2% to 0.4% 2 - 0.4% to 0.8% 3 - 0.8% to 1.6% 4 - 1.6% to 3.2% 5 - 3.2% to 6.4% 6 - 6.4% to 12.8% 7 - more than 12.8% 99 - not known or not detectable

+CSQ - Signal Quality	**SELINT 0 / 1**
	Note: this command should be used instead of the **%Q** and **%L** commands, since GSM relevant parameters are the radio link ones and no line is present, hence **%Q** and **%L** have no meaning.
AT+CSQ=?	Test command returns the supported range of values of the parameters **<rssi>** and **<ber>**. Note: although **+CSQ** is an execution command without parameters, ETSI 07.07 requires the Test command to be defined.
Reference	3GPP TS 27.007

3.5.4.4.5. Indicator Control - +CIND

+CIND - Indicator Control	**SELINT 0/1/2**
AT+CIND= [<state> [,<state>[,...]]]	Set command is used to control the registration state of ME indicators, in order to automatically send the **+CIEV** URC, whenever the value of the associated indicator changes. The supported indicators (**<descr>**) and their order appear from test command **AT+CIND=?** Parameter: **<state>** - registration state 0 - the indicator is deregistered; there's no unsolicited result code (**+CIEV** URC) automatically sent by the ME to the application, whenever the value of the associated indicator changes; the value can be directly queried with **+CIND?** 1 - the indicator is registered: an unsolicited result code (**+CIEV** URC) is automatically sent by the ME to the application, whenever the value of the associated indicator changes; it is still possible to query the value through **+CIND?** (default) Note: When the ME is switched on all of the indicators are in registered mode.
AT+CIND?	Read command returns the current value of ME indicators, in the format: **+CIND: <ind>[,<ind>[,...]]** Note: the order of the values **<ind>s** is the same as that in which the associated indicators appear from test command **AT+CIND=?**
AT+CIND=?	Test command returns pairs, where string value **<descr>** is a description (max. 16 chars) of the indicator and compound value is the supported values for the indicator, in the format: **+CIND: ((<descr>, (list of supported <ind>s))[,(<descr>, (list of supported <ind>s))[,...]])**

+CIND - Indicator Control	SELINT 0/1/2
	where: **<descr>** - indicator names as follows (along with their **<ind>** ranges) "battchg" - battery charge level **<ind>** - battery charge level indicator range 0..5 99 - not measurable "signal" - signal quality **<ind>** - signal quality indicator range 0..7 99 - not measurable "service" - service availability **<ind>** - service availability indicator range 0 - not registered to any network 1 - registered "sounder" - sounder activity **<ind>** - sounder activity indicator range 0 - there's no any sound activity 1 - there's some sound activity "message" - message received **<ind>** - message received indicator range 0 - there is no unread short message at memory location "SM" 1 - unread short message at memory location "SM" "call" - call in progress **<ind>** - call in progress indicator range 0 - there's no calls in progress 1 - at least a call has been established "roam" - roaming **<ind>** - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network "smsfull" - a short message memory storage in the MT has become full (1), or memory locations are available (0) **<ind>** - short message memory storage indicator range 0 - memory locations are available 1 - a short message memory storage in the MT has become full. "rssi" - received signal (field) strength **<ind>** - received signal strength level indicator range 0 - signal strength ≤ (-112) dBm 1..4 - signal strength in (-97) dBm..(-66) dBm (15 dBm steps) 5 - signal strength ≥ (-51) dBm 99 - not measurable
Example	*Next command causes all the indicators to be registered*

+CIND - Indicator Control	SELINT 0/1/2

	`AT+CIND=1,1,1,1,1,1,1,1,1`
	Next command causes all the indicators to be de-registered
	`AT+CIND=0,0,0,0,0,0,0,0,0`
	Next command to query the current value of all indicators
	`AT+CIND?`
	`CIND: 4,0,1,0,0,0,0,0,2`
	
	`OK`

Note	See command **+CMER**
Reference	3GPP TS 27.007

3.5.4.4.6. Mobile Equipment Event Reporting - +CMER

+CMER - Mobile Equipment Event Reporting	SELINT 0/1/2
AT+CMER= [<mode> [,<keyp> [,<disp> [,<ind> [,<bfr>]]]]]	Set command enables/disables sending of unsolicited result codes from TA to TE in the case of indicator state changes (n.b.: sending of URCs in the case of key pressings or display changes are currently not implemented). Parameters: **<mode>** - controls the processing of unsolicited result codes 0 - discard **+CIEV** Unsolicited Result Codes. 1 - discard **+CIEV** Unsolicited Result Codes when TA-TE link is reserved (e.g. on-line data mode); otherwise forward them directly to the TE. 2 - buffer **+CIEV** Unsolicited Result Codes in the TA when TA-TE link is reserved (e.g. on-line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE. 3 - forward **+CIEV** Unsolicited Result Codes directly to the TE; when TA is in on-line data mode each **+CIEV** URC is replaced with a **Break** (100 ms), and is stored in a buffer; once the ME goes into command mode (after **+++** was entered), all URCs stored in the buffer will be output. **<keyp>** - keypad event reporting 0 - no keypad event reporting **<disp>** - display event reporting 0 - no display event reporting **<ind>** - indicator event reporting 0 - no indicator event reporting 2 - indicator event reporting **<bfr>** - TA buffer clearing 0 - TA buffer of unsolicited result codes is cleared when <mode> 1..3 is entered

+CMER - Mobile Equipment Event Reporting	SELINT 0/1/2
	Note: After AT+CMER has been switched on, URCs for all registered indicators will be issued. Although it is possible to issue the command when SIM PIN is pending, it will answer ERROR if "message" or "smsfull" indicators are enabled in AT+CIND, because with pending PIN it is not possible to give a correct indication about SMS status. To issue the command when SIM PIN is pending you have to disable "message" and "smsfull" indicators in AT+CIND first.
AT+CMER?	Read command returns the current setting of parameters, in the format: **+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>**
AT+CMER=?	Test command returns the range of supported values for parameters **<mode>, <keyp>, <disp>, <ind>, <bfr>**, in the format: **+CMER: (list of supported <mode>s),(list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s),(list of supported <bfr>s)**
Reference	3GPP TS 27.007

3.5.4.4.7. Select Phonebook Memory Storage - +CPBS

+CPBS - Select Phonebook Memory Storage	SELINT 0 / 1
AT+CPBS[=<storage>]	Set command selects phonebook memory storage **<storage>**, which will be used by other phonebook commands. Parameter: **<storage>** "SM" - SIM phonebook "FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM) "LD" - SIM last-dialling-phonebook (**+CPBF** is not applicable for this storage) "MC" - device missed (unanswered received) calls list (**+CPBF** is not applicable for this storage) "RC" - **ME** received calls list (**+CPBF** is not applicable for this storage) Note: If parameter is omitted then Set command has the same behaviour as Read command.
AT+CPBS?	Read command returns the actual values of the parameter **<storage>**, the

+CPBS - Select Phonebook Memory Storage	**SELINT 0 / 1**
	number of occupied records **<used>** and the maximum index number **<total>**, in the format: **+CPBS: <storage>,<used>,<total>** Note: For **<storage>="MC"**: if there are more than one missed calls from the same number the read command will return only the last call
AT+CPBS=?	Test command returns the supported range of values for the parameters **<storage>**. Note: the presentation format of the Test command output is the set of available values for **<storage>**, each of them enclosed in parenthesis: **+CPBS: ("SM"),("FD"),("LD"),("MC"),("RC")**
Reference	3GPP TS 27.007

+CPBS - Select Phonebook Memory Storage	**SELINT 2**
AT+CPBS= <storage>	Set command selects phonebook memory storage **<storage>**, which will be used by other phonebook commands. Parameter: **<storage>** "SM" - SIM phonebook "FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM) "LD" - SIM last-dialling-phonebook (**+CPBF** is not applicable for this storage) "MC" - device missed (unanswered received) calls list (**+CPBF** is not applicable for this storage) "RC" - ME received calls list (**+CPBF** is not applicable for this storage). "MB" - mailbox numbers stored on SIM; it is possible to select this storage only if the **mailbox** service is provided by the SIM (see **#MBN**).
AT+CPBS?	Read command returns the actual values of the parameter **<storage>**, the number of occupied records **<used>** and the maximum index number **<total>**, in the format: **+CPBS: <storage>,<used>,<total>** Note: For **<storage>="MC"**: if there are more than one missed calls from the same number the read command will return only the last call
AT+CPBS=?	Test command returns the supported range of values for the parameters

+CPBS - Select Phonebook Memory Storage	SELINT 2
	<storage>.
Reference	3GPP TS 27.007

3.5.4.4.8. Read Phonebook Entries - +CPBR

+CPBR - Read Phonebook Entries	SELINT 0 / 1
AT+CPBR= <index1> [,<index2>]	Execution command returns phonebook entries in location number range **<index1>**..**<index2>** from the current phonebook memory storage selected with **+CPBS**. If **<index2>** is omitted, only location **<index1>** is returned. Parameters: **<index1>** - integer type value in the range of location numbers of phonebook memory **<index2>** - integer type value in the range of location numbers of phonebook memory The response format is: **+CPBR: <index>,<number>,<type>,<text>** where: **<index>** - the current position number of the PB index (to see the range of values use **+CPBR=?**) **<number>** - string type phone number in format **<type>** **<type>** - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the alphanumeric text associated to the number; used character set should be the one selected with command **+CSCS**. Note: if "MC" is the current selected phonebook memory storage, all the missed calls coming from the same number will be saved as one missed call and **+CPBR** will show just one line of information. Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an **ME** error, **+CME ERROR: <err>** is returned.
AT+CPBR=?	Test command returns the supported range of values of the parameters in the form:

+CPBR - Read Phonebook Entries	**SELINT 0 / 1**
	+CPBR: (<minIndex> - <maxIndex>),<nlength>,<tlength> where: **<minIndex>** - the minimum **<index>** number, integer type **<maxIndex>** - the maximum **<index>** number, integer type **<nlength>** - maximum **<number>** field length, integer type **<tlength>** - maximum **<name>** field length, integer type
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	3GPP TS 27.007

+CPBR - Read Phonebook Entries	**SELINT 2**
AT+CPBR= <index1> [,<index2>]	Execution command returns phonebook entries in location number range **<index1>**..**<index2>** from the current phonebook memory storage selected with **+CPBS**. If **<index2>** is omitted, only location **<index1>** is returned. Parameters: **<index1>** - integer type, value in the range of location numbers of the currently selected phonebook memory storage (see **+CPBS**). **<index2>** - integer type, value in the range of location numbers of the currently selected phonebook memory storage (see **+CPBS**). The response format is: **[+CPBR: <index1>,<number>,<type>,<text>[<CR><LF>** **+CPBR: <index2>,<number>,<type>,<text>[…]]]** where: **<index*n*>** - the location number of the phonebook entry **<number>** - string type phone number of format **<type>** **<type>** - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the alphanumeric text associated to the number; used character set should be the one selected with command **+CSCS**. Note: if “MC” is the currently selected phonebook memory storage, a sequence of missed calls coming from the same number will be saved as one missed call and **+CPBR** will show just one line of information. Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an **ME** error, **+CME ERROR:**

+CPBR - Read Phonebook Entries	**SELINT 2**
	<err> is returned.
AT+CPBR=?	Test command returns the supported range of values for parameters **<index*n*>** and the maximum lengths of **<number>** and **<text>** fields, in the format: **+CPBR: (<minIndex> - <maxIndex>),<nlength>,<tlength>** where: **<minIndex>** - the minimum **<index>** number, integer type **<maxIndex>**- the maximum **<index>** number, integer type **<nlength>** - maximum **<number>** field length, integer type **<tlength>** - maximum **<name>** field length, integer type Note: the value of **<nlength>** could vary, depending on whether or not the ENS functionality has been previously enabled (see **#ENS**), in the following situations: 1. if "SM" memory storage has been selected (see **+CPBS**) and the SIM supports the **Extension1** service 2. if "FD" memory storage has been selected (see **+CPBS**) and the SIM supports the **Extension2** service 3. if "MB" memory storage has been selected (see **+CPBS**) and the SIM supports the **Extension6** service
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	3GPP TS 27.007

3.5.4.4.9. Find Phonebook Entries - +CPBF

+CPBF - Find Phonebook Entries	**SELINT 0 / 1**
AT+CPBF= **<findtext>**	Execution command returns phonebook entries (from the current phonebook memory storage selected with **+CPBS**) which alphanumeric field start with string **<findtext>**. Parameter: **<findtext>** - string type, it is NOT case sensitive; used character set should be the one selected with command **+CSCS**. The command returns a report in the form: **+CPBF: <index1>,<number>,<type>,<text>[[...]<CR><LF>** **+CPBF: <index*n*>,<number>,<type>,<text>]**

+CPBF - Find Phonebook Entries	**SELINT 0 / 1**
	where **<index*n*>**, **<number>**, **<type>**, and **<text>** have the same meaning as in the command **+CPBR** report. Note: **+CPBF** is not applicable if the current selected storage (see **+CPBS**) is either "MC", either "RC" or "LD". Note: if no PB records satisfy the search criteria then an **ERROR** message is reported.
AT+CPBF=?	Test command reports the maximum lengths of **<number>** and **<text>** fields. **+CPBF: [<max_number_length>],[<max_text_length>]**
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	3GPP TS 27.007

+CPBF - Find Phonebook Entries	**SELINT 2**
AT+CPBF= <findtext>	Execution command returns phonebook entries (from the current phonebook memory storage selected with **+CPBS**) which alphanumeric field start with string **<findtext>**. Parameter: **<findtext>** - string type; used character set should be the one selected with command **+CSCS.** The command returns a report in the form: **[+CPBF: <index1>,<number>,<type>,<text>[<CR><LF>** **+CPBF: <index2>,<number>,<type>,<text>[…]]]** where: **<index*n*>** - the location number of the phonebook entry **<number>** - string type phone number of format **<type>** **<type>** - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the alphanumeric text associated to the number; used character set should be the one selected with command **+CSCS.** Note: **+CPBF** is not applicable if the current selected storage (see **+CPBS**) is either "MC", either "RC" or "LD".

+CPBF - Find Phonebook Entries	**SELINT 2**
	Note: if **<findtext>=""** the command returns all the phonebook records. Note: if no PB records satisfy the search criteria then an **ERROR** message is reported.
AT+CPBF=?	Test command reports the maximum lengths of **<number>** and **<text>** fields, in the format: **+CPBF: [<nlength>],[<tlength>]** where: **<nlength>** - maximum length of field **<number>**, integer type **<tlength>** - maximum length of field **<text>**, integer type Note: the value of **<nlength>** could vary, depending on whether or not the ENS functionality has been previously enabled (see **#ENS**), in the following situations: 1. if “SM” memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension1** service 2. if “FD” memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension2** service 1. if “MB” memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension6** service
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	3GPP TS 27.007

3.5.4.4.10. Write Phonebook Entry - +CPBW

+CPBW - Write Phonebook Entry	**SELINT 0 / 1**
AT+CPBW= [<index>] [,<number> [,<type> [,<text>]]]	Execution command stores at the position **<index>** a phonebook record defined by **<number>**, **<type>** and **<text>** parameters Parameters: **<index>** - record position **<number>** - string type, phone number in the format **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") **<text>** - the text associated to the number, string type; used character set should be the one selected with command **+CSCS**.

+CPBW - Write Phonebook Entry	**SELINT 0 / 1**
	Note: If record number **<index>** already exists, it will be overwritten. Note: if only **<index>** is given, the record number **<index>** is deleted. Note: if **<index>** is omitted or **<index>**=0, the number **<number>** is stored in the first free phonebook location. (example `at+cpbw=0,2,129,"Testo"` and `at+cpbw=,2,129,"Testo"`) Note: omission of all the subparameters causes an **ERROR** result code.
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of **<number>** field, supported number format of the storage and maximum length of **<text>** field. The format is: **+CPBW: (list of supported <index>s),<nlength>, (list of supported <type>s),<tlength>** where: **<nlength>** - integer type value indicating the maximum length of field **<number>** **<tlength>** - integer type value indicating the maximum length of field **<text>**
Reference	3GPP TS 27.007
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.

+CPBW - Write Phonebook Entry	**SELINT 2**
AT+CPBW= [<index>] [,<number> [,<type> [,<text>]]]	Execution command writes phonebook entry in location number **<index>** in the current phonebook memory storage selected with **+CPBS**. Parameters: **<index>** - integer type, value in the range of location numbers of the currently selected phonebook memory storage (see **+CPBS**). **<number>** - string type, phone number in the format **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the text associated to the number, string type; used character set should be the one selected with command **+CSCS**.

+CPBW - Write Phonebook Entry	SELINT 2
	Note: If record number **<index>** already exists, it will be overwritten. Note: if either **<number>**, **<type>** and **<text>** are omitted, the phonebook entry in location **<index>** is deleted. Note: if **<index>** is omitted or **<index>**=0, the number **<number>** is stored in the first free phonebook location. (example `at+cpbw=0,"+390404192701",129,"Text"` and `at+cpbw=,"+390404192701",129,"Text"`) Note: if either "LD", "MC" or "RC" memory storage has been selected (see **+CPBS**) it is possible just to delete the phonebook entry in location **<index>**, therefore parameters **<number>**, **<type>** and **<text>** must be omitted.
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of **<number>** field, supported number format of the storage and maximum length of **<text>** field. The format is: **+CPBW: (list of supported <index>s),<nlength>, (list of supported <type>s),<tlength>** where: **<nlength>** - integer type value indicating the maximum length of field **<number>**. **<tlength>** - integer type value indicating the maximum length of field **<text>** Note: the value of **<nlength>** could vary, depending on whether or not the ENS functionality has been previously enabled (see **#ENS**), in the following situations: 1. if "SM" memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension1** service 2. if "FD" memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension2** service 1. if "MB" memory storage has been selected (see **+CPBS**) and the **SIM** supports the **Extension6** service
Reference	3GPP TS 27.007
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.

3.5.4.4.11. Clock Management - +CCLK

3.5.4.4.12.

+CCLK - Clock Management	SELINT 0 / 1
AT+CCLK [=<time>]	Set command sets the real-time clock of the ME. Parameter: **<time>** - current time as quoted string in the format : "yy/MM/dd,hh:mm:ss±zz" yy - year (two last digits are mandatory), range is 00..99 MM - month (two last digits are mandatory), range is 01..12 dd - day (two last digits are mandatory); The range for dd(day) depends either on the month and on the year it refers to. Available ranges are: (01..28) (01..29) (01..30) (01..31) Trying to enter an out of range value will raise an error hh - hour (two last digits are mandatory), range is 00..23 mm - minute (two last digits are mandatory), range is 00..59 ss - seconds (two last digits are mandatory), range is 00..59 ±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48 Note: If the parameter is omitted the behaviour of Set command is the same as Read command.
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: the three last characters of **<time>** are not returned by **+CCLK?** because the **ME** doesn't support time zone information.

+CCLK - Clock Management	**SELINT 0 / 1**
AT+CCLK=?	Test command returns the **OK** result code.

Example	`AT+CCLK="02/09/07,22:30:00+00"`
	`OK`
	`AT+CCLK?`
	`+CCLK: 02/09/07,22:30:25`
	
	`OK`

Reference	3GPP TS 27.007

+CCLK - Clock Management	**SELINT 2**
AT+CCLK=<time>	Set command sets the real-time clock of the **ME**. Parameter: **<time>** - current time as quoted string in the format: "yy/MM/dd,hh:mm:ss±zz" yy - year (two last digits are mandatory), range is 00..99 MM - month (two last digits are mandatory), range is 01..12 dd - day (two last digits are mandatory); The range for dd(day) depends either on the month and on the year it refers to. Available ranges are: (01..28) (01..29) (01..30) (01..31) Trying to enter an out of range value will raise an error hh - hour (two last digits are mandatory), range is 00..23 mm - minute (two last digits are mandatory), range is 00..59 ss - seconds (two last digits are mandatory), range is 00..59 ±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: the three last characters of **<time>**, i.e. the time zone information, are returned by **+CCLK?** only if the **#NITZ** URC *'extended'* format has been enabled (see **#NITZ**).
AT+CCLK=?	Test command returns the **OK** result code.

Example	`AT+CCLK="02/09/07,22:30:00+00"`
	`OK`
	`AT+CCLK?`
	`+CCLK: 02/09/07,22:30:25`

+CCLK - Clock Management	SELINT 2
	`OK`
Reference	3GPP TS 27.007

3.5.4.4.13. Alarm Management - +CALA

+CALA - Alarm Management	SELINT 0 / 1
AT+CALA[= <time>[,<n>[,<type> [,<text>[,<recurr> [,<silent>]]]]]]	Set command stores in the internal Real Time Clock an alarm time with respective settings. It is possible to set up a recurrent alarm for one or more days in the week. Currently just one alarm can be set. When the RTC time reaches the alarm time then the alarm starts, the behaviour of the MODULE depends upon the setting **<type>** and if the device was already **ON** at the moment when the alarm time had come. Parameters: **<time>** - current alarm time as quoted string "" - (empty string) deletes the current alarm and resets all the **+CALA** parameters to the "factory default" configuration "hh:mm:ss±zz" - format to be used only when issuing **+CALA** with parameter **<recurr>** too. "yy/MM/dd,hh:mm:ss±zz" - generic format: it's the same as defined for **+CCLK** (see) **<n>** - index of the alarm 0 - The only value supported is 0. **<type>** - alarm behaviour type 0 - reserved for other equipment use. 1 - the MODULE simply wakes up fully operative as if the **ON/OFF** button had been pressed. If the device is already **ON** at the alarm time, then it does nothing (default). 2 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE issues an unsolicited code every 3s: **+CALA: <text>**

+CALA - Alarm Management	**SELINT 0 / 1**

where **<text>** is the **+CALA** optional parameter previously set.

The device keeps on sending the unsolicited code every 3s until a **#WAKE** or **#SHDN** command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90 seconds then it shuts down.

3 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE starts playing the alarm tone on the selected path for the ringer (see **#SRP**) The device keeps on playing the alarm tone until a **#WAKE** or **#SHDN** command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down.

4 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE brings the pin **GPIO6** high, provided its **<direction>** has been set to alarm output, and keeps it in this state until a **#WAKE** or **#SHDN** command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down.

5 - the MODULE will make both the actions as for **<type>=2** and **<type>=3**.

6 - the MODULE will make both the actions as for **<type>=2** and **<type>=4**.

7 - the MODULE will make both the actions as for **<type>=3** and **<type>=4**.

<text> - unsolicited alarm code text string. It has meaning only if **<type>** is equal to 2 or 5 or 6.

<recurr> - string type value indicating day of week for the alarm in one of the following formats:

"<1..7>[,<1..7>[, …]]" - it sets a recurrent alarm for one or more days in the week; the digits 1 to 7 corresponds to the days in the week (Monday is 1).

"0" - it sets a recurrent alarm for all days in the week.

<silent> - integer type indicating if the alarm is silent or not.

0 - the alarm will not be silent;

1 - the alarm will be silent.

During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.

+CALA - Alarm Management	SELINT 0 / 1
	Note: If the parameter is omitted the behavior of Set command is the same as Read command.
AT+CALA?	Read command returns the list of current active alarm settings in the ME, in the format: **[+CALA: <time>,<n>,<type>,[<text>],<recurr>,<silent>]** Note: if no alarm is present a **<CR><LF>** is issued.
AT+CALA=?	Test command returns the list of supported index values (currently just 0), alarm types and maximum length of the text to be displayed, in the format: **+CALA: (list of supported <n>s),(list of supported <type>s),<tlength>** where: **<n>** and **<type>** as before **<tlength>** - maximum **<text>** field length, integer type Note: an enhanced version of Test command has been defined, **AT+CALA=??**, providing the range of available values for **<rlenght>** and **<silent>** too.
AT+CALA=??	Test command returns the list of supported index values (currently just 0), alarm types, maximum length of the text to be displayed, maximum length of **<recurr>** and supported **<silent>**s, in the format: **+CALA: (list of supported <n>s),(list of supported <type>s),<tlength>, <rlength>,(list of supported <silent>s)** where: **<n>**, **<type>, <tlength>** and **<silent>** as before **<rlength>** - maximum **<recurr>** field length, integer type

Example	`AT+CALA="02/09/07,23:30:00+00"`
	`OK`

Reference	ETSI 07.07, ETSI 27.007

+CALA - Alarm Management	SELINT 2
AT+CALA= <time>[,<n>[,<type> [,<text>[,<recurr> [,<silent>]]]]]	Set command stores in the internal Real Time Clock an alarm time with respective settings. It is possible to set up a recurrent alarm for one or more days in the week. Currently just one alarm can be set. When the RTC time reaches the alarm time then the alarm starts, the behaviour of the MODULE depends upon the setting **<type>** and if the device

+CALA - Alarm Management | **SELINT 2**

was already ON at the moment when the alarm time had come.

Parameters:

<time> - current alarm time as quoted string
 “” - (empty string) deletes the current alarm and resets all the **+CALA** parameters to the “factory default” configuration
 "hh:mm:ss±zz" - format to be used only when issuing **+CALA** with parameter **<recurr>** too.
 "yy/MM/dd,hh:mm:ss±zz" - generic format: it’s the same as defined for **+CCLK** (see)

<n> - index of the alarm
 0 - The only value supported is 0.

<type> - alarm behaviour type
 0 - reserved for other equipment use.
 1 - the MODULE simply wakes up fully operative as if the ON/OFF button had been pressed. If the device is already ON at the alarm time, then it does nothing (default).
 2 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE issues an unsolicited code every 3s:

+CALA: <text>

where **<text>** is the **+CALA** optional parameter previously set.

The device keeps on sending the unsolicited code every 3s until a **#WAKE** or **#SHDN** command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down.
 3 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE starts playing the alarm tone on the selected path for the ringer (see command **#SRP**)
The device keeps on playing the alarm tone until a **#WAKE** or **#SHDN** command is received or a 90 s time-out occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down.
 4 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE brings the pin GPIO6 high, provided its **<direction>** has been set to alarm output, and keeps it in this state until a **#WAKE** or **#SHDN** command is received or a 90 seconds timer expires. If the device is in "alarm mode"

+CALA - Alarm Management	SELINT 2
	and it does not receive the **#WAKE** command within 90s then it shuts down. 5 - the MODULE will make both the actions as for type=2 and **<type>=3**. 6 - the MODULE will make both the actions as for type=2 and **<type>=4**. 7 - the MODULE will make both the actions as for type=3 and **<type>=4**. 8 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE sets **High** the **RI** output pin. The **RI** output pin remains **High** until next **#WAKE** issue or until a 90s timer expires. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s. After that it shuts down. **<text>** - unsolicited alarm code text string. It has meaning only if **<type>** is equal to 2 or 5 or 6. **<recurr>** - string type value indicating day of week for the alarm in one of the following formats: “<1..7>[,<1..7>[, …]]” - it sets a recurrent alarm for one or more days in the week; the digits 1 to 7 corresponds to the days in the week (Monday is 1). “0” - it sets a recurrent alarm for all days in the week. **<silent>** - integer type indicating if the alarm is silent or not. 0 - the alarm will not be silent; 1 - the alarm will be silent. During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state. Note: it is mandatory to set at least once the RTC (issuing **+CCLK**) before it is possible to issue **+CALA** with **<type>=8**
AT+CALA?	Read command returns the list of current active alarm settings in the ME, in the format: **[+CALA: <time>,<n>,<type>,[<text>],<recurr>,<silent>]**
AT+CALA=?	Test command returns the list of supported index values (currently just 0), alarm types, maximum length of the text to be displayed, maximum length of **<recurr>** and supported **<silent>**s, in the format: **+CALA: (list of supported <n>s),(list of supported <type>s),<tlength>,<rlength>,(list of supported <silent>s)**
Example	`AT+CALA="02/09/07,23:30:00+00"`

+CALA - Alarm Management	**SELINT 2**
	OK
Reference	ETSI 07.07, ETSI 27.007

3.5.4.4.14. Restricted SIM Access - +CRSM

+CRSM - Restricted SIM Access	**SELINT 0 / 1 / 2**
AT+CRSM= <command> [,<fileid> [,<P1>,<P2>,<P3> [,<data>]]]	Execution command transmits to the **ME** the SIM **<command>** and its required parameters. **ME** handles internally all **SIM-ME** interface locking and file selection routines. As response to the command, **ME** sends the actual SIM information parameters and response data. Parameters: **<command>** - command passed on by the **ME** to the SIM 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS **<fileid>** - identifier of an elementary data file on SIM. Mandatory for every command except STATUS. **<P1>,<P2>,<P3>** - parameter passed on by the **ME** to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0..255 **<data>** - information to be read/written to the SIM (hexadecimal character format). The response of the command is in the format:

+CRSM - Restricted SIM Access		**SELINT 0 / 1 / 2**
	+CRSM: <sw1>,<sw2>[,<response>] where: **<sw1>,<sw2>** - information from the SIM about the execution of the actual command either on successful or on failed execution. **<response>** - on a successful completion of the command previously issued it gives the requested data (hexadecimal character format). It's not returned after a successful UPDATE BINARY or UPDATE RECORD command. Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files. Note: use only decimal numbers for parameters **<command>**, **<fileid>**, **<P1>**, **<P2>** and **<P3>**.	
AT+CRSM=?	Test command returns the **OK** result code	
Reference	3GPP TS 27.007, GSM 11.11	

3.5.4.4.15. Alert Sound Mode - +CALM

+CALM - Alert Sound Mode		**SELINT 0 / 1**
AT+CALM[= <mode>]	Set command is used to select the general alert sound mode of the device. Parameter: **<mode>** 0 - normal mode 1 - silent mode; no sound will be generated by the device, except for alarm sound 2 - stealth mode; no sound will be generated by the device Note: if silent mode is selected then incoming calls will not produce alerting sounds but only the unsolicited messages **RING** or **+CRING**. Note: If parameter is omitted then the behaviour of Set command is the same as Read command.	
AT+CALM?	Read command returns the current value of parameter **<mode>**.	
AT+CALM=?	Test command returns the supported values for the parameter **<mode>** as compound value. For compatibility with previous versions, Test command returns	

+CALM - Alert Sound Mode	**SELINT 0 / 1**
	+CALM: (0,1) An enhanced version of Test command has been defined: **AT+CALM=??**, that provides the complete range of values for **<mode>**.
AT+CALM=??	Enhanced test command returns the complete range of values for the parameter **<mode>** as compound value: **+CALM: (0-2)**
Reference	3GPP TS 27.007

+CALM - Alert Sound Mode	**SELINT 2**
AT+CALM= <mode>	Set command is used to select the general alert sound mode of the device. Parameter: **<mode>** 0 - normal mode 1 - silent mode; no sound will be generated by the device, except for alarm sound 2 - stealth mode; no sound will be generated by the device Note: if silent mode is selected then incoming calls will not produce alerting sounds but only the unsolicited messages **RING** or **+CRING**.
AT+CALM?	Read command returns the current value of parameter **<mode>**.
AT+CALM=?	Test command returns the supported values for the parameter **<mode>** as compound value. **+CALM: (0-2)**
Reference	3GPP TS 27.007

3.5.4.4.16. Ringer Sound Level - +CRSL

+CRSL - Ringer Sound Level	**SELINT 0**
AT+CRSL[= <level>]	Set command is used to select the incoming call ringer sound level of the device. Parameter: **<level>** - ringer sound level 0 - Off 1 - low 2 - middle 3 - high 4 - progressive

+CRSL - Ringer Sound Level	SELINT 0
	Note: if parameter is omitted then the behaviour of Set command is the same as Read command
AT+CRSL?	Read command reports the current **<level>** setting of the call ringer in the format: **+CRSL: <level>**
AT+CRSL=?	Test command reports **<level>** supported values as compound value. For compatibility with previous versions, Test command returns **+CRSL: (0-3)** An enhanced version of Test command has been defined: **AT+CRSL=??**, that provides the complete range of values for **<level>**.
AT+CRSL=??	Enhanced Test command returns the complete range of supported values for the parameter **<mode>**: **+CRSL: (0-4)**
Reference	3GPP TS 27.007

+CRSL - Ringer Sound Level	SELINT 1
AT+CRSL[= <level>]	Set command is used to select the incoming call ringer sound level of the device. Parameter: **<level>** - ringer sound level 0 - Off 1 - low 2 - middle 3 - high 4 - progressive Note: if parameter is omitted then the behaviour of Set command is the same as Read command
AT+CRSL?	Read command reports the current **<level>** setting of the call ringer in the format: **+CRSL: <level>**
AT+CRSL=?	Test command reports **<level>** supported values as compound value, in the format:

+CRSL - Ringer Sound Level	**SELINT 1**
	+CRSL: (0-4) Note: an enhanced version of Test command has been defined: **AT+CRSL=??**.
AT+CRSL=??	Enhanced Test command returns the complete range of supported values for the parameter **<mode>**: **+CRSL: (0-4)**
Reference	3GPP TS 27.007

+CRSL - Ringer Sound Level	**SELINT 2**
AT+CRSL=<level>	Set command is used to select the incoming call ringer sound level of the device. Parameter: **<level>** - ringer sound level 0 - Off 1 - low 2 - middle 3 - high 4 - progressive
AT+CRSL?	Read command reports the current **<level>** setting of the call ringer in the format: **+CRSL: <level>**
AT+CRSL=?	Test command reports **<level>** supported values as compound value. **+CRSL: (0-4)**
Reference	3GPP TS 27.007

3.5.4.4.17. Loudspeaker Volume Level - +CLVL

+CLVL - Loudspeaker Volume Level	**SELINT 0 / 1**
AT+CLVL[= <level>]	Set command is used to select the volume of the internal loudspeaker audio output of the device. Parameter: **<level>** - loudspeaker volume 0..*max* - the value of *max* can be read by issuing the Test command **AT+CLVL=?** Note: If the parameter is omitted the behavior of Set command is the same

+CLVL - Loudspeaker Volume Level	SELINT 0 / 1
	as Read command.
AT+CLVL?	Read command reports the current **<level>** setting of the loudspeaker volume in the format: **+CLVL: <level>**
AT+CLVL=?	Test command reports **<level>** supported values range in the format: **+CLVL: (0-*max*)**
Reference	3GPP TS 27.007

+CLVL - Loudspeaker Volume Level	SELINT 2
AT+CLVL=<level>	Set command is used to select the volume of the internal loudspeaker audio output of the device. Parameter: **<level>** - loudspeaker volume 0..*max* - the value of *max* can be read by issuing the Test command AT+CLVL=?
AT+CLVL?	Read command reports the current **<level>** setting of the loudspeaker volume in the format: **+CLVL: <level>**
AT+CLVL=?	Test command reports **<level>** supported values range in the format: **+CLVL: (0-*max*)**
Reference	3GPP TS 27.007

3.5.4.4.18. Microphone Mute Control - +CMUT

+CMUT - Microphone Mute Control	SELINT 0 / 1
AT+CMUT[=[<n>]]	Set command enables/disables the muting of the microphone audio line during a voice call. Parameter: **<n>** 0 - mute off, microphone active (factory default) 1 - mute on, microphone muted. Note: this command mutes/activates both microphone audio paths, internal mic and external mic. Note: issuing **AT+CMUT<CR>** is the same as issuing the Read command.

+CMUT - Microphone Mute Control	SELINT 0 / 1
	Note: issuing **AT+CMUT=<CR>** is the same as issuing the command **AT+CMUT=0<CR>**.
AT+CMUT?	Read command reports whether the muting of the microphone audio line during a voice call is enabled or not, in the format: **+CMUT: <n>**
AT+CMUT=?	Test command reports the supported values for **<n>** parameter.
Reference	3GPP TS 27.007

+CMUT - Microphone Mute Control	SELINT 2
AT+CMUT=<n>	Set command enables/disables the muting of the microphone audio line during a voice call. Parameter: **<n>** 0 - mute off, microphone active (factory default) 1 - mute on, microphone muted. Note: this command mutes/activates both microphone audio paths, internal mic and external mic.
AT+CMUT?	Read command reports whether the muting of the microphone audio line during a voice call is enabled or not, in the format: **+CMUT: <n>**
AT+CMUT=?	Test command reports the supported values for **<n>** parameter.
Reference	3GPP TS 27.007

3.5.4.4.19. Accumulated Call Meter - +CACM

+CACM - Accumulated Call Meter	SELINT 0 / 1
AT+CACM[=<pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter stored in SIM (ACM): it contains the total number of home units for both the current and preceding calls. Parameter: **<pwd>** - to access this command PIN2 is required; if PIN2 has been already input once after startup, it is required no more Note: If the parameter is omitted the behavior of Set command is the same as Read command.

+CACM - Accumulated Call Meter	**SELINT 0 / 1**
AT+CACM?	Read command reports the current value of the SIM ACM in the format: **+CACM: <acm>** where: **<acm>** - accumulated call meter in home units, string type: three bytes of the ACM value in hexadecimal format (e.g. “00001E” indicates decimal value 30) Note: the value **<acm>** is in units whose price and currency are defined with command **+CPUC**
Reference	3GPP TS 27.007

+CACM - Accumulated Call Meter	**SELINT 2**
AT+CACM= [<pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter stored in SIM (ACM): it contains the total number of home units for both the current and preceding calls. Parameter: **<pwd>** - to access this command PIN2; if PIN2 has been already input once after startup, it is required no more
AT+CACM?	Read command reports the current value of the SIM ACM in the format: **+CACM: <acm>** where: **<acm>** - accumulated call meter in home units, string type: three bytes of the ACM value in hexadecimal format (e.g. “00001E” indicates decimal value 30) Note: the value **<acm>** is in home units; price per unit and currency are defined with command **+CPUC**
AT+CACM=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.4.20. Accumulated Call Meter Maximum - +CAMM

+CAMM - Accumulated Call Meter Maximum	**SELINT 0 / 1**
AT+CAMM[= <acmmax> [,<pwd>]]	Set command sets the Advice of Charge related Accumulated Call Meter Maximum Value stored in SIM (ACMmax). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches **<acmmax>** value further calls are prohibited.

+CAMM - Accumulated Call Meter Maximum	**SELINT 0 / 1**
	Parameter: **<acmmax>** - ACMmax value, integer type: it is the maximum number of home units allowed to be consumed by the subscriber. **<pwd>** - PIN2; if PIN2 has been already input once after startup, it is required no more Note: **<acmmax>=0** value disables the feature. Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CAMM?	Read command reports the ACMmax value stored in SIM in the format: **+CAMM : <acmm>** where: **<acmm>** - ACMmax value in home units, string type: three bytes of the ACMmax value in hexadecimal format (e.g. "00001E" indicates decimal value 30)
Reference	3GPP TS 27.007

+CAMM - Accumulated Call Meter Maximum	**SELINT 2**
AT+CAMM= [<acmmax> [,<pwd>]]	Set command sets the Advice of Charge related Accumulated Call Meter Maximum Value stored in SIM (ACMmax). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches **<acmmax>** value further calls are prohibited. Parameter: **<acmmax>** - ACMmax value, integer type: it is the maximum number of home units allowed to be consumed by the subscriber. **<pwd>** - PIN2; if PIN2 has been already input once after startup, it is required no more Note: **<acmmax>** = 0 value disables the feature.
AT+CAMM?	Read command reports the ACMmax value stored in SIM in the format: **+CAMM : <acmm>** where: **<acmm>** - ACMmax value in home units, string type: three bytes of the ACMmax value in hexadecimal format (e.g. "00001E" indicates decimal value 30)

+CAMM - Accumulated Call Meter Maximum	**SELINT 2**
AT+CAMM=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.4.21. Price per Unit and Currency Table - +CPUC

+CPUC - Price Per Unit And Currency Table	**SELINT 0 / 1**
AT+CPUC[= <currency>, <ppu>[,<pwd>]]	Set command sets the values of Advice of Charge related Price per Unit and Currency Table stored in SIM (PUCT). The PUCT information can be used to convert the home units (as used in commands **+CAOC**, **+CACM** and **+CAMM**) into currency units. Parameters: **<currency>** - string type; three-character currency code (e.g. LIT, USD, DEM etc..); used character set should be the one selected with command **+CSCS**. **<ppu>** - price per unit, string type (dot is used as decimal separator) e.g. "1989.27" **<pwd>** - SIM PIN2; if PIN2 has been already input once after startup, it is required no more Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CPUC?	Read command reports the current values of **<currency>** and **<ppu>** parameters in the format: **+CACM : <currency>,<ppu>**
Reference	3GPP TS 27.007

+CPUC - Price Per Unit And Currency Table	**SELINT 2**
AT+CPUC= <currency>, <ppu>[,<pwd>]	Set command sets the values of Advice of Charge related Price per Unit and Currency Table stored in SIM (PUCT). The PUCT information can be used to convert the home units (as used in commands **+CAOC**, **+CACM** and **+CAMM**) into currency units. Parameters: **<currency>** - string type; three-character currency code (e.g. "LIT", "L. ", "USD", "DEM" etc..); used character set should be the one selected with command **+CSCS**. **<ppu>** - price per unit, string type (dot is used as decimal separator) e.g. "1989.27" **<pwd>** - SIM PIN2; if PIN2 has been already input once after startup, it is

+CPUC - Price Per Unit And Currency Table	SELINT 2
	required no more
AT+CPUC?	Read command reports the current values of **<currency>** and **<ppu>** parameters in the format: **+CACM : <currency>,<ppu>**
AT+CPUC=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.4.22. Available AT Commands - +CLAC

+CLAC - Available AT Commands	SELINT 2
AT+CLAC	Execution command causes the ME to return the AT commands that are available for the user, in the following format: **<AT cmd1>[<CR><LF><AT cmd2>[…]]** where: **<AT cmd*n*>** - defines the AT command including the prefix **AT**
AT+CLAC=?	Test command returns the **OK** result code
Reference	3GPP TS 27.007

3.5.4.4.23. Delete Alarm - +CALD

+CALD - Delete Alarm	SELINT 2
AT+CALD=<n>	Execution command deletes an alarm in the ME Parameter: **<n>** - alarm index 0
AT+CALD=?	Test command reports the range of supported values for **<n>** parameter.
Reference	3G TS 27.007

3.5.4.4.24. Read ICCID - +CCID

+CCID - Read ICCID (Integrated Circuit Card Identification)	**SELINT 0 / 1**
AT+CCID	Execution command reads on SIM the ICCID (card identification number that provides a unique identification number for the SIM)
AT+ CCID?	Read command has the same effect as Execution command.
AT+CCID=?	Test command reports **OK**.

3.5.4.5. Mobile Equipment Errors

3.5.4.5.1. Report Mobile Equipment Error - +CMEE

+CMEE - Report Mobile Equipment Error	**SELINT 0 / 1**
AT+CMEE[=[<n>]]	Set command enables/disables the report of result code: **+CME ERROR: <err>** as an indication of an error relating to the **+Cxxx** commands issued. When enabled, device related errors cause the **+CME ERROR: <err>** final result code instead of the default **ERROR** final result code. **ERROR** is anyway returned normally when the error message is related to syntax, invalid parameters, or **DTE** functionality. Parameter: **<n>** - enable flag 0 - disable **+CME ERROR:<err>** reports, use only **ERROR** report. 1 - enable **+CME ERROR:<err>** reports, with **<err>** in numeric format 2 - enable **+CME ERROR: <err>** reports, with **<err>** in verbose format Note: issuing **AT+CMEE<CR>** is the same as issuing the Read command. Note: issuing **AT+CMEE=<CR>** is the same as issuing the command **AT+CMEE=0<CR>**.
AT+CMEE?	Read command returns the current value of subparameter **<n>** **+CMEE: <n>**
AT+CMEE=?	Test command returns the range of values for subparameter **<n>** in the

+CMEE - Report Mobile Equipment Error	SELINT 0 / 1
	format: **+CMEE: 0, 1, 2** Note: the representation format of the Test command output is not included in parenthesis.
Note	**+CMEE** has no effect on the final result code **+CMS**
Reference	3GPP TS 27.007

+CMEE - Report Mobile Equipment Error	SELINT 2
AT+CMEE=[<n>]	Set command enables/disables the report of result code: **+CME ERROR: <err>** as an indication of an error relating to the +**Cxxx** commands issued. When enabled, device related errors cause the **+CME ERROR: <err>** final result code instead of the default **ERROR** final result code. **ERROR** is anyway returned normally when the error message is related to syntax, invalid parameters, or **DTE** functionality. Parameter: **<n>** - enable flag 0 - disable **+CME ERROR:<err>** reports, use only **ERROR** report. 1 - enable **+CME ERROR:<err>** reports, with **<err>** in numeric format 2 - enable **+CME ERROR: <err>** reports, with **<err>** in verbose format
AT+CMEE?	Read command returns the current value of subparameter **<n>**: **+CMEE: <n>**
AT+CMEE=?	Test command returns the range of values for subparameter **<n>**
Note	**+CMEE** has no effect on the final result code **+CMS**
Reference	3GPP TS 27.007

3.5.4.5.2. Set CMEE mode - #CMEEMODE

#CMEEMODE – Set CMEE mode	SELINT 2
AT#CMEEMODE=<mode>	This command allows to extend the set of error codes reported by CMEE to the GPRS related error codes. Parameters:

	<mode>: 0 – disable support of GPRS related error codes by AT+CMEE (default) 1 – enable support of GPRS related error codes by AT+CMEE This parameter is stored in the user profile
AT#CMEEMODE?	Read command reports the currently selected **< mode >** in the format: **#CMEEMODE: <mode>**
AT#CMEEMODE =?	Test command reports the supported range of values for parameter **< mode >**

3.5.4.6. Voice Control

3.5.4.6.1. DTMF Tones Transmission - +VTS

+VTS - DTMF Tones Transmission	SELINT 0 / 1
AT+VTS= <dtmfstring> [,duration]	Execution command allows the transmission of DTMF tones. Parameters: **<dtmfstring>** - string of **<dtmf>s,** i.e. ASCII characters in the set **(0-9), #,*,(A-D)**; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through **+VTD** command. **<duration>** - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character 0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current **+VTD** setting is. 1..255 - a single DTMF tone will be transmitted for a time **<duration>** (in 10 ms multiples), no matter what the current **+VTD** setting is. Note: this commands operates in voice mode only (see **+FCLASS**).
AT+VTS=?	For compatibility with previous versions, Test command returns **+VTS: (),(),()** An enhanced version of Test command has been defined: **AT+VTS=??**, that provides the correct range of values for **<DTMF>**.
AT+VTS=??	Test command provides the list of supported **<dtmf>s** and the list of supported **<duration>s** in the format:

+VTS - DTMF Tones Transmission	SELINT 0 / 1
	(list of supported <dtmf>s)[,(list of supported <duration>s)]
Reference	3GPP TS 27.007 and TIA IS-101

+VTS - DTMF Tones Transmission	SELINT 2
AT+VTS= <dtmfstring> [,duration]	Execution command allows the transmission of DTMF tones. Parameters: **<dtmfstring>** - string of **<dtmf>s,** i.e. ASCII characters in the set **(0-9), #,*,(A-D),P**; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through **+VTD** command. **<duration>** - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character 0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current **+VTD** setting is. 1..255 - a single DTMF tone will be transmitted for a time **<duration>** (in 10 ms multiples), no matter what the current **+VTD** setting is. Note: this commands operates in voice mode only (see **+FCLASS**).
AT+VTS=?	Test command provides the list of supported **<dtmf>s** and the list of supported **<duration>s** in the format: **(list of supported <dtmf>s)[,(list of supported <duration>s)]**
Reference	3GPP TS 27.007 and TIA IS-101

3.5.4.6.2. Tone Duration - +VTD

+VTD - Tone Duration	SELINT 0 / 1
AT+VTD[= <duration>]	Set command sets the length of tones transmitted with **+VTS** command. Parameter:

+VTD - Tone Duration	**SELINT 0 / 1**
	<duration> - duration of a tone 0 - the duration of every single tone is dependent on the network (factory default) 1..255 - duration of every single tone in 1/10 sec. Note: If parameter is omitted the behavior of Set command is the same as Read command.
AT+VTD?	Read command reports the current Tone Duration, in the format: **<duration>**
AT+VTD=?	Test command provides the list of supported **<duration>s** in the format: **(list of supported <duration>s)**
Reference	3GPP TS 27.007 and TIA IS-101

+VTD - Tone Duration	**SELINT 2**
AT+VTD= **<duration>**	Set command sets the length of tones transmitted with **+VTS** command. Parameter: **<duration>** - duration of a tone 0 - the duration of every single tone is dependent on the network (factory default) 1..255 - duration of every single tone in 1/10 sec.
AT+VTD?	Read command reports the current Tone Duration, in the format: **<duration>**
AT+VTD=?	Test command provides the list of supported **<duration>s** in the format: **(list of supported <duration>s)**
Reference	3GPP TS 27.007 and TIA IS-101

3.5.4.7. Commands For GPRS

3.5.4.7.1. GPRS Mobile Station Class - +CGCLASS

+CGCLASS - GPRS Mobile Station Class	SELINT 0 / 1
AT+CGCLASS [=<class>]	Set command sets the GPRS class according to **<class>** parameter. Parameter: **<class>** - GPRS class "B" - GSM/GPRS (factory default) "CG" - class C in GPRS only mode (GPRS only) "CC" - class C in circuit switched only mode (GSM only) Note: the setting is saved in NVM (and available on following reboot). Note: if parameter **<class>** is omitted, then the behaviour of Set command is the same as Read command.
AT+CGCLASS?	Read command returns the current value of the GPRS class in the format: **+CGLASS: <class>**
AT+CGCLASS=?	Test command reports the range for the parameter **<class>**

+CGCLASS - GPRS mobile station class	SELINT 2
AT+CGCLASS= [<class>]	Set command sets the GPRS class according to **<class>** parameter. Parameter: **<class>** - GPRS class "B" - GSM/GPRS (factory default) "CG" - class C in GPRS only mode (GPRS only) "CC" - class C in circuit switched only mode (GSM only) Note: the setting is saved in NVM (and available on following reboot).
AT+CGCLASS?	Read command returns the current value of the GPRS class in the format: **+CGLASS: <class>**
AT+CGCLASS=?	Test command reports the range for the parameter **<class>**

3.5.4.7.2. GPRS Attach Or Detach - +CGATT

+CGATT - GPRS Attach Or Detach	SELINT 0 / 1

+CGATT - GPRS Attach Or Detach	SELINT 0 / 1
AT+CGATT[= <state>]	Execution command is used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter **<state>**. Parameter: **<state>** - state of GPRS attachment 0 - detached 1 - attached Note: If the parameter is omitted the behavior of Execution command is the same as Read command.
AT+CGATT?	Read command returns the current GPRS service state.
AT+CGATT=?	Test command requests information on the supported GPRS service states.

Example	`AT+CGATT?`
	`+CGATT: 0`
	
	`OK`
	`AT+CGATT=?`
	`+CGATT: (0,1)`
	
	`OK`
	`AT+CGATT=1`
	`OK`

Reference	3GPP TS 27.007
	SELINT 2
AT+CGATT=[<state>]	Execution command is used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter **<state>**. Parameter: **<state>** - state of GPRS attachment 0 - detached 1 - attached
AT+CGATT?	Read command returns the current GPRS service state.
AT+CGATT=?	Test command requests information on the supported GPRS service states.

Example	`AT+CGATT?`
	`+CGATT: 0`
	
	`OK`
	`AT+CGATT=?`
	`+CGATT: (0,1)`
	
	`OK`
	`AT+CGATT=1`
	`OK`

Reference	3GPP TS 27.007

3.5.4.7.3. GPRS Event Reporting - +CGEREP

+CGEREP - GPRS Event Reporting	**SELINT 2**
AT+CGEREP= [<mode>[,<bfr>]]	Set command enables or disables sending of unsolicited result codes **+CGEV: XXX** (see below) from **TA** to **TE** in the case of certain events occurring in the **TA** or the network. Parameters: **<mode>** - controls the processing of **URCs** specified with this command 0 - Buffer unsolicited result codes in the **TA**. If **TA** result code buffer is full, the oldest one can be discarded. No codes are forwarded to the **TE**. 1 - Discard unsolicited result codes when **TA-TE** link is reserved (e.g. in on-line data mode); otherwise forward them directly to the **TE**. 2 - Buffer unsolicited result codes in the **TA** when **TA-TE** link is reserved (e.g. in on-line data mode) and flush them to the **TE** when **TA-TE** link becomes available; otherwise forward them directly to the **TE**. **<bfr>** - controls the effect on buffered codes when **<mode>** **1** or **2** is entered: 0 - **TA** buffer of unsolicited result codes defined within this command is cleared when **<mode>=1** or **2** is entered. 1 - **TA** buffer of unsolicited result codes defined within this command is flushed to the **TE** when **<mode>=1** or **2** is entered (**OK** response shall be given before flushing the codes) Unsolicited Result Codes The following unsolicited result codes and the corresponding events are defined: **+CGEV: REJECT <PDP_type>, <PDP_addr>** A network request for PDP context activation occurred when the **TA** was unable to report it to the **TE** with a +**CRING** unsolicited result code and was automatically rejected **+CGEV: NW REACT <PDP_type>, <PDP_addr>, [<cid>]** The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to **TA** **+CGEV: NW DEACT <PDP_type>, <PDP_addr>, [<cid>]** The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to **TA** **+CGEV: ME DEACT <PDP_type>, <PDP_addr>, [<cid>]** The mobile equipment has forced a context deactivation. The <cid> that

+CGEREP - GPRS Event Reporting	SELINT 2
	was used to activate the context is provided if known to **TA** **+CGEV: NW DETACH** The network has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately **+CGEV: ME DETACH** The mobile equipment has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately **+CGEV: ME CLASS <class>** The mobile equipment has forced a change of MS class. The highest available class is reported (see **+CGCLASS**)
AT+CGEREP?	Read command returns the current <mode> and <bfr> settings, in the format: **+CGEREP: <mode>,<bfr>**
AT+CGEREP=?	Test command reports the supported range of values for the **+CGEREP** command parameters.
Reference	3GPP TS 27.007

3.5.4.7.4. GPRS Network Registration Status - +CGREG

+CGREG - GPRS Network Registration Status	**SELINT 0 / 1**
AT+CGREG[= [<n>]]	Set command controls the presentation of an unsolicited result code **+CGREG**: (see format below). Parameter: **<n>** - result code presentation mode 0 - disable network registration unsolicited result code 1 - enable network registration unsolicited result code; if there is a change in the terminal GPRS network registration status, it is issued the unsolicited result code: **+CGREG: <stat>** where: **<stat>** - registration status 0 - not registered, terminal is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but terminal is currently searching a new operator to register to 3 - registration denied 4 - unknown 5 - registered, roaming 2 - enable network registration and location information unsolicited result code; if there is a change of the network cell, it is issued the unsolicited result code: **+CGREG: <stat>[,<lac>,<ci>]** where: **<stat>** - registration status (see above for values) **<lac>** - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>** - cell ID in hexadecimal format Note: issuing **AT+CGREG<CR>** is the same as issuing the Read command. Note: issuing **AT+CGREG=<CR>** is the same as issuing the command **AT+CGREG=0<CR>**.
AT+CGREG?	Read command returns the status of result code presentation mode **<n>** and the integer **<stat>** which shows whether the network has currently indicated the registration of the terminal in the format:

+CGREG - GPRS Network Registration Status	SELINT 0 / 1
	+CGREG:<n>,<stat>.
AT+CGREG=?	Test command returns supported values for parameter **<n>**
Reference	3GPP TS 27.007

+CGREG - GPRS Network Registration Status	SELINT 2
AT+CGREG=[<n>]	Set command controls the presentation of an unsolicited result code **+CGREG: (see format below)**. Parameter: **<n>** - result code presentation mode 0 - disable network registration unsolicited result code 1 - enable network registration unsolicited result code; if there is a change in the terminal GPRS network registration status, it is issued the unsolicited result code: **+CGREG: <stat>** where: **<stat>** - registration status 0 - not registered, terminal is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but terminal is currently searching a new operator to register to 3 - registration denied 4 - unknown 5 - registered, roaming 2 - enable network registration and location information unsolicited result code; if there is a change of the network cell, it is issued the unsolicited result code: **+CGREG: <stat>[,<lac>,<ci>]** where: **<stat>** - registration status (see above for values) **<lac>** - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>** - cell ID in hexadecimal format.
AT+CGREG?	Read command returns the status of result code presentation mode **<n>** and the integer **<stat>** which shows whether the network has currently indicated the registration of the terminal in the format:

+CGREG - GPRS Network Registration Status	**SELINT 2**
	+CGREG: <n>,<stat>
AT+CGREG=?	Test command returns supported values for parameter **<n>**
Reference	3GPP TS 27.007
Note	There are situations in which the presentation of the **URC** controlled by **+CGREG** is slightly different from ETSI specifications. We identified this behaviour and decided to maintain it as default for backward compatibility issues. It is indeed possible to avoid it simply issuing **AT#REGMODE=1** (see **#REGMODE**): this puts the **Operation Mode** of **Registration Status Commands** in '**Enhanced Registration Operation Mode**' which is more formal.

3.5.4.7.5. Define PDP Context - +CGDCONT

+CGDCONT - Define PDP Context	**SELINT 0 / 1**
AT+CGDCONT[= [<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]]	Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, **<cid>** Parameters: **<cid>** - (PDP Context Identifier) numeric parameter which specifies a particular PDP context definition. 1..*max* - where the value of *max* is returned by the Test command **<PDP_type>** - (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol "IP" - Internet Protocol **<APN>** - (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is empty ("") or omitted, then the subscription value will be requested. **<PDP_addr>** - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be read using the **+CGPADDR** command. **<d_comp>** - numeric parameter that controls PDP data compression 0 - off (default if value is omitted) 1 - on **<h_comp>** - numeric parameter that controls PDP header compression 0 - off (default if value is omitted) 1 - on **<pd1>**, …, **<pdN>** - zero to N string parameters whose meanings are specific to the **<PDP_type>** Note: a special form of the Set command, **+CGDCONT=<cid>**, causes the values for context number **<cid>** to become undefined.

+CGDCONT - Define PDP Context	**SELINT 0 / 1**
	Note: issuing **AT+CGDCONT<CR>** is the same as issuing the Read command. Note: issuing **AT+CGDCONT=<CR>** returns the **OK** result code.
AT+CGDCONT?	Read command returns the current settings for each defined context in the format: **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<pd1>[,…[,pdN]]]<CR><LF>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<pd1>[,…[,pdN]]]<CR><LF>[…]]**
AT+CGDCONT=?	Test command returns values supported as a compound value

Example	`AT+CGDCONT=1,”IP”,”APN”,”10.10.10.10”,0,0`
	`OK`
	`AT+CGDCONT?`
	`+CGDCONT: 1,”IP”,“APN”,”10.10.10.10”,0,0`
	`OK`
	`AT+CGDCONT=?`
	`+CGDCONT: (1-5),”IP”,,,(0-1),(0-1)`
	`OK`

Reference	3GPP TS 27.007

+CGDCONT - Define PDP Context	**SELINT 2**
AT+CGDCONT= **[<cid>** **[,<PDP_type>** **[,<APN>** **[,<PDP_addr>** **[,<d_comp>** **[,<h_comp>** **[,<pd1>** **[,…[,pdN]]]]]]]]]**	Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, **<cid>** Parameters: **<cid>** - (PDP Context Identifier) numeric parameter which specifies a particular PDP context definition. 1..*max* - where the value of *max* is returned by the Test command **<PDP_type>** - (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol "IP" - Internet Protocol **<APN>** - (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is empty (“”) or omitted, then the subscription value will be requested. **<PDP_addr>** - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be read using the **+CGPADDR** command. **<d_comp>** - numeric parameter that controls PDP data compression

+CGDCONT - Define PDP Context	**SELINT 2**
	0 - off (default if value is omitted) 1 - on **<h_comp>** - numeric parameter that controls PDP header compression 0 - off (default if value is omitted) 1 - on **<pd1>**, ..., **<pdN>** - zero to N string parameters whose meanings are specific to the **<PDP_type>** Note: a special form of the Set command, **+CGDCONT=<cid>**, causes the values for context number **<cid>** to become undefined.
AT+CGDCONT?	Read command returns the current settings for each defined context in the format: **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>, <h_comp>[,<pd1>[,…[,pdN]]][<CR><LF>+CGDCONT: <cid>, <PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp> [,<pd1>[,…[,pdN]]][…]]**
AT+CGDCONT=?	Test command returns values supported as a compound value

Example	`AT+CGDCONT=1,”IP”,”APN”,”10.10.10.10”,0,0`
	`OK`
	`AT+CGDCONT?`
	`+CGDCONT: 1,”IP”,“APN”,”10.10.10.10”,0,0`
	
	`OK`
	`AT+CGDCONT=?`
	`+CGDCONT: (1-5),”IP”,,,(0-1),(0-1)`
	
	`OK`

Reference	3GPP TS 27.007

3.5.4.7.6. Quality Of Service Profile - +CGQMIN

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	**SELINT 0 / 1**
AT+CGQMIN[= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]]	Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message. Parameters: **<cid>** - PDP context identification (see **+CGDCONT**). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	**SELINT 0 / 1**
	<mean> - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQMIN=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQMIN<CR>** is the same as issuing the Read command. Note: issuing **AT+CGQMIN=<CR>** returns the **OK** result code.
AT+CGQMIN?	Read command returns the current settings for each defined context in the format: **+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQMIN: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQMIN: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the "IP" PDP_Type is currently supported.

Example

```
AT+CGQMIN=1,0,0,3,0,0
OK
AT+CGQMIN?
+CGQMIN: 1,0,0,5,0,0

OK
AT+CGQMIN=?
+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-19,31)

OK
```

Reference	3GPP TS 27.007; GSM 03.60

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	**SELINT 2**
AT+CGQMIN= [<cid> [,<precedence> [,<delay>	Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message.

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	**SELINT 2**
[,<reliability> **[,<peak>** **[,<mean>]]]]]]**	Parameters: **<cid>** - PDP context identification (see **+CGDCONT** command). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class **<mean>** - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQMIN=<cid>** causes the requested profile for context number **<cid>** to become undefined.
AT+CGQMIN?	Read command returns the current settings for each defined context in the format: **+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean>[<CR><LF>+CGQMIN: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQMIN: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the "IP" PDP_Type is currently supported.

Example	`AT+CGQMIN=1,0,0,3,0,0`
	`OK`
	`AT+CGQMIN?`
	`+CGQMIN: 1,0,0,5,0,0`
	
	`OK`
	`AT+CGQMIN=?`
	`+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)`
	
	`OK`

Reference	3GPP TS 27.007; GSM 03.60

3.5.4.7.7. Quality Of Service Profile - +CGQREQ

+CGQREQ - Quality Of Service Profile (Requested)	**SELINT 0 / 1**
AT+CGQREQ[= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]]	Set command allows to specify a Quality of Service Profile that is used when the terminal sends an Activate PDP Context Request message to the network. It specifies a profile for the context identified by the (local) context identification parameter, **<cid>**. Parameters: **<cid>** - PDP context identification (see **+CGDCONT** command). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class **<mean>** - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQREQ=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQREQ<CR>** is the same as issuing the Read command. Note: issuing **AT+CGQREQ=<CR>** returns the **OK** result code.
AT+CGQREQ?	Read command returns the current settings for each defined context in the format: **+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQREQ: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the "IP" PDP_Type is currently supported.

Example	`AT+CGQREQ?`
	`+CGQREQ: 1,0,0,3,0,0`
	
	`OK`
	`AT+CGQREQ=1,0,0,3,0,0`

+CGQREQ - Quality Of Service Profile (Requested)	**SELINT 0 / 1**

	`OK`
	`AT+CGQREQ=?`
	`+CGQREQ: ”IP”,(0-3),(0-4),(0-5),(0-9),(0-19,31)`
	
	`OK`

Reference	3GPP TS 27.007; GSM 03.60

+CGQREQ - Quality Of Service Profile (Requested)	**SELINT 2**
AT+CGQREQ= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]	Set command allows to specify a Quality of Service Profile that is used when the terminal sends an Activate PDP Context Request message to the network. It specifies a profile for the context identified by the (local) context identification parameter, **<cid>**. Parameters: **<cid>** - PDP context identification (see **+CGDCONT** command). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class **<mean>** - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQREQ=<cid>** causes the requested profile for context number **<cid>** to become undefined.
AT+CGQREQ?	Read command returns the current settings for each defined context in the format: **+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean>[<CR><LF>+CGQREQ: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the “IP” PDP_Type is currently supported.
Example	`AT+CGQREQ?`

+CGQREQ - Quality Of Service Profile (Requested)	**SELINT 2**

	`+CGQREQ: 1,0,0,3,0,0`
	
	`OK`
	`AT+CGQREQ=1,0,0,3,0,0`
	`OK`
	`AT+CGQREQ=?`
	`+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)`
	
	`OK`

Reference	3GPP TS 27.007; GSM 03.60

3.5.4.7.8. PDP Context - +CGACT

+CGACT - PDP Context Activate Or Deactivate	**SELINT 0 / 1**
AT+CGACT[=[<state>[,<cid>[,<cid>[,…]]]]]	Execution command is used to activate or deactivate the specified PDP context(s) Parameters: **<state>** - indicates the state of PDP context activation 0 - deactivated 1 - activated **<cid>** - a numeric parameter which specifies a particular PDP context definition (see **+CGDCONT**) Note: if no **<cid>**s are specified the activation/deactivation form of the command activates/deactivates all defined contexts. Note: issuing **AT+CGACT<CR>** is the same as issuing the Read command. Note: issuing **AT+CGACT=<CR>** returns the **OK** result code.
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: **+CGACT: <cid>,<state><CR><LF>[<CR><LF>+CGACT: <cid>,<state><CR><LF>[…]]**
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: **+CGACT: (0-1)**

Example	`AT+CGACT?`
	`+CGACT: 1,1`
	
	`OK`
	`AT+CGACT=1,1`

+CGACT - PDP Context Activate Or Deactivate		SELINT 0 / 1
	`OK`	
Reference	3GPP TS 27.007	

+CGACT - PDP Context Activate Or Deactivate		SELINT 2
AT+CGACT= [<state>[,<cid> [,<cid>[,…]]]]	Execution command is used to activate or deactivate the specified PDP context(s) Parameters: **<state>** - indicates the state of PDP context activation 0 - deactivated 1 - activated **<cid>** - a numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command) Note: if no **<cid>**s are specified the activation/deactivation form of the command activates/deactivates all defined contexts.	
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: **+CGACT: <cid>,<state>[<CR><LF>+CGACT: <cid>,<state>[…]]**	
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: **+CGACT: (0,1)**	

Example	`AT+CGACT=1,1`
	`OK`
	`AT+CGACT?`
	`+CGACT: 1,1`
	
	`OK`	

Reference	3GPP TS 27.007	

3.5.4.7.9. Show PDP Address - +CGPADDR

+CGPADDR - Show PDP Address	**SELINT 0 / 1**
AT+CGPADDR=[<cid>[,<cid>[,…]]]	Execution command returns a list of PDP addresses for the specified context identifiers in the format: **+CGPADDR: <cid>[,<PDP_addr>]<CR><LF>~~[<CR><LF>~~** **+CGPADDR: <cid>[,<PDP_addr>]<CR><LF>[…]]** Parameters: **<cid>** - a numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). If no **<cid>** is specified, the addresses for all defined contexts are returned. **<PDP_addr>** - a string that identifies the terminal in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the **+CGDCONT** command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by **<cid>**; if no address is available the **<PDP_addr>** parameter is not shown
AT+CGPADDR=?	Test command returns a list of defined **<cid>**s.

Example	`AT#GPRS=1`
	`+IP: xxx.yyy.zzz.www`
	
	`OK`
	`AT+CGPADDR=1`
	`+CGPADDR: 1,”xxx.yyy.zzz.www”`
	
	`OK`
	`AT+CGPADDR=?`
	`+CGPADDR: (1)`
	
	`OK`

Reference	3GPP TS 27.007

+CGPADDR - Show PDP Address	**SELINT 2**
AT+CGPADDR=[<cid>[,<cid>[,…]]]	Execution command returns a list of PDP addresses for the specified context identifiers in the format: **+CGPADDR: <cid>,<PDP_addr>[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[…]]** Parameters:

+CGPADDR - Show PDP Address	SELINT 2
	<cid> - a numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). If no **<cid>** is specified, the addresses for all defined contexts are returned. **<PDP_addr>** - a string that identifies the terminal in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the **+CGDCONT** command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by **<cid>**; if no address is available the empty string ("") is represented as **<PDP_addr>**
AT+CGPADDR=?	Test command returns a list of defined **<cid>**s.

Example

```
AT#GPRS=1
+IP: xxx.yyy.zzz.www

OK
AT+CGPADDR=1
+CGPADDR: 1,"xxx.yyy.zzz.www"

OK
AT+CGPADDR=?
+CGPADDR: (1)

OK
```

Reference	3GPP TS 27.007

3.5.4.7.10. Enter Data State - +CGDATA

+CGDATA - Enter Data State	SELINT 0 / 1
AT+CGDATA= [<L2P>,[<cid> [,<cid>[,…]]]]	Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types. Parameters: **<L2P>** - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol **<cid>** - numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). Note: if parameter **<L2P>** is omitted, the layer 2 protocol is unspecified
AT+CGDATA=?	Test command reports information on the supported layer 2 protocols. Note: the representation format of the Test command output is not included

+CGDATA - Enter Data State	**SELINT 0 / 1**
	in parenthesis
Example	AT+CGDATA=? +CGDATA: "PPP" OK AT+CGDATA="PPP",1 CONNECT
Reference	3GPP TS 27.007

+CGDATA - Enter Data State	**SELINT 2**
AT+CGDATA= [<L2P>,[<cid> [,<cid>[,…]]]]	Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types. Parameters: **<L2P>** - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol **<cid>** - numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). Note: if parameter **<L2P>** is omitted, the layer 2 protocol is unspecified
AT+CGDATA=?	Test command reports information on the supported layer 2 protocols.
Example	AT+CGDATA=? +CGDATA: ("PPP") OK AT+CGDATA="PPP",1 CONNECT
Reference	3GPP TS 27.007

3.5.4.7.11. Modify PDP context - +CGCMOD

+CGCMOD – Modify PDP context	**SELINT 2**
AT+CGCMOD=[<cid1> [,<cid2>[,….,<cidN>]]]	The execution command is used to modify the specified PDP context(s) with respect to QoS profiles. If no **<cidi>** is specified the command modifies all active contexts. Parameters: **<cidi>:** a numeric parameter which specifies a particular PDP context
AT+CGCMOD=?	Test command returns a list of **<cid>**s associated with active

	contexts.

3.5.4.8. Commands For Battery Charger

3.5.4.8.1. Battery Charge - +CBC

+CBC - Battery Charge	SELINT 0 / 1
AT+CBC	Execution command returns the current Battery Charge status in the format: **+CBC: <bcs>,<bcl>** where: **<bcs>** - battery charge status 0 - **ME** is powered by the battery 1 - **ME** has a battery connected, and charger pin is being powered 2 - **ME** does not have a battery connected 3 - Recognized power fault, calls inhibited **<bcl>** - battery charge level, only if <bcs>=0 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged. Note: **<bcs>=1** indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for **ME** operations is taken anyway from VBATT pins. Note: without battery/power connected on VBATT pins or during a power fault the unit is not working, therefore values **<bcs>=2** and **<bcs>=3** will never appear. Note: <bcl> indicates battery charge level only if battery is connected and charger is not connected
AT+CBC?	Read command has the same effect as Execution command.
AT+CBC=?	Test command returns parameter values supported as a compound value. For compatibility with previous versions, Test command returns **+CBC: (0-2),(0-100)** An enhanced version of Test command has been defined: **AT+CBC=??**, that provides the complete range of values for **<bcs>** and **<bcl>**.

+CBC - Battery Charge	**SELINT 0 / 1**
	Note: although **+CBC** is an execution command, ETSI 07.07 requires the Test command to be defined.
AT+CBC=??	Enhanced test command returns the complete range of values for **<bcs>** and **<bcl>**: **+CBC: (0-3),(0-100)**

Example	`AT+CBC`
	`+CBC: 0,75`
	`OK`

Note	The **ME** does not make differences between being powered by a battery or by a power supply on the VBATT pins, so it is not possible to distinguish between these two cases.
Reference	3GPP TS 27.007

+ CBC - Battery Charge	**SELINT 2**
AT+CBC	Execution command returns the current Battery Charge status in the format: **+CBC: <bcs>,<bcl>** where: **<bcs>** - battery status 0 - **ME** is powered by the battery 1 - **ME** has a battery connected, and charger pin is being powered 2 - **ME** does not have a battery connected 3 - Recognized power fault, calls inhibited **<bcl>** - battery charge level, only if <bcs>=0 0 - battery is exhausted, or **ME** does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged. Note: **<bcs>**=1 indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for **ME** operations is taken anyway from **VBATT** pins. Note: without battery/power connected on **VBATT** pins or during a power fault the unit is not working, therefore values **<bcs>=2** and **<bcs>=3** will never appear.

+ CBC - Battery Charge	**SELINT 2**
	Note: <bcl> indicates battery charge level only if battery is connected and charger is not connected
AT+CBC=?	Test command returns parameter values supported as a compound value. **+CBC: (0-3),(0-100)** Note: although **+CBC** is an execution command, ETSI 07.07 requires the Test command to be defined.

Example	`AT+CBC`
	`+CBC: 0,75`
	`OK`

Note	The **ME** does not make differences between being powered by a battery or by a power supply on the **VBATT** pins, so it is not possible to distinguish between these two cases.
Reference	3GPP TS 27.007

3.5.5. 3GPP TS 27.005 AT Commands for SMS and CBS

3.5.5.1. General Configuration

3.5.5.1.1. Select Message Service - +CSMS

+CSMS - Select Message Service	**SELINT 0 / 1**
AT+CSMS [=<service>]	Set command selects messaging service **<service>**. It returns the types of messages supported by the **ME**: Parameter: **<service>** 0 - The syntax of SMS AT commands is compatible with GSM 27.005 (factory default) Set command returns current service setting along with the types of messages supported by the ME: **+CSMS: <service>,<mt>,<mo>,<bm>** where: **<mt>** - mobile terminated messages support 0 - type not supported 1 - type supported **<mo>** - mobile originated messages support

+CSMS - Select Message Service		**SELINT 0 / 1**
	0 - type not supported 1 - type supported **<bm>** - broadcast type messages support 0 - type not supported 1 - type supported Note: If parameter is omitted then the behavior of Set command is the same as Read command.	
AT+CSMS?	Read command reports current service setting along with supported message types in the format: **+CSMS: <service>,<mt>,<mo>,<bm>** where: **<service>** - messaging service (see above) **<mt>** - mobile terminated messages support (see above) **<mo>** - mobile originated messages support (see above) **<bm>** - broadcast type messages support (see above)	
AT+CSMS=?	Test command reports a list of all services supported by the device. The supported value of the parameter **<service>**.	
Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.041	

+CSMS - Select Message Service		**SELINT 2**
AT+CSMS= <service>	Set command selects messaging service **<service>**. It returns the types of messages supported by the **ME**: Parameter: **<service>** 0 - The syntax of SMS AT commands is compatible with GSM 27.005 (factory default) Set command returns the types of messages supported by the **ME**: **+CSMS: <mt>,<mo>,<bm>** where: **<mt>** - mobile terminated messages support 0 - type not supported 1 - type supported **<mo>** - mobile originated messages support 0 - type not supported 1 - type supported **<bm>** - broadcast type messages support	

+CSMS - Select Message Service	**SELINT 2**
	0 - type not supported 1 - type supported
AT+CSMS?	Read command reports current service setting along with supported message types in the format: **+CSMS: <service>,<mt>,<mo>,<bm>** where: **<service>** - messaging service (see above) **<mt>** - mobile terminated messages support (see above) **<mo>** - mobile originated messages support (see above) **<bm>** - broadcast type messages support (see above)
AT+CSMS=?	Test command reports the supported value of the parameter **<service>**.
Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.041

3.5.5.1.2. Preferred Message Storage - +CPMS

+CPMS - Preferred Message Storage	**SELINT 0 / 1**
AT+CPMS[= <memr> [,<memw> [,<mems>]]]	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage "ME" - **ME** internal storage **<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>**

+CPMS - Preferred Message Storage	**SELINT 0 / 1**
	<totals> - max number of SMS that **<mems>** can contain Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so **<memw>=<mems>="SM"**. Note: the received class 0 SMS are stored in the "ME" memory regardless the **<mems>** setting and they are automatically deleted at power off. Note: If all parameters are omitted the behavior of Set command is the same as Read command.
AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>** where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**

Example	`AT+CPMS?`
	`+CPMS: "SM",5,10,"SM",5,10,"SM",5,10`
	
	`OK` *you have 5 out of 10 SMS SIM positions occupied*

Reference	GSM 27.005

+CPMS - Preferred Message Storage		**SELINT 2**
*Note: the behaviour of command **+CPMS** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**)*		
(#SMSMODE=0)		
#SMSMODE=0	**AT+CPMS= <memr> [,<memw> [,<mems>]]**	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage "ME" - **ME** internal storage **<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage

+CPMS - Preferred Message Storage		SELINT 2
#SMSMODE=0		The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where: **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>** **<totals>** - max number of SMs that **<mems>** can contain Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so **<memw>=<mems>="SM"**. Note: the received class 0 SMS are stored in the "ME" memory regardless the **<mems>** setting and they are automatically deleted at power off.
#SMSMODE=0	AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>** where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
#SMSM	AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**

	Example	`AT+CPMS?`
		`+CPMS: "SM",5,10,"SM",5,10,"SM",5,10`
		
		`OK`
		(you have 5 out of 10 SMS SIM positions occupied)

	Reference	GSM 27.005
	(#SMSMODE=1)	
#SMSMO	AT+CPMS= <memr> [,<memw> [,<mems>]]	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage

+CPMS - Preferred Message Storage		**SELINT 2**
DE=1 #SMSMODE=1 #SMSMODE=1		**<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where: **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>** **<totals>** - max number of SMs that **<mems>** can contain Note: The only supported memory storage for reading, writing and sending SMs is the SIM internal memory "SM": **<memr>=<memw>=<mems>="SM"**.
	AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>** where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
	AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**

	Example	`AT+CPMS?`
		`+CPMS: "SM",5,10,"SM",5,10,"SM",5,10`
		
		`OK`
		(you have 5 out of 10 SMS SIM positions occupied)

	Reference	GSM 27.005

3.5.5.1.3. Message Format - +CMGF

+CMGF - Message Format	**SELINT 0 / 1**
AT+CMGF[=	Set command selects the format of messages used with send, list, read and

+CMGF - Message Format	SELINT 0 / 1
[<mode>]]	write commands. Parameter: **<mode>** 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode Note: issuing **AT+CMGF<CR>** is the same as issuing the Read command. Note: issuing **AT+CMGF=<CR>** is the same as issuing the command **AT+CMGF=0<CR>**.
AT+CMGF?	Read command reports the current value of the parameter **<mode>**.
AT+CMGF=?	Test command reports the supported value of **<mode>** parameter.
Reference	GSM 27.005

+CMGF - Message Format	SELINT 2
AT+CMGF= [<mode>]	Set command selects the format of messages used with send, list, read and write commands. Parameter: **<mode>** 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode
AT+CMGF?	Read command reports the current value of the parameter **<mode>**.
AT+CMGF=?	Test command reports the supported value of **<mode>** parameter.
Reference	GSM 27.005

3.5.5.2. Message Configuration

3.5.5.2.1. Service Center Address - +CSCA

+CSCA - Service Center Address	SELINT 0 / 1
AT+CSCA[= [<number> [,<type>]]]	Set command sets the Service Center Address to be used for mobile originated SMS transmissions. Parameter: **<number>** - SC phone number in the format defined by **<type>** **<type>** - the type of number 129 - national numbering scheme

+CSCA - Service Center Address	SELINT 0 / 1
	145 - international numbering scheme (contains the character "+") Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed. Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the **<pdu>** parameter equals zero. Note: the current settings are stored through **+CSAS** Note: issuing **AT+CSCA<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCA=<CR>** causes an **OK** result code to be issued.
AT+CSCA?	Read command reports the current value of the SCA in the format: **+CSCA: <number>,<type>** Note: if SCA is not present the device reports an error message.
AT+ CSCA=?	Test command returns the **OK** result code.
Reference	GSM 27.005

+CSCA -Service Center Address	SELINT 2
AT+CSCA=<number>[,<type>]	Set command sets the Service Center Address to be used for mobile originated SMS transmissions. Parameter: **<number>** - SC phone number in the format defined by **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed. Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the **<pdu>** parameter equals zero. Note: the current settings are stored through **+CSAS**
AT+CSCA?	Read command reports the current value of the SCA in the format:

+CSCA -Service Center Address	**SELINT 2**
	+CSCA: <number>,<type> Note: if SCA is not present the device reports an error message.
AT+CSCA=?	Test command returns the **OK** result code.
Reference	GSM 27.005

3.5.5.2.2. Set Text Mode Parameters - +CSMP

+CSMP - Set Text Mode Parameters	**SELINT 0 / 1**
AT+CSMP[= [<fo> [,<vp> [,<pid> [,<dcs>]]]]]	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (**+CMGF=1**) Parameters: **<fo>** - depending on the command or result code: first octet of 3GPP TS 23.040 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. **<vp>** - depending on SMS-SUBMIT **<fo>** setting: 3GPP TS 23.040 TP-Validity-Period either in integer format (default 167) or in quoted time-string format **<pid>** - 3GPP TS 23.040 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: 3GPP TS 23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme Note: the current settings are stored through **+CSAS** Note: issuing **AT+CSMP<CR>** is the same as issuing the Read command. Note: issuing **AT+CSMP=<CR>** is the same as issuing the command **AT+CSMP=0<CR>**.
AT+CSMP?	Read command reports the current setting in the format: **+CSMP: < fo>,<vp>,<pid>,<dcs>**
AT+CSMP=?	Test command reports the supported range of values for **<fo>**, **<vp>**, **<pid>** and **<dcs>** parameters.
Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:* `AT+CSMP=17,167,0,0`

+CSMP - Set Text Mode Parameters		**SELINT 0 / 1**
	OK	
Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038	

+CSMP - Set Text Mode Parameters		**SELINT 2**
Note: the behaviour of command ***+CPMS*** *differs depending on whether or not the improved SMS commands operation mode has been enabled (see* ***#SMSMODE****)*		
(#SMSMODE=0)		
#SMSMODE=0 #SMSMODE=0 #SMSMODE	**AT+CSMP=** **[<fo>** **[,<vp>** **[,<pid>** **[,<dcs>]]]]**	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (**AT+CMGF=1**) Parameters: **<fo>** - first octet of 3GPP TS 23.040 SMS-SUBMIT in integer format (default 17, i.e. SMS-SUBMIT with validity period in relative format). As first octet of a PDU has the following bit field description (we'll refer to **bit[7]bit[6]bit[5]bit[4]bit[3]bit[2]bit[1]bit[0]**): **bit[1]bit[0]**: Message Type Indicator, 2-bit field describing the message type: all the combinations are converted in [01] (default is [01]); [00] - converted in [01] [01] - SMS-SUBMIT [10] - converted in [01] [11] - converted in [01] **bit[2]**: Reject Duplicates, 1-bit field: user is not responsible for setting this bit and, if any set, it will have no meaning (default is [0]); **bit[4]bit[3]**: Validity Period Format, 2-bit field indicating whether or not the Validity Period field is present (default is [10]): [00] - Validity Period field *not present* [01] - Validity Period field present in *enhanced format*: it is currently converted in [00], i.e. *not present* [10] - Validity Period field present in *relative format*, (i.e. integer type, see below) [11] - Validity Period field present in *absolute format* (i.e. quoted time-string type); we strongly suggest to not use this format because its implementation is currently under refinement **bit[5]**: Status Report Request, 1-bit field indicating the MS is requesting a status report (default is [0]); [0] - MS is not requesting a status report [1] - MS is requesting a status report **bit[6]**: User Data Header Indicator, 1-bit field: user is not

+CSMP - Set Text Mode Parameters		**SELINT 2**
=0 #SMSMODE=0 #SMSMODE=0		responsible for setting this bit and, if any set, it will have no meaning (default is [0]); **bit[7]**: Reply Path, 1-bit field indicating the request for Reply Path (default is [0]); [0] - Reply Path not requested [1] - Reply Path requested **<vp>** - depending on **<fo>** setting: if **<fo>** asks for a Validity Period in *relative format* **<vp>** shall be integer type (default 167, i.e. 24 hours); if **<fo>** asks for a Validity Period in *absolute format* we strongly suggest to modify it in *relative format*, because the implementation of this topic is currently under refinement and it is currently not possible to set **<vp>** with a quoted time string type. (for *relative format* only:) 0..143 - (**<vp>** + 1) x 5 minutes; 144..167 - 12 hours + ((**<vp>** - 143) x 30 minutes); 168..196 - (**<vp>** - 166) x 1 day; 197..255 - (**<vp>** - 192) x 1 week; **<pid>** - 3GPP TS 23.040 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: 3GPP TS 23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme Note: the current settings are stored through +CSAS
	AT+CSMP?	Read command reports the current setting in the format: **+CSMP: < fo>,<vp>,<pid>,<dcs>**
	AT+CSMP=?	Test command returns the **OK** result code.

	Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:*
		
		`AT+CSMP=17,167,0,0`
		`OK`

	Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038
	(#SMSMODE=1)	
#SMS	AT+CSMP= [<fo> [,<vp> [,<pid>	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (**AT+CMGF=1**) Parameters:

+CSMP - Set Text Mode Parameters		SELINT 2
MODE=1 #SMSMODE=1 #SMSMODE=1 #SMSMOD	**[,<dcs>]]]]**	**<fo>** - first octet of 3GPP TS 23.040 SMS-SUBMIT or SMS-DELIVER, in integer format (default 17, i.e. SMS-SUBMIT with validity period in relative format). As first octet of a PDU has the following bit field description (**bit[7]bit[6]bit[5]bit[4]bit[3]bit[2]bit[1]bit[0]**): **bit[1]bit[0]**: Message Type Indicator, 2-bit field describing the message type; [00] - SMS-DELIVER; [01] - SMS-SUBMIT (default) ; **bit[2]**: Reject Duplicates, 1-bit field: user is not responsible for setting this bit and, if any set, it will have no meaning (default is [0]); **bit[4]bit[3]**: Validity Period Format, 2-bit field indicating whether or not the Validity Period field is present (default is [10]): [00] - Validity Period field *not present* [01] - Validity Period field present in *enhanced format*(i.e. quoted time-string type, see below) [10] - Validity Period field present in *relative format*, (i.e. integer type, see below) [11] - Validity Period field present in *absolute format* (i.e. quoted time-string type, see below) **bit[5]**: Status Report Request, 1-bit field indicating the MS is requesting a status report (default is [0]); [0] - MS is not requesting a status report [1] - MS is requesting a status report **bit[6]**: User Data Header Indicator, 1-bit field: user is not responsible for setting this bit and, if any set, it will have no meaning (default is [0]); **bit[7]**: Reply Path, 1-bit field indicating the request for Reply Path (default is [0]); [0] - Reply Path not requested [1] - Reply Path requested **<vp>** - depending on **<fo>** setting: a) if **<fo>** asks for a *Not Present* Validity Period, **<vp>** can be any type and it will be not considered; b) if **<fo>** asks for a Validity Period in *relative format*, **<vp>** shall be integer type (default 167, i.e. 24 hours); 0..143 - (**<vp>** + 1) x 5 minutes 144..167 - 12 hours + ((**<vp>** - 143) x 30 minutes) 168..196 - (**<vp>** - 166) x 1 day 197..255 - (**<vp>** - 192) x 1 week c) if **<fo>** asks for a Validity Period in *absolute format*, **<vp>** shall be quoted time-string type (see **+CCLK**)

+CSMP - Set Text Mode Parameters		SELINT 2
E=1 #SMSMODE=1 #SMSMODE=1 #SMSMODE=		d) if **<fo>** asks for a Validity Period in *enhanced format*, **<vp>** shall be the quoted hexadecimal representation (string type) of 7 octets, as follows: • the first octet is the **Validity Period Functionality Indicator**, indicating the way in which the other 6 octets are used; let's consider its bit field description: **bit[7]**: extension bit [0] - there are no more VP Fuctionality Indicator extension octets to follow **bit[6]**: Single Shot SM; [0] - the SC is not required to make up to one delivery attempt [1] - the SC is required to make up to one delivery attempt **bit[5]bit[4]bit[3]**: reserved [000] **bit[2]bit[1]bit[0]**: Validity Period Format [000] - No Validity Period specified [001] - Validity Period specified as for the relative format. The following octet contains the VP value as described before; all the other octets are 0's. [010] - Validity Period is relative in integer representation. The following octet contains the VP value in the range 0 to 255, representing 0 to 255 seconds; all the other octets are 0's. [011] - Validity Period is relative in semi-octet representation. The following 3 octets contain the relative time in Hours, Minutes and Seconds, giving the length of the validity period counted from when the SMS-SUBMIT is received by the SC; all the other octets are 0's. **<pid>** - 3GPP TS 23.040 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: 3GPP TS 23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme Note: the current settings are stored through **+CSAS** Note: we're storing through **+CSAS** the **<vp>** value too, but only as integer type, i.e. only in its *relative format*
	AT+CSMP?	Read command reports the current setting in the format:

+CSMP - Set Text Mode Parameters		**SELINT 2**
1 #SMSMODE=1 #SMSMODE=1		**+CSMP: <fo>,<vp>,<pid>,<dcs>** Note: if the Validity Period Format (**<fo>**’s **bit[4]bit[3]**) is [00] (i.e. *Not Present*), **<vp>** is represented just as a quoted empty string (**“”**).
	AT+CSMP=?	Test command returns the **OK** result code.

	Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:*
		
		`AT+CSMP=17,167,0,0`
		`OK`
		
		Set the parameters for an outgoing message with validity period in enhanced format: the ***<vp>*** *string actually codes 24 hours of validity period.*
		
		`AT+CSMP=9,“01A80000000000‟`
		`OK`
		
		Set the parameters for an outgoing message with validity period in enhanced format: the ***<vp>*** *string actually codes 60 seconds of validity period.*
		
		`AT+CSMP=9,“023C0000000000‟`
		`OK`
		
		Set the parameters for an outgoing message with validity period in enhanced format: the ***<vp>*** *string actually codes 29 hours 85 minutes 30 seconds of validity period.*
		
		`AT+CSMP=9,“03925803000000‟`
		`OK`

	Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038

3.5.5.2.3. Show Text Mode Parameters - +CSDH

+CSDH - Show Text Mode Parameters	**SELINT 0 / 1**
AT+CSDH[= [<show>]]	Set command controls whether detailed header information is shown in text mode (**+CMGF=1**) result codes. Parameter: **<show>**

+CSDH - Show Text Mode Parameters	**SELINT 0 / 1**
	0 - do not show header values defined in commands **+CSCA** and **+CSMP** (**<sca>**, **<tosca>**, **<fo>**, **<vp>**, **<pid>** and **<dcs>**) nor **<length>**, **<toda>** or **<tooa>** in **+CMT**, **+CMGL**, **+CMGR** result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in **+CMGR** result code do not show **<pid>**, **<mn>**, **<da>**, **<toda>**, **<length>** or **<cdata>** 1 - show the values in result codes Note: issuing **AT+CSDH<CR>** is the same as issuing the Read command. Note: issuing **AT+CSDH=<CR>** is the same as issuing the command **AT+CSDH=0<CR>**.
AT+CSDH?	Read command reports the current setting in the format: **+CSDH: <show>**
AT+CSDH=?	Test command reports the supported range of values for parameter **<show>**
Reference	GSM 27.005

+CSDH - Show Text Mode Parameters	**SELINT 2**
AT+CSDH= **[<show>]**	Set command controls whether detailed header information is shown in text mode (**AT+CMGF=1**) result codes. Parameter: **<show>** 0 - do not show header values defined in commands **+CSCA** and **+CSMP** (**<sca>**, **<tosca>**, **<fo>**, **<vp>**, **<pid>** and **<dcs>**) nor **<length>**, **<toda>** or **<tooa>** in **+CMT**, **+CMGL**, **+CMGR** result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in **+CMGR** result code do not show **<pid>**, **<mn>**, **<da>**, **<toda>**, **<length>** or **<cdata>** 1 - show the values in result codes
AT+CSDH?	Read command reports the current setting in the format: **+CSDH: <show>**
AT+CSDH=?	Test command reports the supported range of values for parameter **<show>**
Reference	GSM 27.005

3.5.5.2.4. Select Cell Broadcast - +CSCB

+CSCB -Select Cell Broadcast Message Types	**SELINT 0 / 1**
AT+CSCB[=	Set command selects which types of Cell Broadcast Messages are to be

+CSCB -Select Cell Broadcast Message Types	SELINT 0 / 1
[<mode> [,<mids> [,<dcss>]]]]	received by the device. Parameter: **<mode>** 0 - the message types defined by **<mids>** and **<dcss>** are accepted (factory default) 1 - the message types defined by **<mids>** and **<dcss>** are rejected **<mids>** - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string (“”). **<dcss>** - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string (“”). Note: the current settings are stored through **+CSAS** Note: issuing **AT+CSCB<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCB=<CR>** is the same as issuing the command **AT+CSCB=0<CR>**.
AT+CSCB?	Read command reports the current value of parameters **<mode>**, **<mids>** and **<dcss>**.
AT+CSCB=?	Test command returns the range of values for parameter **<mode>**.

Example	`AT+CSCB?`
	`+CSCB: 1,"",""`
	
	`OK` *(all CBMs are accepted, none is rejected)*
	`AT+CSCB=0,"0,1,300-315,450","0-3"`
	`OK`

Reference	GSM 27.005, 3GPP TS 23.041, 3GPP TS 23.038.

+CSCB -Select Cell Broadcast Message Types	SELINT 2
AT+CSCB= [<mode>[,<mids> [,<dcss>]]]	Set command selects which types of Cell Broadcast Messages are to be received by the device. Parameters: **<mode>** 0 - the message types defined by **<mids>** and **<dcss>** are accepted (factory default) 1 - the message types defined by **<mids>** and **<dcss>** are rejected **<mids>** - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string (“”).

+CSCB -Select Cell Broadcast Message Types	**SELINT 2**
	<dcss> - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string (“”). Note: the current settings are stored through **+CSAS**
AT+CSCB?	Read command reports the current value of parameters **<mode>**, **<mids>** and **<dcss>**.
AT+CSCB=?	Test command returns the range of values for parameter **<mode>**.

Example	`AT+CSCB?`
	`+CSCB: 1,"",""`
	
	`OK` *(all CBMs are accepted, none is rejected)*
	`AT+CSCB=0,"0,1,300-315,450","0-3"`
	`OK`

Reference	GSM 27.005, 3GPP TS 23.041, 3GPP TS 23.038.

3.5.5.2.5. Save Settings - +CSAS

+CSAS - Save Settings	**SELINT 0 / 1**
AT+CSAS [=<profile>]	Execution command saves settings which have been made by the **+CSCA**, **+CSMP** and **+CSCB** commands in local non volatile memory. Parameter: **<profile>** 0 - it saves the settings to NVM (factory default). 1..n - SIM profile number; the value of n depends on the SIM and its max is 3. Note: certain settings may not be supported by the SIM and therefore they are always saved to NVM, regardless the value of **<profile>**. Note: If parameter is omitted the settings are saved in the non volatile memory. Note: +CSCB <mids> (Message Identifiers) parameter can be saved to SIM only if the “Cell broadcast message identifier selection” file is present on the SIM itself. This file, if present, has storage for only a single set of data. Therefore, it is not possible to save different <mids> in different SIM profiles; <mids> value, once changed and saved, will be the same for all SIM profiles.
AT+CSAS?	Read command has the same effect as Execution command with parameter omitted.
AT+CSAS=?	Test command returns the possible range of values for the parameter

+CSAS - Save Settings		**SELINT 0 / 1**
	<profile>.	
Reference	GSM 27.005	

+CSAS - Save Settings		**SELINT 2**
AT+CSAS [=<profile>]	Execution command saves settings which have been made by the **+CSCA**, **+CSMP** and **+CSCB** commands in local non volatile memory. Parameter: **<profile>** 0 - it saves the settings to NVM (factory default). 1..n - SIM profile number; the value of n depends on the SIM and its max is 3. Note: certain settings may not be supported by the SIM and therefore they are always saved to NVM, regardless the value of **<profile>**. Note: If parameter is omitted the settings are saved in the non volatile memory. Note: +CSCB <mids> (Message Identifiers) parameter can be saved to SIM only if the "Cell broadcast message identifier selection" file is present on the SIM itself. This file, if present, has storage for only a single set of data. Therefore, it is not possible to save different <mids> in different SIM profiles; <mids> value, once changed and saved, will be the same for all SIM profiles.	
AT+CSAS=?	Test command returns the possible range of values for the parameter **<profile>**.	
Reference	GSM 27.005	

3.5.5.2.6. Restore Settings - +CRES

+CRES - Restore Settings		**SELINT 0 / 1**
AT+CRES [=<profile>]	Execution command restores message service settings saved by **+CSCA** command from either NVM or SIM. Parameter: **<profile>** 0 - it restores message service settings from NVM. 1..n - it restores message service settings from SIM. The value of n depends on the SIM and its max is 3.	

+CRES - Restore Settings	SELINT 0 / 1
	Note: certain settings may not be supported by the SIM and therefore they are always restored from NVM, regardless the value of **<profile>**. Note: If parameter is omitted the command restores message service settings from NVM.
AT+CRES?	Read command has the same effect as Execution command with parameter omitted.
AT+CRES=?	Test command returns the possible range of values for the parameter **<profile>**.
Reference	GSM 27.005

+CRES - Restore Settings	SELINT 2
AT+CRES [=<profile>]	Execution command restores message service settings saved by **+CSAS** command from either NVM or SIM. Parameter: **<profile>** 0 - it restores message service settings from NVM. 1..n - it restores message service settings from SIM. The value of n depends on the SIM and its max is 3. Note: certain settings may not be supported by the SIM and therefore they are always restored from NVM, regardless the value of **<profile>**. Note: If parameter is omitted the command restores message service settings from NVM.
AT+CRES=?	Test command returns the possible range of values for the parameter **<profile>**.
Reference	GSM 27.005

3.5.5.3. Message Receiving And Reading

3.5.5.3.1. New Message Indications - +CNMI

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
AT+CNMI[=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]]	Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the **DTE**. Parameter: **<mode>** - unsolicited result codes buffering option

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
	0 - Buffer unsolicited result codes in the **TA**. If **TA** result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when **TA-TE** link is reserved, otherwise forward them directly to the **TE**. 2 - Buffer unsolicited result codes in the **TA** in case the **DTE** is busy and flush them to the **TE** after reservation. Otherwise forward them directly to the **TE**. 3 - if **<mt>** is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too. **<mt>** - result code indication reporting for SMS-DELIVER 0 - No SMS-DELIVER indications are routed to the **TE**. 1 - If SMS-DELIVER is stored into **ME/TA**, indication of the memory location is routed to the **TE** using the following unsolicited result code: **+CMTI: <memr>,<index>** where: **<memr>** - memory storage where the new message is stored "SM" "ME" **<index>** - location on the memory where SM is stored. 2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the **TE** using the following unsolicited result code: **(PDU Mode)** **+CMT: ,<length><CR><LF><pdu>** where: **<length>** - PDU length **<pdu>** - PDU message **(TEXT Mode)** **+CMT:<oa>,,<scts>*[,<tooa>,<fo>,<pid>,<dcs>, <sca>,<tosca>,<length>]*<CR><LF><data>** (the information written in italics will be present depending on **+CSDH** last setting) where: **<oa>** - originating address, string type converted in the currently selected character set (see **+CSCS**) **<scts>** - arrival time of the message to the SC

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
	<tooa>, *<tosca>* - type of number **<oa>** or *<sca>:* 129 - number in national format 145 - number in international format (contains the "+") *<fo>* - first octet of 3GPP TS 23.040 *<pid>* - Protocol Identifier *<dcs>* - Data Coding Scheme *<sca>* - Service Centre address, string type, converted in the currently selected character set (see **+CSCS**) *<length>* - text length **<data>** - TP-User-Data Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in **<mt>=1**. 3 - Class 3 SMS-DELIVERs are routed directly to **TE** using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**. **<bm>** - broadcast reporting option 0 - Cell Broadcast Messages are not sent to the **DTE** 2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code: **(PDU Mode)** **+CBM: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU **(TEXT Mode)** **+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>** where: **<sn>** - message serial number **<mid>** - message ID **<dcs>** - Data Coding Scheme **<pag>** - page number **<pags>** - total number of pages of the message **<data>** - CBM Content of Message **<ds>** - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the **DTE** 1 - the status report is sent to the **DTE** with the following unsolicited result code:

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
	(PDU Mode) **+CDS: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU (TEXT Mode) **+CDS: <fo>,<mr>,,,<scts>,<dt>,<st>** where: **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU 2 - if a status report is stored, then the following unsolicited result code is sent: **+CDSI: <memr>,<index>** where: **<memr>** - memory storage where the new message is stored "SM" **<index>** - location on the memory where SM is stored **<bfr>** - buffered result codes handling method: 0 - **TA** buffer of unsolicited result codes defined within this command is flushed to the **TE** when **<mode>=1..3** is entered (**OK** response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when **<mode>=1..3** is entered. Note: issuing **AT+CNMI<CR>** is the same as issuing the Read command. Note: issuing **AT+CNMI=<CR>** is the same as issuing the command **AT+CNMI=0<CR>**.
AT+CNMI?	Read command returns the current parameter settings for **+CNMI** command in the form: **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>**
AT+CNMI=?	Test command reports the supported range of values for the **+CNMI** command parameters. For compatibility with previous versions, Test command returns:

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
	+CNMI: (0-2)*,(0-3),(0,2),(0-2),(0,1)* An enhanced version of Test command has been defined: **AT+CNMI=??**, that provides the complete range of values for parameter **<mode>**.
AT+CNMI=??	Enhanced test command reports the supported range of values for all the **+CNMI** command parameters.
Reference	GSM 27.005
Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is inactive (**DTR** signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
*Note: the behaviour of command **+CNMI** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**)*		
(#SMSMODE=0)		
#SMSMODE=0 #SMSMODE=0	AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the **DTE**. Parameter: **<mode>** - unsolicited result codes buffering option 0 - Buffer unsolicited result codes in the **TA**. If **TA** result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when **TA-TE** link is reserved, otherwise forward them directly to the **TE**. 2 - Buffer unsolicited result codes in the TA in case the **DTE** is busy and flush them to the TE after reservation. Otherwise forward them directly to the TE. 3 - if **<mt>** is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too. **<mt>** - result code indication reporting for SMS-DELIVER 0 - No SMS-DELIVER indications are routed to the TE. 1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code:

+CNMI - New Message Indications To Terminal Equipment | **SELINT 2**

+CMTI: <mems>,<index>
where:
<mems> - memory storage where the new message is stored (see **+CPMS**)

#SMSMODE=0

<index> - location on the memory where SMS is stored.

2 - SMS-DELIVERs (except class 2 messages and messages in the "store" message waiting indication group) are routed directly to the TE using the following unsolicited result code:

(PDU Mode)

+CMT: <alpha>,<length><CR><LF><pdu>
where:
<alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook; used character set should be the one selected with command **+CSCS.**

#SMSMODE=0

<length> - PDU length
<pdu> - PDU message

(TEXT Mode)

+CMT:<oa>,<alpha>,<scts>*[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]***<CR><LF><data>** (the information written in italics will be present depending on **+CSDH** last setting)
where:
<oa> - originating address, string type converted in the currently selected character set (see **+CSCS**)
<alpha> - alphanumeric representation of **<oa>**; used character set should be the one selected with command **+CSCS**.

#SMSMODE=0

<scts> - arrival time of the message to the SC
<tooa>, ***<tosca>*** - type of number **<oa>** or ***<sca>***:
129 - number in national format
145 - number in international format (contains the "**+**")
<fo> - first octet of 3GPP TS 23.040
<pid> - Protocol Identifier
<dcs> - Data Coding Scheme
<sca> - Service Centre address, string type, converted in the currently selected character set (see **+CSCS**)
<length> - text length
<data> - TP-User-Data

- If **<dcs>** indicates that GSM03.38 default alphabet is used and **<fo>** indicates that GSM03.40 TP-User-Data-Header-

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
#SMSMODE=0 #SMSMODE=0 #SMSMODE=0 #SM		Indication is not set (bit 6 of **<fo>** is 0), each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used or **<fo>** indicates that GSM03.40 TP-User-Data-Header-Indication is set (bit 6 of **<fo>** is 1), each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Class 2 messages and messages in the "store" message waiting indication group result in indication as defined in **<mt>=1**. 3 - Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**. **<bm>** - broadcast reporting option 0 - Cell Broadcast Messages are not sent to the **DTE** 2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code: (PDU Mode) **+CBM: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU (TEXT Mode) **+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>** where: **<sn>** - message serial number **<mid>** - message ID **<dcs>** - Data Coding Scheme **<pag>** - page number **<pags>** - total number of pages of the message **<data>** - CBM Content of Message • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
SMODE=0 #SMSMODE=0 #SMSMODE=0 #SMSM		**<ds>** - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the **DTE** 1 - the status report is sent to the **DTE** with the following unsolicited result code: (PDU Mode) **+CDS: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU (TEXT Mode) **+CDS: <fo>,<mr>,,,<scts>,<dt>,<st>** where: **<fo>** - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU 2 - if a status report is stored, then the following unsolicited result code is sent: **+CDSI: <memr>,<index>** where: **<memr>** - memory storage where the new message is stored "SM" **<index>** - location on the memory where SMS is stored **<bfr>** - buffered result codes handling method: 0 - **TA** buffer of unsolicited result codes defined within this command is flushed to the **TE** when **<mode>=1..3** is entered (**OK** response shall be given before flushing the codes) 1 - **TA** buffer of unsolicited result codes defined within this command is cleared when **<mode>=1..3** is entered.
	AT+CNMI?	Read command returns the current parameter settings for **+CNMI** command in the form: **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>**
	AT+CNMI=?	Test command reports the supported range of values for the **+CNMI**

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
ODE=0		command parameters.
	Reference	GSM 27.005
	Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is inactive (**DTR** signal is **Low**). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.
		(#SMSMODE=1)
#SMSMODE=1 #SMSMODE=1 #SMSM	**AT+CNMI=[<mode>[,<mt> [,<bm>[,<ds> [,<bfr>]]]]]**	Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the **DTE**. Parameter: **<mode>** - unsolicited result codes buffering option 0 - Buffer unsolicited result codes in the **TA**. If **TA** result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when **TA-TE** link is reserved, otherwise forward them directly to the **TE**. 2 - Buffer unsolicited result codes in the TA in case the **DTE** is busy and flush them to the TE after reservation. Otherwise forward them directly to the TE. 3 - if **<mt>** is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too. **<mt>** - result code indication reporting for SMS-DELIVER 0 - No SMS-DELIVER indications are routed to the TE and messages are stored in SIM. 1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code: **+CMTI: <mems>,<index>** where: **<mems>** - memory storage where the new message is stored (see **+CPMS**) **<index>** - location on the memory where SMS is stored. 2 - SMS-DELIVERs (except class 2 messages and messages in the “store” message waiting indication group) are routed directly to

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
ODE=1 #SMSMODE=1 #SMSMODE=1 #SMSMODE		the TE using the following unsolicited result code: (PDU Mode) **+CMT: <alpha>,<length><CR><LF><pdu>** where: **<alpha>** - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook; used character set should be the one selected with command **+CSCS**. **<length>** - PDU length **<pdu>** - PDU message (TEXT Mode) **+CMT:<oa>,<alpha>,<scts>***[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]***<CR><LF><data>** (the information written in italics will be present depending on **+CSDH** last setting) where: **<oa>** - originating address, string type converted in the currently selected character set (see **+CSCS**) **<alpha>** - alphanumeric representation of **<oa>**; used character set should be the one selected with command **+CSCS**. **<scts>** - arrival time of the message to the SC ***<tooa>***, ***<tosca>*** - type of number **<oa>** or ***<sca>***: 129 - number in national format 145 - number in international format (contains the "**+**") ***<fo>*** - first octet of 3GPP TS 23.040 ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme **<sca>** - Service Centre address, string type, converted in the currently selected character set (see **+CSCS**) ***<length>*** - text length **<data>** - TP-User-Data • If **<dcs>** indicates that GSM03.38 default alphabet is used and **<fo>** indicates that GSM03.40 TP-User-Data-Header-Indication is not set (bit 6 of **<fo>** is 0), each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used or **<fo>** indicates that GSM03.40 TP-User-Data-Header-Indication is set (bit 6 of **<fo>** is 1), each 8-bit octet will be converted into two IRA character long hexadecimal

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
=1 #SMSMODE=1 #SMSMODE=1 #SMSMODE=0		number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Class 2 messages and messages in the "store" message waiting indication group result in indication as defined in **<mt>=1**. 3 - Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**. **<bm>** - broadcast reporting option 0 - Cell Broadcast Messages are not sent to the **DTE** 2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code: **(PDU Mode)** **+CBM: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU **(TEXT Mode)** **+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>** where: **<sn>** - message serial number **<mid>** - message ID **<dcs>** - Data Coding Scheme **<pag>** - page number **<pags>** - total number of pages of the message **<data>** - CBM Content of Message • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) **<ds>** - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the **DTE** and is not stored 1 - the status report is sent to the **DTE** with the following unsolicited result code:

+CNMI - New Message Indications To Terminal Equipment		**SELINT 2**
#SMSMODE=1 #SMSMODE=1 #SMSMODE=1		(PDU Mode) **+CDS: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU (TEXT Mode) **+CDS: <fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>** where: **<fo>** - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format **<ra>** - recipient address, string type, represented in the currently selected character set (see **+CSCS**) **<tora>** - type of number **<ra>** **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU 2 - if a status report is stored, then the following unsolicited result code is sent: **+CDSI: <memr>,<index>** where: **<memr>** - memory storage where the new message is stored "SM" **<index>** - location on the memory where SMS is stored **<bfr>** - buffered result codes handling method: 0 - **TA** buffer of unsolicited result codes defined within this command is flushed to the **TE** when **<mode>=1..3** is entered (**OK** response shall be given before flushing the codes) 1 - **TA** buffer of unsolicited result codes defined within this command is cleared when **<mode>=1..3** is entered.
	AT+CNMI?	Read command returns the current parameter settings for **+CNMI** command in the form: **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>**
	AT+CNMI=?	Test command reports the supported range of values for the **+CNMI** command parameters.
	Reference	GSM 27.005
	Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is

+CNMI - New Message Indications To Terminal Equipment		**SELINT 2**
#SMSMODE=1 #SMSMODE=1		inactive (**DTR** signal is **Low**). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.
	Note	It has been necessary to take the following decisions to get over any incoherence problem in a multiplexed environment (see **+CMUX**), due to the possibility to have contemporaneous different settings of parameter **<mt>** in different sessions:
	Note	The following table clarifies which URC is shown and if the DELIVER SM is stored, depending on the **<mt>** parameter value and the SM class.

Message Class or **Indication group**, as in the **DCS** **<mt>** settings in different sessions	SM **Class** is **No Class** *OR* SM **Class** is **0** or **1** or **3** *OR* SM is an **Indication** with group "**Discard**"	SM **Class** is **3**
<mt>=2 for session "0" *AND* **<mt>=*anyvalue*** for other session(s)	URC is shown only on session "0"	
<mt>=3 for session "0" *AND* **<mt>=0** or **1** for other session(s)		URC is shown only on session "0"

		SM CLASS				
		0 / msg waiting discard	1 / no class	2	3	msg waiting store
<mt>	0	Store in <mems>	Store in <mems>	Store in SIM	Store in <mems>	Store in <mems>
	1	Store in <mems> - Send ind +CMTI	Store in <mems> - Send ind +CMTI	Store in SIM - Send ind +CMTI	Store in <mems> - Send ind +CMTI	Store in <mems> - Send ind +CMTI

+CNMI - New Message Indications To Terminal Equipment	**SELINT 2**

	2	*Route msg to TE:* ***+CMT***[21]	*Route msg to TE:* ***+CMT***[1]	Store in SIM - Send ind **+CMTI**	*Route msg to TE:* ***+CMT***[1]	Store in <mems> - Send ind **+CMTI**
	3	Store in <mems> - Send ind **+CMTI**	Store in <mems>- Send ind **+CMTI**	Store in SIM - Send ind **+CMTI**	*Route msg to TE:* ***+CMT***[1]	Store in <mems> - Send ind **+CMTI**

where <mems> is the memory where the received messages are stored (see **+CPMS**)

Note

It has been necessary to take the following decision to get over an incoherence problem in a multiplexed environment (see **+CMUX**), due to the possibility to have contemporaneous different settings of parameter **<ds>** in different sessions:

<ds> settings in different sessions	
<ds>=1 for session "0" *AND* **<ds>=2** for at least one of the other sessions	URC +CDS is shown only on session "0" and no status report is stored on SIM
<ds>=0 for session "0" *AND* **<ds>=2** for at least one of the other sessions	no URC is shown on any session and no status report is stored on SIM

3.5.5.3.2. List Messages - +CMGL

+CMGL - List Messages	**SELINT 0 / 1**
AT+CMGL [=<stat>]	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used) (PDU Mode)

---

[21] The SM is not stored!

+CMGL - List Messages **SELINT 0 / 1**

Parameter:
<stat>
 0 - new message
 1 - read message
 2 - stored message not yet sent
 3 - stored message already sent
 4 - all messages.

Each message to be listed is represented in the format:

+CMGL: <index>,<stat>,<length><CR><LF><pdu>

where
<index> - message position in the memory storage list.
<stat> - status of the message
<length> - length of the PDU in bytes
<pdu> - message in PDU format according to GSM 3.40

(Text Mode)

Parameter:
<stat>
 "REC UNREAD" - new message
 "REC READ" - read message
 "STO UNSENT" - stored message not yet sent
 "STO SENT" - stored message already sent
 "ALL" - all messages.

Each message to be listed is represented in the format (the information written in italics will be present depending on **+CSDH** last setting):

+CMGL: <index>,<stat>,<oa/da>,,*[,<tooa/toda>,<length>]*
<CR><LF> <data>

where
<index> - message position in the storage
<stat> - message status
<oa/da> - originator/destination address, string type, represented in the currently selected character set (see **+CSCS**)
<tooa/toda> - type of number **<oa/da>**
 129 - number in national format
 145 - number in international format (contains the "+")
<length> - text length

+CMGL - List Messages	**SELINT 0 / 1**
	<data> - TP-User-Data Each message delivery confirm is represented in the format: **+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: **OK** result code is sent at the end of the listing. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT+CMGL?	Read command has the same effect as Execution command with parameter omitted
AT+CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode (**+CMGF=1**) the Test command output is not included in parenthesis **AT+CMGL=?** **+CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"**
Note	The improving command **@CMGL** has been defined
Reference	GSM 27.005

+CMGL - List Messages		**SELINT 2**
*Note: the behaviour of command **+CMGL** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**)*		
(#SMSMODE=0)		
#SM	**AT+CMGL [=<stat>]**	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of

+CMGL - List Messages | **SELINT 2**

SMODE=0
#SMSMODE=0
#SMSMODE=0
#SMSMO

command **+CPMS**).

The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used)

(PDU Mode)

Parameter:

<stat>
0 - new message
1 - read message
2 - stored message not yet sent
3 - stored message already sent
4 - all messages.

If there is at least one message to be listed the representation format is:

+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>
[<CR><LF>
+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[...]]

where:
<index> - message position in the memory storage list.
<stat> - status of the message
<alpha> - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**.
<length> - length of the PDU in bytes
<pdu> - message in PDU format according to GSM 3.40

(Text Mode)

Parameter:

<stat>
"REC UNREAD" - new message
"REC READ" - read message
"STO UNSENT" - stored message not yet sent
"STO SENT" - stored message already sent
"ALL" - all messages.

The representation format for stored messages (either sent or unsent) or received messages (either read or unread, not message delivery confirm) is (the information written in italics will be present

+CMGL - List Messages		**SELINT 2**
DE=0 #SMSMODE=0 #SMSMODE=0 #SMSMODE		depending on **+CSDH** last setting): **+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>***[,<tooa/toda>, <length>]***<CR><LF><data>[<CR><LF>** **+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>***[,<tooa/toda>, <length>]***<CR><LF><data>[...]]** where: **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination address, string type , represented in the currently selected character set (see **+CSCS**) **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. **<scts>** - TP-Service Centre Time Stamp in Time String Format ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "**+**") ***<length>*** - text length **<data>** - TP-User-Data • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) If there is at least one message delivery confirm to be listed the representation format is: **+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>[<CR><LF>** **+CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>** **[...]]** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-

+CMGL - List Messages		SELINT 2
=0 #SMSMODE=0		Reference in integer format **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: If parameter is omitted the command returns the list of sms with "**REC UNREAD**" status. Note: the order in which the messages are reported by **+CMGL** is the same order in which these messages have been processed by the module
	AT+CMGL?	Read command has the same effect as Execution command with parameter omitted.
	AT+CMGL=?	Test command returns a list of supported **<stat>**s
	Reference	GSM 27.005, 3GPP TS 23.040
	(#SMSMODE=1)	
#SMSMODE=1 #SMSMODE=1	AT+CMGL [=<stat>]	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used) (PDU Mode) Parameter: **<stat>** 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. If there is at least one message to be listed the representation format is: **+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[<CR><LF> +CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[...]]**

+CMGL - List Messages | **SELINT 2**

#SMSMODE=1

#SMSMODE=1

#SMSMODE=1

where:
<index> - message position in the memory storage list.
<stat> - status of the message
<alpha> - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**.
<length> - length of the PDU in bytes
<pdu> - message in PDU format according to GSM 3.40

(Text Mode)

Parameter:
<stat>
"REC UNREAD" - new message
"REC READ" - read message
"STO UNSENT" - stored message not yet sent
"STO SENT" - stored message already sent
"ALL" - all messages.

The representation format for stored messages (either sent or unsent) or received messages (either read or unread, not message delivery confirm) is (the information written in italics will be present depending on **+CSDH** last setting):

+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>*[,<tooa/toda>, <length>]*<CR><LF><data>[<CR><LF>
+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>*[,<tooa/toda>, <length>]*<CR><LF><data>[...]]

where:
<index> - message position in the storage
<stat> - message status
<oa/da> - originator/destination address, string type , represented in the currently selected character set (see **+CSCS**)
<alpha> - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**.
<scts> - TP-Service Centre Time Stamp in Time String Format
<tooa/toda> - type of number **<oa/da>**
129 - number in national format
145 - number in international format (contains the "**+**")

+CMGL - List Messages		**SELINT 2**
#SMSMODE=1 #SMSMODE=1 #SMSMODE=1		*<length>* - text length **<data>** - TP-User-Data - If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) - If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) - If <fo> indicates that a UDH is present each 8-bit octet will be converted into two IRA character long hexadecimal number. The <length> indicates text length in characters without UDH length. If there is at least one message delivery confirm to be listed the representation format is: **+CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>** **[<CR><LF>** **+CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>** **[...]]** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format **<ra>** - recipient address, string type , represented in the currently selected character set (see **+CSCS**) **<tora>** - type of number <ra> **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: If parameter is omitted the command returns the list of sms with "**REC UNREAD**" status. Note: the order in which the messages are reported by **+CMGL** corresponds to their position in the memory storage
	AT+CMGL=?	Test command returns a list of supported **<stat>**s
	Reference	GSM 27.005, 3GPP TS 23.040

3.5.5.3.3. List Messages - @CMGL

@CMGL - List Messages Improved	SELINT 0
AT@CMGL [=<stat>]	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** Parameter: **<stat>** 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. Each message to be listed is represented in the format: **@CMGL: <index>,<stat>,<length><CR><LF><pdu>** where **<index>** - message position in the memory storage list. **<stat>** - status of the message **<length>** - length of the PDU in bytes **<pdu>** - message in PDU format according to GSM 3.40 **(Text Mode)** Parameter: **<stat>** "REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages. Each message to be listed is represented in the format (the information written in italics will be present depending on **+CSDH** last setting): **@CMGL: <index>,<stat>,<oa/da>,,*[,<tooa/toda>,<length>]***

@CMGL - List Messages Improved	SELINT 0
	<CR><LF> <data> where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination address, string type, represented in the currently selected character set (see **+CSCS**) ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") ***<length>*** - text length **<data>** - TP-User-Data Each message delivery confirm is represented in the format: **@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: The command differs from the **+CMGL** because at the end of the listing a **<CR><LF>** is put before the **OK** result code. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT@CMGL?	Read command has the same effect as Execution command with parameter omitted
AT@CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode (**+CMGF=1**) the Test command output is not included in parenthesis **AT@CMGL=?** **@CMGL: "REC UNREAD","REC READ","STO UNSENT",** **"STO SENT","ALL"**
Reference	GSM 27.005

@CMGL - List Messages Improved	SELINT 1
AT@CMGL [=<stat>]	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** Parameter: **<stat>** 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. Each message to be listed is represented in the format: **@CMGL: <index>,<stat>,<length><CR><LF><pdu>** where **<index>** - message position in the memory storage list. **<stat>** - status of the message **<length>** - length of the PDU in bytes **<pdu>** - message in PDU format according to GSM 3.40 **(Text Mode)** Parameter: **<stat>** "REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages. Each message to be listed is represented in the format: **@CMGL: <index>,<stat>,<oa/da>[,,,<tooa/toda>,<length>]** **<CR><LF> <data>** where **<index>** - message position in the storage

@CMGL - List Messages Improved	SELINT 1
	<stat> - message status **<oa/da>** - originator/destination address, string type, represented in the currently selected character set (see **+CSCS**) **<tooa/toda>** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") **<length>** - text length **<data>** - TP-User-Data Each message delivery confirm is represented in the format: **@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: The command differs from the **+CMGL** because at the end of the listing a **<CR><LF>** is put before the **OK** result code. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT@CMGL?	Read command has the same effect as Execution command with parameter omitted
AT@CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode (**+CMGF=1**) the Test command output is not included in parenthesis **AT@CMGL=?** **@CMGL: "REC UNREAD","REC READ","STO UNSENT",** **"STO SENT","ALL"**
Reference	GSM 27.005

3.5.5.3.4. Read Message - +CMGR

+CMGR - Read Message	SELINT 0 / 1

+CMGR - Read Message	SELINT 0 / 1
AT+CMGR=<index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) (PDU Mode) The output has the following format: **+CMGR: <stat>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. (Text Mode) Output format for received messages (the information written in italics will be present depending on **+CSDH** last setting): **+CMGR: <stat>,<oa>,,<scts>** ***[,<tooa>,<fo>,<pid>,<dcs>,<sca>, <tosca>,<length>]*****<CR><LF><data>** Output format for either sent or unsent messages: **+CMGR: <stat>,<da>,*[,<toda>,<fo>,<pid>,<dcs>, <sca>,<tosca>,<length>]*<CR><LF><data>** Output format for message delivery confirm: **+CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where:

+CMGR - Read Message	**SELINT 0 / 1**
	<stat> - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent ***<fo>*** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme **<oa>** - Originator address, string type represented in the currently selected character set (see **+CSCS**) **<da>** - Destination address, string type represented in the currently selected character set (see **+CSCS**) ***<sca>*** - Service Centre number ***<tooa>,<toda >,<tosca>*** - type of number **<oa>**,**<da>**,***<sca>*** 129 - number in national format 145 - number in international format (contains the "+") ***<length>*** - text length **<data>** - TP-User_data Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT+CMGR=?	Test command returns the **OK** result code.
Note	The improving command **@CMGR** has been defined
Reference	GSM 27.005

+CMGR - Read Message		**SELINT 2**
*Note: the behaviour of command **+CMGR** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**)*		
(#SMSMODE=0)		
# S M S	AT+CMGR= <index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**).

+CMGR - Read Message		SELINT 2
MODE=0 #SMSMODE=0 #SMSMODE=0 #SMSMOD		Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) (PDU Mode) If there is a message in location **<index>**, the output has the following format: **+CMGR: <stat>,<alpha>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. (Text Mode) If there is a **Received** message in location **<index>** the output format is (the information written in *italics* will be present depending on **+CSDH** last setting): **+CMGR: <stat>,<oa>,<alpha>,<scts>***[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]***<CR><LF><data>** If there is either a **Sent** or an **Unsent** message in location **<index>** the output format is: **+CMGR: <stat>,<da>,<alpha>***[,<toda>,<fo>,<pid>,<dcs>,<vp>,<sca>,<tosca>,<length>]***<CR><LF><data>** If there is a **Message Delivery Confirm** in location **<index>** the output format is: **+CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>**

+CMGR - Read Message		SELINT 2
E=0 #SMSMODE=0 #SMSMODE=0 #SMSMODE=		where: **<stat>** - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent *<fo>* - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU *<pid>* - Protocol Identifier *<dcs>* - Data Coding Scheme *<vp>* - Validity period; only the integer format is supported **<oa>** - Originator address, string type represented in the currently selected character set (see **+CSCS**) **<da>** - Destination address, string type represented in the currently selected character set (see **+CSCS**) **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. *<sca>* - Service Centre number *<tooa>,<toda >,<tosca>* - type of number **<oa>**,**<da>**,*<sca>* 129 - number in national format 145 - number in international format (contains the "**+**") *<length>* - text length **<data>** - TP-User_data • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
	AT+CMGR=?	Test command returns the **OK** result code

+CMGR - Read Message			**SELINT 2**
0	Reference	GSM 27.005	
(#SMSMODE=1)			
#SMSMODE=1 #SMSMODE=1 #SMSMODE=1	**AT+CMGR= <index>**	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) (PDU Mode) If there is a message in location **<index>**, the output has the following format: **+CMGR: <stat>,<alpha>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. (Text Mode) If there is a **Received** message in location **<index>** the output format is (the information written in *italics* will be present depending on **+CSDH** last setting)*:* **+CMGR: <stat>,<oa>,<alpha>,<scts>***[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]***<CR><LF><data>**	

+CMGR - Read Message		**SELINT 2**
#SMSMODE=1 #SMSMODE=1 #SMSMODE=1		If there is either a **Sent** or an **Unsent** message in location **<index>** the output format is: **+CMGR: <stat>,<da>,<alpha>***[,<toda>,<fo>,<pid>,<dcs>,[<vp>], <sca>,<tosca>,<length>]***<CR><LF><data>** If there is a **Message Delivery Confirm** in location **<index>** the output format is: **+CMGR: <stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>** where: **<stat>** - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent ***<fo>*** - first octet of the message PDU **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format **<ra>** - recipient address, string type, represented in the currently selected character set (see **+CSCS**) **<tora>** - type of number **<ra>** **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme **<vp>** - Validity Period; its format depends on SMS-SUBMIT **<fo>** setting (see **+CSMP**): a) *Not Present* if **<fo>** tells that the *Validity Period Format is* ***Not Present*** b) *Integer* type if **<fo>** tells that the *Validity Period Format is* ***Relative*** c) *Quoted time-string type* if **<fo>** tells that the *Validity Period Format is* ***Absolute*** d) Quoted hexadecimal representation of 7 octets if **<fo>** tells that the *Validity Period Format is* ***Enhanced****.* **<oa>** - Originator address, string type represented in the currently selected character set (see **+CSCS**) **<da>** - Destination address, string type represented in the currently selected character set (see **+CSCS**) **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**,

+CMGR - Read Message		**SELINT 2**
#SMSMODE=1		corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. ***<sca>*** - Service Centre number ***<tooa>,<toda >,<tosca>*** - type of number **<oa>**,**<da>**,***<sca>*** 129 - number in national format 145 - number in international format (contains the "**+**") ***<length>*** - text length **<data>** - TP-User_data • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.
	AT+CMGR=?	Test command returns the **OK** result code
	Reference	GSM 27.005

3.5.5.3.5. Read Message - @CMGR

@CMGR - Read Message Improved	**SELINT 0**
AT@CMGR= <index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** The output has the following format: **@CMGR: <stat>,<length><CR><LF><pdu>** where **<stat>** - status of the message

@CMGR - Read Message Improved	SELINT 0

0 - new message
1 - read message
2 - stored message not yet sent
3 - stored message already sent
<length> - length of the PDU in bytes.
<pdu> - message in PDU format according to GSM 3.40.

The status of the message and entire message data unit **<pdu>** is returned.

(Text Mode)
Output format for received messages (the information written in italics will be present depending on **+CSDH** last setting):

@CMGR: <stat>,<oa>,,<scts> *[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]***<CR><LF><text>**

Output format for either sent or unsent messages:
@CMGR: <stat>,<da>,*[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]***<CR><LF><text>**

Output format for message delivery confirm:
@CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>

where:
<stat> - status of the message
"REC UNREAD" - new received message unread
"REC READ" - received message read
"STO UNSENT" - message stored not yet sent
"STO SENT" - message stored already sent
<fo> - first octet of the message PDU
<mr> - message reference number
<scts> - arrival time of the message to the SC
<dt> - sending time of the message
<st> - message status as coded in the PDU
<pid> - Protocol Identifier
<dcs> - Data Coding Scheme
<oa> - Originator address, string type represented in the currently selected character set (see **+CSCS**)
<da> - Destination address, string type represented in the currently selected character set (see **+CSCS**)
<sca> - Service Centre number

@CMGR - Read Message Improved	**SELINT 0**
	<tooa>,<toda >,<tosca> - type of number **<oa>**,**<da>**,*<sca>* 129 - number in national format 145 - number in international format (contains the "+") *<length>* - text length **<text>** - message text Note: the command differs from the **+CMGR** because after the message **<pdu>** or **<text>** a **<CR><LF>** is put before the **OK** result code. Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT@CMGR=?	Test command has no effect; the answer is **OK**
Reference	GSM 27.005

@CMGR - Read Message Improved	**SELINT 1**
AT@CMGR= <index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) (PDU Mode) The output has the following format: **@CMGR: <stat>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is

@CMGR - Read Message Improved	**SELINT 1**

returned.

(Text Mode)

Output format for received messages:

@CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>, <tosca>,<length>]<CR><LF><text>

Output format for either sent or unsent messages:
@CMGR: <stat>,<da>[,,<toda>,<fo>,<pid>,<dcs>,, <sca>,<tosca>,<length>]<CR><LF><text>

Output format for message delivery confirm:
@CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>

where:
<stat> - status of the message
"REC UNREAD" - new received message unread
"REC READ" - received message read
"STO UNSENT" - message stored not yet sent
"STO SENT" - message stored already sent
<fo> - first octet of the message PDU
<mr> - message reference number
<scts> - arrival time of the message to the SC
<dt> - sending time of the message
<st> - message status as coded in the PDU
<pid> - Protocol Identifier
<dcs> - Data Coding Scheme
<oa> - Originator address, string type represented in the currently selected character set (see **+CSCS**)
<da> - Destination address, string type represented in the currently selected character set (see **+CSCS**)
<sca> - Service Centre number
<tooa>,**<toda >**,**<tosca>** - type of number **<oa>**,**<da>**,**<sca>**
129 - number in national format
145 - number in international format (contains the "+")
<length> - text length
<text> - message text

Note: the command differs from the **+CMGR** because after the message **<pdu>** or **<text>** a **<CR><LF>** is put before the **OK** result code.

Note: in both cases if status of the message is 'received unread', status in

@CMGR - Read Message Improved	SELINT 1
	the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT@CMGR=?	Test command has no effect; the answer is **OK**
Reference	GSM 27.005

3.5.5.4. Message Sending And Writing

3.5.5.4.1. Send Message - +CMGS

+CMGS - Send Message	SELINT 0 / 1
(PDU Mode) **AT+CMGS=<length>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164 After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** (IRA 13, 10, 62, 32) and waits for the specified number of bytes. Note: the **DCD** signal shall be in **ON** state while PDU is given. Note: the echoing of given characters back from the TA is controlled by echo command **E**

+CMGS - Send Message	**SELINT 0 / 1**
	Note: the **PDU** shall be hexadecimal format (each octet of the **PDU** is given as two IRA character long hexadecimal number) and given in one line. Note: when the length octet of the SMSC address (given in the **PDU**) equals zero, the SMSC address set with command **+CSCA** is used; in this case the SMSC Type-of-Address octet shall not be present in the **PDU**. To send the message issue **Ctrl-Z** char (0x1A hex). To exit without sending the message issue **ESC** char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
(Text Mode) **AT+CMGS=<da>[,<toda>]**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address, string type. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space> (IRA 13, 10, 62, 32)** After this prompt text can be entered; the entered text should be formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is

+CMGS - Send Message	SELINT 0 / 1
	used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the **'asterisk'** will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) Note: the **DCD** signal shall be in **ON** state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To send the message issue **Ctrl-Z** char (0x1A hex). To exit without sending the message issue **ESC** char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued. Note: it is possible to send a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1530 chars if 3GPP TS 23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used
Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 27.005

+CMGS - Send Message	SELINT 2

+CMGS - Send Message		SELINT 2
*Note: the behaviour of command **+CMGS** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**)*		
(#SMSMODE=0)		
#SMSMODE=0 #SMSMODE=0 #SMSMODE=0	*(PDU Mode)* AT+CMGS= <length>	(PDU Mode) Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164 After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** (IRA 13, 10, 62, 32) and waits for the specified number of bytes. Note: the **DCD** signal shall be in **ON** state while PDU is given. Note: the echoing of given characters back from the TA is controlled by echo command **E** Note: the **PDU** shall be hexadecimal format (each octet of the **PDU** is given as two IRA character long hexadecimal number) and given in one line. Note: when the length octet of the SMSC address (given in the **PDU**) equals zero, the SMSC address set with command **+CSCA** is used; in this case the SMSC Type-of-Address octet shall not be present in the **PDU**. To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>**

+CMGS - Send Message		**SELINT 2**
#SMSMODE=0 #SMSMODE=0 #SMSMODE=0		where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
	(Text Mode) **AT+CMGS=<da>[,<toda>]**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "**+**") After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** **(IRA 13, 10, 62, 32)** After this prompt text can be entered; the entered text should be formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the '**asterisk**' will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**)

+CMGS - Send Message		SELINT 2
#SMSMODE=0 #SMSMODE=0		Note: the **DCD** signal shall be in **ON** state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued. Note: it is possible to send a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1530 chars if 3GPP TS 23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used.
	AT+CMGS=?	Test command resturns the **OK** result code.
	Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
	Reference	GSM 27.005
(#SMSMODE=1)		
#SMSMOD	*(PDU Mode)* **AT+CMGS= <length>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164

+CMGS - Send Message		SELINT 2
E=1 #SMSMODE=1 #SMSMODE=1 #SMSMODE=		After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** (IRA 13, 10, 62, 32) and waits for the specified number of bytes. Note: the **DCD** signal shall be in **ON** state while PDU is given. Note: the echoing of given characters back from the TA is controlled by echo command **E** Note: the **PDU** shall be hexadecimal format (each octet of the **PDU** is given as two IRA character long hexadecimal number) and given in one line. Note: when the length octet of the SMSC address (given in the **PDU**) equals zero, the SMSC address set with command **+CSCA** is used; in this case the SMSC Type-of-Address octet shall not be present in the **PDU**. To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
	(Text Mode) AT+CMGS=<da>	**(Text Mode)** Execution command sends to the network a message.

+CMGS - Send Message		SELINT 2
1 #SMSMODE=1 #SMSMODE=1 #SMSMODE=1	**[,<toda>]**	Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "**+**") After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space> (IRA 13, 10, 62, 32)** After this prompt text can be entered; the entered text should be formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used; after every **<CR>** entered by the user the sequence **<CR><LF><greather_than><space>** is sent to the TE. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the '**asterisk**' will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) Note: the **DCD** signal shall be in **ON** state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex). If message is successfully sent to the network, then the result is sent in the format:

+CMGS - Send Message		SELINT 2
#SMSMODE=1		**+CMGS: <mr>** where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued. Note: it is possible to send a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1520 chars if 3GPP TS 23.038 default alphabet is used, 1330 chars if 8-bit is used, 660 chars if UCS2 is used. If entered text is longer than this maximum value an error is raised
	AT+CMGS=?	Test command resturns the **OK** result code.
	Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
	Reference	GSM 27.005

3.5.5.4.2. Send Message From Storage - +CMSS

+CMSS - Send Message From Storage	SELINT 0 / 1
AT+CMSS=<index>[,<da>[,<toda>]]	Execution command sends to the network a message which is already stored in the **<memw>** storage (see **+CPMS**) at the location **<index>**. Parameters: **<index>** - location value in the message storage **<memw>** of the message to send **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**); if it is given it shall be used instead of the one stored with the message. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") If message is successfully sent to the network then the result is sent in the

+CMSS - Send Message From Storage	SELINT 0 / 1
	format: **+CMSS: <mr>** where: **<mr>** - message reference number. If message sending fails for some reason, an error code is reported: **+CMS ERROR:<err>** Note: to store a message in the **<memw>** storage see command **+CMGW**. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
Note	To avoid malfunctions is suggested to wait for the **+CMSS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 27.005

+CMSS - Send Message From Storage	SELINT 2
AT+CMSS= <index>[,<da> [,<toda>]]	Execution command sends to the network a message which is already stored in the **<memw>** storage (see **+CPMS**) at the location **<index>**. Parameters: **<index>** - location value in the message storage **<memw>** of the message to send **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**); if it is given it shall be used instead of the one stored with the message. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "**+**") If message is successfully sent to the network then the result is sent in the format: **+CMSS: <mr>** where: **<mr>** - message reference number. If message sending fails for some reason, an error code is reported:

+CMSS - Send Message From Storage	**SELINT 2**
	+CMS ERROR:<err> Note: to store a message in the **<memw>** storage see command **+CMGW.** Note: care must be taken to ensure that during the command execution, which may take several seconds, no other **SIM** interacting commands are issued.
AT+CMSS=?	Test command resturns the **OK** result code.
Note	To avoid malfunctions is suggested to wait for the **+CMSS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 27.005

3.5.5.4.3. Write Message To Memory - +CMGW

+CMGW - Write Message To Memory	**SELINT 0 / 1**
(PDU Mode) **AT+CMGW=<length>[,<stat>]**	**(PDU Mode)** Execution command writes in the **<memw>** memory storage a new message. Parameter: **<length>** - length in bytes of the PDU to be written. 7..164 **<stat>** - message status. 0 - new message 1 - read message 2 - stored message not yet sent (default) 3 - stored message already sent The device responds to the command with the prompt '>' and waits for the specified number of bytes. To write the message issue **Ctrl-Z** char (0x1A hex).

+CMGW - Write Message To Memory	**SELINT 0 / 1**
	To exit without writing the message issue **ESC** char (0x1B hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.
(Text Mode) **AT+CMGW[=<da>[,<toda>[,<stat>]]]**	**(Text Mode)** Execution command writes in the **<memw>** memory storage a new message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "+") **<stat>** - message status. "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent (default) "STO SENT" - message stored already sent After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** (IRA 13, 10, 62, 32) After this prompt text can be entered; the entered text should be formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used.

+CMGW - Write Message To Memory	**SELINT 0 / 1**
	- if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the **'asterisk'** will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) Note: the **DCD** signal shall be in ON state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To write the message issue **Ctrl-Z** char (0x1A hex). To exit without writing the message issue **ESC** char (0x1B hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. Note: it is possible to save a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1530 chars if 3GPP TS 23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used
Reference	GSM 27.005
Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

+CMGW - Write Message To Memory		**SELINT 2**
*Note: the behaviour of command **+CMGW** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**).*		
(#SMSMODE=0)		
#	*(PDU Mode)*	**(PDU Mode)**

+CMGW - Write Message To Memory		SELINT 2
SMSMODE=0 #SMSMODE=0 #SMSMODE=0 #SM	AT+CMGW= <length> [,<stat>]	Execution command writes in the **<memw>** memory storage a new message. Parameter: **<length>** - length in bytes of the PDU to be written. 7..164 **<stat>** - message status. 0 - new message 1 - read message 2 - stored message not yet sent (default) 3 - stored message already sent The device responds to the command with the prompt '>' and waits for the specified number of bytes. To write the message issue **Ctrl-Z** char (**0x1A** hex). To exit without writing the message issue **ESC** char (**0x1B** hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.
	(Text Mode) AT+CMGW[=<da> [,<toda> [,<stat>]]]	(Text Mode) Execution command writes in the **<memw>** memory storage a new message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "**+**")

+CMGW - Write Message To Memory		SELINT 2
SMODE=0 #SMSMODE=0 #SMSMODE=0 #SMSMO		**<stat>** - message status. "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent (default) "STO SENT" - message stored already sent After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space> (IRA 13, 10, 62, 32)** After this prompt text can be entered; the entered text should be formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the **'asterisk'** will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) Note: the **DCD** signal shall be in ON state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To write the message issue **Ctrl-Z** char (**0x1A** hex). To exit without writing the message issue **ESC** char (**0x1B** hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where:

+CMGW - Write Message To Memory		**SELINT 2**
DE=0		**<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. Note: it is possible to save a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1530 chars if 3GPP TS 23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used.
	AT+CMGW=?	Test command returns the **OK** result code.
	Reference	GSM 27.005
	Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.
(#SMSMODE=1)		
#SMSMODE=1 #SMSMODE=1	*(PDU Mode)* **AT+CMGW=<length>[,<stat>]**	**(PDU Mode)** Execution command writes in the **<memw>** memory storage a new message. Parameter: **<length>** - length in bytes of the PDU to be written. 7..164 **<stat>** - message status. 0 - new message (received unread message; default for DELIVER messages (3GPP TS 23.040 SMS-DELIVER messages)) 1 - read message 2 - stored message not yet sent (default for SUBMIT messages(3GPP TS 23.040 SMS-SUBMIT messages)) 3 - stored message already sent The device responds to the command with the prompt '>' and waits for the specified number of bytes. To write the message issue **Ctrl-Z** char (**0x1A** hex). To exit without writing the message issue **ESC** char (**0x1B** hex). If message is successfully written in the memory, then the result is sent in the format:

+CMGW - Write Message To Memory		**SELINT 2**
#SMSMODE=1		**+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. Note: in PDU mode, not only SUBMIT messages can be stored in SIM as per #SMSMODE=0, but also DELIVER and STATUS REPORT messages (3GPP TS 23.040 SMS-STATUS-REPORT messages). SUBMIT messages can only be stored with status 2 or 3; DELIVER and STATUS REPORT messages can only be stored with status 0 or 1.
#SMSMODE=1	*(Text Mode)* **AT+CMGW[=<da>[,<toda>[,<stat>]]]**	**(Text Mode)** Execution command writes in the **<memw>** memory storage a new message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "**+**") **<stat>** - message status. "REC UNREAD" - new received message unread (default for DELIVER messages) "REC READ" - received message read "STO UNSENT" - message stored not yet sent (default for SUBMIT messages) "STO SENT" - message stored already sent After command line is terminated with **<CR>**, the device responds sending a four character sequence prompt: **<CR><LF><greater_than><space>** (IRA 13, 10, 62, 32) After this prompt text can be entered; the entered text should be formatted as follows:

+CMGW - Write Message To Memory		SELINT 2
#SMSMODE=1 #SMSMODE=1		- if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; **backspace** can be used to delete last character and **carriage returns** can be used; after every **<CR>** entered by the user the sequence **<CR><LF><greather_than><space>** is sent to the TE. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the '**asterisk**' will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) Note: the **DCD** signal shall be in ON state while text is entered. Note: the echoing of entered characters back from the TA is controlled by echo command **E** To write the message issue **Ctrl-Z** char (**0x1A** hex). To exit without writing the message issue **ESC** char (**0x1B** hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. Note: it is possible to save a concatenation of at most 10 SMs; the maximum number of chars depends on the **<dcs>**: 1530 chars if 3GPP TS 23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used. If entered text is longer than this maximum

+CMGW - Write Message To Memory	SELINT 2
	value an error is raised. Note: in text mode, not only SUBMIT messages can be stored in SIM as per #SMSMODE=0, but also DELIVER messages. The type of saved message depends upon the current <fo> parameter (see **+CSMP**). For a DELIVER message, current <vp> parameter (see **+CSMP**) is used to set the message Service Centre Time Stamp <scts>, so it has to be an absolute time string, e.g. "09/01/12,11:15:00+04". SUBMIT messages can only be stored with status "STO UNSENT" or "STO SENT"; DELIVER messages can only be stored with status "REC UNREAD" or "REC READ".
AT+CMGW=?	Test command returns the **OK** result code.
Reference	GSM 27.005
Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

3.5.5.4.4. Delete Message - +CMGD

+CMGD - Delete Message	SELINT 0 / 1
AT+CMGD= <index> [,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** that can have values form 1 to N, where N depends on the available space (see **+CPMS**) **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent

+CMGD - Delete Message	SELINT 0 / 1
	mobile originated messages, leaving unread messages untouched 4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then **<index>** is ignored and ME shall follow the rules for **<delflag>** shown above. Note: if the location to be deleted is empty, an error message is reported.
AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]**

Example	`AT+CMGD=?`
	`+CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4)`
	
	`OK`

Reference	GSM 27.005

+CMGD - Delete Message		SELINT 2
*Note: the behaviour of command **+CMGD** differs depending on whether or not the improved SMS commands operation mode has been enabled (see **#SMSMODE**).*		
	(#SMSMODE=0)	
#SMSMODE=0 #SMSMOD	AT+CMGD= <index> [,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** that can have values form 1 to N, where N depends on the available space (see **+CPMS**) **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent mobile originated messages, leaving unread messages untouched 4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then, if <index> is greater than 0, **<index>** is ignored and ME shall follow the rules for **<delflag>**

+CMGD - Delete Message		**SELINT 2**
E=0		shown above. Note: if the location to be deleted is empty, an error message is reported.
	AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (supported <index>s list)[,(supported <delflag>s list)]**

	Example	`AT+CMGD=?`
		`+CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4)`
		`OK`

	Reference	GSM 27.005
	(#SMSMODE=1)	
#SMSMODE=1 #SMSMODE=1	AT+CMGD=<index>[,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** that can have values form 1 to N, where N depends on the available space (see **+CPMS**) **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent mobile originated messages, leaving unread messages untouched 4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then, if <index> is greater than 0, **<index>** is ignored and ME shall follow the rules for **<delflag>** shown above.
	AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (supported <index>s list)[,(supported <delflag>s list)]**

	Example	`AT+CMGD=?`
		`+CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4)`

+CMGD - Delete Message		SELINT 2
		`OK`
	Reference	GSM 27.005

3.5.5.4.5. Select service for MO SMS messages - +CGSMS

+CGSMS – Select service for MO SMS messages	SELINT 2
AT+CGSMS= [<service>]	The set command is used to specify the service or service preference that the MT will use to send MO SMS messages. **<service>:** a numeric parameter which indicates the service or service preference to be used 0 - GPRS 1 - circuit switched (default) 2 - GPRS preferred (use circuit switched if GPRS not available) 3 - circuit switched preferred (use GPRS if circuit switched not available) Note: the <service> value is saved on NVM as global parameter
AT+CGSMS?	The read command returns the currently selected service or service preference in the form: **+CGSMS: <service>**
AT+CGSMS=?	Test command reports the supported list of currently available <service>s.

FAX Class 1 AT Commands

3.5.5.5. General Configuration

3.5.5.5.1. Manufacturer ID - +FMI

+FMI - Manufacturer ID	SELINT 0
AT+FMI?	Read command reports the manufacturer ID. The output depends on the choice made through **#SELINT** command.

Example	`AT+FMI?`
	`Telit_Mobile_Terminals`
	`OK`

Reference	ITU T.31 and TIA/EIA-578-A specifications

+FMI - Manufacturer ID	SELINT 1 / 2
AT+FMI?	Read command reports the manufacturer ID. The output depends on the choice made through **#SELINT** command.

Example	`AT+FMI?`
	`Telit`
	`OK`

Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.5.2. Model ID - +FMM

+FMM - Model ID	SELINT 0 / 1 / 2
AT+FMM?	Read command reports the model ID
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.5.3. Revision ID - +FMR

+FMR - Revision ID	SELINT 0 / 1 / 2
AT+FMR?	Read command reports the software revision ID
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6. Transmission/Reception Control

3.5.5.6.1. Stop Transmission And Pause - +FTS

+FTS - Stop Transmission And Pause	SELINT 0 / 1 / 2
AT+FTS=<time>	Execution command causes the modem to terminate a transmission and wait for **<time>** 10ms intervals before responding with **OK** result. Parameter: **<time>** - duration of the pause, expressed in 10ms intervals. 0..255
AT+FTS=?	Test command returns all supported values of the parameter **<time>**. Note: test command result is without command echo
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6.2. Wait For Receive Silence - +FRS

+FRS - Wait For Receive Silence	SELINT 0 / 1 / 2
AT+FRS=<time>	Execution command causes the modem to listen and report **OK** when silence has been detected for the specified period of time. This command will terminate when the required silence period is detected or when the **DTE** sends another character other than **XON** or **XOFF**. Parameter: **<time>** - amount of time, expressed in 10ms intervals. ..0..255
AT+FRS=?	Test command returns all supported values of the parameter **<time>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6.3. Transmit Data Modulation - +FTM

+FTM - Transmit Data Modulation	**SELINT 0 / 1**
AT+FTM=<mod>	Execution command causes the module to transmit facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FTM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed and without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

+FTM - Transmit Data	**SELINT 2**
AT+FTM=<mod>	Execution command causes the module to transmit facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FTM=?	Test command returns all supported values of the parameter **<mod>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6.4. Receive Data Modulation - +FRM

+FRM - Receive Data Modulation	**SELINT 0 / 1**
AT+FRM=<mod>	Execution command causes the module to receive facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FRM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed and without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

+FRM - Receive Data Modulation	**SELINT 2**
AT+FRM=<mod>	Execution command causes the module to receive facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FRM=?	Test command returns all supported values of the parameter **<mod>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6.5. Transmit Data With HDLC Framing - +FTH

+FTH - Transmit Data With HDLC Framing	**SELINT 0 / 1 / 2**
AT+FTH=<mod>	Execution command causes the module to transmit facsimile data using HDLC protocol and the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 3 - V21/300 bps
AT+FTH=?	Test command returns all supported values of the parameter **<mod>**.

+FTH - Transmit Data With HDLC Framing	SELINT 0 / 1 / 2
	Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.6.6. Receive Data With HDLC Framing - +FRH

+FRH - Receive Data With HDLC Framing	SELINT 0 / 1 / 2
AT+FRH=<mod>	Execution command causes the module to receive facsimile data using HDLC protocol and the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 3 - V21/300 bps
AT+FRH=?	Test command returns all supported values of the parameter **<mod>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.7. Serial Port Control

3.5.5.7.1. Select Flow Control - +FLO

+FLO - Select Flow Control Specified By Type	**SELINT 0 / 1 / 2**
AT+FLO=<type>	Set command selects the flow control behaviour of the serial port in both directions: from **DTE** to **DTA** and from **DTA** to **DTE**. Parameter: **<type>** - flow control option for the data on the serial port 0 - flow control None 1 - flow control Software (**XON-XOFF**) 2 - flow control Hardware (**CTS-RTS**) – (factory default) Note: This command is a shortcut of the **+IFC** command. Note: **+FLO's** settings are functionally a subset of **&K's** ones.
AT+FLO?	Read command returns the current value of parameter **<type>** Note: If flow control behavior has been set with **AT&Kn** command with the parameter that is not allowed by **AT+FLO** the read command **AT+FLO?** will return: **+FLO: 0**
AT+FLO=?	Test command returns all supported values of the parameter **<type>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.7.2. Serial Port Rate - +FPR

+FPR - Select Serial Port Rate	**SELINT 0 / 1 / 2**
AT+FPR=<rate>	Set command selects the the serial port speed in both directions, from **DTE** to **DTA** and from **DTA** to **DTE**. When autobauding is selected, then the speed is detected automatically. Parameter: **<rate>** - serial port speed selection 0 – autobauding Note: it has no effect and is included only for backward compatibility with landline modems
AT+FPR?	Read command returns the current value of parameter **<rate>**
AT+FPR=?	Test command returns all supported values of the parameters **<rate>**.

+FPR - Select Serial Port Rate	SELINT 0 / 1 / 2
	Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.5.7.3. Double Escape Character Replacement - +FDD

+FDD - Double Escape Character Replacement Control	SELINT 0 / 1 / 2
AT+FDD=<mode>	Set command concerns the use of the **<DLE><SUB>** pair to encode consecutive escape characters (**<10h><10h>**) in user data. Parameter **<mode>** 0 - currently the only available value. The **DCE** decode of **<DLE><SUB>** is either **<DLE><DLE>** or discard. The **DCE** encode of **<10h><10h>** is **<DLE><DLE><DLE><DLE>**
AT+FDD?	Read command returns the current value of parameter **<mode>**
AT+FDD=?	Test command returns all supported values of parameter **<mode>**. Note: test command result is without command echo.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.6. Custom AT Commands

3.5.6.1. General Configuration AT Commands

3.5.6.1.1. Network Selection Menu Availability - +PACSP

+PACSP - Network Selection Menu Availability	SELINT 2
AT+PACSP?	Read command returns the current value of the **<mode>** parameter in the format: **+PACSP<mode>** where: **<mode>** - PLMN mode bit (in CSP file on the SIM) 0 - restriction of menu option for manual PLMN selection. 1 - no restriction of menu option for Manual PLMN selection.
AT+PACSP=?	Test command returns the **OK** result code.
Note	The command is available only if the ENS functionality has been previously enabled (see **#ENS**)

3.5.6.1.2. Manufacturer Identification - #CGMI

#CGMI - Manufacturer Identification	SELINT 0 / 1
AT#CGMI	Execution command returns the device manufacturer identification code with command echo. The output depends on the choice made through **#SELINT** command.
AT#CGMI?	Read command has the same effect as the Execution command

#CGMI - Manufacturer Identification	SELINT 2
AT#CGMI	Execution command returns the device manufacturer identification code with command echo. The output depends on the choice made through **#SELINT** command.
AT#CGMI=?	Test command returns the **OK** result code.

3.5.6.1.3. Model Identification - #CGMM

#CGMM - Model Identification	SELINT 0 / 1
AT#CGMM	Execution command returns the device model identification code with command echo.
AT#CGMM?	Read command has the same effect as the Execution command

#CGMM - Model Identification	SELINT 2
AT#CGMM	Execution command returns the device model identification code with command echo.
AT#CGMM=?	Test command returns the **OK** result code.

3.5.6.1.4. Revision Identification - #CGMR

#CGMR - Revision Identification	SELINT 0 / 1
AT#CGMR	Execution command returns device software revision number with command echo.
AT#CGMR?	Read command has the same effect as the Execution command

#CGMR - Revision Identification	SELINT 2
AT#CGMR	Execution command returns device software revision number with command echo.
AT#CGMR=?	Test command returns the **OK** result code.

3.5.6.1.5. Product Serial Number Identification - #CGSN

#CGSN - Product Serial Number Identification	SELINT 0 / 1

#CGSN - Product Serial Number Identification	SELINT 0 / 1
AT#CGSN	Execution command returns the product serial number, identified as the IMEI of the mobile, with command echo.
AT#CGSN?	Read command has the same effect as the Execution command

#CGSN - Product Serial Number Identification	SELINT 2
AT#CGSN	Execution command returns the product serial number, identified as the IME of the mobile, with command echo.
AT#CGSN=?	Test command returns the **OK** result code.

3.5.6.1.6. International Mobile Subscriber Identity (IMSI) - #CIMI

#CIMI - International Mobile Subscriber Identity (IMSI)	SELINT 0 / 1
AT#CIMI	Execution command returns the international mobile subscriber identity, identified as the IMSI number, with command echo.
AT#CIMI?	Read command has the same effect as the Execution command

#CIMI - International Mobile Subscriber Identity (IMSI)	SELINT 2
AT#CIMI	Execution command returns the international mobile subscriber identity, identified as the IMSI number, with command echo.
AT#CIMI=?	Test command returns the **OK** result code.

3.5.6.1.7. Read ICCID (Integrated Circuit Card Identification) - #CCID

#CCID - Read ICCID	SELINT 2
AT#CCID	Execution command reads on SIM the ICCID (card identification number that provides a unique identification number for the SIM)
AT#CCID=?	Test command returns the **OK** result code.

3.5.6.1.8. Service Provider Name - #SPN

#SPN - Service Provider Name	SELINT 2
AT#SPN	Execution command returns the service provider string contained in the SIM field **SPN**, in the format: **#SPN: <spn>** where: **<spn>** - service provider string contained in the SIM field **SPN**, represented in the currently selected character set (see **+CSCS**). Note: if the SIM field SPN is empty, the command returns just the **OK** result

#SPN - Service Provider Name		**SELINT 2**
	code.	
AT#SPN=?	Test command returns the **OK** result code.	

3.5.6.1.9. Extended Numeric Error report - #CEER

<table>
<tr><th colspan="2">#CEER – Extended numeric error report</th><th>SELINT 2</th></tr>
<tr><td>AT#CEER</td><td colspan="2">Execution command causes the TA to return a numeric code in the format

<b>#CEER: <code></b>

which should offer the user of the TA a report of the reason for
• the failure in the last unsuccessful call setup (originating or answering);
• the last call release;
• the last unsuccessful GPRS attach or unsuccessful PDP context activation;
• the last GPRS detach or PDP context deactivation.

Note: if none of the previous conditions has occurred since power up then <b>0</b> is reported (i.e. <b>No error</b>, see below)

<b><code></b> values as follows

<table>
<tr><th>Value</th><th>Diagnostic</th></tr>
<tr><td>0</td><td>No error</td></tr>
<tr><td>1</td><td>Unassigned (unallocated) number</td></tr>
<tr><td>3</td><td>No route to destination</td></tr>
<tr><td>6</td><td>Channel unacceptable</td></tr>
<tr><td>8</td><td>Operator determined barring</td></tr>
<tr><td>16</td><td>Normal call clearing</td></tr>
<tr><td>17</td><td>User busy</td></tr>
<tr><td>18</td><td>No user responding</td></tr>
<tr><td>19</td><td>User alerting, no answer</td></tr>
<tr><td>21</td><td>Call rejected</td></tr>
<tr><td>22</td><td>Number changed</td></tr>
<tr><td>26</td><td>Non selected user clearing</td></tr>
<tr><td>27</td><td>Destination out of order</td></tr>
<tr><td>28</td><td>Invalid number format (incomplete number)</td></tr>
<tr><td>29</td><td>Facility rejected</td></tr>
<tr><td>30</td><td>Response to STATUS ENQUIRY</td></tr>
</table>
</td></tr>
</table>

#CEER – Extended numeric error report	SELINT 2

31	Normal, unspecified
34	No circuit/channel available
38	Network out of order
41	Temporary failure
42	Switching equipment congestion
43	Access information discarded
44	Requested circuit/channel not available
47	Resources unavailable, unspecified
49	Quality of service unavailable
50	Requested facility not subscribed
55	Incoming calls barred with in the CUG
57	Bearer capability not authorized
58	Bearer capability not presently available
63	Service or option not available, unspecified
65	Bearer service not implemented
68	ACM equal to or greater than ACMmax
69	Requested facility not implemented
70	Only restricted digital information bearer capability is available
79	Service or option not implemented, unspecified
81	Invalid transaction identifier value
87	User not member of CUG
88	Incompatible destination
91	Invalid transit network selection
95	Semantically incorrect message
96	Invalid mandatory information
97	Message type non-existent or not implemented
98	Message type not compatible with protocol state
99	Information element non-existent or not implemented
100	Conditional IE error
101	Message not compatible with protocol state
102	Recovery on timer expiry
111	Protocol error, unspecified
127	Interworking, unspecified
GPRS related errors	
224	MS requested detach
225	NWK requested detach
226	Unsuccessful attach cause NO SERVICE
227	Unsuccessful attach cause NO ACCESS
228	Unsuccessful attach cause GPRS SERVICE REFUSED

#CEER – Extended numeric error report		SELINT 2
	229	PDP deactivation requested by NWK
	230	PDP deactivation cause LLC link activation Failed
	231	PDP deactivation cause NWK reactivation with same TI
	232	PDP deactivation cause GMM abort
	233	PDP deactivation cause LLC or SNDCP failure
	234	PDP unsuccessful activation cause GMM error
	235	PDP unsuccessful activation cause NWK reject
	236	PDP unsuccessful activation cause NO NSAPI available
	237	PDP unsuccessful activation cause SM refuse
	238	PDP unsuccessful activation cause MMI ignore
	239	PDP unsuccessful activation cause Nb Max Session Reach
	256	PDP unsuccessful activation cause wrong APN
	257	PDP unsuccessful activation cause unknown PDP address or type
	258	PDP unsuccessful activation cause service not supported
	259	PDP unsuccessful activation cause QOS not accepted
	260	PDP unsuccessful activation cause socket error
	Other custom values	
	240	FDN is active and number is not in FDN
	241	Call operation not allowed
	252	Call barring on outgoing calls
	253	Call barring on incoming calls
	254	Call impossible
	255	Lower layer failure
AT#CEER=?	Test command returns **OK** result code.	
Reference	GSM 04.08	

3.5.6.1.10. Extended error report for Network Reject cause - #CEERNET

#CEERNET – Ext error report for Network reject cause	SELINT 2
AT#CEERNET	Execution command causes the TA to return a numeric code in the format **#CEERNET: <code>** which should offer the user of the TA a report for the last mobility management(MM) or session management(SM) procedure not accepted by the network and a report of detach or deactivation causes from network.

#CEERNET – Ext error report for Network reject cause	SELINT 2

<code> values as follows

Value	Diagnostic
2	IMSI UNKNOWN IN HLR
3	ILLEGAL MS
4	IMSI UNKNOWN IN VISITOR LR
5	IMEI NOT ACCEPTED
6	ILLEGAL ME
7	GPRS NOT ALLOWED
8	GPRS AND NON GPRS NOT ALLOWED
9	MS IDENTITY CANNOT BE DERIVED BY NETWORK
10	IMPLICITLY DETACHED
11	PLMN NOT ALLOWED
12	LA NOT ALLOWED
13	ROAMING NOT ALLOWED
14	GPRS NOT ALLOWED IN THIS PLMN
15	NO SUITABLE CELLS IN LA
16	MSC TEMP NOT REACHABLE
17	NETWORK FAILURE
22	CONGESTION
25	LLC OR SNDCP FAILURE
26	INSUFFICIENT RESOURCES
27	MISSING OR UNKNOWN APN
28	UNKNOWN PDP ADDRESS OR PDP TYPE
29	USER AUTHENTICATION FAILED
30	ACTIVATION REJECTED BY GGSN
31	ACTIVATION REJECTED UNSPECIFIED
32	SERVICE OPTION NOT SUPPORTED
33	REQ. SERVICE OPTION NOT SUBSCRIBED
34	SERV.OPTION TEMPORARILY OUT OF ORDER
35	NSAPI ALREADY USED
36	REGULAR DEACTIVATION
37	QOS NOT ACCEPTED
38	SMN NETWORK FAILURE
39	REACTIVATION REQUIRED
40	FEATURE NOT SUPPORTED
41	SEM ERROR IN TPF
42	SYNT ERROR IN TPF
43	UNKNOWN PDP CNTXT
44	SEM ERR IN PKT FILTER
45	SYNT ERR IN PKT FILTER
46	PDP CNTXT WITHOUT TPF ACT
48	RETRY ON NEW CELL ENTRY
81	INVALID TRANSACTION IDENTIFIER
95	SEMANTICALLY INCORRECT MESSAGE
96	INVALID MANDATORY INFORMATION
97	MSG TYPE NON EXISTENT OR NOT IMPLEMENTED
98	MSG TYPE NOT COMPATIBLE WITH PROTOCOL STATE

#CEERNET – Ext error report for Network reject cause		**SELINT 2**
	99	IE NON_EXISTENT OR NOT IMPLEMENTED
	100	CONDITIONAL IE ERROR
	101	MSG NOT COMPATIBLE WITH PROTOCOL STATE
	111	PROTOCOL ERROR UNSPECIFIED
	Note: causes 15, 41 to 46 are not considered for R98 products(GSM 04.08).	
AT#CEERNET=?	Test command returns **OK** result code.	
Reference	GSM 24.008 for REL4 and GSM 04.08 for R98	

3.5.6.1.11. Change Audio Path - #CAP

#CAP - Change Audio Path	**SELINT 0 / 1**
AT#CAP[=[<n>]]	Set command switches the active audio path depending on parameter **<n>** Parameter: **<n>** - audio path 0 - audio path follows the **AXE** input (factory default): • if **AXE** is low, handsfree is enabled; • if **AXE** is high, internal path is enabled 1 - enables handsfree external mic/ear audio path 2 - enables internal mic/ear audio path Note: The audio path are mutually exclusive, enabling one disables the other. Note: when changing the audio path, the volume level is set at the previously stored value for that audio path (see **+CLVL**). Note: issuing **AT#CAP<CR>** is the same as issuing the Read command. Note: issuing **AT#CAP=<CR>** is the same as issuing the command **AT#CAP=0<CR>**.
AT#CAP?	Read command reports the active audio path in the format: **#CAP: <n>**.
AT#CAP=?	Test command reports the supported values for the parameter **<n>**.

#CAP - Change Audio Path	**SELINT2**
AT#CAP=[<n>]	Set command switches the active audio path depending on parameter **<n>**

#CAP - Change Audio Path		**SELINT2**
	Parameter: **<n>** - audio path 0 - audio path follows the **AXE** input (factory default): • if **AXE** is low, handsfree is enabled; • if **AXE** is high, internal path is enabled 1 - enables handsfree external mic/ear audio path 2 - enables internal mic/ear audio path Note: The audio path are mutually exclusive, enabling one disables the other. Note: when changing the audio path, the volume level is set at the previously stored value for that audio path (see **+CLVL**).	
AT#CAP?	Read command reports the active audio path in the format: **#CAP: <n>**.	
AT#CAP=?	Test command reports the supported values for the parameter **<n>**.	

3.5.6.1.12. Select Ringer Sound - #SRS

#SRS - Select Ringer Sound		**SELINT 0 / 1**
AT#SRS[= <n>,<tout>]	Set command sets the ringer sound. Parameters: **<n>** - ringing tone 0 - current ringing tone 1..*max* - ringing tone number, where *max* can be read by issuing the Test command **AT#SRS=?**. **<tout>** - ringing tone playing time-out in seconds. 0 - ringer is stopped (if present) and current ringer sound is set. 1..60 - ringer sound playing for **<tout>** seconds and, if **<n> > 0,** ringer sound **<n>** is set as default ringer sound. Note: when the command is issued with **<n> > 0** and **<tout> > 0**, the **<n>** ringing tone is played for **<tout>** seconds and stored as default ringing tone. Note: if command is issued with **<n> > 0** and **<tout> = 0**, the playing of the ringing is stopped (if present) and **<n>** ringing tone is set as current.	

#SRS - Select Ringer Sound	**SELINT 0 / 1**
	Note: if command is issued with **<n>** = **0** and **<tout>** > **0** then the current ringing tone is played. Note: if both **<n>** and **<tout>** are **0** then the default ringing tone is set as current and ringing is stopped. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command
AT#SRS?	Read command reports current selected ringing and its status in the form: **#SRS: <n>,<status>** where: **<n>** - ringing tone number 1..*max* **<status>** - ringing status 0 - selected but not playing 1 - currently playing
AT#SRS=?	Test command reports the supported values for the parameters **<n>** and **<tout>**

#SRS - Select Ringer Sound	**SELINT 2**
AT#SRS= [<n>,<tout>]	Set command sets the ringer sound. Parameters: **<n>** - ringing tone 0 - current ringing tone 1..*max* - ringing tone number, where *max* can be read by issuing the Test command **AT#SRS=?**. **<tout>** - ringing tone playing timer in units of seconds. 0 - ringer is stopped (if present) and current ringer sound is set. 1..60 - ringer sound playing for **<tout>** seconds and, if **<n>** > **0,** ringer sound **<n>** is set as default ringer sound. Note: when the command is issued with **<n>** > **0** and **<tout>** > **0**, the **<n>** ringing tone is played for **<tout>** seconds and stored as default ringing tone. Note: if command is issued with **<n>** > **0** and **<tout>** = **0**, the playing of the ringing is stopped (if present) and **<n>** ringing tone is set as current. Note: if command is issued with **<n>** = **0** and **<tout>** > **0** then the current

#SRS - Select Ringer Sound	**SELINT 2**
	ringing tone is played for **<tout>** seconds. Note: if both **<n>** and **<tout>** are **0** then the default ringing tone is set as current and ringing is stopped. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command
AT#SRS?	Read command reports current selected ringing and its status in the form: **#SRS: <n>,<status>** where: **<n>** - ringing tone number 1..*max* **<status>** - ringing status 0 - selected but not playing 1 - currently playing
AT#SRS=?	Test command reports the supported values for the parameters **<n>** and **<tout>**

3.5.6.1.13. Select Ringer Path - #SRP

#SRP - Select Ringer Path	**SELINT 0 / 1**
AT#SRP[=[<n>]]	Set command selects the ringer path towards whom sending ringer sounds and all signalling tones. Parameter: **<n>** - ringer path number 0 - sound output towards current selected audio path (see command **#CAP**) 1 - sound output towards handsfree 2 - sound output towards handset 3 - sound output towards Buzzer Output pin GPIO7 Note: In order to use the Buzzer Output an external circuitry must be added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function); see command **#GPIO**.

#SRP - Select Ringer Path	**SELINT 0 / 1**
	Note: issuing **AT#SRP<CR>** is the same as issuing the Read command. Note: issuing **AT#SRP=<CR>** is the same as issuing the command **AT#SRP=0<CR>**.
AT#SRP?	Read command reports the selected ringer path in the format: **#SRP: <n>**.
AT#SRP=?	Test command reports the supported values for the parameter **<n>**.

Example	`AT#SRP=?`
	`#SRP: (0-3)`
	`OK`
	`AT#SRP=3`
	`OK`

#SRP - Select Ringer Path	**SELINT 2**
AT#SRP=[<n>]	Set command selects the ringer path towards whom sending ringer sounds and all signalling tones. Parameter: **<n>** - ringer path number 0 - sound output towards current selected audio path (see command **#CAP**) 1 - sound output towards handsfree 2 - sound output towards handset 3 - sound output towards Buzzer Output pin GPIO7 Note: In order to use the Buzzer Output an external circuitry must be added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function); see command **#GPIO.**
AT#SRP?	Read command reports the selected ringer path in the format: **#SRP: <n>**.
AT#SRP=?	Test command reports the supported values for the parameter **<n>**.

Example	`AT#SRP=?`
	`#SRP: (0-3)`
	`OK`
	`AT#SRP=3`
	`OK`

3.5.6.1.14. Signaling Tones Mode - #STM

#STM - Signaling Tones Mode	**SELINT 0 / 1**
AT#STM **[=<mode>]**	Set command enables/disables the signaling tones output on the audio path selected with **#SRP** command Parameter: **<mode>** - signaling tones status 0 - signaling tones disabled 1 - signaling tones enabled Note: **AT#STM=0** has the same effect as **AT+CALM=2**; **AT#STM=1** has the same effect as **AT+CALM=0**. Note: If parameter is omitted then the behaviour of Set command is the same as Read command
AT#STM?	Read command reports whether the current signaling tones status is enabled or not, in the format: **#STM: <mode>**
AT#STM=?	Test command reports supported range of values for parameter **<mode>**.

#STM - Signaling Tones Mode	**SELINT 2**
AT#STM= **[<mode>]**	Set command enables/disables the signaling tones output on the audio path selected with **#SRP** command Parameter: **<mode>** - signaling tones status 0 - signaling tones disabled 1 - signaling tones enabled 2 - all tones disabled Note: **AT#STM=0** has the same effect as **AT+CALM=2**; **AT#STM=1** has the same effect as **AT+CALM=0**.
AT#STM?	Read command reports whether the current signaling tones status is enabled or not, in the format: **#STM: <mode>**
AT#STM=?	Test command reports supported range of values for parameter **<mode>**.

3.5.6.1.15. Tone Playback - #TONE

#TONE - Tone Playback	**SELINT 2**

#TONE - Tone Playback	**SELINT 2**
AT#TONE=<tone> [,<duration>]	Execution command allows the reproduction of DTMF tones, standard free tone, standard busy tone and a set of user defined tones for a certain time. Parameters: **<tone>** - ASCII characters, range is **((0-9),#,*,(A-D),(G-L),Y,Z)**; - (0-9), #,*,(A-D): DTMF tone - (G-L): User Defined Tones - Y: free tone - Z: busy tone **<duration>** - Duration of current tone in 1/10 of Sec. 1..300 - tenth of seconds (default is 30)
AT#TONE=?	Test command returns the supported range of values for parameters **<tone>** and **<duration>**.
Note:	See AT#UDTSET command to set user defined tones

3.5.6.1.16. User Defined Tone SET - #UDTSET command

#UDTSET – User Defined Tone SET	**SELINT 2**
AT#UDTSET= <tone> ,<F1>,<A1> [,<F2>,<A2> [,<F3>,<A3>]]	Set command sets frequency and amplitude composition for a User Defined Tone. Parameters: **<tone>** - tone index (G,H,I,J,K,L) **<Fi>** - frequency in Hz; range is (300,3000) in step of 1 Hz **<Ai>** - amplitude in dB; range is (10,100) in step of 1 dB Note: Ai = 100 is equal to the max value of the single tone. Lower values attenuate output to the difference between 100 and the selected amplitude (ex: Ai = 80 is equal to 100-80 = -20dB). Note: issuing AT&F1 or AT&Z has the effect to set the parameters with the last saved in NVM values Note: Ai = 0 and Fi = 0 are only values for uninitialized parameters and can't be issued by AT command. Every time the set command is issued, the unspecified parameters are automatically reset to zero. (Ai,Fi) issuing needs also (Aj,Fj) with j<i.
AT# UDTSET?	Read command returns the current settings for the tones: **#UDTSET: G,<F1>,<A1>,<F2>,<A2>,<F3>,<A3>**

#UDTSET – User Defined Tone SET		SELINT 2
	#UDTSET: H, <F1>,<A1>,<F2>,<A2>,<F3>,<A3> **#UDTSET: I, <F1>,<A1>,<F2>,<A2>,<F3>,<A3>** **#UDTSET: J, <F1>,<A1>,<F2>,<A2>,<F3>,<A3>** **#UDTSET: K, <F1>,<A1>,<F2>,<A2>,<F3>,<A3>** **#UDTSET: L, <F1>,<A1>,<F2>,<A2>,<F3>,<A3>**	
AT# UDTSET =?	Test command returns the supported range of values for **<tone>**, **<Fi>** and **<Ai>** parameters.	

3.5.6.1.17. User Defined Tone SAVE - #UDTSAV command

#UDTSAV – User Defined Tone SAVe		SELINT 2
AT#UDTSAV	Execution command saves the actual values of frequency and amplitude parameters that have been set with the command **#UDTSET**	
AT#UDTSAV =?	Test command returns the OK result code.	

Example	`AT#UDTSAV`
	`OK`
	
	Current tones are saved in NVM	

3.5.6.1.18. User Defined Tone Reset - #UDTRST command

#UDTRST – User Defined Tone ReSeT		SELINT 2
AT#UDTRST	Execution command resets to the default set the actual values of frequency and amplitude parameters that can be set with the command **#UDTSET**.	
AT#UDTRST =?	Test command returns the OK result code.	

Example	`AT#UDRST`
	`OK`
	
	The default value tones are restored in NVM	

3.5.6.1.19. Extended tone generation - #TONEEXT

#TONEEXT – Extended tone generation		SELINT 2
AT# TONEEXT=	Execution command allows the reproduction of DTMF tones, standard free	

#TONEEXT – Extended tone generation	SELINT 2
<toneId>,<act>	tone, standard busy tone and a set of user defined tones for a infinite time, or stop the running tone Parameters: **< toneId >** - ASCII characters in the set (0-9), #,*,(A-D),(G-L),Y,Z ; - (0-9), #,*,(A-D) : DTMF tone - (G-L) : User Defined Tones[22]. - y : free tone - z: busy tone **< act >** - Action to be performed. - 0: Stop the <toneId> if running. - 1: Start the <toneId>.
AT#TONEEXT=?	Test command returns the range of supported values for parameter **<toneId>,<act>**.

3.5.6.1.20. Tone Classes Volume - #TSVOL

#TSVOL – Tone Classes Volume	SELINT 2
AT#TSVOL= <class>, <mode> [,<volume>]	Set command is used to select the volume mode for one or more tone classes. Parameters: **<class>** -sum of integers each representing a class of tones which the command refers to 1 - GSM tones 2 - ringer tones 4 - alarm tones 8 - signalling tones 16 - DTMF tones 32 - SIM Toolkit tones 64 - user defined tones 128 - reserved 255 - all classes **<mode>** - it indicates which volume is used for the classes of tones represented by **<class>** 0 - default volume is used 1 - the volume **<volume>** is used

---

[22] See also AT#UDTSET, AT#UDTRST and AT#UDTSAV command description following in this document.

#TSVOL – Tone Classes Volume	**SELINT 2**
	<volume> - volume to be applied to the set of classes of tones represented by **<class>**; it is mandatory if **<mode>** is **1**. 0..*max* - the value of *max* can be read issuing the Test command **AT#TSVOL=?** Note: The class DTMF Tones (**<class>**=16) refers only to the volume for locally generated DTMF tones. It doesn't affect the level of the DTMF generated by the network as result of AT+VTS command
AT#TSVOL?	Read command returns for each class of tones the last setting of **<mode>** and, if **<mode>** is not **0**, of **<volume>** too, in the format: **# TSVOL: 1,<mode1>[,<volume1>]<CR><LF>** **…** **#TSVOL: 64,<mode64>[,<volume64>]**
AT#TSVOL=?	Test command returns the supported range of values of parameters **<class>**, **<mode>** and **<volume>**.

Example

```
AT#TSVOL=64,1,5

OK

AT#TSVOL?
#TSVOL:1,0
#TSVOL:2,0
#TSVOL:4,1,5
#TSVOL:8,0
#TSVOL:16,1,5
#TSVOL:32,0
#TSVOL:64,1,5
#TSVOL:128,0

OK
```

Note:	GSM Tones: DialToneId BusyToneId CongestionToneId RadioPathToneId CallWaitingToneId Ringer Tone: RingingToneMOId RingingToneMTId AutoRedialConnToneId

#TSVOL – Tone Classes Volume	SELINT 2
	Alarm Tones: AlarmToneId BatteryLowToneId SMSToneId MMSToneId PowerOnToneId PowerOffToneId NoUnitsLeftToneId Signaling Tones: classzeroToneId NetworkIndToneId NoServiceToneId SignallingErrToneId AutoRedialToneId ErrorToneId CallDroppedToneId DTMF Tones Local ADTMF SIM Toolkit Tones SIMTDialToneId SIMTBusyToneId SIMTCongestionToneId SIMTRadioPathToneId SIMTCallDroppedToneId SIMTErrorToneId SIMTCallWaitingToneId SIMTRingingToneMTId User Defined Tones: Tone defined with AT#UDTSET

3.5.6.1.21. Select Registration Operation Mode - #REGMODE

#REGMODE – Select Registration Operation Mode	SELINT 2
AT#REGMODE= <mode>	There are situations in which the presentation of the **URCs** controlled by either **+CREG** and **+CGREG** are slightly different from ETSI specifications. We identified this behaviour and decided to maintain it as default for backward compatibility issues, while we're offering a more formal '**Enhanced Operation Mode**' through **#REGMODE**.

#REGMODE – Select Registration Operation Mode	**SELINT 2**
	Set command sets the operation mode of registration status commands. Parameter: **<mode>** - operation mode of registration status commands 0 - basic operation mode (default for all products, except GE865-QUAD and GE864-DUAL V2) 1 - enhanced operation mode (default for GE865-QUAD and GE864-DUAL V2)
AT#REGMODE?	Read command returns the current registration operation mode.
AT#REGMODE=?	Test command reports the available range of values for parameter <**mode**>
Note	The affected commands are **+CREG** and **+CGREG**

3.5.6.1.22. SMS Commands Operation Mode - #SMSMODE

#SMSMODE - SMS Commands Operation Mode	**SELINT 2**
AT#SMSMODE= <mode>	Set command enables/disables the improved SMS commands operation mode Parameter: **<mode>** - SMS commands operation mode 0 - disable improved SMS commands operation mode (default for all products, except GE865-QUAD and GE864-DUAL V2) 1 - enable improved SMS commands operation mode (default for GE865-QUAD and GE864-DUAL V2)
AT#SMSMODE?	Read command reports whether the improved SMS commands operation mode is enabled or not, in the format: **#SMSMODE: <mode>** (**<mode>** described above)
AT#SMSMODE=?	Test command reports the supported range of values for parameter <**mode**>
Note	The SMS commands affected by **#SMSMODE** are: **+CPMS**, **+CNMI**, **+CMGS**, **+CMGW**, **+CMGL**, **+CMGR**, **+CMGD**, **+CSMP**

3.5.6.1.23. PLMN List Selection - #PLMNMODE

#PLMNMODE - PLMN List Selection	**SELINT 0 / 1 / 2**
AT#PLMNMODE=	Set command selects the list of PLMN names to be used currently

#PLMNMODE - PLMN List Selection	SELINT 0 / 1 / 2
[<plmnlist>]	Parameter: **<plmnlist>** - list of PLMN names 0 - PLMN names list, currently used in commands like **+COPS** or **#MONI**, is fixed and depends upon currently selected interface (see **#SELINT**) (default for all products, except GE865-QUAD and GE864-DUAL V2) 1 - PLMN names list is not fixed and can be updated in newer software versions (default for GE865-QUAD and GE864-DUAL V2) Note: <**plmnlist**> parameter is saved in NVM
AT#PLMNMODE?	Read command reports whether the currently used list of PLMN names is fixed or not, in the format: **#PLMNMODE: <plmnlist>** (**<plmnlist>** described above)
AT#PLMNMODE=?	Test command returns the supported range of values for parameter **<plmnlist>**.

3.5.6.1.24. Display PIN Counter - #PCT

#PCT - Display PIN Counter	SELINT 0 / 1
AT#PCT	Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on **+CPIN** requested password in the format: **#PCT: <n>** where: **<n>** - remaining attempts 0 - the SIM is blocked. 1..3 - if the device is waiting either SIM PIN or SIM PIN2 to be given. 1..10 - if the device is waiting either SIM PUK or SIM PUK2 to be given.
AT#PCT?	Read command has the same behaviour as Execution command.

#PCT - Display PIN Counter	SELINT 2
AT#PCT	Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on **+CPIN** requested password in the format: **#PCT: <n>** where: **<n>** - remaining attempts 0 - the SIM is blocked.

#PCT - Display PIN Counter	**SELINT 2**
	1..3 - if the device is waiting either SIM PIN or SIM PIN2 to be given. 1..10 - if the device is waiting either SIM PUK or SIM PUK2 to be given.
AT#PCT=?	Test command returns the OK result code.

3.5.6.1.25. Software Shut Down - #SHDN

#SHDN - Software Shutdown	**SELINT 0 / 1**
AT#SHDN	Execution command causes device detach from the network and shut down. Before definitive shut down an **OK** response is returned. Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command. Note: to turn it on again Hardware pin ON/OFF must be tied **low**.
AT#SHDN?	Read command has the same behaviour as Execution command.

#SHDN - Software Shutdown	**SELINT 2**
AT#SHDN	Execution command causes device detach from the network and shut down. Before definitive shut down an **OK** response is returned. Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command. Note: to turn it on again Hardware pin ON/OFF must be tied **low**.
AT#SHDN=?	Test command returns the OK result code.

3.5.6.1.26. Extended Reset - #Z

#Z – Extended reset	**SELINT 2**
AT#Z=<profile>	Set command loads both base section and extended section of the specified user profile stored with AT&W and selected with AT&P. Parameter **<profile>** 0 – user profile 0 1 – user profile 1
AT#Z=?	Test command tests for command existence.

3.5.6.1.27. Periodic Reset - #ENHRST

#ENHRST – Periodic ReSeT	SELINT 2
AT#ENHRST=<mod>[,<delay>]	Set command enables/disables the unit reset after **<delay>** minutes. Parameters: **<mod>** 0 – disables the unit reset (factory default) 1 – enables the unit reset only for one time 2 – enables the periodic unit reset **<delay>** - time interval after that the unit reboots; numeric value in minutes Note: the settings are saved automatically in NVM only if old or new mod is 2. Any change from 0 to 1 or from 1 to 0 is not stored in NVM
AT#ENHRST?	Read command reports the current parameter settings for **# EHNRST** command in the format: **# EHNRST: < mod >[,<delay>,<remainTime>]** **<remainTime>** - time remaining before next reset
AT#ENHRST=?	Test command reports supported range of values for parameters **<mod>** and **<delay>**.
Examples	AT#ENHRST=1,60 …. Module reboots after 60 minutes … AT#ENHRST=1,0 …. Module reboots now … AT#ENHRST=2,60 …. Module reboots after 60 minutes and indefinitely after every following power on …

3.5.6.1.28. Wake From Alarm Mode - #WAKE

#WAKE - Wake From Alarm Mode	SELINT 0 / 1
AT#WAKE[=	Execution command stops any eventually present alarm activity and, if the

#WAKE - Wake From Alarm Mode	SELINT 0 / 1
<opmode>]	module is in **alarm mode**, it exits the **alarm mode** and enters the **normal operating mode**. Parameter: **<opmode>** - operating mode; any input is possible: no control is made on the **<opmode>** value, although it is mandatory to have it; the module exits the **alarm mode**, enters the **normal operating mode**, any alarm activity is stopped (e.g. alarm tone playing) and an **OK** result code is returned. Note: if parameter is omitted, the command returns the **operating status** of the device in the format: **#WAKE: <status>** where: **<status>** 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity. Note: the **alarm mode** is indicated by status **ON** of hardware pin **CTS** and by status **ON** of pin **DSR**, the **power saving** status is indicated by a **CTS - OFF** and **DSR - OFF** status; the **normal operating status** is indicated by **DSR - ON**. Note: during the **alarm mode** the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.
AT#WAKE?	Read command has the same effect as Execution command when parameter is omitted.
AT#WAKE=?	Test command returns **OK** result code.

#WAKE - Wake From Alarm Mode	SELINT 2
AT#WAKE= [<opmode>]	Execution command stops any eventually present alarm activity and, if the module is in **alarm mode**, it exits the **alarm mode** and enters the **normal operating mode**. Parameter: **<opmode>** - operating mode 0 - normal operating mode; the module exits the **alarm mode**, enters the

#WAKE - Wake From Alarm Mode	SELINT 2
	normal operating mode, any alarm activity is stopped (e.g. alarm tone playing) and an **OK** result code is returned. Note: the **alarm mode** is indicated by status **ON** of hardware pin **CTS** and by status **ON** of pin **DSR**; the **power saving** status is indicated by a **CTS - OFF** and **DSR - OFF** status; the **normal operating status** is indicated by **DSR - ON**. Note: during the **alarm mode** the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.
AT#WAKE?	Read command returns the **operating status** of the device in the format: **#WAKE: <status>** where: **<status>** 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity.
AT#WAKE=?	Test command returns **OK** result code.

3.5.6.1.29. Query Temperature Overflow - #QTEMP

#QTEMP - Query Temperature Overflow	SELINT 0 / 1
AT#QTEMP [=<mode>]	Set command has currently no effect. The interpretation of parameter **<mode>** is currently not implemented. Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command Note: Only **<mode>=0** is accepted.
AT#QTEMP?	Read command queries the device internal temperature sensor for over temperature and reports the result in the format: **#QTEMP: <temp>** where **<temp>** - over temperature indicator 0 - the device temperature is in the *working range* 1 - the device temperature is out of the *working range*

#QTEMP - Query Temperature Overflow	**SELINT 0 / 1**
	Note: typical *temperature working range* is (-10°C..+55°C); anyway you are strongly recommended to consult the "Hardware User Guide" to verify the real temperature working range of your module
#QTEMP=?	Test command reports supported range of values for parameter **<mode>**.
Note	The device should not be operated out of its *temperature working range*; if temperature is out of range proper functioning of the device is not ensured.

#QTEMP - Query Temperature Overflow	**SELINT 2**
AT#QTEMP=[<mode>]	Set command has currently no effect. The interpretation of parameter **<mode>** is currently not implemented: any value assigned to it will simply have no effect.
AT#QTEMP?	Read command queries the device internal temperature sensor for over temperature and reports the result in the format: **#QTEMP: <temp>** where **<temp>** - over temperature indicator 0 - the device temperature is in the *working range* 1 - the device temperature is out of the *working range* Note: typical *temperature working range* is (-10°C..+55°C); anyway you are strongly recommended to consult the "Hardware User Guide" to verify the real temperature working range of your module
#QTEMP=?	Test command reports supported range of values for parameter **<mode>**.
Note	The device should not be operated out of its *temperature working range*, elsewhere proper functioning of the device is not ensured.

3.5.6.1.30. Temperature Monitor - #TEMPMON

#TEMPMON - Temperature Monitor	**SELINT 2**
AT#TEMPMON=<mod>[,<urcmode>[,<action>[,<hyst_time>[,<GPIO>]]]]	Set command sets the behaviour of the module internal temperature monitor. Parameters: **<mod>** 0 - sets the command parameters.

	1 - triggers the measurement of the module internal temperature, reporting the result in the format: **#TEMPMEAS: <level>,<value>** where: **<level>** - threshold level -2 - extreme temperature lower bound (see Note) -1 - operating temperature lower bound (see Note) 0 - normal temperature 1 - operating temperature upper bound (see Note) 2 - extreme temperature upper bound (see Note) **<value>** - actual temperature expressed in Celsius degrees. *Setting of the following optional parameters has meaning only if <mod>=0* **<urcmode>** - URC presentation mode. 0 - it disables the presentation of the temperature monitor URC 1 - it enables the presentation of the temperature monitor URC, whenever the module internal temperature reaches either operating or extreme levels; the unsolicited message is in the format: **#TEMPMEAS: <level>,<value>** where: **<level>** and **<value>** are as before **<action>** - sum of integers, each representing an action to be done whenever the module internal temperature reaches either operating or extreme levels (default is 0). If **<action>** is not zero, it is mandatory to set the **<hyst_time>** parameter too. 0..7 - as a sum of: 0 - no action 1 - automatic shut-down when the temperature is beyond the extreme bounds 2 - RF TX circuits automatically disabled (using **+CFUN=2**) when operating temperature bounds are reached. When the temperature is back to normal the module is brought back to the previous state, before RF TX disabled. 4 - the output pin **<GPIO>** is tied HIGH when operating temperature bounds are reached; when the temperature is back to normal the

<table>
<tr><td></td><td>output pin <b><GPIO></b> is tied LOW. If this <b><action></b> is required, it is mandatory to set the <b><GPIO></b> parameter too.

<b><hyst_time></b> - hysteresis time: all the actions happen only if the extreme or operating bounds are maintained at least for this period. This parameter is needed and required if <b><action></b> is not zero.
0..255 - time in seconds

<b><GPIO></b> - GPIO number. valid range is “any output pin” (see “Hardware User’s Guide”). This parameter is needed and required only if <b><action>=4</b> is required.

Note: the URC presentation mode <b><urcmode></b> is related to the current AT instance only (see <b>+cmux</b>); last <b><urcmode></b> settings are saved for every instance as extended profile parameters, thus it is possible to restore them either if the multiplexer control channel is released and set up, back and forth.

Note: last <b><action></b>, <b><hyst_time></b> and <b><GPIO></b> settings are saved in NVM too, but they are not related to the current CMUX instance only (see <b>+cmux</b>).</td></tr>
<tr><td>AT#TEMPMON?</td><td>Read command reports the current parameter settings for <b>#TEMPMON</b> command in the format:

<b>#TEMPMON: <urcmode>,<action>[,<hyst_time>[,<GPIO>]]</b></td></tr>
<tr><td>AT#TEMPMON=?</td><td>Test command reports the supported range of values for parameters <b><mod></b>, <b><urcmode></b>, <b><action></b>, <b><hyst_time></b> and <b><GPIO></b></td></tr>
<tr><td>Note</td><td>In the following table typical temperature bounds are represented; anyway you are strongly recommended to consult the “Hardware User Guide” to verify the real temperature bounds for your module.

<table>
<tr><td>Extreme Temperature Lower Bound(*)</td><td>T_{ext_low}</td></tr>
<tr><td>Operating Temperature Lower Bound(*)</td><td>T_{op_low}</td></tr>
<tr><td>Operating Temperature</td><td></td></tr>
<tr><td>Operating Temperature Upper Bound(*)</td><td>T_{op_up}</td></tr>
<tr><td>Extreme Temperature Upper Bound(*)</td><td>T_{ext_up}</td></tr>
</table>
</td></tr>
</table>

3.5.6.1.31. Set General Purpose Output - #SGPO

#SGPO - Set General Purpose Output	**SELINT 0 / 1**
AT#SGPO[= [<stat>]]	Set command sets the value of the general purpose output pin **GPIO2**. Parameter: **<stat>** 0 - output pin cleared to 0 (**Low**) 1 - output pin set to 1 (**High**) Note: the **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated: **AT#SGPO=0** sets the open collector output **High** **AT#SGPO=1** sets the open collector output **Low** A pull up resistor is required on pin **GPIO2**. Note: issuing **AT#SGPO<CR>** is the same as issuing the Read command. Note: issuing **AT#SGPO=<CR>** is the same as issuing the command **AT#SGPO=0<CR>**.
AT#SGPO?	Read command reports the **#SGPO** command setting, hence the opposite status of the open collector pin in the format: **#SGPO: <stat>**.
AT#SGPO=?	Test command reports the supported range of values of parameter **<stat>**.
Note	This command is meaningful only for GM862 family

3.5.6.1.32. General Purpose Input - #GGPI

#GGPI - General Purpose Input	**SELINT 0 / 1**
AT#GGPI[=[<dir>]]	Set command sets the general purpose input pin **GPIO1**. Parameter: **<dir>** - auxiliary input GPIO1 setting 0 - the Read command **AT#GGPI?** reports the logic input level read from GPIO1 pin. Note: The device has an insulated input pin (the input goes the base of an internal decoupling transistor) which can be used as a logic general purpose input. This command sets the read behaviour for this pin, since only direct read report is supported, the issue of this command is not needed. In future uses the behavior of the read input may be more complex.

#GGPI - General Purpose Input	**SELINT 0 / 1**
	Note: If parameter is omitted then the behaviour of Set command is the same as Read command
AT#GGPI?	Read command reports the read value for the input pin GPIO1, in the format: **#GGPI: <dir>,<stat>** where **<dir>** - direction setting (see **#GGPI=<dir>**) **<stat>** - logic value read from pin GPIO1 Note: Since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin.
AT#GGPI=?	Test command reports supported range of values for parameter **<dir>**.
Note	This command is meaningful only for GM862 family

3.5.6.1.33. General Purpose Input/Output Pin Control - #GPIO

#GPIO - General Purpose Input/Output Pin Control	**SELINT 0/1/2**
AT#GPIO=[<pin>, <mode>[,<dir>]]	Execution command sets the value of the general purpose output pin GPIO**<pin>** according to **<dir>** and **<mode>** parameter. Not all configurations for the three parameters are valid. Parameters: **<pin>** - GPIO pin number; supported range is from 1 to a value that depends on the hardware. **<mode>** - its meaning depends on **<dir>** setting: 0 - no meaning if **<dir>=0** - INPUT - output pin cleared to 0 (**Low**) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION - no meaning if **<dir>=3** – TRISTATE PULL DOWN 1 - no meaning if **<dir>=0** - INPUT - output pin set to 1 (**High**) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION - no meaning if **<dir>=3** – TRISTATE PULL DOWN 2 - Reports the read value from the input pin if **<dir>=0** - INPUT - Reports the read value from the input pin if **<dir>=1** - OUTPUT - Reports a no meaning value if **<dir>=2** - ALTERNATE FUNCTION - Reports a no meaning if **<dir>=3** – TRISTATE PULL DOWN

#GPIO - General Purpose Input/Output Pin Control	SELINT 0/1/2

<dir> - GPIO pin direction
0 - pin direction is INPUT
1 - pin direction is OUTPUT
2 - pin direction is ALTERNATE FUNCTION (see Note).
3 - pin is set to PULL DOWN (see Note)

Note: when **<mode>=2** (and **<dir>** is omitted) the command reports the direction and value of pin **GPIO<pin>** in the format:

#GPIO: <dir>,<stat>

where:
<dir> - current direction setting for the **GPIO<pin>**
<stat>

☐ logic value read from pin **GPIO<pin>** in the case the pin **<dir>** is set to input;
☐ logic value present in output of the pin **GPIO<pin>** in the case the pin **<dir>** is currently set to output;
☐ no meaning value for the pin **GPIO<pin>** in the case the pin **<dir>** is set to alternate function or Tristate pull down

Note: "ALTERNATE FUNCTION" value is valid only for following pins:

☐ **GPIO4** - alternate function is “RF Transmission Control”
☐ **GPIO5** - alternate function is “RF Transmission Monitor”
☐ **GPIO6** - alternate function is "Alarm Output" (see **+CALA**)
☐ **GPIO7** - alternate function is "Buzzer Output" (see **#SRP**)

Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided.

For GM862 family products only

☐ **GPIO1** is input only and **GPIO2** is output only.
☐ since the **GPIO1** reading is done after an insulating transistor, the reported value is the opposite of the logic status of the **GPIO1** input pin

1. **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated

Note: Tristate pull down settings is available only on some products and GPIO. In case it is not available, automatically the setting is reverted to

#GPIO - General Purpose Input/Output Pin Control	**SELINT 0/1/2**
	INPUT. Check the product HW userguide to verify if Tristate pull down settings is available and if it is the default at system startup
AT#GPIO?	Read command reports the read direction and value of all **GPIO** pins, in the format: **#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[…]]** where **<dir>** - as seen before **<stat>** - as seen before
AT#GPIO=?	Test command reports the supported range of values of the command parameters **<pin>**, **<mode>** and **<dir>**.
Example	AT#GPIO=3,0,1 OK AT#GPIO=3,2 #GPIO: 1,0 OK AT#GPIO=4,1,1 OK AT#GPIO=5,0,0 OK AT#GPIO=6,2 #GPIO: 0,1 OK

3.5.6.1.34. STAT_LED GPIO Setting - #SLED

#SLED - STAT_LED GPIO Setting	**SELINT 2**
AT#SLED=<mode>[,<on_duration>[,<off_duration>]]	Set command sets the behaviour of the **STAT_LED** GPIO Parameters: **<mode>** - defines how the **STAT_LED** GPIO is handled 0 - GPIO tied **Low** 1 - GPIO tied **High** 2 - GPIO handled by Module Software (factory default) 3 - GPIO is turned on and off alternatively, with period defined by the sum **<on_duration> + <off_duration>** <**on_duration**> - duration of period in which **STAT_LED** GPIO is tied **High** while **<mode>=3**

#SLED - STAT_LED GPIO Setting	**SELINT 2**
	1..100 - in tenth of seconds (default is 10) **<off_duration>** - duration of period in which **STAT_LED** GPIO is tied **Low** while **<mode>=3** 1..100 - in tenth of seconds (default is 10) Note: values are saved in NVM by command **#SLEDSAV** Note: at module boot the **STAT_LED** GPIO is always tied **High** and holds this value until the first NVM reading.
AT#SLED?	Read command returns the **STAT_LED** GPIO current setting, in t he format: **#SLED: <mode>,<on_duration>,<off_duration>**
AT#SLED=?	Test command returns the range of available values for parameters **<mode>**, **<on_duration>** and **<off_duration>**.

3.5.6.1.35. Save STAT_LED GPIO Setting - #SLEDSAV

#SLEDSAV - Save STAT_LED GPIO Setting	**SELINT 2**
AT#SLEDSAV	Execution command saves **STAT_LED** setting in NVM.
AT#SLED=?	Test command returns **OK** result code.

3.5.6.1.36. Digital Voiceband Interface - #DVI

#DVI - Digital Voiceband Interface	**SELINT 2**
AT#DVI=<mode> [,<dviport>, <clockmode>]	Set command enables/disables the Digital Voiceband Interface. Parameters: **<mode>** - enables/disables the DVI. 0 - disable DVI; audio is forwarded to the analog line; DVI pins can be used for other purposes, like GPIO, etc. (factory default) 1 - enable DVI; audio is forwarded to the DVI block 2 - enable DVI; audio is forwarded both to the DVI block and to the analog lines (Note: analog input disabled) **<dviport>** 1 - DVI port 1 will be used (factory default) 2 - DVI port 2 will be used. Not available for GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD Automotive V2,GE864-QUAD ATEX, GE864-QUAD V2, GE864-DUAL V2, GE865-QUAD (see Test Command for availability of this port) **<clockmode>** 0 - DVI slave

#DVI - Digital Voiceband Interface	**SELINT 2**
	1 - DVI master (factory default) Note: setting **<clockmode>=0** has full effect only if **<dviport>=1** NOTE: DVI slave is available only on port 1 NOTE: for further information see "Digital Voice Interface Application Note" (Rev. 2)
AT#DVI?	Read command reports last setting, in the format: **#DVI: <mode>,<dviport>,<clockmode>**
AT#DVI=?	Test command reports the range of supported values for parameters **<mode>,<dviport>** and **<clockmode>**

Example	`AT#DVI=2,1,1`
	`OK`
	
	Both analog and DVI activated for audio. DVI is configured as master providing on DVI Port #1

3.5.6.1.37. SMS Ring Indicator - #E2SMSRI

#E2SMSRI - SMS Ring Indicator	**SELINT 0 / 1**
AT#E2SMSRI[=[<n>]]	Set command enables/disables the Ring Indicator pin response to an incoming SMS message. If enabled, a negative going pulse is generated on receipt of an incoming SMS message. The duration of this pulse is determined by the value of **<n>**. Parameter: **<n>** - **RI** enabling 0 - disables **RI** pin response for incoming SMS messages (factory default) 50..1150 - enables **RI** pin response for incoming SMS messages. The value of **<n>** is the duration in ms of the pulse generated on receipt of an incoming SM. Note: if **+CNMI=3,1** command is issued and the module is in a GPRS connection, a 100 ms break signal is sent and a 1 sec. pulse is generated on **RI** pin, no matter if the **RI** pin response is either enabled or not. Note: issuing **AT#E2SMSRI<CR>** is the same as issuing the Read command. Note: issuing **AT#E2SMSRI=<CR>** returns the **OK** result code.

#E2SMSRI - SMS Ring Indicator	SELINT 0 / 1
AT#E2SMSRI?	Read command reports the duration in ms of the pulse generated on receipt of an incoming SM, in the format: **#E2SMSRI: <n>** Note: as seen before, the value **<n>=0** means that the **RI** pin response to an incoming SM is disabled.
AT#E2SMSRI=?	Reports the range of supported values for parameter **<n>**

#E2SMSRI - SMS Ring Indicator	SELINT 2
AT#E2SMSRI=[<n>]	Set command enables/disables the Ring Indicator pin response to an incoming SMS message. If enabled, a negative going pulse is generated on receipt of an incoming SMS message. The duration of this pulse is determined by the value of **<n>**. Parameter: **<n>** - **RI** enabling 0 - disables **RI** pin response for incoming SMS messages (factory default) 50..1150 - enables **RI** pin response for incoming SMS messages. The value of **<n>** is the duration in ms of the pulse generated on receipt of an incoming SM. Note: if **+CNMI=3,1** command is issued and the module is in a GPRS connection, a 100 ms break signal is sent and a 1 sec. pulse is generated on **RI** pin, no matter if the **RI** pin response is either enabled or not.
AT#E2SMSRI?	Read command reports the duration in ms of the pulse generated on receipt of an incoming SM, in the format: **#E2SMSRI: <n>** Note: as seen before, the value **<n>=0** means that the **RI** pin response to an incoming SM is disabled.
AT#E2SMSRI=?	Reports the range of supported values for parameter **<n>**

3.5.6.1.38. Analog/Digital Converter Input - #ADC

#ADC - Analog/Digital Converter Input	SELINT 0 / 1
AT#ADC[=<adc>,<mode>[,<dir>]]	Execution command reads pin**<adc>** voltage, converted by ADC, and outputs it in the format: **#ADC: <value>**

#ADC - Analog/Digital Converter Input	SELINT 0 / 1
	where: **<value>** - pin**<adc>** voltage, expressed in mV Parameters: **<adc>** - index of pin For the number of available ADCs see HW User Guide **<mode>** - required action 2 - query ADC value **<dir>** - direction; its interpretation is currently not implemented 0 - no effect. If all parameters are omitted the command reports all pins voltage, converted by ADC, in the format: **#ADC: <value>[<CR><LF>#ADC: <value>[…]]** Note: The command returns the last valid measure.
AT#ADC?	Read command has the same effect as Execution command when all parameters are omitted.
AT#ADC=?	Test command reports the supported range of values of the command parameters **<adc>**, **<mode>** and **<dir>**.

#ADC - Read Analog/Digital Converter input	SELINT 2
AT#ADC=[<adc>,<mode>[,<dir>]]	Execution command reads pin**<adc>** voltage, converted by ADC, and outputs it in the format: **#ADC: <value>** where: **<value>** - pin**<adc>** voltage, expressed in mV Parameters: **<adc>** - index of pin For the number of available ADCs see HW User Guide **<mode>** - required action 2 - query ADC value **<dir>** - direction; its interpretation is currently not implemented 0 - no effect.

#ADC - Read Analog/Digital Converter input	**SELINT 2**
	Note: The command returns the last valid measure.
AT#ADC?	Read command reports all pins voltage, converted by ADC, in the format: **#ADC: <value>[<CR><LF>#ADC: <value>[…]]**
AT#ADC=?	Test command reports the supported range of values of the command parameters **<adc>**, **<mode>** and **<dir>**.

3.5.6.1.39. Digital/Analog Converter Control - #DAC

#DAC - Digital/Analog Converter Control	**SELINT 0 / 1**
AT#DAC[= <enable> [,<value>]]	Set command enables/disables the **DAC_OUT** pin. Parameters: **<enable>** - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven **<value>** - scale factor of the integrated output voltage; it must be present if **<enable>=1** 0..1023 - 10 bit precision Note: **integrated output voltage = MAX_VOLTAGE * value / 1023** Note: if all parameters are omitted then the behaviour of Set command is the same as the Read command.
AT#DAC?	Read command reports whether the **DAC_OUT** pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: **#DAC: <enable>,<value>**
AT#DAC=?	Test command reports the range for the parameters **<enable>** and **<value>**.

Example	Enable the DAC out and set its integrated output to the 50% of the max value:
	
	`AT#DAC=1,511`
	`OK`
	
	Disable the DAC out:
	`AT#DAC=0`
	`OK`

Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. **DAC_OUT** line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the

#DAC - Digital/Analog Converter Control	**SELINT 0 / 1**
	hardware user guide.

#DAC - Digital/Analog Converter Control	**SELINT 2**
AT#DAC=[<enable>[,<value>]]	Set command enables/disables the **DAC_OUT** pin. Parameters: **<enable>** - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven **<value>** - scale factor of the integrated output voltage; it must be present if **<enable>=1** 0..1023 - 10 bit precision Note: **integrated output voltage = MAX_VOLTAGE * value / 1023**
AT#DAC?	Read command reports whether the **DAC_OUT** pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: **#DAC: <enable>,<value>**
AT#DAC=?	Test command reports the range for the parameters **<enable>** and **<value>**.

Example	*Enable the DAC out and set its integrated output to the 50% of the max value:*
	`AT#DAC=1,511`
	`OK`
	Disable the DAC out:
	`AT#DAC=0`
	`OK`

Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. **DAC_OUT** line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the hardware user guide.

3.5.6.1.40. Auxiliary Voltage Output Control - #VAUX

#VAUX- Auxiliary Voltage Output Control	**SELINT 0 / 1**
AT#VAUX[=<n>,	Set command enables/disables the Auxiliary Voltage pins output.

#VAUX- Auxiliary Voltage Output Control	SELINT 0 / 1
<stat>]	Parameters: **<n>** - **VAUX** pin index 1 - there is currently just one **VAUX** pin **<stat>** 0 - output off 1 - output on 2 - query current value of **VAUX** pin Note: when **<stat>=2** and command is successful, it returns: **#VAUX: <value>** where: **<value>** - power output status 0 - output off 1 - output on Note: If all parameters are omitted the command has the same behaviour as Read command. Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pin output is disabled while GPS is powered on they'll both also be turned off. Note: for the GPS products, at commands $GPSP, $GPSPS, $GPSWK control VAUX and can interfere with AT# command.
AT#VAUX?	Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format: **#VAUX: <value>**
AT#VAUX=?	Test command reports the supported range of values for parameters **<n>**, **<stat>**.
NOTE:	Command available only on GE864-QUAD and GC864-QUAD with SW 10.00.xxx

#VAUX- Auxiliary Voltage Output Control	SELINT 2
AT#VAUX= [<n>,<stat>]	Set command enables/disables the Auxiliary Voltage pins output. Parameters: **<n>** - **VAUX** pin index 1 - there is currently just one **VAUX** pin **<stat>**

#VAUX- Auxiliary Voltage Output Control	SELINT 2
	0 - output off 1 - output on 2 - query current value of **VAUX** pin Note: when **<stat>=2** and command is successful, it returns: **#VAUX: <value>** where: **<value>** - power output status 0 - output off 1 - output on Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pins output is disabled while GPS is powered on they'll both also be turned off. Note: for the GPS products, at commands $GPSP, $GPSPS, $GPSWK control VAUX and can interfere with AT# command. Note: the current setting is stored through **#VAUXSAV**
AT#VAUX?	Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format: **#VAUX: <value>**
AT#VAUX=?	Test command reports the supported range of values for parameters **<n>**, **<stat>**.
NOTE:	Command available only on GE864-QUAD and GC864-QUAD with SW 10.00.xxx

3.5.6.1.41. Auxiliary Voltage Output Save - #VAUXSAV

#VAUXSAV - Auxiliary Voltage Output Save	SELINT 2
AT#VAUXSAV	Execution command saves the actual state of **#VAUX** pin to NVM. The state will be reload at power-up.
AT#VAUXSAV=?	Test command returns the **OK** result code.

3.5.6.1.42. V24 Output pins mode - #V24MODE

#V24MODE - V24 Output Pins Mode	SELINT 2
AT#V24MODE=<port>, <mode>,	Set command sets the **<port>** serial interface functioning **<mode>**.

#V24MODE - V24 Output Pins Mode	**SELINT 2**
<when>	Parameters: **<port>** - serial port: 0 – **ASC0** (AT command port) 1 – **ASC1** (trace port) **<mode>** - AT commands serial port interface hardware pins mode: 0 – Tx and Rx pins are set in push/pull function during power saving. (default) 1 – Tx and Rx pins are set in open drain function during power saving. 2 – Reserved <when> - When the command is applied: 0 – Always (default) 1 – In power saving only
AT#V24MODE?	Read command returns actual functioning **<mode>** for all ports in the format: **#V24MODE: 0,<mode_port0>,<when0>[<CR><LF>** **#V24MODE: 1,<mode_port1>,<when1> [<CR><LF>** Where: **< mode_port0> -** mode of the serial port 0, **< mode_port1> -** mode of the serial port 1, <when0> - when setting for serial port 0, <when1> - when setting for serial port 1
AT#V24MODE=?	Test command reports supported range of values for parameters **<port>, <mode>** and **<when>**.

3.5.6.1.43. V24 Output Pins Configuration - #V24CFG

#V24CFG - V24 Output Pins Configuration	**SELINT 2**
AT#V24CFG=<pin>, <mode>	Set command sets the AT commands serial port interface output pins mode. Parameters: **<pin>** - AT commands serial port interface hardware pin: 0 - **DCD** (Data Carrier Detect) 1 - **CTS** (Clear To Send) 2 - **RI** (Ring Indicator) 3 - **DSR** (Data Set Ready) 4 - **DTR** (Data Terminal Ready). This is not an output pin: we maintain this value only for backward compatibility, but trying to set its state raises the result code "**ERROR**" 5 - **RTS** (Request To Send). This is not an output pin: we maintain this value only for backward compatibility, but trying to set its state raises the result code "**ERROR**" **<mode>** - AT commands serial port interface hardware pins mode: 0 - AT commands serial port mode: output pins are controlled by serial port device driver. (default) 1 - GPIO mode: output pins are directly controlled by **#V24** command only.
AT#V24CFG?	Read command returns actual mode for all the pins (either output and input) in the format: **#V24CFG: <pin1>,<mode1>[<CR><LF><CR><LF>** **#V24CFG: <pin2>,<mode2>[...]]** Where: **<pin*n*> -** AT command serial port interface HW pin **<mode*n*>** - AT commands serial port interface hardware pin mode
AT#V24CFG=?	Test command reports supported range of values for parameters **<pin>** and **<mode>**.

3.5.6.1.44. V24 Output Pins Control - #V24

#V24 - V24 Output Pins Control	**SELINT 2**
AT#V24=<pin> [,<state>]	Set command sets the AT commands serial port interface output pins state. Parameters: **<pin>** - AT commands serial port interface hardware pin: 0 - **DCD** (Data Carrier Detect)

#V24 - V24 Output Pins Control	SELINT 2
	1 - **CTS** (Clear To Send) 2 - **RI** (Ring Indicator) 3 - **DSR** (Data Set Ready) 4 - **DTR** (Data Terminal Ready). This is not an output pin: we maintain this value only for backward compatibility, but trying to set its state raises the result code "**ERROR**" 5 - **RTS** (Request To Send). This is not an output pin: we maintain this value only for backward compatibility, but trying to set its state raises the result code "**ERROR**" **<state>** - State of AT commands serial port interface output hardware pins(0, 1, 2, 3) when pin is in GPIO mode (see **#V24CFG**): 0 - Low 1 - High Note: if **<state>** is omitted the command returns the actual state of the pin **<pin>**.
AT#V24?	Read command returns actual state for all the pins (either output and input) in the format: **#V24: <pin1>,<state1>[<CR><LF>** **#V24: <pin2>,<state2>[...]]** where **<pin*n*> -** AT command serial port interface HW pin **<state*n*>** - AT commands serial port interface hardware pin state
AT#V24=?	Test command reports supported range of values for parameters **<pin>** and **<state>**.

3.5.6.1.45. AXE Pin Reading - #AXE

#AXE - AXE Pin Reading	SELINT 2
AT#AXE	Execution command causes the ME to return the current state of **AXE** pin in the format: **#AXE: <state>** where: **<state>** 0 - **Low**

#AXE - AXE Pin Reading	SELINT 2
	..1 - **High**
AT#AXE=?	Test command returns the **OK** result code.
NOTE:	This command is not available for GE865 modules

3.5.6.1.46. RF Transmission Monitor Mode - #TXMONMODE

#TXMONMODE- RF Transmission Monitor Mode	SELINT 2
AT#TXMONMODE= **<mode>**	Set **TXMON** pin behaviour. Parameter: **<mode>** 0 - **TXMON** pin goes high when a call is started and it drops down when the call is ended. It also goes high when a location update starts, and it drops down when the location update procedure stops. Finally it goes high during SMS transmission and receiving. Even if the **TXMON** in this case is set as **GPIO** in output, the read command **AT#GPIO=5,2** returns **#GPIO:2,0**, as the **GPIO** is in alternate mode. 1 - **TXMON** is set in alternate mode and the Timer unit controls its state. **TXMON** goes high 200μs before **TXEN** goes high. Then power ramps start raising and there is the burst transmission. Finally **TXMON** drops down 47μs after power ramps stop falling down. This behaviour is repeated for every transmission burst. Note: if user sets GPIO 5 as input or output the TXMON does not follow the above behaviour. Note: if **<mode>** is change during a call from 1 to 0, TXMON goes down. If it is restored to 1, TXMON behaves as usual, following the bursts. Note: this command is not supported in GM862 product family.
AT#TXMONMODE?	Read command reports the **<mode>** parameter set value, in the format: **#TXMONMODE: <mode>**
AT#TXMONMODE=?	Test command reports the supported values for **<mode>** parameter.

3.5.6.1.47. Battery And Charger Status - #CBC

#CBC- Battery And Charger Status	SELINT 0 / 1
AT#CBC	Execution command returns the current Battery and Charger state in the format: **#CBC: <ChargerState>,<BatteryVoltage>** where: **<ChargerState>** - battery charger state 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed **<BatteryVoltage>** - battery voltage in units of ten millivolts: it is the real battery voltage only if charger is not connected; if the charger is connected this value depends on the charger voltage.
AT#CBC?	Read command has the same meaning as Execution command.
AT#CBC=?	Test command returns the **OK** result code.

#CBC- Battery And Charger Status	SELINT 2
AT#CBC	Execution command returns the current Battery and Charger state in the format: **#CBC: <ChargerState>,<BatteryVoltage>** where: **<ChargerState>** - battery charger state 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed **<BatteryVoltage>** - battery voltage in units of ten millivolts: it is the real battery voltage only if charger is not connected; if the charger is connected this value depends on the charger voltage.
AT#CBC=?	Test command returns the **OK** result code.

3.5.6.1.48. GPRS Auto-Attach Property - #AUTOATT

#AUTOATT - Auto-Attach Property	SELINT 0 / 1
AT#AUTOATT [=<auto>]	Set command enables/disables the TE GPRS auto-attach property. Parameter: **<auto>** 0 - disables GPRS auto-attach property 1 - enables GPRS auto-attach property (factory default): after the

#AUTOATT - Auto-Attach Property	**SELINT 0 / 1**
	command **#AUTOATT=1** has been issued (and at every following startup) the terminal will automatically try to attach to the GPRS service. Note: If parameter is omitted then the behaviour of Set command is the same as Read command.
AT#AUTOATT?	Read command reports whether the auto-attach property is currently enabled or not, in the format: **#AUTOATT: <auto>**
AT#AUTOATT=?	Test command reports available values for parameter **<auto>**.

#AUTOATT - Auto-Attach Property	**SELINT 2**
AT#AUTOATT=[<auto>]	Set command enables/disables the TE GPRS auto-attach property. Parameter: **<auto>** 0 - disables GPRS auto-attach property 1 - enables GPRS auto-attach property (factory default): after the command **#AUTOATT=1** has been issued (and at every following startup) the terminal will automatically try to attach to the GPRS service.
AT#AUTOATT?	Read command reports whether the auto-attach property is currently enabled or not, in the format: **#AUTOATT: <auto>**
AT#AUTOATT=?	Test command reports available values for parameter **<auto>**.

3.5.6.1.49. Multislot Class Control - #MSCLASS

#MSCLASS - Multislot Class Control	**SELINT 0 / 1**
AT#MSCLASS[=<class>,<autoattach>]	Set command sets the multislot class Parameters: **<class>** - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class **<autoattach>** 0 - the new multislot class is enabled only at the next detach/attach or after a reboot. 1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure.

#MSCLASS - Multislot Class Control	SELINT 0 / 1
	Note: if all parameters are omitted the behaviour of set command is the same as read command.
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: **#MSCLASS: <class>**
AT#MSCLASS=?	Test command reports the range of available values for parameter **<class>**.

#MSCLASS - Multislot Class Control	SELINT 2
AT#MSCLASS= [<class>, <autoattach>]	Set command sets the multislot class Parameters: **<class>** - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class **<autoattach>** 0 - the new multislot class is enabled only at the next detach/attach or after a reboot. 1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure.
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: **#MSCLASS: <class>**
AT#MSCLASS=?	Test command reports the range of available values for both parameters **<class>** and **<autoattach>**.

3.5.6.1.50. Cell Monitor - #MONI

#MONI - Cell Monitor	SELINT 0 / 1
AT#MONI[= [<number>]]	**#MONI** is both a set and an execution command. Set command sets one cell out of seven, in ~~a~~ the neighbour list of the serving cell including it, from which we extract GSM-related information. Parameter: **<number>** 0..6 - it is the ordinal number of a cell, in ~~a~~ the neighbour list of the serving

#MONI - Cell Monitor	**SELINT 0 / 1**
	cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related information~~s~~ from the whole set of seven cells in the neighbour list of the serving cell. Note: issuing **AT#MONI<CR>** is the same as issuing the Read command. Note: issuing **AT#MONI=<CR>** is the same as issuing the command **AT#MONI=0<CR>**.
AT#MONI?	Execution command reports GSM-related information~~s~~ for selected cell and dedicated channel (if exists). a)When extracting data for the serving cell and the network name is known the format is: **#MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** b)When the network name is unknown, the format is: **#MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** c)When extracting data for an adjacent cell, the format is: **#MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm** where: **<netname>** - name of network operator **<cc>** - country code **<nc>** - network operator code **<n>** - progressive number of adjacent cell **<bsic>** - base station identification code **<qual>** - quality of reception 0..7 **<lac>** - localization area code **<id>** - cell identifier **<arfcn>** - assigned radio channel **<dBm>** - received signal strength in dBm **<timadv>** - timing advance Note: TA: **<timadv>** is reported only for the serving cell. 1. If the last setting done by **#MONI** is **7**, the execution command

#MONI - Cell Monitor	**SELINT 0 / 1**
	produces a table-like formatted output, as follows: a. First row reports the identifying name of the 'columns' **#MONI:** **Cell BSIC LAC CellId ARFCN Power C1 C2 TA RxQual PLMN<CR><LF>** b. Second row reports a complete set of GSM-related information for the serving cell: **#MONI:** **S: <bsic> <lac> <id> <arfcn> <dBm> <C1value> <C2value> <timadv> <qual> <netname><CR><LF>** c. 3rd to 8th rows report a reduced set of GSM-related information for the cells in the neighbours: **#MONI:** **N<n> <bsic> <lac> <id> <arfcn> <dBm> <C1value> <C2value>[<CR><LF>]** where: **<C1value>** - C1 reselection parameter **<C2value>** - C2 reselection parameter *other parameters as before*
AT#MONI=?	Test command reports the maximum number of cells, in the neighbour list of the serving cell, from which we can extract GSM-related information~~s~~, along with the ordinal number of the current selected cell, in the format: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in the neighbour list of the serving cell, from which we can extract GSM-related information~~s~~ (for compatibility with previous versions of code this value is always **5**). **<CellSet>** - the last setting done with command **#MONI**. An enhanced version of the Test command has been defined: **AT#MONI=??** Note: The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.
AT#MONI=??	Enhanced test command reports the maximum number of cells, in ~~a~~ the

#MONI - Cell Monitor	**SELINT 0 / 1**
	neighbour list of the serving cell and including it, from which we can extract GSM-related information~~s~~, along with the ordinal number of the current selected cell, in the format: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in ~~a~~ the neighbour list of the serving cell and including it, from which we can extract GSM-related informations. This value is always **7**. **<CellSet>** - the last setting done with command **#MONI**. Note: The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.

Example

Set command selects the cell 0

```
at#moni=0
OK
```

Execution command reports GSM-related information for cell 0

```
at#moni
#MONI: I WIND BSIC:70 RxQual:0 LAC:55FA Id:1D23 ARFCN:736 PWR:-83dbm
TA:1

OK
```

Set command selects the special request to obtain GSM-related information from the whole set of seven cells in the neighbour list of the serving cell

```
at#moni=7
OK
```

Execution command reports the requested information in table-like format

```
at#moni
#MONI:
Cell  BSIC  LAC  CellId  ARFCN    Power  C1  C2   TA  RxQual  PLMN
#MONI:   S    70  55FA   1D23     736   -83dbm  19  33   1     0    I
WIND
#MONI: N1    75  55FA   1297     983   -78dbm  26  20
#MONI: N2    72  55FA   1289     976   -82dbm  22  16
#MONI: N3    70  55FA   1D15     749   -92dbm  10  18
#MONI: N4    72  55FA   1D0D     751   -92dbm  10  18
#MONI: N5    75  55FA   1296     978   -95dbm   9   3
#MONI: N6    70  55FA   1D77     756   -99dbm   3  11

OK
```

Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.

#MONI - Cell Monitor		SELINT 0 / 1
Note	The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.	

#MONI - Cell Monitor		SELINT 2
AT#MONI[=[<number>]]	**#MONI** is both a set and an execution command. Set command sets one cell out of seven, in ~~a~~ the neighbour list of the serving cell including it, from which extract GSM-related information. Parameter: **<number>** 0..6 - it is the ordinal number of the cell, in ~~a~~ the neighbour list of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related information from the whole set of seven cells in the neighbour list of the serving cell. Execution command (**AT#MONI<CR>**) reports GSM-related information for selected cell and dedicated channel (if exists). 2. If the last setting done by **#MONI** is in the range **[0..6]**, the output format is as follows: d)When extracting data for the serving cell and the network name is known the format is: **#MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** e)When the network name is unknown, the format is: **#MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** f) When extracting data for an adjacent cell, the format is: **#MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm** where: **<netname>** - name of network operator **<cc>** - country code **<nc>** - network operator code **<n>** - progressive number of adjacent cell	

#MONI - Cell Monitor	**SELINT 2**
	<bsic> - base station identification code **<qual>** - quality of reception 0..7 **<lac>** - localization area code **<id>** - cell identifier **<arfcn>** - assigned radio channel **<dBm>** - received signal strength in dBm **<timadv>** - timing advance Note: TA: **<timadv>** is reported only for the serving cell. 3. If the last setting done by **#MONI** is **7**, the execution command produces a table-like formatted output, as follows: a. First row reports the identifying name of the 'columns' **#MONI:** **Cell BSIC LAC CellId ARFCN Power C1 C2 TA RxQual PLMN<CR><LF>** b. Second row reports a complete set of GSM-related information for the serving cell: **#MONI:** **S: <bsic> <lac> <id> <arfcn> <dBm> <C1value> <C2value> <timadv> <qual> <netname><CR><LF>** c. 3rd to 8th rows report a reduced set of GSM-related information for the cells in the neighbours: **#MONI:** **N<n> <bsic> <lac> <id> <arfcn> <dBm> <C1value> <C2value>[<CR><LF>]** where: **<C1value>** - C1 reselection parameter **<C2value>** - C2 reselection parameter *other parameters as before*
AT#MONI=?	Test command reports the maximum number of cells, in ~~a~~ the neighbour list of the serving cell excluding it, from which we can extract GSM-related information~~s~~, along with the ordinal number of the current selected cell, in the format: **#MONI: (<MaxCellNo>,<CellSet>)**

#MONI - Cell Monitor	**SELINT 2**
	where: **<MaxCellNo>** - maximum number of cells, in ~~a~~ the neighbour list of the serving cell and excluding it, from which we can extract GSM-related information~~s~~. This value is always **6**. **<CellSet>** - the last setting done with command **#MONI**.

Example

Set command selects the cell 0

```
at#moni=0
OK
```

Execution command reports GSM-related information for cell 0

```
at#moni
#MONI: I WIND BSIC:70 RxQual:0 LAC:55FA Id:1D23 ARFCN:736 PWR:-83dbm
TA:1

OK
```

Set command selects the special request to obtain GSM-related information from the whole set of seven cells in the neighbour list of the serving cell

```
at#moni=7
OK
```

Execution command reports the requested information in table-like format

```
at#moni
#MONI:
Cell  BSIC  LAC  CellId  ARFCN    Power  C1  C2  TA  RxQual  PLMN
#MONI:  S    70  55FA   1D23     736   -83dbm  19  33   1     0    I
WIND
#MONI: N1    75  55FA   1297     983   -78dbm  26  20
#MONI: N2    72  55FA   1289     976   -82dbm  22  16
#MONI: N3    70  55FA   1D15     749   -92dbm  10  18
#MONI: N4    72  55FA   1D0D     751   -92dbm  10  18
#MONI: N5    75  55FA   1296     978   -95dbm   9   3
#MONI: N6    70  55FA   1D77     756   -99dbm   3  11

OK
```

Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.
Note	The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.

3.5.6.1.51. Serving Cell Information - #SERVINFO

#SERVINFO - Serving Cell Information	**SELINT 0 / 1**
AT#SERVINFO	Execution command reports information about serving cell, in the format:

#SERVINFO - Serving Cell Information	**SELINT 0 / 1**
	#SERVINFO: <B-ARFCN>,<dBM>,<NetNameAsc>,<NetCode>, <BSIC>,<LAC>,<TA>,<GPRS>[,[<PB-ARFCN>],[<NOM>], <RAC>,[PAT]] where: **<B-ARFCN>** - BCCH ARFCN of the serving cell **<dBM>** - received signal strength in dBm **<NetNameAsc>** - operator name, quoted string type **<NetCode>** - country code and operator code, hexadecimal representation **<BSIC>** - Base Station Identification Code **<LAC>** - Localization Area Code **<TA>** - Time Advance: it’s available only if a GSM or GPRS is running **<GPRS>** - GPRS supported in the cell 0 - not supported 1 - supported The following information will be present only if GPRS is supported in the cell **<PB-ARFCN>** - PBCCH ARFCN of the serving cell; it’ll be printed only if PBCCH is supported by the cell, otherwise the label **“hopping”** will be printed **<NOM>** - Network Operation Mode ..”I” “II” ..”III” **<RAC>** - Routing Area ColoUr Code **<PAT>** - Priority Access Threshold ..0 ..3..6
AT#SERVINFO?	Read command has the same effect as Execution command

#SERVINFO - Serving Cell Information	**SELINT 2**
AT#SERVINFO	Execution command reports information about serving cell, in the format: **#SERVINFO: <B-ARFCN>,<dBM>,<NetNameAsc>,<NetCode>, <BSIC>,<LAC>,<TA>,<GPRS>[,[<PB-ARFCN>],[<NOM>], <RAC>,[PAT]]** where: **<B-ARFCN>** - BCCH ARFCN of the serving cell

#SERVINFO - Serving Cell Information	SELINT 2
	<dBM> - received signal strength in dBm **<NetNameAsc>** - operator name, quoted string type **<NetCode>** - country code and operator code, hexadecimal representation **<BSIC>** - Base Station Identification Code **<LAC>** - Localization Area Code **<TA>** - Time Advance: it's available only if a GSM or GPRS is running **<GPRS>** - GPRS supported in the cell 0 - not supported 1 - supported The following information will be present only if GPRS is supported in the cell **<PB-ARFCN>** - PBCCH ARFCN of the serving cell; it'll be printed only if PBCCH is supported by the cell, otherwise the label **"hopping"** will be printed **<NOM>** - Network Operation Mode ..”I” “II” ..”III” **<RAC>** - Routing Area Colour Code **<PAT>** - Priority Access Threshold ..0 ..3..6

3.5.6.1.52. +COPS Mode - #COPSMODE

#COPSMODE - +COPS Mode	SELINT 0 / 1
AT#COPSMODE [=<mode>]	Set command sets the behaviour of **+COPS** command (*see* **+COPS**). Parameter: **<mode>** 0 - **+COPS** behaviour like former GM862 family products (default) 1 - **+COPS** behaviour compliant with ETSI format Note: The setting is saved in NVM (and available on following reboot). Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.

#COPSMODE - +COPS Mode	SELINT 0 / 1
AT#COPSMODE?	Read command returns the current behaviour of **+COPS** command, in the format: **#COPSMODE: <mode>** where **<mode>** - **+COPS** behaviour as seen before.
AT#COPSMODE=?	Test command returns the range of available values for parameter **<mode>**.
Note	It's suggested to reboot the module after every **#COPSMODE** setting.

3.5.6.1.53. Query SIM Status - #QSS

#QSS - Query SIM Status	SELINT 0 / 1
AT#QSS[= [<mode>]]	Set command enables/disables the Query SIM Status unsolicited indication in the ME. Parameter: **<mode>** - type of notification 0 - disabled (factory default); it's possible only to query the current SIM status through Read command **AT#QSS?** 1 - enabled; the ME informs at every SIM status change through the following unsolicited indication: **#QSS: <status>** where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED Note: issuing **AT#QSS<CR>** is the same as issuing the Read command.
AT#QSS?	Read command reports whether the unsolicited indication **#QSS** is currently enabled or not, along with the SIM status, in the format: **#QSS: <mode>,<status>** (**<mode>** and **<status>** are described above)
AT#QSS=?	Test command returns the supported range of values for parameter **<mode>**.

#QSS - Query SIM Status	**SELINT 2**
AT#QSS= [<mode>]	Set command enables/disables the Query SIM Status unsolicited indication in the ME. Parameter: **<mode>** - type of notification 0 - disabled (factory default); it's possible only to query the current SIM status through Read command **AT#QSS?** 1 - enabled; the ME informs at every SIM status change through the following basic unsolicited indication: **#QSS: <status>** where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED 2 - enabled; the ME informs at every SIM status change through the following unsolicited indication: **#QSS: <status>** where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED 2 - SIM INSERTED and PIN UNLOCKED 3 - SIM INSERTED and READY (SMS and Phonebook access are possible). Note: the command reports the SIM status change after the <mode> has been set to 2. We suggest to set <mode>=2 and save the value in the user profile, then power off the module. The proper SIM status will be available at the next power on.
AT#QSS?	Read command reports whether the unsolicited indication **#QSS** is currently enabled or not, along with the SIM status, in the format: **#QSS: <mode>,<status>** (**<mode>** and **<status>** are described above)
AT#QSS=?	Test command returns the supported range of values for parameter **<mode>**.

3.5.6.1.54. ATD Dialing Mode - #DIALMODE

#DIALMODE - ATD Dialing Mode	**SELINT 0 / 1**
AT#DIALMODE[= <mode>]	Set command sets **ATD** modality. Parameter: **<mode>** 0 - (voice call only) **OK** result code is received as soon as it starts remotely ringing (factory default) 1 - (voice call only) **OK** result code is received only after the called party answers. Any character typed aborts the call and **NO CARRIER** result code is received. 2 - (voice call and data call) the following custom result codes are received, monitoring step by step the call status: **DIALING** (MO in progress) **RINGING** (remote ring) **CONNECTED** (remote call accepted) **RELEASED** (after **ATH**) **DISCONNECTED** (remote hang-up) Note: The setting is saved in NVM and available on following reboot. Note: In case a BUSY tone is received and at the same time **ATX0** is enabled **ATD** will return **NO CARRIER** instead of **DISCONNECTED.** Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.
AT#DIALMODE?	Read command returns current **ATD** dialing mode in the format: **#DIALMODE: <mode>**
AT#DIALMODE=?	Test command returns the range of values for parameter **<mode>**

#DIALMODE - Dialing Mode	**SELINT 2**
AT#DIALMODE= [<mode>]	Set command sets dialing modality. Parameter: **<mode>** 0 - (voice call only) **OK** result code is received as soon as it starts remotely ringing (factory default) 1 – (voice call only) **OK** result code is received only after the called party answers. Any character typed aborts the call and **OK** result code is received. 2 - (voice call and data call) the following custom result codes are

#DIALMODE - Dialing Mode	**SELINT 2**
	received, monitoring step by step the call status: **DIALING** (MO in progress) **RINGING** (remote ring) **CONNECTED** (remote call accepted) **RELEASED** (after **ATH**) **DISCONNECTED** (remote hang-up) Note: In case a BUSY tone is received and at the same time **ATX0** is enabled **ATD** will return **NO CARRIER** instead of **DISCONNECTED**. Note: The setting is saved in NVM and available on following reboot.
AT#DIALMODE?	Read command returns current **ATD** dialing mode in the format: **#DIALMODE: <mode>**
AT#DIALMODE=?	Test command returns the range of values for parameter **<mode>**

3.5.6.1.55. Automatic Call - #ACAL

#ACAL - Automatic Call	**SELINT 0 / 1**
AT#ACAL[=[<mode>]]	Set command enables/disables the automatic call function. Parameter: **<mode>** 0 - disables the automatic call function (factory default) 1 - enables the automatic call function. If enabled (and **&D2** has been issued), the transition **OFF/ON** of **DTR** causes an automatic call to the first number (position 0) stored in the internal phonebook. Note: type of call depends on the last issue of command **+FCLASS**. Note: issuing **AT#ACAL<CR>** is the same as issuing the Read command.
AT#ACAL?	Read command reports whether the automatic call function is currently enabled or not, in the format: **#ACAL: <mode>**
AT#ACAL=?	Test command returns the supported range of values for parameter **<mode>**.
Note	See **&Z** to write and **&N** to read the number on module internal phonebook.

#ACAL - Automatic Call	SELINT 2
AT#ACAL= [<mode>]	Set command enables/disables the automatic call function. Parameter: <mode> 0 - disables the automatic call function (factory default) 1 - enables the automatic call function. If enabled (and **&D2** has been issued), the transition **OFF/ON** of **DTR** causes an automatic call to the first number (position 0) stored in the internal phonebook. Note: type of call depends on the last issue of command **+FCLASS**.
AT#ACAL?	Read command reports whether the automatic call function is currently enabled or not, in the format: **#ACAL: <mode>** Note: as a consequence of the introduction of the command **#ACALEXT** (Extended Automatic Call) it is possible that the Read Command returns a value supported by **#ACALEXT** but **NOT** supported by **#ACAL**. AT#ACAL? #ACAL : 2 OK Due to this possible situation it is strongly recommended not to use contemporaneously both commands.
AT#ACAL=?	Test command returns the supported range of values for parameter **<mode>**.
Note	See **&Z** to write and **&N** to read the number on module internal phonebook.

3.5.6.1.56. Extended Automatic Call - #ACALEXT

#ACALEXT - Extended Automatic Call	SELINT 0 / 1 / 2
AT#ACALEXT= <mode>,<index>	Set command enables/disables the extended automatic call function. Parameters: <mode> 0 - disables the automatic call function (factory default)

#ACALEXT - Extended Automatic Call	**SELINT 0 / 1 / 2**
	1 - enables the automatic call function from "ME" phonebook. 2 - enables the automatic call function from "SM" phonebook. **<index>** - it indicates a position in the currently selected phonebook. If the extended automatic call function is enabled and **&D2** has been issued, the transition **OFF/ON** of **DTR** causes an automatic call to the number stored in position **<index>** in the selected phonebook. Note: type of call depends on the last issue of command **+FCLASS**.
AT#ACALEXT?	Read command reports either whether the automatic call function is currently enabled or not, and the last **<index>** setting in the format: **#ACALEXT: <mode>,<index>**
AT#ACALEXT=?	The range of available positions in a phonebook depends on the selected phonebook. This is the reason why the test command returns three ranges of values: the first for parameter **<mode>,** the second for parameter **<index>** when "ME" is the chosen phonebook, the third for parameter **<index>** when "SM" is the chosen phonebook.
Note	Issuing **#ACALEXT** causes the **#ACAL <mode>** to be changed. Issuing **AT#ACAL=1** causes the **#ACALEXT <index>** to be set to default. It is recommended to NOT use contemporaneously either **#ACALEXT** and **#ACAL**
Note	See **&Z** to write and **&N** to read the number on module internal phonebook.

3.5.6.1.57. Extended Call Monitoring - #ECAM

#ECAM - Extended Call Monitoring	**SELINT 0 / 1**
AT#ECAM[= [<onoff>]]	This command enables/disables the call monitoring function in the **ME**. Parameter: **<onoff>** 0 - disables call monitoring function (factory default) 1 - enables call monitoring function; the **ME** informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited indication: **#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]** where **<ccid>** - call ID

#ECAM - Extended Call Monitoring	**SELINT 0 / 1**
	<ccstatus> - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy **<calltype>** - call type 1 - voice 2 - data **<number>** - called number (valid only for **<ccstatus>=1**) **<type>** - type of **<number>** 129 - national number 145 - international number Note: the unsolicited indication is sent along with usual codes (**OK**, **NO CARRIER**, **BUSY**...). Note: issuing **AT#ECAM<CR>** is the same as issuing the Read command. Note: issuing **AT#ECAM=<CR>** returns the **OK** result code.
AT#ECAM?	Read command reports whether the extended call monitoring function is currently enabled or not, in the format: **#ECAM: <onoff>**
AT#ECAM=?	Test command returns the list of supported values for **<onoff>**

#ECAM - Extended Call Monitoring	**SELINT 2**
AT#ECAM= [<onoff>]	This command enables/disables the call monitoring function in the ME. Parameter: **<onoff>** 0 - disables call monitoring function (factory default) 1 - enables call monitoring function; the ME informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited indication: **#ECAM: <ccid>,<ccstatus>,<calltype>,,,[<number>,<type>]**

#ECAM - Extended Call Monitoring	**SELINT 2**
	where **<ccid>** - call ID **<ccstatus>** - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy **<calltype>** - call type 1 - voice 2 - data **<number>** - called number (valid only for **<ccstatus>=1**) **<type>** - type of **<number>** 129 - national number 145 - international number Note: the unsolicited indication is sent along with usual codes (**OK**, **NO CARRIER**, **BUSY**...).
AT#ECAM?	Read command reports whether the extended call monitoring function is currently enabled or not, in the format: **#ECAM: <onoff>**
AT#ECAM=?	Test command returns the list of supported values for **<onoff>**

3.5.6.1.58. SMS Overflow - #SMOV

#SMOV - SMS Overflow	**SELINT 0 / 1**
AT#SMOV[=[<mode>]]	Set command enables/disables the SMS overflow signalling function. Parameter: **<mode>** 0 - disables SMS overflow signalling function(factory default) 1 - enables SMS overflow signalling function; when the maximum storage capacity has been reached, the following notification is sent: **#SMOV: <memo>**

#SMOV - SMS Overflow	**SELINT 0 / 1**
	where <memo> is a string indicating the SMS storage that has reached maximum capacity: **“SM” – SIM Memory** Note: issuing **AT#SMOV<CR>** is the same as issuing the Read command. Note: issuing **AT#SMOV=<CR>** is the same as issuing the command **AT#SMOV=0<CR>**.
AT#SMOV?	Read command reports whether the SMS overflow signalling function is currently enabled or not, in the format: **#SMOV: <mode>**
AT#SMOV=?	Test command returns the supported range of values of parameter **<mode>**.

#SMOV - SMS Overflow	**SELINT 2**
AT#SMOV= [<mode>]	Set command enables/disables the SMS overflow signalling function. Parameter: **<mode>** 0 - disables SMS overflow signalling function (factory default) 1 - enables SMS overflow signalling function; when the maximum storage capacity has been reached, the following network initiated notification is sent: **#SMOV: <memo>** **where <memo> is a string indicating the SMS storage that has reached maximum capacity:** **“SM” – SIM Memory**
AT#SMOV?	Read command reports whether the SMS overflow signalling function is currently enabled or not, in the format: **#SMOV: <mode>**
AT#SMOV=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.59. Mailbox Numbers - #MBN

#MBN - Mailbox Numbers	**SELINT 2**

#MBN - Mailbox Numbers	**SELINT 2**
AT#MBN	Execution command returns the mailbox numbers stored on SIM, if this service is provided by the SIM. The response format is: **[#MBN: <index>,<number>,<type>[,<text>][,mboxtype][<CR><LF>** **#MBN: <index>,<number>,<type>[,<text>][,mboxtype][…]]]** where: **<index>** - record number **<number>** - string type mailbox number in the format **<type>** **<type>** - type of mailbox number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the alphanumeric text associated to the number; used character set should be the one selected with command **+CSCS** **<mboxtype>** - the message waiting group type of the mailbox, if available: "VOICE" - voice "FAX" - fax "EMAIL" - electronic mail "OTHER" - other Note: if all queried locations are empty (but available), no information text lines will be returned.
AT#MBN=?	Test command returns the **OK** result code.

3.5.6.1.60. Message Waiting Indication - #MWI

#MWI - Message Waiting Indication	**SELINT 2**
AT#MWI=<enable>	Set command enables/disables the presentation of the **message waiting indicator** URC. Parameter: **<enable>** 0 - disable the presentation of the **#MWI** URC 1 - enable the presentation of the **#MWI** URC each time a new message waiting indicator is received from the network and, at startup, the presentation of the status of the **message waiting indicators**, as they are currently stored on SIM.. The URC format is:

#MWI - Message Waiting Indication	SELINT 2
	#MWI: <status>,<indicator>[,<count>] where: **<status>** 0 - clear: it has been deleted one of the messages related to the indicator **<indicator>**. 1 - set: there's a new waiting message related to the indicator **<indicator>** **<indicator>** 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context only) 3 - Fax 4 - E-mail 5 - Other **<count>** - message counter: network information reporting the number of pending messages related to the message waiting indicator **<indicator>**. The presentation at startup of the **message waiting indicators** status, as they are currently stored on SIM, is as follows: **#MWI: <status>[,<indicator>[,<count>][<CR><LF>** **#MWI: <status>,<indicator>[,<count>][...]]]** where: **<status>** 0 - no waiting message indicator is currently set: if this the case no other information is reported 1 - there are waiting messages related to the message waiting indicator **<indicator>**. **<indicator>** 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context) 3 - Fax 4 - E-mail 5 - Other **<count>** - message counter: number of pending messages related to the message waiting indicator **<indicator>** as it is stored on SIM.
AT#MWI?	Read command reports wheter the presentation of the **message waiting indicator** URC is currently enabled or not, and the current status of the **message waiting indicators** as they are currently stored on SIM. The

#MWI - Message Waiting Indication	SELINT 2
	format is: **#MWI: <enable>,<status>[,<indicator>[,<count>][<CR><LF> #MWI: <enable>,<status>,<indicator>[,<count>][...]]]**
AT#MWI=?	Test command returns the range of available values for parameter **<enable>**

3.5.6.1.61. Audio Codec - #CODEC

#CODEC - Audio Codec	SELINT 0 / 1
AT#CODEC[= <codec>]	Set command sets the audio codec mode. Parameter: **<codec>** 0 - all the codec modes are enabled (factory default) 1..31 - sum of integers each representing a specific codec mode: 1 - **FR**, full rate mode enabled 2 - **EFR**, enhanced full rate mode enabled 4 - **HR**, half rate mode enabled 8 - **AMR-FR**, AMR full rate mode enabled 16 - **AMR-HR**, AMR half rate mode enabled Note: the full rate mode is added by default to any setting in the SETUP message (as specified in ETSI 04.08). Note: the setting 0 is equivalent to the setting 31. Note: The codec setting is saved in the profile parameters. Note: if optional parameter **<codec>** is omitted the behaviour of Set command is the same as Read command.
AT#CODEC?	Read command returns current audio codec mode in the format: **#CODEC: <codec>**
AT#CODEC=?	Test command returns the range of available values for parameter **<codec>**

Example	`AT#CODEC=14`
	`OK`
	
	sets the codec modes HR (4), EFR (2) and AMR-FR (8)

#CODEC - Audio Codec	SELINT 2
AT#CODEC= [<codec>]	Set command sets the audio codec mode. Parameter: **<codec>** 0 - all the codec modes are enabled (factory default) 1..31 - sum of integers each representing a specific codec mode: 1 - **FR**, full rate mode enabled 2 - **EFR**, enhanced full rate mode enabled 4 - **HR**, half rate mode enabled 8 - **AMR-FR**, AMR full rate mode enabled 16 - **AMR-HR**, AMR half rate mode enabled Note: the full rate mode is added by default to any setting in the SETUP message (as specified in ETSI 04.08). Note: the setting 0 is equivalent to the setting 31. Note: The codec setting is saved in the profile parameters.
AT#CODEC?	Read command returns current audio codec mode in the format: **#CODEC: <codec>**
AT#CODEC=?	Test command returns the range of available values for parameter **<codec>**

Example	`AT#CODEC=14`
	`OK`
	
	sets the codec modes HR (4), EFR (2) and AMR-FR (8)

3.5.6.1.62. Handsfree Echo Canceller - #SHFEC

#SHFEC - Handsfree Echo Canceller	SELINT 0 / 1
AT#SHFEC[= [<mode>]]	Set command enables/disables the echo canceller function on audio handsfree output. Parameter: **<mode>** 0 - disables echo canceller for handsfree mode (factory default) 1 - enables echo canceller for handsfree mode

#SHFEC - Handsfree Echo Canceller	SELINT 0 / 1
	Note: This setting returns to default after power off. Note: issuing **AT#SHFEC<CR>** is the same as issuing the Read command. Note: issuing **AT#SHFEC=<CR>** is the same as issuing the command **AT#SHFEC=0<CR>**.
AT#SHFEC?	Read command reports whether the echo canceller function on audio handsfree output is currently enabled or not, in the format: **#SHFEC: <mode>**
AT#SHFEC=?	Test command returns the supported range of values of parameter **<mode>**.

#SHFEC - Handsfree Echo Canceller	SELINT 2
AT#SHFEC= [<mode>]	Set command enables/disables the echo canceller function on audio handsfree output. Parameter: **<mode>** 0 - disables echo canceller for handsfree mode (factory default) 1 - enables echo canceller for handsfree mode Note: This setting returns to default after power off.
AT#SHFEC?	Read command reports whether the echo canceller function on audio handsfree output is currently enabled or not, in the format: **#SHFEC: <mode>**
AT#SHFEC=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.63. Handsfree Microphone Gain - #HFMICG

#HFMICG - Handsfree Microphone Gain	SELINT 0 / 1
AT#HFMICG[= [<level>]]	Set command sets the handsfree microphone input gain Parameter: **<level>**: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step, factory default = 4)

#HFMICG - Handsfree Microphone Gain	**SELINT 0 / 1**
	Note: issuing **AT#HFMICG<CR>** is the same as issuing the Read command. Note: issuing **AT#HFMICG=<CR>** returns the **OK** result code.
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format: **#HFMICG: <level>**
AT#HFMICG=?	Test command returns the supported range of values of parameter **<level>**.

#HFMICG - Handsfree Microphone Gain	**SELINT 2**
AT#HFMICG= [<level>]	Set command sets the handsfree microphone input gain Parameter: **<level>**: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step, factory default = 4)
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format: **#HFMICG: <level>**
AT#HFMICG=?	Test command returns the supported range of values of parameter **<level>**.

3.5.6.1.64. Handset Microphone Gain - #HSMICG

#HSMICG - Handset Microphone Gain	**SELINT 0 / 1**
AT#HSMICG[= [<level>]]	Set command sets the handset microphone input gain Parameter: **<level>**: handset microphone input gain 0..7 - handset microphone gain (+6dB/step, factory default = 0) Note: issuing **AT#HSMICG<CR>** is the same as issuing the Read command. Note: issuing **AT#HSMICG=<CR>** returns the **OK** result code.
AT#HSMICG?	Read command returns the current handset microphone input gain, in the format:

#HSMICG - Handset Microphone Gain	SELINT 0 / 1
	#HSMICG: <level>
AT#HSMICG=?	Test command returns the supported range of values of parameter **<level>**.

#HSMICG - Handset Microphone Gain	SELINT 2
AT#HSMICG= [<level>]	Set command sets the handset microphone input gain Parameter: **<level>**: handset microphone input gain 0..7 - handset microphone gain (+6dB/step, factory default = 0)
AT#HSMICG?	Read command returns the current handset microphone input gain, in the format: **#HSMICG: <level>**
AT#HSMICG=?	Test command returns the supported range of values of parameter **<level>**.

3.5.6.1.65. Set Headset Sidetone - #SHFSD

#SHFSD - Set Headset Sidetone	SELINT 0 / 1
AT#SHFSD[= [<mode>]]	Set command enables/disables the sidetone on headset audio output. Parameter: **<mode>** 0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone. Note: This setting returns to default after power off. Note: issuing **AT#SHFSD<CR>** is the same as issuing the Read command. Note: issuing **AT#SHFSD=<CR>** is the same as issuing the command **AT#SHFSD=0<CR>**.
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHFSD: <mode>**
AT#SHFSD=?	Test command returns the supported range of values of parameter **<mode>**.

#SHFSD - Set Headset Sidetone	SELINT 2

#SHFSD - Set Headset Sidetone	SELINT 2
AT#SHFSD=[<mode>]	Set command enables/disables the sidetone on headset audio output. Parameter: **<mode>** 0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone. Note: This setting returns to default after power off.
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHFSD: <mode>**
AT#SHFSD=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.66. Speaker Mute Control - #SPKMUT

#SPKMUT - Speaker Mute Control	SELINT 2
AT#SPKMUT=<n>	Set command enables/disables the global muting of the speaker audio line, for every audio output (ring, incoming sms, voice, Network coverage) Parameter: **<n>** 0 - mute off, speaker active (factory default) 1 - mute on, speaker muted. Note: this command mutes/activates both speaker audio paths, internal speaker and external speaker.
AT#SPKMUT?	Read command reports whether the muting of the speaker audio line during a voice call is enabled or not, in the format: **#SPKMUT: <n>**
AT#SPKMUT=?	Test command reports the supported values for **<n>** parameter.

3.5.6.1.67. Handsfree Receiver Gain - #HFRECG

#HFRECG - Handsfree Receiver Gain	SELINT 2
AT#HFRECG=<level>	Set command sets the handsfree analogue output gain Parameter:

	<level>: handsfree analogue output gain 0..6 - handsfree analogue output (-3dB/step, factory default = 0) *Note: This parameter is saved in NVM issuing AT&W command.*
AT#HFRECG?	Read command returns the current handsfree analog output gain, in the format: **#HFRECG: <level>**
AT#HFRECG =?	Test command returns the supported range of values of parameter **<level>**.

3.5.6.1.68. Handset Receiver Gain - #HSRECG

#HSRECG - Handset Receiver Gain	SELINT 2
AT#HSRECG= <level>	Set command sets the handset analogue output gain Parameter: **<level>**: handset analogue output gain 0..6 - handset analogue output (-3dB/step, default value = 0) *Note: This parameter is saved in NVM issuing AT&W command.*
AT#HSRECG?	Read command returns the current handset analog output gain, in the format: **#HSRECG: <level>**
AT#HSRECG =?	Test command returns the supported range of values of parameter **<level>**.

3.5.6.1.69. Audio Profile Factory Configuration - #PRST

#PRST - Audio Profile Factory Configuration	SELINT 2
AT#PRST	Execution command resets the actual audio parameters in the NVM of the device to the default set. It is not allowed if active audio profile is 0. The audio parameters to reset are: - microphone line gain

#PRST - Audio Profile Factory Configuration		**SELINT 2**
	- earpiece line gain - side tone gain - LMS adaptation speed (step size) - LMS filter length (number of coefficients) - speaker to micro signal power relation - noise reduction max attenuation - noise reduction weighting factor (band 300-500Hz) - noise reduction weighting factor (band 500-4000Hz) - AGC Additional attenuation - AGC minimal attenuation - AGC maximal attenuation	
AT#PRST=?	Test command returns the **OK** result code.	

Example	`AT#PRST`
	`OK`
	Current audio profile is reset	

3.5.6.1.70. Audio Profile Configuration Save - #PSAV

#PSAV - Audio Profile Configuration Save		**SELINT 2**
AT#PSAV	Execution command saves the actual audio parameters in the NVM of the device. It is not allowed if active audio profile is 0. The audio parameters to store are: - microphone line gain - earpiece line gain - side tone gain - LMS adaptation speed - LMS filter length (number of coefficients) - speaker to micro signal power relation - noise reduction max attenuation - noise reduction weighting factor (band 300-500Hz) - noise reduction weighting factor (band 500-4000Hz) - AGC Additional attenuation - AGC minimal attenuation - AGC maximal attenuation - Uplink path biquad filters - Downlink path biquad filters	
AT#PSAV=?	Test command returns the **OK** result code.	
Example	AT#PSAV	

#PSAV - Audio Profile Configuration Save	SELINT 2
	OK *Current audio profile is saved in NVM*

3.5.6.1.71. Audio Profile Selection - #PSEL

#PSEL - Audio Profile Selection	SELINT 2
AT#PSEL=<prof>	Set command selects the active audio profile Parameter: **<prof>**: current profile 0 - standard profile 1..3 - extended profile, modificable. *Note: This parameter is saved in NVM issuing AT&W command.*
AT#PSEL?	The read command returns the active profile in the format: **#PSEL:<prof>**
AT#PSEL=?	Test command returns the supported range of values of parameter **<prof>**.

3.5.6.1.72. Audio Profile Setting - #PSET

#PSET - Audio Profile Setting	SELINT 2
AT#PSET= <scal _in> [,<scal _out> [,<side_tone_atten> [,<adaption_speed> [,<filter_length> [,<rxtxrelation> [,<nr_atten> [,<nr_w_0> [,<nr_w_1> [,<add_atten> [,<min_atten> [,<max_atten>]]]]]]]]]]]]]	Set command sets parameters for the active audio profile. It is not allowed if active audio profile is 0. Parameters: **<scal_in>** - microphone line digital gain **<scal_out>** - earpiece line digital gain **<side_tone_atten>** - side tone attenuation **<adaption_speed>** - LMS adaptation speed **<filter_length>** - LMS filter length (number of coefficients) **<rxtxrelation>** - speaker to micro signal power relation **<nr_ atten >** - noise reduction max attenuation **<nr_w_0>** - noise reduction weighting factor (band 300-500Hz) **<nr_w_1>** - noise reduction weighting factor (band 500-4000Hz) **<add_atten>** - AGC Additional attenuation **<min_atten>** - AGC minimal attenuation **<max_atten>** - AGC maximal attenuation
AT#PSET?	Read command returns the parameters for the active profile in the format:

#PSET - Audio Profile Setting	SELINT 2
	#PSET:<scal_in>,<scal_out>,<side_tone_atten>,<adaption_speed>,<filter_length>,<rxtxrelation>,<nr_atten>,<nr_w_0>,<nr_w_1>,<add_atten>,<min_atten>,<max_atten> It is not allowed if active audio profile is 0.
AT#PSET=?	Test command returns the supported range of values for the audio parameters.

3.5.6.1.73. Handsfree Automatic Gain Control - #SHFAGC

#SHFAGC - Handsfree Automatic Gain Control	SELINT 2
AT# SHFAGC = <mode>	Set command enables/disables the automatic gain control function on audio handsfree input. Parameter: <mode> 0 - disables automatic gain control for handsfree mode (default) 1 - enables automatic gain control for handsfree mode *Note: This parameter is saved in NVM issuing AT&W command.*
AT# SHFAGC?	Read command reports whether the automatic gain control function on audio handsfree input is currently enabled or not, in the format: #SHFAGC: <mode>
AT# SHFAGC =?	Test command returns the supported range of values of parameter <mode>.

3.5.6.1.74. Handsfree Noise Reduction - #SHFNR

#SHFNR - Handsfree Noise Reduction	SELINT 2
AT#SHFNR = <mode>	Set command enables/disables the noise reduction function on audio handsfree input. Parameter: <mode> 0 - disables noise reduction for handsfree mode (default) 1 - enables noise reduction for handsfree mode *Note: This parameter is saved in NVM issuing AT&W command.*
AT#SHFNR?	Read command reports whether the noise reduction function on audio

#SHFNR - Handsfree Noise Reduction	SELINT 2
	handsfree input is currently enabled or not, in the format: #SHFNR: <mode>
AT#SHFNR =?	Test command returns the supported range of values of parameter <mode>.

3.5.6.1.75. Handset Automatic Gain Control - #SHSAGC

#SHSAGC - Handset Automatic Gain Control	SELINT 2
AT#SHSAGC = <mode>	Set command enables/disables the automatic gain control function on audio handset input. Parameter: <mode> 0 - disables automatic gain control for handset mode (default) 1 - enables automatic gain control for handset mode *Note: This parameter is saved in NVM issuing AT&W command.*
AT#SHSAGC?	Read command reports whether the automatic gain control function on audio handset input is currently enabled or not, in the format: #SHSAGC: <mode>
AT#SHSAGC =?	Test command returns the supported range of values of parameter <mode>.

3.5.6.1.76. Handset Echo Canceller - #SHSEC

#SHSEC - Handset Echo Canceller	SELINT 2
AT#SHSEC = <mode>	Set command enables/disables the echo canceller function on audio handset output. Parameter: <mode> 0 - disables echo canceller for handset mode (default) 1 - enables echo canceller for handset mode *Note: This parameter is saved in NVM issuing AT&W command.*
AT#SHSEC?	Read command reports whether the echo canceller function on audio handset output is currently enabled or not, in the format: #SHSEC: <mode>

#SHSEC - Handset Echo Canceller	SELINT 2
AT#SHSEC =?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.77. Handset Noise Reduction - #SHSNR

#SHSNR - Handset Noise Reduction	SELINT 2
AT# SHSNR = <mode>	Set command enables/disables the noise reduction function on audio handset input. Parameter: **<mode>** 0 - disables noise reduction for handset mode (default) 1 - enables noise reduction for handset mode *Note: This parameter is saved in NVM issuing AT&W command.*
AT# SHSNR?	Read command reports whether the noise reduction function on audio handset input is currently enabled or not, in the format: **# SHSNR: <mode>**
AT# SHSNR =?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.78. Set Handset Sidetone - #SHSSD

#SHSSD - Set Handset Sidetone	SELINT 2
AT#SHSSD= <mode>	Set command enables/disables the sidetone on handset audio output. Parameter: **<mode>** 0 - disables the handset sidetone 1 - enables the handset sidetone (factory default) *Note: This parameter is saved in NVM issuing AT&W command.*
AT#SHSSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHSSD: <mode>**
AT#SHSSD=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.6.1.79. PCM Play and Receive - #SPCM

<table>
<tr><th>#SPCM - PCM Play And Receive</th><th>SELINT 2</th></tr>
<tr><td>AT#SPCM=<mode>[,dir]</td><td>Execution command allows user either to send speech sample coming from microphone and/or downlink audio channel to serial port, or to reproduce a PCM coming from serial port to speaker and/or uplink audio channel; both modes are also available during speech calls.

Parameters:
<b><mode>:</b> action to be execute;
1 - reproduce PCM stream from serial to selected path.
2 - send speech from selected path to serial.

<b><dir>:</b> Select the audio path.
0 - send/receive to/from analog front end
1 - send/receive to/from audio channel
2 - send/receive to/from both analog front end and audio channel

Note: Execution command switches module in online mode, with flow control set by <b>&K<i>x</i></b>. Module moves back to command mode either afer entering the escape sequence +++ or as a consequence of a <b>DTR transition</b>.

Note: PCM stream format must be 8 bit, 8KHz sampling, Mono.

The following table summarizes the status of audio path during a speech call for different configurations and with sidetone disabled:

<table>
<tr><th></th><th>mode = 1</th><th>mode = 2</th></tr>
<tr><td>dir = 0</td><td>Uplink off / Downlink on
PCM stream on speaker</td><td>Uplink off / Downlink off
PCM stream from microphone</td></tr>
<tr><td>dir = 1</td><td>Uplink on / Downlink off
PCM stream on Uplink</td><td>Uplink off / Downlink off
PCM stream from Downlink</td></tr>
<tr><td>dir = 2</td><td>Uplink on / Downlink on
PCM stream on both speaker and Uplink</td><td>Uplink off / Downlink off
PCM stream from both microphone and Downlink</td></tr>
</table>

Sidetone is active during a voice call (HF path default configuration).</td></tr>
<tr><td>AT#SPCM=?</td><td>Test command returns the supported range of values for parameters <b><mode></b> and <b><dir></b>.

<b>#SPCM: <mode>,<dir></b></td></tr>
<tr><td>Example</td><td><code>AT#SPCM=1,0</code>
<code>CONNECT</code></td></tr>
</table>

	`+++`
	`NO CARRIER`
	
	Note: after the CONNECT, PCM stream has to be sent to serial port
	
	`AT#SPCM=2,0`
	`CONNECT`
	`+++`
	`NO CARRIER`
	
	Note: after the CONNECT, PCM stream can be read from serial port

3.5.6.1.80. Open Audio Loop - #OAP

#OAP - Open Audio Loop	**SELINT 2**
AT#OAP=<mode>	Set command sets Open Audio Path. Parameter: 0 - disables Open Audio Path (default) 1 - enables Open Audio Path Note: the audio Loop will be activated on line select by the AXE pin or **#CAP** command.
AT#OAP?	Read command reports whether the Open Audio Path is currently enabled or not, in the format: **#OAP: <mode>**
AT#OAP=?	Test command returns the supported range of values of parameter **<mode>**.
Note	The audio loop will be established between microphone and speaker using sidetone scaling value.

3.5.6.1.81. Network Timezone - #NITZ

#NITZ - Network Timezone	**SELINT 0 / 1**
AT#NITZ[= [<val> [,<mode>]]]	Set command enables/disables automatic date/time updating and Network Timezone unsolicited indication. Date and time information can be sent by the network after GSM

#NITZ - Network Timezone	SELINT 0 / 1
	registration or after GPRS attach. Parameters: **<val>** 0 - disables automatic set (factory default) 1 - enables automatic set **<mode>** 0 - disables unsolicited message (factory default) 1 - enables unsolicited message; after date and time updating the following unsolicited indication is sent: **#NITZ: "yy/MM/dd,hh:mm:ss"** where: **yy** - year **MM** - month (in digits) **dd** - day **hh** - hour **mm** - minute **ss** - second Note: issuing **AT#NITZ<CR>** is the same as issuing the Read command. Note: issuing **AT#NITZ=<CR>** is the same as issuing the command **AT#NITZ=0<CR>**.
AT#NITZ?	Read command reports whether automatic date/time updating is currently enabled or not, and whether Network Timezone unsolicited indication is enabled or not, in the format: **#NITZ: <val>,<mode>**
AT#NITZ=?	Test command returns supported values of parameters **<val>** and **<mode>**.

#NITZ - Network Timezone	SELINT 2
AT#NITZ=[<val>[,<mode>]]	Set command enables/disables (a) automatic date/time updating, (b) Full Network Name applying and (c) **#NITZ** URC; moreover it permits to change the **#NITZ** URC format. Date and time information can be sent by the network after GSM registration or after GPRS attach. Parameters: **<val>**

#NITZ - Network Timezone	SELINT 2
	0 - disables (a) automatic data/time updating, (b) Full Network Name applying and (c) **#NITZ** URC; moreover it sets the **#NITZ** URC *'basic'* format (see **<datetime>** below) (factory default for all products except GE865-QUAD and GE864-DUAL V2) 1..15 - as a sum of: 1 - enables automatic date/time updating 2 - enables Full Network Name applying 4 - it sets the **#NITZ** URC *'extended'* format (see **<datetime>** below) 8 - it sets the **#NITZ** URC *'extended'* format with Daylight Saving Time (DST) support (see **<datetime>** below) (default for GE865-QUAD and GE864-DUAL V2: 7) **<mode>** 0 - disables **#NITZ** URC (factory default) 1 - enables **#NITZ** URC; after date and time updating the following unsolicited indication is sent: **#NITZ: <datetime>** where: **<datetime>** - string whose format depends on subparameter **<val>** **"yy/MM/dd,hh:mm:ss"** - *'basic'* format, if **<val>** is in (0..3) **"yy/MM/dd,hh:mm:ss±zz"** - *'extended'* format, if **<val>** is in (4..7) **"yy/MM/dd,hh:mm:ss±zz,d"** - *'extended'* format with DST support, if **<val>** is in (8..15) where: **yy** - year **MM** - month (in digits) **dd** - day **hh** - hour **mm** - minute **ss** - second **zz** - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory, range is -47..+48) **d** – number of hours added to the local TZ because of Daylight Saving Time (summertime) adjustment; range is 0-3. Note: If the DST information isn't sent by the network, then the **<datetime>** parameter has the format **"yy/MM/dd,hh:mm:ss±zz"**
AT#NITZ?	Read command reports whether (a) automatic date/time updating, (b) Full Network Name applying, (c) **#NITZ** URC (as well as its format) are currently

#NITZ - Network Timezone	**SELINT 2**
	enabled or not, in the format: **#NITZ: <val>,<mode>**
AT#NITZ=?	Test command returns supported values of parameters **<val>** and **<mode>**.

3.5.6.1.82. Clock management - #CCLK

#CCLK - Clock Management	**SELINT 2**
AT#CCLK=<time>	Set command sets the real-time clock of the **ME**. Parameter: **<time>** - current time as quoted string in the format: **"yy/MM/dd,hh:mm:ss±zz,d"** **yy** - year (two last digits are mandatory), range is 00..99 **MM** - month (two last digits are mandatory), range is 01..12 **dd** - day (two last digits are mandatory) The range for dd(day) depends either on the month and on the year it refers to. Available ranges are: (01..28) (01..29) (01..30) (01..31) Trying to enter an out of range value will raise an error **hh** - hour (two last digits are mandatory), range is 00..23 **mm** - minute (two last digits are mandatory), range is 00..59 **ss** - seconds (two last digits are mandatory), range is 00..59 **±zz** - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48 **d** – number of hours added to the local TZ because of Daylight Saving Time (summertime) adjustment; range is 0-2.
AT#CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: if the time is set by the network but the DST information is missing, or the time is set by +CCLK command, then the **<time>** format is: **"yy/MM/dd,hh:mm:ss±zz"**
AT#CCLK=?	Test command returns the **OK** result code.

Example	`AT#CCLK="02/09/07,22:30:00+04,1"`
	`OK`
	`AT#CCLK?`

#CCLK - Clock Management	**SELINT 2**

	`#CCLK: 02/09/07,22:30:25+04,1`
	
	`OK`

3.5.6.1.83. Enhanced Network Selection - #ENS

#ENS - Enhanced Network Selection	**SELINT 2**
AT#ENS=[<mode>]	Set command is used to activate the ENS functionality. Parameter: **<mode>** 0 - disable ENS functionality (default) 1 - enable ENS functionality; if **AT#ENS=1** has been issued, the following values will be automatically set: ➢ at every next power-up a Band GSM 850 and PCS enabled (**AT#BND=3**) b SIM Application Toolkit enabled on user interface 0 if not previously enabled on a different user interface (**AT#STIA=2**) ➢ just at first next power-up a Automatic Band Selection enabled (**AT#AUTOBND=1**) only if the previous setting was different from AT#AUTOBND=2 b PLMN list not fixed (**AT#PLMNMODE=1**). Note: the new setting will be available just at first next power-up. Note: If 'Four Band' Automatic Band Selection has been activated (**AT#AUTOBND=2**), at power-up the value returned by **AT#BND?** could be different from 3 when ENS functionality is enabled.
AT#ENS?	Read command reports whether the ENS functionality is currently enabled or not, in the format: **#ENS: <mode>** where: **<mode>** as above
AT#ENS=?	Test command reports the available range of values for parameter **<mode>**.
Reference	Cingular Wireless LLC Requirement

3.5.6.1.84. Select Band - #BND

#BND - Select Band	**SELINT 0 / 1**
AT#BND[= [<band>]]	Set command selects the current band. Parameter **<band>**: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz 2 - GSM 850MHz + DCS 1800MHz (available only on quadri-band modules) 3 - GSM 850MHz + PCS 1900MHz (available only on quadri-band modules) Note: This setting is maintained even after power off. Note: issuing **AT#BND<CR>** is the same as issuing the Read command. Note: issuing **AT#BND=<CR>** is the same as issuing the command **AT#BND=0<CR>**.
AT#BND?	Read command returns the current selected band in the format: **#BND: <band>**
AT#BND=?	Test command returns the supported range of values of parameter **<band>**. Note: the range of values differs between triband modules and quadric-band modules
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

#BND - Select Band	**SELINT 2**
AT#BND= [<band>]	Set command selects the current band. Parameter **<band>**: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz; this value is not available if the ENS functionality has been activated (see **#ENS**) 2 - GSM 850MHz + DCS 1800MHz (available only on quadri-band modules); this value is not available if the ENS functionality has been activated (see **#ENS**) 3 - GSM 850MHz + PCS 1900MHz (available only on quadri-band modules)

#BND - Select Band	**SELINT 2**
	Note: This setting is maintained even after power off. Note: if the normal automatic band selection is enabled (**AT#AUTOBND=1**) then the last **#BND** settings can automatically change at power-up; then you can normally use the command. Note: if the 'four bands' automatic band selection is enabled (**AT#AUTOBND=2**) then you can issue **AT#BND=<band>** but it will have no functional effect; nevertheless every following read command **AT#BND?** will report that setting.
AT#BND?	Read command returns the current selected band in the format: **#BND: <band>**
AT#BND=?	Test command returns the supported range of values of parameter **<band>**. Note: the range of values differs between tri-band modules and quadri-band modules
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

3.5.6.1.85. Automatic Band Selection - #AUTOBND

#AUTOBND - Automatic Band Selection	**SELINT 0 / 1**
AT#AUTOBND[=<value>]	Set command enables/disables the automatic band selection at power-on. Parameter: **<value>**: 0 - disables automatic band selection at power-on (default for all products) 1 - enables automatic band selection at power-on; **+COPS=0** is necessary condition to effectively have automatic band selection at next power-on; the automatic band selection stops as soon as a GSM cell is found. Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found. Note: if parameter **<value>** is omitted the behaviour of Set command is the same as Read command.
AT#AUTOBND?	Read command returns whether the automatic band selection is enabled or not in the format:

#AUTOBND - Automatic Band Selection	SELINT 0 / 1
	#AUTOBND: <value>
AT#AUTOBND=?	Test command returns the range of supported values for parameter **<value>**.
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

#AUTOBND - Automatic Band Selection	SELINT 2
AT#AUTOBND= [<value>]	Set command enables/disables the automatic band selection at power-on. Parameter: **<value>**: 0 - disables automatic band selection at ***next*** power-up (default for all products, except GE865-QUAD) 1 - enables automatic band selection at ***next*** power-up; the automatic band selection stops as soon as a GSM cell is found. 2 – (default for GE865-QUAD) enables automatic band selection in four bands (at 850/1900 and 900/1800); differently from previous settings it takes ***immediate*** effect Note: necessary condition to *effectively* have automatic band selection at next power-up (due to either **AT#AUTOBND=1** or **AT#AUTOBND=2**) is that **AT+COPS=0** has to be previously issued Note: if automatic band selection is enabled **(AT#AUTOBND=1)** the band changes every about 90 seconds through available bands until a GSM cell is found. Note: if the current setting is different from **AT#AUTOBND=2** and we're issuing **AT#ENS=1**, at ***first next*** power-up after the ENS functionality has been activated (see **#ENS**) the automatic band selection (**AT#AUTOBND=1**) is enabled.
AT#AUTOBND?	Read command returns whether the automatic band selection is enabled or not in the form: **#AUTOBND: <value>**
AT#AUTOBND=?	Test command returns the range of supported values for parameter **<value>**.
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

3.5.6.1.86. Skip Escape Sequence - #SKIPESC

#SKIPESC - Skip Escape Sequence	SELINT 0 / 1
AT#SKIPESC[= [<mode>]]	Set command enables/disables skipping the escape sequence **+++** while transmitting during a data connection. Parameter: **<mode>** 0 - doesn't skip the escape sequence; its transmission is enabled (factory default). 1 - skips the escape sequence; its transmission is not enabled. Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting. Note: issuing **AT#SKIPESC<CR>** is the same as issuing the Read command. Note: issuing **AT#SKIPESC=<CR>** is the same as issuing the command **AT#SKIPESC=0<CR>**.
AT#SKIPESC?	Read command reports whether escape sequence skipping is currently enabled or not, in the format: **#SKIPESC: <mode>**
AT#SKIPESC=?	Test command reports supported range of values for parameter **<mode>**.

#SKIPESC - Skip Escape Sequence	SELINT 2
AT#SKIPESC= [<mode>]	Set command enables/disables skipping the escape sequence **+++** while transmitting during a data connection. Parameter: **<mode>** 0 - doesn't skip the escape sequence; its transmission is enabled (factory default). 1 - skips the escape sequence; its transmission is not enabled. Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting.

#SKIPESC - Skip Escape Sequence	SELINT 2
AT#SKIPESC?	Read command reports whether escape sequence skipping is currently enabled or not, in the format: **#SKIPESC: <mode>**
AT#SKIPESC=?	Test command reports supported range of values for parameter **<mode>**.

3.5.6.1.87. Escape Sequence Guard Time - #E2ESC

#E2ESC - Escape Sequence Guard Time	SELINT 0 / 1
AT#E2ESC[= [<gt>]]	Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode). Parameter: **<gt>** 0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with **S12**. Note: issuing **AT#E2ESC<CR>** is the same as issuing the Read command. Note: issuing **AT#E2ESC=<CR>** returns the **OK** result code.
AT#E2ESC?	Read command returns current value of the escape sequence guard time, in the format: **#E2ESC: <gt>**
AT#E2ESC=?	Test command returns the **OK** result code.

#E2ESC - Escape Sequence Guard Time	SELINT 2
AT#E2ESC= [<gt>]	Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode). Parameter: **<gt>** 0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with **S12**.
AT#E2ESC?	Read command returns current value of the escape sequence guard time, in the format:

#E2ESC - Escape Sequence Guard Time	**SELINT 2**
	#E2ESC: <gt>
AT#E2ESC=?	Test command returns the range of supported values for parameter <gt>.
AT#E2ESC= [<gt>]	Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode). Parameter: **<gt>** 0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with **S12**.

3.5.6.1.88. PPP-GPRS Connection Authentication Type - #GAUTH

#GAUTH - PPP-GPRS Connection Authentication Type	**SELINT 0 / 1**
AT#GAUTH[= <type>]	Set command sets the authentication type either for PPP-GPRS and PPP-GSM connections. Parameter **<type>** 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication Note: if parameter **<type>** is omitted the behaviour of Set command is the same as Read command.
AT#GAUTH?	Read command reports the current PPP-GPRS connection authentication type, in the format: **#GAUTH: <type>**
AT#GAUTH=?	Test command returns the range of supported values for parameter **<type>**.

#GAUTH - PPP-GPRS Connection Authentication Type	**SELINT 2**

#GAUTH - PPP-GPRS Connection Authentication Type	SELINT 2
AT#GAUTH= [<type>]	Set command sets the authentication type either for PPP-GPRS and PPP-GSM connections. Parameter **<type>** 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication 3 - automatic (PAP and CHAP)
AT#GAUTH?	Read command reports the current PPP-GPRS connection authentication type, in the format: **#GAUTH: <type>**
AT#GAUTH=?	Test command returns the range of supported values for parameter **<type>**.

3.5.6.1.89. PPP-GPRS Parameters Configuration - #GPPPCFG

#GPPPCFG - PPP-GPRS Parameters Configuration	SELINT 2
AT#GPPPCFG= <hostIPaddress> [,<LCPtimeout> [,<PPPmode>]]	Set command sets three parameters for a PPP-GPRS connection. Parameters: **<hostIPaddress> - Host IP Address** that is assigned to the PPP server side (the host application); Sstring type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx. **<LCPtimeout>** - LCP response timeout value in 100ms units 10..600 - hundreds of ms (factory default is 25) **<PPPmode>** - PPP mode 0 - passive mode (default), the module waits the first message coming from the remote application (e.g. LCP Conf Req) before starting the LCP negotiation 1 - active mode, the module starts autonomously the LCP negotiation immediately after the CONNECT message **2 - passive mode (default), the module waits the first message coming from the remote application (e.g. LCP Conf Req) before starting the LCP negotiation;** **LCP termination is performed by the module**

#GPPPCFG - PPP-GPRS Parameters Configuration	**SELINT 2**
	3 - active mode, the module starts autonomously the LCP negotiation immediately after the CONNECT message; **LCP termination is performed by the module** Note: if **<hostIPaddress>="0.0.0.0"** (factory default) the **Host IP Address** assigned to the host application is the previous remote IP Address obtained by the Network.
AT# GPPPCFG?	Read command reports the current PPP-GPRS connection parameters in the format: **#GPPPCFG: <hostIPaddress>,<LCPtimeout>,<PPPmode>**
AT# GPPPCFG=?	Test command returns the range of supported values for parameter **<LCPtimeout>** and **<PPPmode>**, in the format: **#GPPPCFG: (10-600),(0-3)**

3.5.6.1.90. RTC Status - #RTCSTAT

#RTCSTAT - RTC Status	**SELINT 0 / 1**
AT#RTCSTAT[= <status>]	Set command resets the RTC status flag. Parameter: **<status>** 0 - Set RTC Status to **RTC HW OK** Note: the initial value of RTC status flag is **RTC HW Error** and it doesn't change until a command **AT#RTCSTAT=0** is issued. Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to **1**. It doesn't change until command **AT#RTCSTAT=0** is issued. Note: if parameter **<status>** is omitted the behaviour of Set command is the same as Read command.
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: **#RTCSTAT: <status>**
AT#RTCSTAT=?	Test command returns the range of supported values for parameter **<status>**

#RTCSTAT - RTC Status	**SELINT 2**
AT#RTCSTAT= **[<status>]**	Set command resets the RTC status flag. Parameter: **<status>** 0 - Set RTC Status to **RTC HW OK** Note: the initial value of RTC status flag is **RTC HW Error** and it doesn't change until a command **AT#RTCSTAT=0** is issued. Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to **1**. It doesn't change until command **AT#RTCSTAT=0** is issued.
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: **#RTCSTAT: <status>**
AT#RTCSTAT=?	Test command returns the range of supported values for parameter **<status>**

3.5.6.1.91. GSM Antenna Detection - #GSMAD

#GSMAD - GSM Antenna Detection	**SELINT 2**
AT#GSMAD= **<mod>,** **[<urcmode>** **[,<interval>** **[,<detGPIO>** **[,<repGPIO>]]]]**	Set command sets the behaviour of antenna detection algorithm Parameters: **<mod>** 0 - antenna detection algorithm not active 1 - periodic activation of the antenna detection algorithm; detection is started every **<interval>** period, using **<detGPIO>** for detection; if the algorithm detects a change in the antenna status the module is notified by URC **#GSMAD** (see format below) 2 - instantaneous activation of the antenna detection algorithm; if the algorithm detects a change in the antenna status the module is notified by URC **#GSMAD** (see format below); this instantaneous activation doesn't affect a periodic activation eventually started before. This modality is obsolete and is maintained only for backward compatibility. We suggest to use the modality 3 URC format:

#GSMAD: <presence>

where:
<presence>
0 - antenna connected.
1 - antenna connector short circuited to ground.
2 - antenna connector short circuited to power.
3 - antenna not detected (open).

3 - instantaneous activation of the antenna detection algorithm as modality 2 but in this case the command doesn't return until the algorithm ended. The returned value is the antenna <presence> status just detected. Format:

```
AT#GSMAD=3
#GSMAD: <presence>

OK
```

This instantaneous activation doesn't affect a periodic activation eventually started before, then the output format would be:

```
AT#GSMAD=3
#GSMAD: <presence>

OK

#GSMAD: <presence>  // URC resulting of previous #GSMAD=1
```

<urcmode> - URC presentation mode. It has meaning and can be set only if **<mod>** is 1.
0 - it disables the presentation of the antenna detection URC
1 - it enables the presentation of the antenna detection URC, whenever the antenna detection algorithm detects a change in the antenna status; the unsolicited message is in the format:

#GSMAD: <presence>

where:
<presence> is as before

<interval> - duration in seconds of the interval between two consecutive antenna detection algorithm runs (default is 120). It has

	meaning and can be set only if **<mod>** is 1. ..1..3600 - seconds **<detGPIO>** - defines which GPIO shall be used as input by the Antenna Detection algorithm. For the **<detGPIO>** actual range see Test Command **<repGPIO>** - defines which GPIO shall be used by the Antenna Detection algorithm to report antenna condition. It has meaning only if **<mod>** is 1. For the **<repGPIO>** actual range see Test Command. Note: the URC presentation mode **<urcmode>** is related to the current AT instance only (see **+cmux**); last **<urcmode>** settings are saved for every instance as extended profile parameters, thus it is possible to restore them either if the multiplexer control channel is released and set up, back and forth. Note: GPIO is set to LOW when antenna is connected. Set to HIGH otherwise Note: **#GSMAD** parameters, excluding **<urcmode>**, are saved in NVM.
AT#GSMAD?	Read command returns the current parameter settings for **#GSMAD** command in the format: **#GSMAD: <mod>,<urcmode>,<interval>,<detGPIO>,<repGPIO>**
AT#GSMAD=?	Test command reports the supported range of values for parameters **<mod>, <urcmode>, <interval>, <detGPIO>** and **<repGPIO>**.

3.5.6.1.92. SIM Detection Mode - #SIMDET

#SIMDET - SIM Detection Mode	SELINT 2
AT#SIMDET= <mode>	Set command specifies the SIM Detection mode Parameter: **<mode>** - SIM Detection mode 0 - ignore SIMIN pin and simulate the status 'SIM Not Inserted' 1 - ignore SIMIN pin and simulate the status 'SIM Inserted' 2 - automatic SIM detection through SIMIN Pin (default)
AT#SIMDET?	Read command returns the currently selected Sim Detection Mode in the format:

	#SIMDET: <mode>,<simin> where: **<mode>** - SIM Detection mode, as before **<simin>** - SIMIN pin real status 0 - SIM not inserted 1 - SIM inserted
AT#SIMDET=?	Test command reports the supported range of values for parameter **<mode>**

3.5.6.1.93. SIM Enhanced Speed - #ENHSIM

#ENHSIM - SIM Enhanced Speed	SELINT 2
AT#ENHSIM= <mod>	Set command activates or deactivates the Sim Enhanced Speed Functionality. Parameter: **<mod>** 0 - Not Active (default for all products, except GE865-QUAD and GE864-DUAL V2) 1 - BRF is (F=512 D=8) (default for GE865-QUAD and GE864-DUAL V2) *(For BRF definition refer to ISO-7816-3* Note: value **<mod>** is saved in NVM and will be used since next module startup or new SIM insertion. Note: module will use the slowest speed between the one programmed and the one supported by the SIM.
AT#ENHSIM?	Read command returns whether the Sim Enhanced Speed Functionality is currently activated or not, in the format: **#ENHSIM: <mod>**
AT#ENHSIM=?	Test command reports the supported range of values for parameter **<mod>**.
Reference	GSM 11.11, ISO-7816-3
Note	It is strongly suggested to verify which is the maximum speed supported by the final application

3.5.6.1.94. Subscriber number - #SNUM

#SNUM – Subscriber Number	SELINT 2
AT#SNUM= <index>,<number>[, <alpha>]	Set command writes the MSISDN information related to the subscriber (own number) in the EFmsisdn SIM file. Parameter: **<index>** - record number The number of record in the EFmsisdn depends on the SIM. If the ENS functionality has not been previously enabled (see #ENS), **<index>**=1 is the only value admitted. If only **<index>** value is given, then delete the EFmsisdn record in location **<index>** is deleted. **<number>** - string containing the phone number The string could be written between quotes. If the ENS functionality has been previously enabled (see #ENS) "+" at start only is also admitted (international numbering scheme). **<alpha>** - alphanumeric string associated to **<number>.** Default value is empty string (""), otherwise the used character set should be the one selected with **+CSCS.** The string could be written between quotes, the number of characters depends on the SIM. If empty string is given (""), the corresponding **<alpha>** will be an empty string. Note: the command return ERROR if EFmsisdn file is not present in the SIM or if MSISDN service is not allocated and activated in the SIM Service Table (see 3GPP TS 11.11).
AT#SNUM=?	Test command returns the **OK** result code

3.5.6.1.95. SIM Answer to Reset - #SIMATR

#SIMATR – SIM Answer To Reset	SELINT 2
AT#SIMATR	This command returns the characters collected from the Reset/ATR procedure. Note: The ATR is the information presented by the SIM to the ME at the beginning of the card session and gives operational requirements (ISO/IEC 7816-3).

3.5.6.1.96. TeleType Writer - #TTY

#TTY - TeleType Writer	SELINT 2
AT#TTY=<support>	Set command enables/disables the TTY functionality. Parameter: **<support>** 0 - disable TTY functionality 1 - enable TTY functionality
AT#TTY?	Read command returns whether the TTY functionalityis currently enabled or not, in the format: **#TTY: <support>**
AT#TTY=?	Test command reports the supported range of values for parameter **<support>**.

3.5.6.1.97. CPU Clock Mode - #CPUMODE

#CPUMODE - CPU Clock Mode	SELINT 2
AT#CPUMODE=<mode>	Set command specifies the CPU clock mode Parameter: **<mode>** 0 - normal CPU clock 1 - fast CPU clock 2 - fast CPU clock, during GPRS TX/RX only Note: using **<mode>=1**, the power consumption will increase
AT#CPUMODE?	Read command returns the currently selected CPU clock mode in the format: **#CPUMODE: <mode>**
AT#CPUMODE=?	Test command reports the supported range of values for parameter **<mode>**.

3.5.6.1.98. GSM Context Definition - #GSMCONT

#GSMCONT - GSM Context Definition	SELINT 2
AT#GSMCONT=<cid>[,<P_type>,	Set command specifies context parameter values for the only GSM context, identified by the (local) context identification parameter 0.

<CSD_num>]	Parameters: **<cid>** - context Identifier; numeric parameter which specifies the only GSM context 0 **<P_type>** - protocol type; a string parameter which specifies the type of protocol "IP" - Internet Protocol **<CSD_num>** - phone number of the internet service provider Note: issuing **#GSMCONT=0** causes the values for context number **0** to become undefined.
AT#GSMCONT?	Read command returns the current settings for the GSM context, if defined, in the format: **+GSMCONT: <cid>,<P_type>,<CSD_num>**
AT#GSMCONT=?	Test command returns the supported range of values for all the parameters.

3.5.6.1.99. IPEGSM configurations - #GSMCONTCFG

#GSMCONTCFG - IPEGSM configurations	**SELINT 2**
AT#GSMCONTCFG= <actTo>[,<unused_A > [,<unused_B >[,<unused_C>]]]]	Set command sets the IPEGSM configuration. Parameters: **<actTo>** - activation timer value 0 – no timer (default) 50..65535 – timeout value in hundreds of milliseconds Note: this timeout starts as soon as the PPP activation starts (refer to EasyGPRS User Guide). It does not include the time for the CSD call to be established. Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance.
AT#GSMCONTCFG?	Read command returns the current configuration parameters value: **#GSMCONTCFG:<actTo>,0,0,0<CR><LF>**

AT#GSMCONTCFG=?	Test command returns the range of supported values for all the subparameters.

3.5.6.1.100. Show Address - #CGPADDR

#CGPADDR - Show Address	SELINT 2
AT#CGPADDR= [<cid>[,<cid> [,…]]]	Execution command returns either the IP address for the GSM context (if specified) and/or a list of PDP addresses for the specified PDP context identifiers Parameters: **<cid>** - context identifier 0 - specifies the GSM context (see **+GSMCONT**). 1..5 - numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). Note: if no **<cid>** is specified, the addresses for all **defined** contexts are returned. Note: issuing the command with more than 6 parameters raises an error. Note: the command returns only one row of information for every specified **<cid>**, even if the same **<cid>** is present more than once. The command returns a row of information for every specified **<cid>** whose context has been already defined. No row is returned for a **<cid>** whose context has not been defined yet. Response format is: **#CGPADDR: <cid>,<address>[<CR><LF>** **#CGPADDR: <cid>,<address>[…]]** where: **<cid>** - context identifier, as before **<address>** - its meaning depends on the value of **<cid>** a) if **<cid>** is the (only) GSM context identifier (**<cid>=0**) it is the dynamic address assigned during the GSM context

	activation. b) if **<cid>** is a PDP context identifier (**<cid>** in (1..5)) it is a string that identifies the terminal in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the **+CGDCONT** command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by **<cid>.** Note: if no address is available the empty string (“”) is represented as **<address>.**
AT#CGPADDR=?	Test command returns a list of defined **<cid>**s.

Example	`AT#SGACT=0,1`
	`#SGACT: xxx.yyy.zzz.www`
	
	`OK`
	`AT#CGPADDR=0`
	`#CGPADDR: 0,”xxx.yyy.zzz.www”`
	
	`OK`
	`AT#CGPADDR=?`
	`#CGPADDR: (0)`
	
	`OK`

3.5.6.1.101. Network Scan Timer - #NWSCANTMR

#NWSCANTMR - Network Scan Timer	SELINT 2
AT#NWSCANTMR= <tmr>	Set command sets the Network Scan Timer that is used by the module to schedule the next network search when it is without network coverage (no signal). Parameter: **<tmr>** - timer value in units of seconds 5 3600 - time in seconds (default 5 secs.)
AT#NWSCANTMR	Execution command reports time, in seconds, when the next scan activity will be executed. The format is: #NWSCANTMREXP: <time> Note: if **<time>** is zero it means that the timer is not running
AT#NWSCANTMR?	Read command reports the current parameter setting for **#NWSCANTMR**

	command in the format: **#NWSCANTMR: <tmr>**
AT#NWSCANTMR=?	Test command reports the supported range of values for parameter **<tmr>**
Note	How much time it takes to execute the network scan depends either on how much bands have been selected and on network configuration (mean value is 5 seconds)

3.5.6.1.102. Cascaded filters - #BIQUADIN

#BIQUADIN - Uplink Path Biquad Filters	SELINT 2
AT# BIQUADIN= <a$_{F0}$> [,<a$_{F1}$> [,<a$_{F2}$> [,<b$_{F1}$> [,<b$_{F2}$> [,<a$_{S0}$> [,<a$_{S1}$> [,<a$_{S2}$> [,<b$_{S1}$> [,<b$_{S2}$>]]]]]]]]]	Set command allows configuring the parameters of the two cascaded digital **biquad filters** $H_{First}(z)\cdot H_{Second}(z)$ in Uplink path (sending). It is not allowed if active audio profile is 0. Parameters: **<a$_{Fn}$>,<b$_{Fn}$>,<a$_{Sn}$>,<b$_{Sn}$>** - they all are specific parameters for the calculation of digital **biquad filters** as follows: $H_F(z)=\frac{a_{F0}+2\cdot a_{F1}\cdot z^{-1}+a_{F2}\cdot z^{-2}}{1+2\cdot b_{F1}\cdot z^{-1}+b_{F2}\cdot z^{-2}}$ $H_S(z)=\frac{a_{S0}+2\cdot a_{S1}\cdot z^{-1}+a_{S2}\cdot z^{-2}}{1+2\cdot b_{S1}\cdot z^{-1}+b_{S2}\cdot z^{-2}}$ -32768..32767 - each value has to be interpreted as signed fixed point number in two's complement format with 15 fractional bits in a 16 bit word (Q15) Note: in the above formulas pay attention to the multiplier (2) for parameters **<a$_{F1}$>, <a$_{S1}$>, <b$_{F1}$>** and **<b$_{S1}$>** Parameters can be saved in NVM using AT#PSAV command and are available for audio profiles 1,2,3. For audio profile 0 the values are fixed.
AT# BIQUADIN?	Read command returns the parameters for the active profile in the format: **#BIQUADIN:** **<a$_{F0}$>,<a$_{F1}$>,<a$_{F2}$>,<b$_{F1}$>,<b$_{F2}$>,<a$_{S0}$>,<a$_{S1}$>,<$_{S2}$>,<b$_{S1}$>,<b$_{S2}$>**

	It is not allowed if active audio profile is 0.
AT# BIQUADIN=?	Test command returns the supported range of values for parameters **<a$_{F0}$>, <a$_{F1}$>, <a$_{F2}$>, <b$_{F1}$>, <b$_{F2}$>, <a$_{S0}$>, <a$_{S1}$>, <a$_{S2}$>, <b$_{S1}$>, <b$_{S2}$>**

3.5.6.1.103. Cascaded filters - #BIQUADOUT

#BIQUADOUT - Downlink Path Biquad Filters	SELINT 2
AT# BIQUADOUT= <a$_{F0}$> [,<a$_{F1}$> [,<a$_{F2}$> [,<b$_{F1}$> [,<b$_{F2}$> [,<a$_{S0}$> [,<a$_{S1}$> [,<a$_{S2}$> [,<b$_{S1}$> [,<b$_{S2}$>]]]]]]]]]	Set command allows configuring the parameters of the two cascaded digital **biquad filters** $H_{First}(z) \cdot H_{Second}(z)$ in Downlink path (receiving). It is not allowed if active audio profile is 0. Parameters: **<a$_{Fn}$>,<b$_{Fn}$>,<a$_{Sn}$>,<b$_{Sn}$>** - they all are specific parameters for the calculation of digital **biquad filters** as follows: $$H_F(z) = \frac{a_{F0} + 2 \cdot a_{F1} \cdot z^{-1} + a_{F2} \cdot z^{-2}}{1 + 2 \cdot b_{F1} \cdot z^{-1} + b_{F2} \cdot z^{-2}}$$ $$H_S(z) = \frac{a_{S0} + 2 \cdot a_{S1} \cdot z^{-1} + a_{S2} \cdot z^{-2}}{1 + 2 \cdot b_{S1} \cdot z^{-1} + b_{S2} \cdot z^{-2}}$$ -32768..32767 - each value has to be interpreted as signed fixed point number in two's complement format with 15 fractional bits in a 16 bit word (Q15) Note: in the above formulas pay attention to the multiplier (2) for parameters **<a$_{F1}$>, <a$_{S1}$>, <b$_{F1}$>** and **<b$_{S1}$>** Parameters can be saved in NVM using AT#PSAV command and are available for audio profiles 1,2,3. For audio profile 0 the values are fixed.
AT# BIQUADOUT?	Read command returns the parameters for the active profile in the format: **# BIQUADOUT: <a$_{F0}$>,<a$_{F1}$>,<a$_{F2}$>,<b$_{F1}$>,<b$_{F2}$>,<a$_{S0}$>,<a$_{S1}$>,<$_{S2}$>,<b$_{S1}$>,<b$_{S2}$>** It is not allowed if active audio profile is 0.
AT# BIQUADOUT=?	Test command returns the supported range of values for parameters **<a$_{F0}$>, <a$_{F1}$>, <a$_{F2}$>, <b$_{F1}$>, <b$_{F2}$>, <a$_{S0}$>, <a$_{S1}$>, <a$_{S2}$>, <b$_{S1}$>, <b$_{S2}$>**

#BIQUADOUT - Downlink Path Biquad Filters	SELINT 2

3.5.6.1.104. Call Establishment Lock - #CESTHLCK

#CESTHLCK – Call establishment lock	SELINT 2
AT#CESTHLCK= [<closure_type >]	This command can be used to disable call abort before the DCE enters connected state. **< closure_type >:** 0 - Aborting the call setup by reception of a character is generally possible at any time before the DCE enters connected state (default) 1 - Aborting the call setup is disabled until the DCE enters connected state
AT#CESTHLCK?	Read command returns the current setting of **<closure_type>** parameter in the format: **#CESTHLCK: <closure_type>**
AT#CESTHLCK=?	Test command returns the supported range of values for the **<closure_type>** parameter

3.5.6.1.105. Phone Activity Status - #CPASMODE

#CPASMODE – AT+CPAS answer mode	SELINT 2
AT#CPASMODE=<mode>	Set command enables/disables a modified AT+CPAS command response when the command is issued before an incoming call starts ringing (RING unsolicited code sent to the TE). If **<mode>** is 0, AT+CPAS response will be +CPAS: 4 otherwise the response will be +CPAS: 3

	Parameter: **<mode>** - AT+CPAS response selection 0 – standard AT+CPAS response (factory default) 1 – modified AT+CPAS response. Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance
AT#CPASMODE?	Read command reports the currently selected **<mode>** in the format: **#CPASMODE: <mode>**
AT#CPASMODE=?	Test command reports the supported range of values for parameter **<mode>**

3.5.6.1.106. ICCID SIM file reading mode - #FASTCCID

#FASTCCID – Set ICCID SIM file reading mode	**SELINT 2**
AT#FASTCCID= [<fast>]	The set command is used to specify the ICCID reading mode. **<fast>:** a numeric parameter which indicates the reading mode 0 – the ICCID value is read from the SIM card each time the AT#CCID command is issued and not during SIM card initialization (default) 1 – the ICCID value is read from the SIM card during SIM card initialization Note: the value is saved in NVM and has effect only at the next power cycle.
AT#FASTCCID?	The read command returns the currently selected reading mode in the form: **#FASTCCID: <fast>**
AT#FASTCCID=?	Test command reports the supported list of currently available <fast>s.

3.5.6.1.107. I2C data via GPIO - #I2CWR

#I2CWrite – Write to I2C	**SELINT 2**
AT#I2CWR= <sdaPin>, <sclPin>,	This command is used to Send Data to an I2C peripheral connected to module GPIOs

#I2CWrite – Write to I2C	SELINT 2

<deviceId>,
<registerId>,
<len>
	<sdaPin >: GPIO number for SDA . Valid range is "any input/output pin" (see Test Command.)
	
	<sclPin>: GPIO number to be used for SCL. Valid range is "any output pin" (see Test Command).
	
	<deviceId>: address of the I2C device, without the LSB used for read\write command, 10 bit addressing supported.
	Value has to be written in hexadecimal form (without 0x).
	
	<registerId>: Register to write data to , range 0..255.
	Value has to be written in hexadecimal form (without 0x).
	
	<len>: number of data to send. Valid range is 1-254.
	
	The module responds to the command with the prompt '**>**' and awaits for the data to send.
	To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex).
	
	Data shall be written in Hexadecimal Form.
	
	If data are successfully sent, then the response is **OK**.
	
	If data sending fails for some reason, an error code is reported.
	Example if CheckAck is set and no Ack signal was received on the I2C bus
	
	E.g.
	`AT#I2CWR=2,3,20,10,14`
	`> 00112233445566778899AABBCCDD<ctrl-z>`
	`OK`
	Set GPIO2 as SDA, GPIO3 as SCL;
	Device I2C address is 0x20;
	0x10 is the address of the first register where to write I2C data;
	14 data bytes will be written since register 0x10
	
	NOTE: At the end of the execution GPIO will be restored to the original setting (check AT#GPIO Command)
	
	NOTE: device address, register address where to read from\ write to, and date bytes have to be written in hexadecimal form without 0x.

AT#I2CWR=?	Test command reports the supported list of currently available <service>s.

3.5.6.1.108. I2C data from GPIO - #I2CRD

#I2CRD – Read to I2C	**SELINT 2**
AT#I2CRD= **<sdaPin>,** **<sclPin>,** **<deviceId>,** **<registerId>,** **<len>**	This command is used to Send Data to an I2C peripheral connected to module GPIOs **<sdaPin >:** GPIO number for SDA . Valid range is "any input/output pin" (see Test Command.) **<sclPin>:** GPIO number to be used for SCL. Valid range is "any output pin" (see Command Test). **<deviceId>:** address of the I2C device, without the LSB used for read\write command, 10 bit addressing supported. Value has to be written in hexadecimal form (without 0x before). **<registerId>:** Register to read data from, range 0..255. Value has to be written in hexadecimal form (without 0x before). **<len>:** number of data to receive. Valid range is 1-254. Data Read from I2C will be dumped in Hex: E.g. AT#I2CRD=2,3,20,10,12 #I2CRD: 00112233445566778899AABBCC OK NOTE: If data requested are more than data available in the device, dummy data (normally 0x00 or 0xff) will be dumped. NOTE: At the end of the execution GPIO will be restored to the original setting (check AT#GPIO Command) NOTE: device address, register address where to read from\ write to, and date bytes have to be written in hexadecimal form without 0x.
AT#I2CRD=?	Test command reports the supported list of currently available <service>s.

3.5.6.1.109. Power saving mode ring - #PSMRI

#PSMRI – Power Saving Mode Ring	**SELINT 2**

AT#PSMRI= **<x>**	Set command enables/disables the Ring Indicator pin response to an URC message while modem is in power saving mode. If enabled, a negative going pulse is generated, when URC message for specific event is invoked. The duration of this pulse is determined by the value of **<x>**. Parameter: **<x>** - **RI** enabling 0 - disables **RI** pin response for URC message(factory default) 50-1150 - enables **RI** pin response for URC messages. Note: when RING signal from incoming call/SMS/socket listen is enabled, the behaviour for #PSMRI will be ignored. Note: to avoid missing of URC messages while modem is in power saving mode flow control has to be enabled in command mode (AT#CFLO=1) Note: the behavior for #PSMRI is invoked, only when modem is in sleep mode (AT+CFUN=5 and DTR Off on Main UART) Note: the value set by command is stored in the profile extended section and doesn't depend on the specific AT instance
AT#PSMRI?	Read command reports the duration in ms of the pulse generated, in the format: **#PSMRI: <x>**
AT#PSMRI=?	Test command reports the supported range of values for parameter **<x>**

3.5.6.1.110. Software level selection - #SWLEVEL

#SWLEVEL – SW Level selection	SELINT 2
AT#SWLEVEL=<level>	Set command enables 2 enhanced features: 1) It permits to get a faster indication of SIM status when the PIN is not required (see command #QSS) 2) DTMF duration (see AT+VTS;AT+VTD) can be controlled even for values shorter than 300mS. Parameters: **<level>** - SW level 0 - disable SW level (default for for all products, except GE865-QUAD and GE864-DUAL V2)

	1 - enable SW level (default for GE865-QUAD and GE864-DUAL V2) Note1: the value of **<level>** parameter is directly stored in NVM and doesn't depend on the specific AT instance. Note2: please remember that DTMFs are generated at network level, and the real duration can be operator dependant.
AT#SWLEVEL?	Read command reports the currently selected **<level>** in the format: **#SWLEVEL: <level>**
AT#SWLEVEL=?	Test command reports the supported range of values for parameter**<level>**

3.5.6.1.111. Control Command Flow - #CFLO

#CFLO – Command Flow Control	SELINT 2
AT#CFLO= <enable>	Set command enables/disables the flow control in command mode. If enabled, current flow control is applied to both data mode and command mode. Parameter: **<enable>** - 0 – disable flow control in command mode <default value> 1 – enable flow control in command mode Note: setting value is saved in the profile
AT#CFLO?	Read command returns current setting value in the format **#CFLO: <enable>**
AT#CFLO=?	Test command returns the range of supported values for parameter **<enable>**

3.5.6.1.112. Report concatenated SMS indexes - #CMGLCONCINDEX

#CMGLCONCINDEX – Report concatenated SMS indexes	SELINT 2
AT#CMGLCONCINDEX	The command will report a line for each concatenated SMS containing: **#CMGLCONCINDEX: N,i,j,k,...**

#CMGLCONCINDEX – Report concatenated SMS indexes	SELINT 2
	where N is the number of segments that form the whole concatenated SMS i,j,k are the SMS indexes of each SMS segment , 0 if segment has not been received If no concatenated SMS is present on the SIM, only **OK** result code will be returned.
AT#CMGLCONCINDEX=?	Test command returns **OK** result code.

Example	`at#cmglconcindex`
	`#CMGLCONCINDEX: 3,0,2,3`
	`#CMGLCONCINDEX: 5,4,5,6,0,8`
	
	`OK`

3.5.6.1.113. Codec Information - #CODECINFO

#CODECINFO – Codec Information	SELINT 2
AT#CODECINFO[=<format>[, <mode>]]	This command is both a set and an execution command. Set command enables/disables codec information reports depending on the parameter **<mode>**, in the specified **<format>**. Parameters: **<format>** 0 – numeric format (default) 1 – textual format **<mode>** 0 - disable codec information unsolicited report (default) 1 - enable codec information unsolicited report only if the codec changes 2 - enable short codec information unsolicited report only if the codec changes If **<mode>=1** the unsolicited channel mode information is reported in the following format: (if **<format>=0**) **#CODECINFO: <codec_used>,<codec_set>**

#CODECINFO – Codec Information	SELINT 2

(if **<format>=1**)
#CODECINFO: <codec_used>,<codec_set1>
[,<codec_set2>[..[,codec_setn]]]

If **<mode>=2** the unsolicited codec information is reported in the following format:

#CODECINFO: <codec_used>

The reported values are described below.

Execution command reports codec information in the specified **<format>**.

(if **<format>=0**)
#CODECINFO: <codec_used>,<codec_set>

(if **<format>=1**)
#CODECINFO: <codec_used>,<codec_set1>
[,<codec_set2>[..[,codec_setn]]]

The reported values are:

(if **<format>=0**)
<codec_used> - one of the following channel modes:
0 – no TCH
1 - full rate speech 1 on TCH
2 - full rate speech 2 on TCH
4 - half rate speech 1 on TCH
8 - full rate speech 3 – AMR on TCH
16 - half rate speech 3 – AMR on TCH
128 – full data 9.6
129 – full data 4.8
130 – full data 2.4
131 – half data 4.8
132 – half data 2.4
133 – full data 14.4

<codec_set>
1..31 - sum of integers each representing a specific codec mode:
1 - FR, full rate mode enabled
2 - EFR, enhanced full rate mode enabled

#CODECINFO – Codec Information	SELINT 2
	4 - HR, half rate mode enabled 8 - FAMR, AMR full rate mode enabled 16 - HAMR, AMR half rate mode enabled (if **<format>=1**) **<codec_used>** - one of the following channel modes: None – no TCH FR - full rate speech 1 on TCH EFR - full rate speech 2 on TCH HR - half rate speech 1 on TCH FAMR - full rate speech 3 – AMR on TCH HAMR - half rate speech 3 – AMR on TCH FD96 - full data 9.6 FD48 - full data 4.8 FD24 - full data 2.4 HD48 - half data 4.8 HD24 - half data 2.4 FD144 - full data 14.4 **<codec_set*n*>** FR - full rate mode enabled EFR - enhanced full rate mode enabled HR - half rate mode enabled FAMR - AMR full rate mode enabled HAMR - AMR half rate mode enabled Note: The command refers to codec information in speech call and to channel mode in data/fax call. Note: if AT#CODEC is 0, the reported codec set for **<format>=0** is 31 (all codec).
AT#CODECINFO?	Read command reports **<format>** and **<mode>** parameter values in the format: **#CODECINFO: <format>,<mode>**
AT#CODECINFO=?	Test command returns the range of supported **<format>** and **<mode>**.

3.5.6.1.114. Second Interface Instance - #SII

#SII – Second Interface Instance	SELINT 2
AT#SII=<inst>[,<rate>[,<format>[,<parity>]]]	This command activates one of the three AT instances available, and assigns it to the ASC1 serial port at a particular speed and format. Parameters: **<inst>:** is a number that identifies the instance that will be activated on ASC1. The parameter is mandatory and can be 0, 1 or 2: 0 – disables the other AT instance and restores the trace service; 1 – enables instance 1; 2 – enables instance 2; **<rate>:** Set command specifies the DTE speed at which the device accepts commands during command mode operations; it may be used to fix the DTE-DCE interface speed. The default value is 115200. It has sense only if **<inst>** parameter has value either 1 or 2. Parameter: 300 1200 2400 4800 9600 19200 38400 57600 115200 **<format>:** determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. The default value is 3,0, (N81) format. It has sense only if **<inst>** parameter has value either 1 or 2. Parameter: 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 5 - 7 Data, 1 Parity, 1 Stop **<parity>:** determines how the parity bit is generated and checked, if present. It has a meaning only if **<format>** parameter has value either 2 or 5

	and only if **<inst>** parameter has value either 1 or 2. Parameter: 0 - Odd 1 - Even Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance. Note: two sets of **<rate>, <format>** and **<parity>** parameters values are stored in NVM: one for instance 1 (**<inst>** = 1) and the other for instance 2 (**<inst>** = 2). The **<rate>, <format>** and **<parity>** parameters values are ignored when **<inst>** parameter has value 0. Note: ASC1 port doesn't support hardware flow control.
AT#SII?	Read command reports the currently active parameters settings in the format: **#SII: <inst>[,<rate>,<format>,<parity>]** Note: the **<rate>, <format>** and **<parity>** parameters values are showed only if **<inst>** parameter has value either 1 or 2.
AT#SII=?	Test command reports the supported range of values for parameter **<inst>**, **<rate>**, **<format>** and **<parity>**

3.5.6.2. General Configuration AT Commands - Special Issues

The following commands are available only for specific subsets of products, as it appears in the 'Note'

3.5.6.2.1. External 32kHz Oscillator

#OSC32KHZ - External 32kHz Oscillator	SELINT 2
AT#OSC32KHZ	Execution command reports the presence of an external 32kHz oscillator, in the format: **#OSC32KHZ: <stat>** where: **<stat>** 0 - external 32kHz oscillator is not present

	1 - external 32kHz oscillator is present Note: if the external oscillator is removed while the module is on, the software will take up to 9 seconds to realize its absence. Note: if the external oscillator is connected to the module while it is on, the software will take less than 1 second to realize its presence.
AT#OSC32KHZ=?	Test command returns the **OK** result code.
Note	This command is currently available only for the product **GE864-QUAD Automotive**

3.5.6.2.2. Select language - #LANG

#LANG – select language	**SELINT 2**
AT#LANG=<lan>	Set command selects the currently used language for displaying different messages Parameter: **<lan>** - selected language “en” – English (factory default) “it” – Italian
AT#LANG?	Read command reports the currently selected <lan> in the format: **#LANG: <lan>**
AT#LANG=?	Test command reports the supported range of values for parameter **<lan>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.3. Postpone alarm - +CAPD

+CAPD – postpone or dismiss an alarm	**SELINT 2**
AT+CAPD=[<sec>]	Set command postpones or dismisses a currently active alarm. Parameters: **<sec>**: integer type value indicating the number of seconds to postpone the alarm (maximum 60 seconds). If <sec> is set to 0 (default), the alarm is dismissed.

AT+CAPD=?	Test command reports the supported range of values for parameter **<sec>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.4. Call meter maximum event - +CCWE

+CCWE – Call Meter maximum event	SELINT 2
AT+CCWE=<mode>	Set command is used to enable/disable sending of an unsolicited result code +CCWV shortly before the ACM (Accumulated Call Meter) maximum value is reached. The warning is issued approximately when 30 seconds call time remains. It is also issued when starting a call if less than 30 seconds call time remains. Parameters: **<mode>:** 0 Disable the call meter warning event (default) 1 Enable the call meter warning event Note: the set command will respond with an error if the Accumulated Call Meter service is not active in SIM
AT+CCWE?	Read command reports the currently selected <mode> in the format: **+CCWE: <mode>**
AT+CCWE=?	Test command reports the supported range of values for parameter **<mode>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.5. Setting date format - +CSDF

+CSDF – setting date format	SELINT 2
AT+CSDF=[<mode> [,<auxmode>]]	This command sets the date format of the date information presented to the user, which is specified by use of the **<mode>** parameter. The **<mode>** affects the date format on the phone display and doesn't affect the date format of the AT command serial interface, so it not used. The command also sets the date format of the TE-TA interface, which is specified by use of the **<auxmode>** parameter (i.e., the **<auxmode>** affects the **<time>** of AT+CCLK and AT+CALA). If the parameters are omitted then this sets the default value of **<mode>**.

	Parameters: **<mode>:** 1 DD-MMM-YYYY (default) 2 DD-MM-YY 3 MM/DD/YY 4 DD/MM/YY 5 DD.MM.YY 6 YYMMDD 7 YY-MM-DD **<auxmode>:** 1 yy/MM/dd (default) 2 yyyy/MM/dd Note: The <time> format of +CCLK and +CALA is "yy/MM/dd,hh:mm:ss+zz" when <auxmode>=1 and it is "yyyy/MM/dd,hh:mm:ss+zz" when <auxmode>=2.
AT+CSDF?	Read command reports the currently selected **<mode>** and **<auxmode>** in the format: **+CSDF: <mode>,<auxmode>**
AT+CSDF=?	Test command reports the supported range of values for parameters **<mode>** and **<auxmode>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.6. Silence command - +CSIL

+CSIL – silence command	SELINT 2
AT+CSIL=[<mode>]	This command enables/disables the silent mode. When the phone is in silent mode, all signalling tones from MT are suppressed. Parameters: **<mode>:** 0 Silent mode off (default) 1 Silent mode on
AT+CSIL?	Read command reports the currently selected **<mode>** in the

	format: **+CSIL: <mode>**
AT+CSIL=?	Test command reports the supported range of values for parameter **<mode>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.7. Setting time format

+CSTF – setting time format	**SELINT 2**
AT+CSTF=[<mode>]	This command sets the time format of the time information presented to the user, which is specified by use of the **<mode>** parameter. The **<mode>** affects the time format on the phone display and doesn't affect the time format of the AT command serial interface, so it not actually not used. Parameters: **<mode>:** 1 HH:MM (24 hour clock; default) 2 HH:MM a.m./p.m.
AT+CSTF?	Read command reports the currently selected <mode> in the format: **+CSTF: <mode>**
AT+CSTF=?	Test command reports the supported range of values for parameter **<mode>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.8. Call deflection

+CTFR – Call deflection	**SELINT 2**
AT+CTFR=<number>[,<type>]	Set command is used to request a service that causes an incoming alerting call to be forwarded to a specified number. This is based on the GSM/UMTS supplementary service CD (Call Deflection; refer 3GPP TS 22.072). Parameters: **<number>:** string type phone number of format specified by **<type>**

	<type>: type of address octet in integer format; default 145 when dialling string includes international access code character "+", otherwise 129 Note: Call Deflection is only applicable to an incoming voice call
AT+CTFR=?	Test command tests for command existence
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.9. Time Zone reporting

+CTZR – Time Zone reporting	**SELINT 2**
AT+CTZR=<onoff>	This command enables and disables the time zone change event reporting. If the reporting is enabled the MT returns the unsolicited result code +CTZV: <tz> whenever the time zone is changed. Parameters: **<onoff>:** 0 Disable time zone change event reporting (default) 1 Enable time zone change event reporting
AT+CTZR?	Read command reports the currently selected **<onoff>** in the format: **+CTZR: <onoff>**
AT+CTZR=?	Test command reports the supported range of values for parameter **<onoff>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.2.10. Automatic Time Zone update

+CTZU – automatic Time Zone update	**SELINT 2**
AT+CTZU=<onoff>	This command enables and disables automatic time zone update via NITZ. Parameters: **<onoff>:** 0 Disable automatic time zone update via NITZ (default) 1 Enable automatic time zone update via NITZ

AT+CTZU?	Read command reports the currently selected **<onoff>** in the format: **+CTZU: <onoff>**
AT+CTZU=?	Test command reports the supported range of values for parameter **<onoff>**
Note	This command is currently available only for software 10.00.xxx.

3.5.6.3. AT Run Commands

3.5.6.3.1. Enable SMS Run AT Service - #SMSATRUN

#SMSATRUN – Enable SMS AT Run service	SELINT 2
AT#SMSATRUN= <mod>	Set command enables/disables the SMS AT RUN service. Parameter: **< mod >** 0: Service Disabled 1: Service Enabled Note1: When the service is active on a specific AT instance (see AT#SMSATRUNCFG), that instance cannot be used for any other scope, except for OTA service that has the highest priority. For example in the multiplexer request to establish the Instance, the request will be rejected. Note2: the current settings are stored in NVM.
AT#SMSATRUN?	Read command returns the current settings of <mode> and the value of <stat> in the format: **# SMSATRUN: <mod>,<stat>** where: **<stat>** - service status 0 – not active 1 - active
AT#SMSATRUN =?	Test command returns the supported values for the SMSATRUN parameters

#SMSATRUN – Enable SMS AT Run service	SELINT 2

Notes:

- By default the SMS ATRUN service is disabled
- If the module receives the following SMS:

Offset	Size	Value	Description
0	3	0xD2D2D2	SMSATRUN activation
3	1	0..255	Transaction ID
4	1	0x11	Segment 1 of 1
5	1		Session Id
6	64		RSA Digest

- where the RSA is calculated using the RSA algorithm with the RSA private key on the string SMSATRUN ACTIVATION concatenated with an optional phone number
- the module decodes the digest using the RSA public key and, if the result is the default string expected, the message is accepted and
    - activates the SMSATRUN service
    - inserts in the white list (which has 8 positions) the phone number if present, in position 7
    - inserts in the white list a default password in position 8: as for OTA service, the password is imei+last imei digit (16 digits)
- answers to server sending a SMS to the sender number:

Offset	Size	Value	Description
0	3	0xD3D3D3	SMSATRUN activation Response
3	1	0..255	Transaction ID
4	1	0x11	Segment 1 of 1
5	1		Session Id
6	64		RSA Digest
70	1+1		Command response

- where:
    - session Id is the same of SMSATRUN activation SMS
    - the 64 bytes long RSA digest is calculated applying the RSA algorithm with the RSA public key on the string SMSATRUN ACTIVATION concatenated with the module IMEI.
- If the SMSATRUN activation SMS is received and the SMSATRUN is already active, the SMS is ignored and handled as a normal SMS

#SMSATRUN – Enable SMS AT Run service	SELINT 2
	• If the SMSATRUN activation SMS is received after that the SMSATRUN has been activated and deactivated, the module activates the service and overwrites in white list positions 7 and 8 the possibly present elements. Based on the fact that only 2 passwords are admitted at maximum, if there are already 2, one of them is erased because the default password is inserted in position 8

3.5.6.3.2. Set SMS Run AT Service parameters - #SMSATRUNCFG

#SMSATRUNCFG – Set SMS AT Run Parameters	
AT#SMSATRUNCFG= <instance> [,<urcmod> [,<timeout>]]	Set command configures the SMS AT RUN service. Parameter: **<instance>:** AT instance that will be used by the service to run the AT Command. Range 2 - 3, default 3. **<urcmod>:** 0 – disable unsolicited message 1 - enable an unsolicited message when an AT command is requested via SMS (default). When unsolicited is enabled, the AT Command requested via SMS is indicated to TE with unsolicited result code: #SMSATRUN: <Text> e.g.: #SMSATRUN: AT+CGMR;+CGSN;+GSN;+CCLK Unsolicited is dumped on the instance that requested the service activation. **<timeout>:** It defines in minutes the maximum time for a command execution. If timeout expires the module will be rebooted. Range 1 – 60, default 5. Note 1: the current settings are stored in NVM.

#SMSATRUNCFG – Set SMS AT Run Parameters	
	Note 2: the instance used for the SMS AT RUN service is the same used for the EvMoni service. Therefore, when the #SMSATRUNCFG sets the <instance> parameter, the change is reflected also in the <instance> parameter of the #ENAEVMONICFG command, and viceversa. Note 3: the set command returns ERROR if the command AT#ENAEVMONI? returns 1 as <mod> parameter or the command AT#SMSATRUN? returns 1 as <mod> parameter
AT#SMSATRUNCFG?	Read command returns the current settings of parameters in the format: **#SMSATRUNCFG:<instance>,<urcmod>,<timeout>**
AT#SMSATRUNCFG=?	Test command returns the supported values for the SMSATRUNCFG parameters

3.5.6.3.3. SMS AT Run White List - #SMSATWL

#SMSATWL – SMS AT Run White List	**SELINT 2**
AT#SMSATWL= <action> ,<index> [,<entryType> [,<string>]]	Set command to handle the white list. **<action >:** 0 – Add an element to the WhiteList 1 – Delete an element from the WhiteList 2 – Print and element of the WhiteList **< index >:** Index of the WhiteList. Range 1-8 **< entryType >:** 0 – Phone Number 1 – Password NOTE: A maximum of two Password Entry can be present at same time in the white List **<string>:** string parameter enclosed between double quotes containing or

#SMSATWL – SMS AT Run White List	**SELINT 2**
	the phone number or the password Phone number shall contain numerical characters and/or the character "+" at the beginning of the string and/or the character "*" at the end of the string. Password shall be 16 characters length NOTE: When the character "*" is used, it means that all the numbers that begin with the defined digit are part of the white list. E.g. "+39*" All Italian users can ask to run AT Command via SMS "+39349*" All vodafone users can ask to run AT Command via SMS.
AT#SMSATWL?	Read command returns the list elements in the format: **#SMSATWL: [<entryType>,<string>]**
AT#SMSATWL=?	Test command returns the supported values for the parameter **<action>, <index>** and **<entryType>**

3.5.6.3.4. Set TCP Run AT Service parameter - #TCPATRUNCFG

#TCPATRUNCFG– Set TCP AT Run Service Parameters	
AT#TCPATRUNCFG= <connId> ,<instance> ,<tcpPort> ,<tcpHostPort> ,<tcpHost> [,<urcmod> [,<timeout> [,<authMode> [,<retryCnt> [,<retryDelay>]]]]]	Set command configures the TCP AT RUN service Parameters: **<connId>** socket connection identifier. Default 1. Range 1..6. This parameter is mandatory. **<instance>:** AT instance that will be used by the service to run the AT Command. Default 2. Range 2 - 3. This parameter is mandatory. **<tcpPort>** Tcp Listen port for the connection to the service in server mode. Default 1024. Range 1…65535. This parameter is mandatory. **<tcpHostPort>** Tcp remote port of the Host to connect to, in client mode. Default 1024. Range 1…65535. This parameter is mandatory.

#TCPATRUNCFG– Set TCP AT Run Service Parameters	
	<tcpHost> IP address of the Host, string type. This parameter can be either: - any valid IP address in the format: "xxx.xxx.xxx.xxx" - any host name to be solved with a DNS query This parameter is mandatory. Default "". **<urcmod>:** 0 – disable unsolicited messages 1 - enable an unsolicited message when the TCP socket is connected or disconnect (default). When unsolicited is enabled, an asynchronous TCP Socket connection is indicated to TE with unsolicited result code: #TCPATRUN: <iphostaddress> When unsolicited is enabled, the TCP socket disconnection is indicated to TE with unsolicited result code: #TCPATRUN: <DISCONNECT> Unsolicited is dumped on the instance that requested the service activation. **<timeout>:** Define in minutes the maximum time for a command execution. If timeout expires the module will be rebooted. The default value is 5 minutes. Range 1…5. **<authMode>:** determines the authentication procedure in server mode: 0 – (default) when connection is up, username and password (in this order and each of them followed by a Carriage Return) have to be sent to the module before the first AT command. 1 – when connection is up, the user receives a request for username and, if username is correct, a request for password. Then a message of "Login successfull" will close authentication phase. Note: if username and/or password are not allowed (see AT#TCPATRUNAUTH) the connection will close immediately.

#TCPATRUNCFG– Set TCP AT Run Service Parameters	
	<retryCnt>: in client mode, at boot or after a socket disconnection, this parameter represents the number of attempts that are made in order to re-connect to the Host. Default: 0. Range 0…5. **<retryDelay>:** in client mode, delay between one attempt and the other. In minutes. Default: 2. Range 1…3600. Note2: the current settings are stored in NVM. Note3: to start automatically the service when the module is powered-on, the automatic PDP context activation has to be set (see AT#SGACTCFG command).
AT#TCPATRUNCFG?	Read command returns the current settings of parameters in the format: **#TCPATRUNCFG: <connId>,<instance>,<tcpPort>,<tcpHostPort>,<tcpHost>,<urcmod>,<timeout>,<authMode>,<retryCnt>,<retryDelay>**
AT#TCPATRUNCFG=?	Test command returns the supported values for the TCPATRUNCFG parameters

3.5.6.3.5. TCP Run AT Service in listen (server) mode - #TCPATRUNL

#TCPATRUNL– Enables TCP AT Run Service in listen (server) mode	SELINT 2
AT#TCPATRUNL= <mod>	Set command enables/disables the TCP AT RUN service in server mode. When this service is enabled, the module tries to put itself in TCP listen state. Parameter: **< mod >** 0: Service Disabled 1: Service Enabled Note1: If SMSATRUN is active on the same instance (see AT#TCPATRUNCFG) the command will return ERROR.

#TCPATRUNL– Enables TCP AT Run Service in listen (server) mode	**SELINT 2**
	Note2: when the service is active it is on a specific AT instance (see AT#TCPATRUNCFG), that instance cannot be used for any other scope. For example, if the multiplexer requests to establish the Instance, the request will be rejected. Note3: the current settings are stored in NVM. Note4: to start automatically the service when the module is powered-on, the automatic PDP context activation has to be set (see AT#SGACTCFG command).
AT#TCPATRUNL?	Read command returns the current settings of <mode> and the value of <stat> in the format: **#TCPATRUNL: <mod>,<stat>** where: **<stat>** - connection status 0 – not in listen 1 - in listen or active
AT#TCPATRUNL =?	Test command returns the supported values for the TCPATRUNL parameters

3.5.6.3.6. TCP AT Run Firewall List - #TCPATRUNFRWL

# TCPATRUNFRWL – TCP AT Run Firewall List	**SELINT 2**
AT#*TCPATRUNFRWL* = <action>, <ip_addr>, <net_mask>	Set command controls the internal firewall settings for the TCPATRUN connection. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx

# TCPATRUNFRWL – TCP AT Run Firewall List	**SELINT 2**
	<net_mask> - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>** If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped. Note1: A maximum of 5 firewall can be present at same time in the List. Note2: the firewall list is saved in NVM
AT# TCPATRUNFRWL?	Read command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#TCPATRUNFRWL: <ip_addr>,<net_mask>** **#TCPATRUNFRWL: <ip_addr>,<net_mask>** **…** **OK**
AT#TCPATRUNFRWL=?	Test command returns the allowed values for parameter **<action>**.

3.5.6.3.7. TCP AT Run Authentication Parameters List - #TCPATRUNAUTH

# TCPATRUNAUTH – TCP AT Run Authentication Parameters List	**SELINT 2**
AT# *TCPATRUNAUTH* = <action>, <userid>, <passw>	Execution command controls the authentication parameters for the TCPATRUN connection. Parameters:

# TCPATRUNAUTH – TCP AT Run Authentication Parameters List	SELINT 2
	<action> - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **< userid >** and **< passw >** has no meaning in this case. **< userid >** - user to be added into the **ACCEPT** chain; string type, maximum length 50 **< passw >** - password of the user on the **< userid >**; string type, maximum length 50 Command returns **OK** result code if successful. Note1: A maximum of 3 entry (password and userid) can be present at same time in the List. Note2: the Authentication Parameters List is saved in NVM.
AT#*TCPATRUNAUTH*?	Read command reports the list of all ACCEPT chain rules registered in the Authentication settings in the format: **#TCPATRUNAUTH: <user_id>,<passw>** **#TCPATRUNAUTH: <user_id>,<passw>** **….** **OK**
AT#*TCPATRUNAUTH* =?	Test command returns the allowed values for parameter **<action>**.

3.5.6.3.8. TCP AT Run in dial (client) mode - #TCPATRUND

#TCPATRUND – Enables TCP Run AT Service in dial (client) mode	**SELINT 2**
AT#TCPATRUND=<mod>	Set command enables/disables the TCP AT RUN service in client mode. When this service is enabled, the module tries to open a connection to the Host (the Host is specified in AT#TCPATRUNCFG). Parameter: **< mod >** 0: Service Disabled 1: Service Enabled

#TCPATRUND – Enables TCP Run AT Service in dial (client) mode	SELINT 2
	Note1: If SMSATRUN is active on the same instance (see AT#TCPATRUNCFG) the command will return ERROR. Note2: when the service is active it is on a specific AT instance (see AT#TCPATRUNCFG), that instance cannot be used for any other scope. For example if the multiplexer request to establish the Instance, the request will be rejected. Note3: the current setting are stored in NVM Note4: to start automatically the service when the module is powered-on, the automatic PDP context activation has to be set (see AT#SGACTCFG command). Note5: if the connection closes or at boot, if service is enabled and context is active, the module will try to reconnect for the number of attempts specified in AT#TCPATRUNCFG; also the delay between one attempt and the other will be the one specified in AT#TCPATRUNCFG.
AT# TCPATRUND?	Read command returns the current settings of <mode> and the value of <stat> in the format: **#TCPATRUND: <mod>,<stat>** where: **<stat>** - connection status 0 - not connected 1 – connected or connecting at socket level 2 - not connected but still trying to connect, attempting every delay time (specified in AT#TCPATRUNCFG)
AT#TCPATRUND =?	Test command returns the supported values for the TCPATRUND parameters

3.5.6.3.9. Closing TCP Run AT Socket - #TCPATRUNCLOSE

#TCPATRUNCLOSE – Closes TCP Run AT Socket	SELINT 2
AT#TCPATRUNCLOSE	Closes the socket used by TCP ATRUN service. Note: TCP ATRUN status is still enabled after this command, so the service re-starts automatically.

#TCPATRUNCLOSE – Closes TCP Run AT Socket	SELINT 2
AT#TCPATRUNCLOSE =?	Test command returns OK

3.5.6.3.10. TCP AT Run Command Sequence - #TCPATCMDSEQ

#TCPATCMDSEQ – For TCP Run AT Service, allows the user to give AT commands in sequence	SELINT 2
AT#TCPATCMDSEQ= <mod>	Set command enable/disable, for TCP Run AT service, a feature that allows giving more than one AT command without waiting for responses. It does not work with commands that uses the prompt '>' to receive the message body text (e.g. "at+cmgs", "at#semail") Parameter: **< mod >** 0: Service Disabled (default) 1: Service Enabled
AT# TCPATCMDSEQ?	Read command returns the current settings of parameters in the format: **#TCPATCMDSEQ: <mod>**
AT# TCPATCMDSEQ =?	Test command returns the supported values for the TCPATCMDSEQ parameters

3.5.6.3.11. TCP Run AT service to a serial port - #TCPATCONSER

#TCPATCONSER – Connects the TCP Run AT service to a serial port	SELINT 2
AT#TCPATCONSER= <port>,<rate>	Set command sets the TCP Run AT in transparent mode, in order to have direct access to the serial port specified. Data will be transferred directly, without being elaborated, between the TCP Run AT service and the serial port specified. If the CMUX protocol is running the command will return ERROR. Parameter: **< port >** 0 – 1. Serial port to connect to. **< rate >** baud rate for data transfer. Allowed values are 300,1200,2400,4800,9600,19200,38400,57600,115200. Note1: the command has to be issued from the TCP ATRUN instance

#TCPATCONSER – Connects the TCP Run AT service to a serial port	SELINT 2
	Note2: After this command has been issued, if no error has occurred, then a "CONNECT" will be returned by the module to advise that the TCP ATRUN instance is in *online mode* and connected to the port specified. Note3: To exit from online mode and close the connection, the escape sequence (+++) has to be sent on the TCP ATRUN instance
AT# TCPATCONSER =?	Test command returns the supported values for the TCPATCONSER parameters

3.5.6.3.12. Run AT command execution - #ATRUNDELAY

#ATRUNDELAY – Set the delay on Run AT command execution	SELINT 2
AT#ATRUNDELAY= <srv>,<delay>	Set command enables the use of a delay before the execution of AT command received by Run AT service (TCP and SMS). It affects just AT commands given through Run AT service. <srv> 0 – TCP Run AT service 1 - SMS Run AT service **<delay>** Value of the delay, in seconds. Range 0..30. Default value 0 for both services (TCP and SMS). Note1 - The use of the delay is recommended to execute some AT commands that require network interaction or switch between GSM and GPRS services. For more details see the RUN AT User Guide. Note2: The delay is valid till a new AT#ATRUNDELAY is set.
AT# ATRUNDELAY?	Read command returns the current settings of parameters in the format: #ATRUNDELAY: 0, <dealyTCP> #ATRUNDELAY: 1, <dealySMS> OK
AT#ATRUNDELAY =?	Test command returns the supported values for the ATRUNDELAY parameters

3.5.6.3.13. Enable EvMoni Service - #ENAEVMONI

#ENAEVMONI – Enable EvMoni Service	**SELINT 2**
AT#ENAEVMONI= <mod>	Set command enables/disables the EvMoni service. Parameter: **< mod >** 0: Service Disabled (default) 1: Service Enabled Note1: When the service is active on a specific AT instance, that instance cannot be used for any other scope, except for OTA service that has the highest priority. For example in the multiplexer request to establish the Instance, the request will be rejected. Note2: the current settings are stored in NVM.
AT#ENAEVMONI?	Read command returns the current settings of <mode> and the value of <stat> in the format: **# ENAEVMONI: <mod>,<stat>** where: **<stat>** - service status 0 – not active (default) 1 - active
AT#ENAEVMONI =?	Test command returns the supported values for the ENAEVMONI parameters

3.5.6.3.14. EvMoni Service parameter - #ENAEVMONICFG

#ENAEVMONICFG – Set EvMoni Service Parameters	**SELINT 2**
AT#ENAEVMONICFG=<instance> [,<urcmod> [,<timeout>]]	Set command configures the EvMoni service. Parameter: **<instance>:** AT instance that will be used by the service to run the AT Command. Range 2 - 3. (Default: 3) **<urcmod>:** 0 – disable unsolicited message 1 - enable an unsolicited message when an AT command is executed after an event is occurred (default)

#ENAEVMONICFG – Set EvMoni Service Parameters	**SELINT 2**
	When unsolicited is enabled, the AT Command is indicated to TE with unsolicited result code: #EVMONI: <Text> e.g.: #EVMONI: AT+CGMR;+CGSN;+GSN;+CCLK Unsolicited is dumped on the instance that requested the service activation. **<timeout>:** It defines in minutes the maximum time for a command execution. If timeout expires the module will be rebooted. (Default: 5) Note 1: the current settings are stored in NVM. Note 2: the instance used for the EvMoni service is the same used for the SMS AT RUN service. Therefore, when the #ENAEVMONICFG sets the <instance> parameter, the change is reflected also in the <instance> parameter of the #SMSATRUNCFG command, and viceversa. Note 3: the set command returns ERROR if the command AT#ENAEVMONI? returns 1 as <mod> parameter or the command AT#SMSATRUN? returns 1 as <mod> parameter
AT#ENAEVMONICFG?	Read command returns the current settings of parameters in the format: **#ENAEVMONICFG:<instance>,<urcmod>,<timeout>**
AT# ENAEVMONICFG =?	Test command returns the supported values for the ENAEVMONICFG parameters

3.5.6.3.15. Event Monitoring - #EVMONI

#EVMONI – Set the single Event Monitoring	**SELINT 2**
AT#EVMONI= **<label>,** **<mode>,** **[,<paramType >**	Set command enables/disables the single event monitoring, configures the related parameter and associates the AT command **<label>:** string parameter (that has to be enclosed between double quotes)

#EVMONI – Set the single Event Monitoring	**SELINT 2**
,<param>]	indicating the event under monitoring. It can assume the following values: • VBATT - battery voltage monitoring • DTR - DTR monitoring • ROAM - roaming monitoring • CONTDEACT - context deactivation monitoring • RING - call ringing monitoring • STARTUP – module start-up monitoring • REGISTERED – network registration monitoring • GPIO1 – monitoring on a selected GPIO in the GPIO range • GPIO2 – monitoring on a selected GPIO in the GPIO range • GPIO3 – monitoring on a selected GPIO in the GPIO range • GPIO4 – monitoring on a selected GPIO in the GPIO range • GPIO5 – monitoring on a selected GPIO in the GPIO range • ADCH1 – ADC High Voltage monitoring • ADCL1 – ADC Low Voltage monitoring **<mode>:** 0 – disable the single event monitoring (default) 1 – enable the single event monitoring **< paramType >:** numeric parameter indicating the type of parameter contained in **<param>**. The 0 value indicates that **<param>** contains the AT command string to execute when the related event has occurred. Other values depend from the type of event. **<param>:** it can be a numeric or string value depending on the value of **<paramType>** and on the type of event. If **<paramType>** is 0, then **<param>** is a string containing the AT command: • It has to be enclosed between double quotes • It has to start with the 2 chars AT (or at) • If the string contains the character ", then it has to be replaced with the 3 characters \22 • the max string length is 96 characters • if it is an empty string, then the AT command is erased • If **<label>** is VBATT, **<paramType>** can assume values in the range 0 - 2. ○ if **<paramType>** = 1, **<param>** indicates the battery voltage threshold in the range 0 – 500, where one unit corresponds to 10 mV (therefore 500 corresponds to 5 V). (Default: 0) ○ if **<paramType>** = 2, **<param>** indicates the time interval in

#EVMONI – Set the single Event Monitoring	SELINT 2

seconds after that the voltage battery under the value specified with **<paramType>** = 1 causes the event. The range is 0 – 255. (Default: 0)

- If **<label>** is DTR, **<paramType>** can assume values in the range 0 - 2.
    - if **<paramType>** = 1, **<param>** indicates the status high or low under monitoring. The values are 0 (low) and 1 (high). (Default: 0)
    - if **<paramType>** = 2, **<param>** indicates the time interval in seconds after that the DTR in the status specified with **<paramType>** = 1 causes the event. The range is 0 – 255. (Default: 0)
- If **<label>** is ROAM, **<paramType>** can assume only the value 0. The event under monitoring is the roaming state.
- If **<label>** is CONTDEACT, **<paramType>** can assume only the value 0. The event under monitoring is the context deactivation.
- If **<label>** is RING, **<paramType>** can assume values in the range 0 - 1.
    - if **<paramType>** = 1, **<param>** indicates the numbers of call rings after that the event occurs. The range is 1-50. (Default: 1)
- If **<label>** is STARTUP, **<paramType>** can assume only the value 0. The event under monitoring is the module start-up.
- If **<label>** is REGISTERED, **<paramType>** can assume only the value 0. The event under monitoring is the network registration (to home network or in roaming) after the start-up and the SMS ordening.
- If **<label>** is GPIOX, **<paramType>** can assume values in the range 0 - 3.
    - if **<paramType>** = 1, **<param>** indicates the GPIO pin number; supported range is from 1 to a value that depends on the hardware. (Default: 1)
    - if **<paramType>** = 2, **<param>** indicates the status high or low under monitoring. The values are 0 (low) and 1 (high) . (Default: 0)
    - if **<paramType>** = 3, **<param>** indicates the time interval in seconds after that the selected GPIO pin in the status specified with **<paramType>** = 1 causes the event. The range is 0 – 255. (Default: 0)
- If **<label>** is ADCH1, **<paramType>** can assume values in the range 0 - 3.
    - if **<paramType>** = 1, **<param>** indicates the ADC pin number; supported range is from 1 to a value that depends on the

#EVMONI – Set the single Event Monitoring	SELINT 2
	hardware. (Default: 1) ○ if **<paramType>** = 2, **<param>** indicates the ADC High voltage threshold in the range 0 – 2000 mV. (Default: 0) ○ if **<paramType>** = 3, **<param>** indicates the time interval in seconds after that the selected ADC pin above the value specified with **<paramType>** = 1 causes the event. The range is 0 – 255. (Default: 0) • If **<label>** is ADCL1, **<paramType>** can assume values in the range 0 - 3. ○ if **<paramType>** = 1, **<param>** indicates the ADC pin number; supported range is from 1 to a value that depends on the hardware. (Default: 1) ○ if **<paramType>** = 2, **<param>** indicates the ADC Low voltage threshold in the range 0 – 2000 mV. (Default: 0) ○ if **<paramType>** = 3, **<param>** indicates the time interval in seconds after that the selected ADC pin under the value specified with **<paramType>** = 1 causes the event. The range is 0 – 255. (Default: 0)
AT# EVMONI?	Read command returns the current settings for each event in the format: **#EVMONI: <label>,<mode>,<param0>[,<param1>[,<param2>[,<param3>]]]** Where **<param0>**, **<param1>**, **<param2>** and **<param3>** are defined as before for **<param>** depending on **<label>** value
AT#EVMONI=?	Test command returns values supported as a compound value

3.5.6.3.16. Send Message - #CMGS

#CMGS - Send Message	SELINT 2
(PDU Mode) **AT#CMGS=<length>,<pdu>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164 **<pdu>** - PDU in hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one

#CMGS - Send Message	**SELINT 2**
	line. Note: when the length octet of the SMSC address (given in the **<pdu>**) equals zero, the SMSC address set with command **+CSCA** is used; in this case the SMSC Type-of-Address octet shall not be present in the **<pdu>**. If message is successfully sent to the network, then the result is sent in the format: **#CMGS: <mr>** where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported.
(Text Mode) **AT#CMGS=<da>,<text>**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<text>** - text to send The entered text should be enclosed between double quotes and formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the '**asterisk**' will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**)

#CMGS - Send Message	**SELINT 2**
	If message is successfully sent to the network, then the result is sent in the format: **#CMGS: <mr>** where **<mr>** - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported.
AT#CMGS=?	Test command resturns the **OK** result code.
Note	To avoid malfunctions is suggested to wait for the **#CMGS: <mr>** or **#CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 27.005

3.5.6.3.17. Write Message To Memory - #CMGW

#CMGW - Write Message To Memory	**SELINT 2**
(PDU Mode) **AT#CMGW=<length>,<pdu>**	**(PDU Mode)** Execution command writes in the **<memw>** memory storage a new message. Parameter: **<length>** - length in bytes of the PDU to be written. 7..164 **<pdu>** - PDU in hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one line. If message is successfully written in the memory, then the result is sent in the format: **#CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**.

#CMGW - Write Message To Memory	**SELINT 2**
	If message storing fails for some reason, an error code is reported.
(Text Mode) **AT#CMGW=<da>,<text>**	(Text Mode) Execution command writes in the **<memw>** memory storage a new message. Parameters: **<da>** - destination address, string type represented in the currently selected character set (see **+CSCS**). **<text>** - text to write The entered text should be enclosed between double quotes and formatted as follows: - if current **<dcs>** (see **+CSMP**) indicates that GSM03.38 default alphabet is used and current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A. - if current **<dcs>** (see **+CSMP**) indicates that 8-bit or UCS2 data coding scheme is used or current **<fo>** (see **+CSMP**) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the **'asterisk'** will be entered as **2A** (**IRA50** and **IRA65**) and this will be converted to an octet with integer value **0x2A**) If message is successfully written in the memory, then the result is sent in the format: **#CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported.
AT#CMGW=?	Test command returns the **OK** result code.
Reference	GSM 27.005
Note	To avoid malfunctions is suggested to wait for the **#CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

3.5.6.4. FOTA Commands

3.5.6.4.1. OTA Set Network Access Point - #OTASNAP

#OTASNAP – OTA Set Network Access Point	SELINT 0/1
AT#OTASNAP=<addr>[,<company_name>]	Set command specifies the SMS number that the module has to use to send the Remote Registration SM. If the current IMSI hasn't been yet registered, the Remote Registration SM is automatically sent. Parameters: **<addr>** - string parameter which specifies the phone number **<company_name>** - string parameter containing a client identifier Note1: a special form of the Set command, **#OTASNAP=""**, causes the deletion of the SMS number Note2: the value of **<addr>** parameter can be overwritten from the OTA server by the Provisioning SMS Note3: a change of the value of **<company_name>** parameter causes a new FOTA Registration procedure Note4: if the **<company_name>** is an empty string, an ERROR is returned Note5: the setting is saved in NVM
AT#OTASNAP?	Read command reports the current settings in the format: **#OTASNAP: <addr>[,<company_name>]**
AT#OTASNAP	Execution command has the same effect as the Read command
AT#OTASNAP =?	Test command returns the maximum length of **<addr>** field and maximum length of **<company_name>** field. The format is: **#OTASNAP: <nlength>,<tlength>** where: **<nlength>** - integer type value indicating the maximum length of field **<addr>** **<tlength>** - integer type value indicating the maximum length of field **<company_name>**

#OTASNAP – OTA Set Network Access Point		**SELINT 0/1**
Example	AT#OTASNAP=”*SMS Number*”,”*Client Alpha*” OK AT#OTASNAP? #OTASNAP:”*SMS Number*”,”*Client Alpha*” OK AT#OTASNAP=? #OTASNAP: 21,15 OK	

#OTASNAP – OTA Set Network Access Point		**SELINT 2**
AT#OTASNAP= <addr>[,<company_name>]	Set command specifies the SMS number that the module has to use to send the Remote Registration SM. If the current IMSI hasn’t been yet registered, the Remote Registration SM is automatically sent. Parameters: **<addr>** - string parameter which specifies the phone number **<company_name>** - string parameter containing a client identifier Note1: a special form of the Set command, **#OTASNAP=””**, causes the deletion of the SMS number Note2: the value of **<addr>** parameter can be overwritten from the OTA server by the Provisioning SMS Note3: a change of the value of **<company_name>** parameter causes a new FOTA Registration procedure Note4: if the **<company_name>** is an empty string, an ERROR is returned Note5: the setting is saved in NVM	
AT#OTASNAP?	Read command reports the current settings in the format: **#OTASNAP: <addr>[,<company_name>]**	
AT#OTASNAP =?	Test command returns the maximum length of **<addr>** field and maximum length of **<company_name>** field. The format is: **#OTASNAP: <nlength>,<tlength>** where: **<nlength>** - integer type value indicating the maximum length of field **<addr>** **<tlength>** - integer type value indicating the maximum length of field	

#OTASNAP – OTA Set Network Access Point	SELINT 2
	<company_name>
Example	

```
AT#OTASNAP="SMS Number","Client Alpha"
OK
AT#OTASNAP?
#OTASNAP:"SMS Number","Client Alpha"

OK
AT#OTASNAP=?
#OTASNAP: 21,15

OK
```

3.5.6.4.2. OTA Set User Answer - #OTASUAN

#OTASUAN – OTA Set User Answer	SELINT 0/1
AT#OTASUAN=<response>[,<mode>[,<bfr>]]	Set command: a) enables or disables sending of unsolicited result code #OTAEV that asks the TE to accept or reject the Management Server request to download a firmware b) allows the TE to accept or reject the request Parameters: **<response>** - numeric parameter used to accept or reject the download request 0 – the request is rejected 1 – the request is accepted 2 – the request is delayed indefinitely: the URC is prompted indefinitely until the request is accepted or reject **<mode>** - numeric parameter that controls the processing of unsolicited result code #OTAEV 0 –buffer unsolicited result codes in the MT; if MT result code buffers is full, the oldest ones can be discarded. No codes are forwarded to the TE. 1 –discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2 –buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE **<bfr>** - numeric parameter that controls the effect on buffered codes when **<mode>** 1 or 2 is entered 0 – MT buffer of unsolicited result codes #OTAEV is cleared when **<mode>**

#OTASUAN – OTA Set User Answer	SELINT 0/1
	1 or 2 is entered 1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when **<mode>** 1 or 2 is entered Note: the following unsolicited result codes and the corresponding events are defined: #OTAEV: Do you want to upgrade the firmware? A management server request to start the firmware upgrade. The user answer is expected #OTAEV: User Answer Timeout Expected User Answer not received within server defined time interval #OTAEV: Automatic Fw Upgrade Requested An automatic Fw Upgrade procedure has started #OTAEV: Start Fw Download The firmware download is started #OTAEV: Fw Download Complete The firmware download is finished #OTAEV: OTA Fw Upgrade Failed The Fw upgrade has failed #OTAEV: Module Upgraded To New Fw The Fw upgrade is successfully finished #OTAEV: Server notified about successfull FW Upgrade The final SMS has been sent to the server notifying the successful FW upgrade "#OTAEV: Registered" The module has registered itself to a server "#OTAEV: Not registered" The registration procedure has failed "#OTAEV: Company Name Registered" The company name is registered

#OTASUAN – OTA Set User Answer	SELINT 0/1
	"#OTAEV: Company Name not registered" The company name is not registered "#OTAEV: Provisioned" A server has provisioned the module "#OTAEV: Notified" A server has notified the module
AT# OTASUAN?	Read command reports the current settings in the format: **#OTASUAN: ,<mode>,<bfr>**
AT#OTASUAN	Execution command has the same effect as the Read command
AT#OTASUAN =?	Test command returns values supported as a compound value
Example	

```
AT#OTASUAN=,2,1
OK
AT#OTASUAN?
#OTASUAN: ,2,1
OK
AT#OTASUAN =?
#OTASUAN: (0-2),(0-2),(0,1)
OK
```

#OTASUAN – OTA Set User Answer	SELINT 2
AT#OTASUAN= <response>[,<mode>[,<bfr>]]	Set command: a) enables or disables sending of unsolicited result code #OTAEV that asks the TE to accept or reject the Management Server request to download a firmware b) allows the TE to accept or reject the request Parameters: **<response>** - numeric parameter used to accept or reject the download request 0 – the request is rejected 1 – the request is accepted 2 – the request is delayed indefinitely: the URC is prompted indefinitely until the request is accepted or reject **<mode> -** numeric parameter that controls the processing of unsolicited result code #OTAEV 0 –buffer unsolicited result codes in the MT; if MT result code buffers is

#OTASUAN – OTA Set User Answer		SELINT 2
	full, the oldest ones can be discarded. No codes are forwarded to the TE. 1 –discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2 –buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE **<bfr>** - numeric parameter that controls the effect on buffered codes when **<mode>** 1 or 2 is entered 0 – MT buffer of unsolicited result codes #OTAEV is cleared when **<mode>** 1 or 2 is entered 1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when **<mode>** 1 or 2 is entered Note: the following unsolicited result codes and the corresponding events are defined: #OTAEV: Do you want to upgrade the firmware? A management server request to start the firmware upgrade. The user answer is expected #OTAEV: User Answer Timeout Expected User Answer not received within server defined time interval #OTAEV: Automatic Fw Upgrade Requested An automatic Fw Upgrade procedure has started #OTAEV: Start Fw Download The firmware download is started #OTAEV: Fw Download Complete The firmware download is finished #OTAEV: OTA Fw Upgrade Failed The Fw upgrade has failed #OTAEV: Module Upgraded To New Fw The Fw upgrade is successfully finished #OTAEV: Server notified about successful FW Upgrade The final SMS has been sent to the server notifying the successful FW upgrade	

#OTASUAN – OTA Set User Answer	SELINT 2
	"#OTAEV: Registered" The module has registered itself to a server "#OTAEV: Not registered" The registration procedure has failed "#OTAEV: Company Name Registered" The company name is registered "#OTAEV: Company Name not registered" The company name is not registered "#OTAEV: Provisioned" A server has provisioned the module "#OTAEV: Notified" A server has notified the module
AT# OTASUAN?	Read command reports the current settings in the format: **#OTASUAN: ,<mode>,<bfr>**
AT#OTASUAN =?	Test command returns values supported as a compound value

Example	`AT#OTASUAN=,2,1`
	`OK`
	`AT#OTASUAN?`
	`#OTASUAN: ,2,1`
	`OK`
	`AT#OTASUAN =?`
	`#OTASUAN: (0-2),(0-2),(0,1)`
	`OK`

3.5.6.4.3. OTA Set Ring Indicator - #OTASETRI

#OTASETRI - OTA Set Ring Indicator	SELINT 0/1

#OTASETRI - OTA Set Ring Indicator	**SELINT 0/1**
AT#OTASETRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a manual OTA server request to start the firmware upgrade. If enabled, a negative going pulse is generated when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted (see **AT#OTASUAN** command). The duration of this pulse is determined by the value of **<n>**. Parameter: **<n>** - **RI** enabling 0 - disables **RI** pin response when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted (factory default) 50..1150 - enables **RI** pin response. The value of **<n>** is the duration in ms of the pulse generated when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted. Note: if the <response> parameter of the AT#OTASUAN command has the value 2, then the URC is prompted indefinitely until the Fw update request is accepted or reject and, for every URC, a pulse is generated. Note: the setting is saved in the profile parameters
AT#OTASETRI?	Read command reports the duration in ms of the pulse generated when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted, in the format: **#OTASETRI: <n>** Note: as seen before, the value **<n>=0** means that the **RI** pin response to the URC is disabled.
AT#OTASETRI	Execution command has the same effect as the Read command
AT#OTASETRI =?	Reports the range of supported values for parameter **<n>**

#OTASETRI - OTA Set Ring Indicator	**SELINT 2**
AT#OTASETRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a manual OTA server request to start the firmware upgrade. If enabled, a negative going pulse is generated when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted (see **AT#OTASUAN** command). The duration of this pulse is determined by the value of **<n>**. Parameter: **<n>** - **RI** enabling 0 - disables **RI** pin response when the URC *"#OTAEV: Do you want to*

#OTASETRI - OTA Set Ring Indicator	SELINT 2
	upgrade the firmware?" is prompted (factory default) 50..1150 - enables **RI** pin response. The value of **<n>** is the duration in ms of the pulse generated when the URC *"#OTAEV: Do you want to upgrade the firmware?"* is prompted. Note: if the <response> parameter of the AT#OTASUAN command has the value 2, then the URC is prompted indefinitely until the Fw update request is accepted or reject and, for every URC, a pulse is generated. Note: the setting is saved in the profile parameters
AT#OTASETRI?	Read command reports the duration in ms of the pulse generated when the URC "*#OTAEV: Do you want to upgrade the firmware?"* is prompted, in the format: **#OTASETRI: <n>** Note: as seen before, the value **<n>=0** means that the **RI** pin response to the URC is disabled.
AT#OTASETRI =?	Reports the range of supported values for parameter **<n>**

3.5.6.5. Multisocket AT Commands

3.5.6.5.1. Socket Status - #SS

#SS - Socket Status	SELINT 2
AT#SS[=<connId>]	Execution command reports the current status of the socket: **Parameters:** **<connId> - socket connection identifier** 1..6 **The response format is:** **#SS: <connId>,<state>,<locIP>,<locPort>,<remIP>,<remPort>** where: **<connId>** - socket connection identifier, as before **<state>** - actual state of the socket: 0 - Socket Closed. 1 - Socket with an active data transfer connection. 2 - Socket suspended.

#SS - Socket Status	**SELINT 2**
	3 - Socket suspended with pending data. 4 - Socket listening. 5 - Socket with an incoming connection. Waiting for the user accept or shutdown command. **<locIP>** - IP address associated by the context activation to the socket. **<locPort>** - two meanings: - the listening port if we put the socket in listen mode. - the local port for the connection if we use the socket to connect to a remote machine. **<remIP>** - when we are connected to a remote machine this is the remote IP address. **<remPort>** - it is the port we are connected to on the remote machine. Note: issuing **#SS<CR>** causes getting information about status of all the sockets; the response format is: **#SS: <connId1>,<state1>,<locIP1>,<locPort1>,<remIP1>,<remPort1>** **<CR><LF>** ... **#SS: <connId6>,<state6>,<locIP6>,<locPort6>,<remIP6>,<remPort6>**
AT#SS=?	Test command reports the range for parameter <connId>.
Example	

```
AT#SS
#SS: 1,3,91.80.90.162,61119,88.37.127.146,10510
#SS: 2,4,91.80.90.162,1000
#SS: 3,0
#SS: 4,0
#SS: 5,3,91.80.73.70,61120,88.37.127.146,10509
#SS: 6,0


OK

Socket 1: opened from local IP 91.80.90.162/local port 61119 to remote
IP 88.37.127.146/remote port 10510
is suspended with pending data

Socket 2: listening on local IP 91.80.90.162/local port 1000

Socket 5: opened from local IP 91.80.73.70/local port 61120 to remote
IP 88.37.127.146/remote port 10509
is suspended with pending data


AT#SS=2
```

#SS - Socket Status	SELINT 2

	`#SS: 2,4,91.80.90.162,1000`
	`OK`
	
	We have information only about socket number 2

3.5.6.5.2. Socket Info - #SI

#SI - Socket Info	SELINT 2
AT#SI[=<connId>]	Execution command is used to get information about socket data traffic. Parameters: **<connId>** - socket connection identifier 1..6 The response format is: **#SI: <connId>,<sent>,<received>,<buff_in>,<ack_waiting>** where: **<connId>** - socket connection identifier, as before **<sent>** - total amount (in bytes) of sent data since the last time the socket connection identified by **<connId>** has been opened **<received>** - total amount (in bytes) of received data since the last time the socket connection identified by **<connId>** has been opened **<buff_in>** - total amount (in bytes) of data just arrived through the socket connection identified by **<connId>** and currently buffered, not

#SI - Socket Info	SELINT 2
	yet read **<ack_waiting>** - total amount (in bytes) of sent and not yet acknowledged data since the last time the socket connection identified by **<connId>** has been opened Note: not yet acknowledged data are available only for TCP connections; the value **<ack_waiting>** is always 0 for UDP connections. Note: issuing **#SI<CR>** causes getting information about data traffic of all the sockets; the response format is: **#SI: <connId1>,<sent1>,<received1>,<buff_in1>,<ack_waiting1> <CR><LF>** **...** **#SI: <connId6>,<sent6>,<received6>,<buff_in6>,<ack_waiting6>**
AT#SI=?	Test command reports the range for parameter **<connId>**.
Example	

```
AT#SI

#SI: 1,123,400,10,50
#SI: 2,0,100,0,0
#SI: 3,589,100,10,100
#SI: 4,0,0,0,0
#SI: 5,0,0,0,0
#SI: 6,0,98,60,0

OK
```

Sockets 1,2,3,6 are opened with some data traffic.
For example socket 1 has 123 bytes sent, 400 bytes received, 10 byte waiting to be read and 50 bytes waiting to be acknowledged from the remote side.

```
AT#SI=1

#SI: 1,123,400,10,50

OK
```

We have information only about socket number 1

3.5.6.5.3. Context Activation - #SGACT

#SGACT - Context Activation	SELINT 2
AT#SGACT=<cid>,<stat>[,<userId>,<pwd>]	Execution command is used to activate or deactivate either the GSM context or the specified PDP context.

#SGACT - Context Activation	**SELINT 2**
	Parameters: **<cid>** - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition **<stat>** 0 - deactivate the context 1 - activate the context **<userId>** - string type, used only if the context requires it **<pwd>** - string type, used only if the context requires it Note: context activation/deactivation returns **ERROR** if there is not any socket associated to it (see **AT#SCFG**). Note: after the GSM context has been activated, you can use either Multisocket, or FTP or Email AT commands to send/receive TCP/IP packets via GSM. Note: to deactivate the GSM context, **AT#SGACT=0,0** has to be issued on the same serial port used when the context was activated. Note: GSM context activation is affected by **AT+CBST** command. In particular, GSM context activation is just allowed with "non transparent" data calls. Note: activating a GSM context while a PDP context is already activated causes the PDP context to be suspended. Note: if GSM context is active, it is not allowed any PDP context activation.
AT#SGACT?	Returns the state of all the contexts that have been defined through the commands **+CGDCONT** or **#GSMCONT** **#SGACT: <cid1>,<Stat1><CR><LF>** **...** **#SGACT: <cid5>,<Stat5>** where: **<cid*n*>** - as **<cid>** before **<stat*n*>** - context status 0 - context deactivated 1 - context activated
AT#SGACT=?	Test command reports the range for the parameters **<cid>** and **<stat>**

#SGACT - Context Activation	**SELINT 2**
Note	It is strongly recommended to use the same command (e.g. **#SGACT**) to activate the context, deactivate it and interrogate about its status.

3.5.6.5.4. Socket Shutdown - #SH

#SH - Socket Shutdown	**SELINT 2**
AT#SH=<connId>	This command is used to close a socket. Parameter: **<connId>** - socket connection identifier 1..6
AT#SH=?	Test command reports the range for parameter **<connId>**.

3.5.6.5.5. Socket Configuration - #SCFG

#SCFG - Socket Configuration	**SELINT 2**
AT#SCFG= <connId>,<cid>, <pktSz>,<maxTo>, <connTo>,<txTo>	Set command sets the socket configuration parameters. Parameters: **<connId>** - socket connection identifier 1..6 **<cid>** - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition **<pktSz>** - packet size to be used by the TCP/UDP/IP stack for data sending. 0 - select automatically default value(300). 1..1500 - packet size in bytes. **<maxTo>** - exchange timeout (or socket inactivity timeout); if there's no data exchange within this timeout period the connection is closed. 0 - no timeout 1..65535 - timeout value in seconds (default 90 s.) **<connTo>** - connection timeout; if we can't establish a connection to the remote within this timeout period, an error is raised. 10..1200 - timeout value in hundreds of milliseconds (default 600) **<txTo>** - data sending timeout; after this period data are sent also if they're less than max packet size. 0 - no timeout 1..255 - timeout value in hundreds of milliseconds (default 50)

#SCFG - Socket Configuration	SELINT 2
	Note: these values are automatically saved in NVM.
AT#SCFG?	Read command returns the current socket configuration parameters values for all the six sockets, in the format: #SCFG: <connId1>,<cid1>,<pktsz1>,<maxTo1>,<connTo1>,<txTo1> <CR><LF> . . . #SCFG: <connId6>,<cid6>,<pktsz6>,<maxTo6>,<connTo6>,<txTo6> <CR><LF>
AT#SCFG=?	Test command returns the range of supported values for all the subparameters.

Example	`at#scfg?`
	`#SCFG: 1,1,300,90,600,50`
	`#SCFG: 2,2,300,90,600,50`
	`#SCFG: 3,2,250,90,600,50`
	`#SCFG: 4,1,300,90,600,50`
	`#SCFG: 5,1,300,90,600,50`
	`#SCFG: 6,1,300,90,600,50`
	
	`OK`

3.5.6.5.6. Socket Configuration Extended - #SCFGEXT

#SCFGEXT - Socket Configuration Extended	SELINT 2
AT#SCFGEXT=<conned>,*<srMode>,<recvDataMode>,<keepalive>,*[,*<ListenAutoRsp> [,<sendDataMode>]*]	Set command sets the socket configuration extended parameters. Parameters: **<connId>** - socket connection identifier 1..6 **<srMode>** - SRing unsolicited mode 0 - Normal (default): SRING : <connId> where <connId> is the socket connection identifier 1 – Data amount: SRING : <connId>,<recData> where <recData> is the amount of data received on the socket connection number <connId> 2 - Data view: SRING : <connId>,<recData>,<data> same as before and

	<data> is data received displayed following <dataMode> value **<recvDataMode>** - data view mode for received data in command mode(AT#SRECV or <srMode> = 2) 0- text mode (default) 1- hexadecimal mode ***<keepalive>*** **-** Set the TCP Keepalive value in minutes 0 – Deactivated (default) 1 – 240 – Keepalive time in minutes ***<ListenAutoRsp>*** **-** Set the listen auto-response mode, that affects the commands AT#SL and AT#SLUDP 0 - Deactivated (default) 1 – Activated **<sendDataMode>** - data mode for sending data in command mode(AT#SSEND) 0 - data represented as text (default) 1 - data represented as sequence of hexadecimal numbers (from 00 to FF) Each octet of the data is given as two IRA character long hexadecimal number Note: these values are automatically saved in NVM. Note: Keepalive is available only on TCP connections. Note: for the behaviour of AT#SL and AT#SLUDP in case of auto-response mode or in case of no auto-response mode, see the description of the two commands.
AT#SCFGEXT?	Read command returns the current socket extended configuration parameters values for all the six sockets, in the format: **#SCFGEXT:<connId1>, <srMode1>,<dataMode1>,*<keepalive1>, <ListenAutoRsp1>,0*<CR><LF>**

	. . . #SCFGEXT:<connId6>, <srMode6>,<dataMode6>,*<keepalive6>,* *<ListenAutoRsp6>,0*<CR><LF>
AT#SCFGEXT=?	Test command returns the range of supported values for all the subparameters.
Example	Socket 1 set with data view sring, text data mode, a keepalive time of 30 minutes and listen auto-response set. Socket 3 set with data amount sring, hex recv data mode, no keepalive and listen auto-response not set. Socket 4 set with hex recv and send data mode

```
at#scfgext?
#SCFGEXT: 1,2,0,30,1,0
#SCFGEXT: 2,0,0,0,0,0
#SCFGEXT: 3,1,1,0,0,0
#SCFGEXT: 4,0,1,0,0,1
#SCFGEXT: 5,0,0,0,0,0
#SCFGEXT: 6,0,0,0,0,0
OK
```

3.5.6.5.7. Socket configuration Extended 2 - #SCFGEXT2

#SCFGEXT2 - Socket Configuration Extended	
AT#SCFGEXT2= <connId>,<bufferStart>, [,<abortConnAttempt> [,<unused_B > [,<unused_C >[,<unused_D>]]]]	Set command sets the socket configuration extended parameters for features not included in #SCFGEXT command. Parameters: **<connId>** - socket connection identifier 1..6 **<bufferStart>** - Set the sending timeout method based on new data received from the serial port. (<txTo> timeout value is set by #SCFG command) Restart of transmission timer will be done when new data are received from the serial port.

	0 - old behaviour for transmission timer (#SCFG command 6th parameter old behaviour, start only first time if new data are received from the serial port) 1 - new behaviour for transmission timer: restart at each new byte received from the serial port Note: is necessary to avoid overlapping of the two methods. Enabling new method, the old method for transmission timer(#SCFG) is automatically disabled to avoid overlapping. **<abortConnAttempt>** - Enable connection attempt(#SD/#SKTD/#SKTOP) abort before CONNECT(online mode) or OK(command mode) 0 – Not possible to interrupt connection attempt 1 – It is possible to interrupt the connection attempt (<connTo> set by #SCFG or DNS resolution running if required) and give back control to AT interface by reception of a character. As soon as the control has been given to the AT interface the ERROR message will be received on the interface itself. Note: values are automatically saved in NVM.
AT#SCFGEXT2?	Read command returns the current socket extended configuration parameters values for all the six sockets, in the format: **#SCFGEXT2:<connId1>,<bufferStart1>,0,0,0,0<CR><LF>** . . . **#SCFGEXT2:<connId6>,<bufferStart6>,0,0,0,0<CR><LF>**
AT#SCFGEXT2=?	Test command returns the range of supported values for all the subparameters.
Example	AT#SCFGEXT2=1,1 OK AT#SCFGEXT2=2,1 OK

```
AT#SCFGEXT2?
#SCFGEXT2: 1,1,0,0,0,0
#SCFGEXT2: 2,1,0,0,0,0
#SCFGEXT2: 3,0,0,0,0,0
#SCFGEXT2: 4,0,0,0,0,0
#SCFGEXT2: 5,0,0,0,0,0
#SCFGEXT2: 6,0,0,0,0,0

OK

AT#SCFG?
#SCFG: 1,1,300,90,600,50
#SCFG: 2,1,300,90,600,50
#SCFG: 3,1,300,90,600,50
#SCFG: 4,2,300,90,600,50
#SCFG: 5,2,300,90,600,50
#SCFG: 6,2,300,90,600,50

OK

AT#SCFG=1,1,300,90,600,30
OK
```

Current configuration: socket with connId 1 and 2 are configured with new transmission timer behaviour.
<txTo> corresponding value has been changed(#SCFG) for connId 1, for connId 2 has been left to default value.

3.5.6.5.8. Socket Dial - #SD

#SD - Socket Dial	SELINT 2
AT#SD=<connId>, <txProt>,<rPort>, <IPaddr> [,<closureType> [,<lPort> [,<connMode>]]]	Execution command opens a remote connection via socket. Parameters: **<connId>** - socket connection identifier 1..6 **<txProt>** - transmission protocol 0 - TCP 1 - UDP

#SD - Socket Dial	SELINT 2

<rPort> - remote host port to contact
1..65535
<IPaddr> - address of the remote host, string type. This parameter can be either:
- any valid IP address in the format: “xxx.xxx.xxx.xxx”
- any host name to be solved with a DNS query

<closureType> - socket closure behaviour for TCP
0 - local host closes immediately when remote host has closed (default)
255 - local host closes after an escape sequence (**+++**)
<lPort> - UDP connections local port
1..65535
<connMode> - Connection mode
0 - online mode connection (default)
1 - command mode connection

Note: **<closureType>** parameter is valid for TCP connections only and has no effect (if used) for UDP connections.

Note: **<lPort>** parameter is valid for UDP connections only and has no effect (if used) for TCP connections.

Note: if we set **<connMode>** to **online mode connection** and the command is successful we enter in **online data mode** and we see the intermediate result code **CONNECT**. After the **CONNECT** we can suspend the direct interface to the socket connection (nb the socket stays open) using the escape sequence (**+++**): the module moves back to **command mode** and we receive the final result code **OK** after the suspension. After such a suspension, it’s possible to resume it in every moment (unless the socket inactivity timer timeouts, see **#SCFG**) by using the **#SO** command with the corresponding **<connId>**.

Note: if we set **<connMode>** to **command mode connection** and the command is successful, the socket is opened and we remain in **command mode** and we see the result code **OK**.

Note: if there are input data arrived through a connected socket and not yet read because the module entered **command mode** before reading them (after an escape sequence or after **#SD** has been issued with **<connMode>** set to **command mode connection)**, these data are buffered and we receive the **SRING** URC (**SRING** presentation format depends on the last **#SCFGEXT** setting); it’s possible to read these data afterwards issuing **#SRECV**. Under the same hypotheses it’s possible to send data

#SD - Socket Dial	SELINT 2
	while in **command mode** issuing **#SSEND** Note: resume of the socket(#SO) after suspension or closure(#SH) has to be done on the same instance on which the socket was opened through #SD. In fact, suspension has been done on the instance itself.
AT#SD=?	Test command reports the range of values for all the parameters.

Example	*Open socket 1 in online mode*
	
	`AT#SD=1,0,80,”www.google.com”,0,0,0`
	`CONNECT`
	`…`
	
	Open socket 1 in command mode
	
	`AT#SD=1,0,80,”www.google.com”,0,0,1`
	`OK`

3.5.6.5.9. Socket Restore - #SO

#SO - Socket Restore	SELINT 2
AT#SO=<connId>	Execution command resumes the direct interface to a socket connection which has been suspended by the escape sequence. Parameter: **<connId>** - socket connection identifier 1..6
AT#SO=?	Test command reports the range of values for **<connId>** parameter.

3.5.6.5.10. Socket Listen - #SL

#SL - Socket Listen	SELINT 2
AT#SL=<connId>, <listenState>, <listenPort> >[,<closure type>]	This command opens/closes a socket listening for an incoming TCP connection on a specified port. Parameters: **<connId>** - socket connection identifier 1..6 **<listenState>** - 0 - closes socket listening 1 - starts socket listening **<listenPort>** - local listening port

#SL - Socket Listen	**SELINT 2**
	1..65535 **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Note: if successful, the command returns a final result code **OK**. If the ListenAutoRsp flag has not been set through the command AT#SCFGEXT (for the specific connId), then, when a TCP connection request comes on the input port, if the sender is not filtered by internal firewall (see **#FRWL**), an URC is received: **+SRING : <connId>** Afterwards we can use **#SA** to accept the connection or **#SH** to refuse it. If the ListenAutoRsp flag has been set, then, when a TCP connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), the connection is automatically accepted: the **CONNECT** indication is given and the modem goes into **online data mode**. If the socket is closed by the network the following URC is received: **#SL: ABORTED** Note: when closing the listening socket <listenPort> is a don't care parameter
AT#SL?	Read command returns all the actual listening TCP sockets.
AT#SL=?	Test command returns the range of supported values for all the subparameters.

Example	*Next command opens a socket listening for TCP on port 3500 without.*
	
	`AT#SL=1,1,3500`
	`OK`

3.5.6.5.11. Socket Listen UDP - #SLUDP

#SLUDP - Socket Listen UDP	**SELINT 2**
AT#SLUDP=<connId	This command opens/closes a socket listening for an incoming UDP

#SLUDP - Socket Listen UDP	**SELINT 2**
>, **<listenState>,** **<listenPort>**	connection on a specified port. Parameters: **<connId>** - socket connection identifier 1..6 **<listenState>** - 0 - closes socket listening 1 - starts socket listening **<listenPort>** - local listening port 1..65535 Note: if successful, the command returns a final result code **OK**. If the ListenAutoRsp flag has not been set through the command AT#SCFGEXT (for the specific connId), then, when an UDP connection request comes on the input port, if the sender is not filtered by internal firewall (see **#FRWL**), an URC is received: **+SRING : <connId>** Afterwards we can use **#SA** to accept the connection or **#SH** to refuse it. If the ListenAutoRsp flag has been set, then, when an UDP connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), the connection is automatically accepted: the **CONNECT** indication is given and the modem goes into **online data mode**. If the socket is closed by the network the following URC is received: **#SLUDP: ABORTED** Note: when closing the listening socket <listenPort> is a don't care parameter
AT#SLUDP?	Read command returns all the actual listening UDP sockets.
AT#SLUDP=?	Test command returns the range of supported values for all the subparameters.

Example	*Next command opens a socket listening for UDP on port 3500.*
	
	`AT#SLUDP=1,1,3500`
	`OK`

#SLUDP - Socket Listen UDP	SELINT 2

3.5.6.5.12. Socket Accept - #SA

#SA - Socket Accept	SELINT 2
AT#SA=<connId> [,<connMode>]	Execution command accepts an incoming socket connection after an URC **SRING: <connId>** Parameter: **<connId>** - socket connection identifier 1..6 **<connMode>** - Connection mode, as for command **#SD**. 0 - online mode connection (default) 1 - command mode connection Note: the **SRING** URC has to be a consequence of a **#SL** issue. **Note: setting the command before to having received a SRING will result in an ERROR indication, giving the information that a connection request has not yet been received**
AT#SA=?	Test command reports the range of values for all the parameters.

3.5.6.5.13. Receive Data In Command Mode - #SRECV

#SRECV - Receive Data In Command Mode	SELINT 2
AT#SRECV= <connId>, <maxByte>	Execution command permits the user to read data arrived through a connected socket, but buffered and not yet read because the module entered **command mode** before reading them; the module is notified of these data by a **SRING** URC, whose presentation format depends on the last **#SCFGEXT** setting. Parameters: **<connId>** - socket connection identifier 1..6 **<maxByte>** - max number of bytes to read 1..1500 Note: issuing **#SRECV** when there's no buffered data raises an error.

#SRECV - Receive Data In Command Mode	SELINT 2
AT#SRECV=?	Test command returns the range of supported values for parameters < connId > and < maxByte >

Example	**`SRING URC (<srMode> be 0, <dataMode> be 0)`** *telling data have just come through connected socket identified by <connId>=1 and are now buffered*
	`SRING: 1`
	
	Read in text format the buffered data
	`AT#SRECV=1,15`
	`#SRECV: 1,15`
	`stringa di test`
	
	`OK`
	
	`SRING URC (<srMode> be 1, <dataMode> be 1)` *telling 15 bytes data have just come through connected socket identified by <connId>=2 and are now buffered*
	`SRING: 2,15`
	
	Read in hexadecimal format the buffered data
	`AT#SRECV=2,15`
	`#SRECV: 2,15`
	`737472696e67612064692074657374`
	
	`OK`
	
	`SRING URC (<srMode> be 2, <dataMode> be 0)` *displaying (in text format) 15 bytes data that have just come through connected socket identified by <connId>=3; it's no necessary to issue #SRECV to read the data; no data remain in the buffer after this URC*
	`SRING: 3,15, stringa di test`

3.5.6.5.14. Send Data In Command Mode - #SSEND

#SSEND - Send Data In Command Mode	SELINT 2
AT#SSEND= <connId>	Execution command permits, while the module is in **command mode,** to send data through a connected socket. Parameters: **<connId>** - socket connection identifier 1..6 The device responds to the command with the prompt '**>**' and waits for the data to send. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without

#SSEND - Send Data In Command Mode	**SELINT 2**
	writing the message send **ESC** char (**0x1B** hex). If data are successfully sent, then the response is **OK**. If data sending fails for some reason, an error code is reported Note: the maximum number of bytes to send is 1024; trying to send more data will cause the surplus to be discarded and lost. If <sendDataMode> has been set to 1 by AT#SCFGEXT, then the #SSEND support the Hex data mode representation. The data shall be hexadecimal format (each octet of the data is given as two IRA character long hexadecimal number) and given in one line. Note: it's possible to use **#SSEND** only if the connection was opened by **#SD**, else the ME is raising an error. Note: a byte corresponding to BS char(0x08) is treated with its corresponding meaning; therefore previous byte will be cancelled(and BS char itself will not be sent)
AT#SSEND=?	Test command returns the range of supported values for parameter **< connId >**

Example	*Send data through socket number 2*
	`AT#SSEND=2`
	`>Test<CTRL-Z>`
	`OK`

3.5.6.5.15. Send data in Command Mode extended - #SSENDEXT

#SSENDEXT - Send Data In Command Mode extended	**SELINT 2**
AT#SSENDEXT= <connId>, <bytestosend>	Execution command permits, while the module is in **command mode**, to send data through a connected socket including all possible octets (from 0x00 to 0xFF). Parameters: **<connId>** - socket connection identifier 1..6

#SSENDEXT - Send Data In Command Mode extended	**SELINT 2**
	< bytestosend > - number of bytes to be sent Please refer to test command for range The device responds to the command with the prompt '**>**' and waits for the data to send. When <bytestosend> bytes have been sent, operation is automatically completed. If data are successfully sent, then the response is **OK**. If data sending fails for some reason, an error code is reported. Note: it's possible to use **#SSENDEXT** only if the connection was opened by **#SD**, else the ME is raising an error. Note: all special characters are sent like a generic byte. (For instance: 0x08 is simply sent through the socket and don't behave like a BS, i.e. previous character is not deleted)
AT#SSEND=?	Test command returns the range of supported values for parameters **< connId >** and **<bytestosend>**

Example	Open the socket in command mode:
	at#sd=1,0,<port>,"IP address",0,0,1
	OK
	
	Give the command specifying total number of bytes as second parameter:
	
	at#ssendext=1,256
	> .... ; // Terminal echo of bytes sent is displayed here
	OK
	
	All possible bytes(from 0x00 to 0xFF) are sent on the socket as generic bytes.

#SSENDEXT - Send Data In Command Mode extended	SELINT 2

3.5.6.5.16. Easy GPRS Authentication Type - #SGACTAUTH

#SGACTAUTH – Easy GRPS Authentication Type	SELINT 2
AT#SGACTAUTH=<type>	Set command sets the authentication type for Easy GPRS This command has effect on the authentication mode used on AT#SGACT or AT#GPRS commands. Parameter **<type>** 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication Note: the parameter is not saved in NWM
AT#SGACTAUTH?	Read command reports the current Easy GPRS authentication type, in the format: **#SGACTAUTH: <type>**
AT#SGACTAUTH =?	Test command returns the range of supported values for parameter **<type>**.

3.5.6.5.17. Context activation and configuration - #SGACTCFG

#SGACTCFG - Context Activation and Configuration	SELINT 2
AT#SGACTCFG= <cid>, <retry>, [,<delay > [,<urcmode >]]	Execution command is used to enable or disable the automatic activation/reactivation of the context for the specified PDP context, to set the maximum number of attempts and to set the delay between an attempt and the next one. The context is activated automatically after every GPRS Attach or after a NW PDP CONTEXT deactivation if at least one IPEasy socket is configured to this context (see AT#SCFG). Parameters: **<cid>** - PDP context identifier (see **+CGDCONT** command) 1..5 - numeric parameter which specifies a particular PDP context definition

	<retry> - numeric parameter which specifies the maximum number of context activation attempts in case of activation failure. The value belongs to the following range: 0 - 15 0 - disable the automatic activation/reactivation of the context (default) **<delay>** - numeric parameter which specifies the delay in seconds between an attempt and the next one. The value belongs to the following range: 180 - 3600 **< urcmode >** - URC presentation mode 0 - disable unsolicited result code (default) 1 - enable unsolicited result code, after an automatic activation/reactivation, of the local IP address obtained from the network. It has meaning only if **<auto>**=1. The unsolicited message is in the format: **#SGACT: <ip_address>** reporting the local IP address obtained from the network. Note: the URC presentation mode **<urcmode>** is related to the current AT instance only. Last **<urcmode>** setting is saved for every instance as extended profile parameter, thus it is possible to restore it even if the multiplexer control channel is released and set up, back and forth. Note: **< retry >** and **<delay>** setting are global parameter saved in NVM Note: if the automatic activation is enabled on a context, then it is not allowed to modify by the command AT#SCFG the association between the context itself and the socket connection identifier; all the other parameters of command AT#SCFG are modifiable while the socket is not connected
AT#SGACTCFG?	Read command reports the state of all the five contexts, in the format: **#SGACTCFG: <cid1>,<retry1>,<delay1>, < urcmode >CR><LF>** …

	#SGACTCFG: <cid5>,<retry5>,<delay5>,< urcmode > where: **<cid*n*>** - as **<cid>** before **<retry*n*>** - as **<retry>** before **<delay*n*>** - as **<delay>** before **< urcmode >** - as **< urcmode >** before
AT#SGACTCFG =?	Test command reports supported range of values for parameters **<cid>** **>**,**<retry>**,**<delay>**and **< urcmode >**

3.5.6.5.18. Context activation and configuration extended - #SGACTCFGEXT

#SGACTCFGEXT - context activation configuration extended	SELINT 2
AT#SGACTCFGEXT= <cid>, <abortAttemptEnable> [,<unused> [,<unused> [,<unused>]]]	Execution command is used to enable new features related to context activation. Parameters: **<cid>** - PDP context identifier (see **+CGDCONT** command) 1..5 - numeric parameter which specifies a particular PDP context definition **< abortAttemptEnable >** 0 – old behaviour: no abort possible while attempting context activation 1 – abort during context activation attempt is possible by sending a byte on the serial port. It takes effect on successive GPRS context activation attempt through #SGACT command in the following manner. While waiting for AT#SGACT=<cid>,1 response(up to 150 s) is possible to abort attempt by sending a byte and get back AT interface control(NO CARRIER indication). Note: If we receive delayed CTXT ACTIVATION ACCEPT after abort, network will be automatically informed of our aborted attempt through relative protocol messages(SM STATUS) and will also close on its side. Otherwise, if no ACCEPT is received after abort, network will be informed later of our PDP state through other protocol messages (routing area update for instance).

AT# SGACTCFGEXT?	Read command reports the state of all the five contexts, in the format: **#SGACTCFGEXT: <cid1>,< abortAttemptEnable1 >,0,0,0<CR><LF>** **...** **#SGACTCFGEXT: <cid5>,< abortAttemptEnable5 >,0,0,0<CR><LF>** where: **<cid*n*>** - as **<cid>** before **< abortAttemptEnable *n*>** - as **< abortAttemptEnable >** before Note: values are automatically saved in NVM.
AT#SGACTCFGEXT=?	Test command reports supported range of values for all parameters

3.5.6.5.19. PAD command features - #PADCMD

#PADCMD – PAD command features	SELINT 2
AT#PADCMD=<mode>	This command sets features of the pending data flush to socket, opened with AT#SD command. Parameters: **<mode>:** Bit 1: 1 - enable forwarding; 0 – disable forwarding; Other bits reserved; Note: forwarding depends on character defined by AT#PADFWD
AT#PADCMD?	Read command reports the currently selected **<mode>** in the format: **#PADCMD: mode**
AT#PADCMD=?	Test command reports the supported range of values for parameter **<mode>**.

3.5.6.5.20. PAD forward character - #PADFWD

#PADFWD – PAD forward character	SELINT 2
AT#PADFWD=<char> [,<mode>]	This command sets the char that immediately flushes pending data to socket, opened with AT#SD command. Parameters: **<char>:**

	a number, from 0 to 255, that specifies the asci code of the char used to flush data **<mode>:** flush mode, 0 – normal mode (default); 1 – reserved; Note: use AT#PADCMD to enable the socket char-flush activity.
AT#PADFWD?	Read command reports the currently selected **<char>** and **<mode>** in the format: **#PADFWD: <char>,mode**
AT#PADFWD=?	Test command reports the supported range of values for parameters **<char>** and **<mode>**.

3.5.6.5.21. Base64 encoding/decoding of data sent/received on a socket - #BASE64

#BASE64 – Base64 encoding/decoding of data sent/received on a skt	SELINT 2
AT#BASE64= <connId>,<enc>,<dec> [,<unused_B > [,<unused_C >]]	Set command enables base64 encoding and/or decoding of data sent/received to/from the socket in online or in command mode. Parameters: **<connId>** - socket connection identifier 1..6 <enc> 0 – no encoding of data received from serial port. 1 - MIME RFC2045 base64 encoding of data received from serial port that have to be sent to <connId> socket. Note: as indicated from RFC2045 the encoded output stream is represented in lines of no more than 76 characters each. Lines are defined as sequences of octets separated by a CRLF sequence. 2 - RFC 3548 base64 encoding of data received from serial port that have to be sent to <connId> socket. Note: as indicated from RFC3548 CRLF have not to be added. <dec> 0 – no decoding of data received from socket <connId>. 1 - MIME RFC2045 base64 decoding of data received from socket

	<connId> and sent to serial port. (Same rule as for <enc> regarding line feeds in the received file that has to be decoded) 2 - RFC3548 base64 decoding of data received from socket <connId> and sent to serial port. (Same rule as for <enc> regarding line feeds in the received file that has to be decoded) Note: it is possible to use command to change current <enc>/<dec> settings for a socket already opened in command mode or in online mode after suspending it. (In this last case obviously it is necessary to set AT#SKIPESC=1). Note: to use #BASE64 in command mode, if data to send exceed maximum value for #SSENDEXT command, they have to be divided in multiple parts. These parts have to be a multiple of 57 bytes, except for the last one, to distinguish EOF condition. (Base64 encoding rules) For the same reason if #SRECV command is used by the application to receive data, a multiple of 78 bytes has to be considered. Note: to use #SRECV to receive data with <dec> enabled, it is necessary to consider that: reading <maxByte> bytes from socket, user will get less due to decoding that is performed. Note: on version 10.0x.xx3 only <connId> 1 is available. Note: values are automatically saved in NVM.
AT# BASE64?	Read command returns the current <enc>/<dec> settings for all the six sockets, in the format: # BASE64:<connId1><enc1>,<dec1>,0,0<CR><LF> . . . # BASE64:<connId6>,<enc6>,<dec6>,0,0<CR><LF>
AT# BASE64=?	Test command returns the range of supported values for all the subparameters.

Example

```
AT#SKIPESC=1
OK

AT#SD=<connId>,<txProt>,<rPort>,<IPaddr>
CONNECT
//Data sent without modifications(default)
………
+++ (suspension)
OK

at#base64=<connId>,1,0
OK

AT#SO=<connId>
CONNECT
// Data received from serial port are encoded
// base64 before to be sent on the socket
………………
+++ (suspension)
OK

at#base64=<connId>,0,1
OK

AT#SO=<connId>
CONNECT
// Data received from socket are decoded
// base64 before to be sent on the serial port
+++ (suspension)
…………………
```

3.5.6.6. FTP AT Commands

3.5.6.6.1. FTP Time-Out - #FTPTO

#FTPTO - FTP Time-Out	**SELINT 0 / 1**
AT#FTPTO[=<tout>]	Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel. Parameter: **<tout>** - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100)

#FTPTO - FTP Time-Out	**SELINT 0 / 1**
	Note: The parameter is not saved in NVM. Note: if parameter **<tout>** is omitted the behaviour of Set command is the same as Read command.
AT#FTPTO?	Read command returns the current FTP operations time-out, in the format: **#FTPTO: <tout>**
AT#FTPTO=?	Test command returns the range of supported values for parameter **<tout>**

#FTPTO - FTP Time-Out	**SELINT 2**
AT#FTPTO= [<tout>]	Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel. Parameter: **<tout>** - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100) Note: The parameter is not saved in NVM.
AT#FTPTO?	Read command returns the current FTP operations time-out, in the format: **#FTPTO: <tout>**
AT#FTPTO=?	Test command returns the range of supported values for parameter **<tout>**

3.5.6.6.2. FTP Open - #FTPOPEN

#FTPOPEN - FTP Open	**SELINT 0 / 1**
AT#FTPOPEN= <server:port>, <username>, <password>[, <mode>]	Execution command opens an FTP connection toward the FTP server. Parameters: **<server:port>** - string type, address and port of FTP server (factory default port 21). **<username>** - string type, authentication user identification string for FTP. **<password>** - string type, authentication password for FTP. **<mode>**

#FTPOPEN - FTP Open	**SELINT 0 / 1**
	0 - active mode (default) 1 - passive mode Note: Before opening an FTP connection the GPRS context must have been activated by **AT#GPRS=1**

#FTPOPEN - FTP Open	**SELINT 2**
AT#FTPOPEN= [<server:port>, <username>, <password>[, <mode>]]	Execution command opens an FTP connection toward the FTP server. Parameters: **<server:port>** - string type, address and port of FTP server (factory default port 21). **<username>** - string type, authentication user identification string for FTP. **<password>** - string type, authentication password for FTP. **<mode>** 0 - active mode (factory default) 1 - passive mode Note: Before opening an FTP connection either the GSM context must have been activated by **AT#SGACT=0,1** or the PDP context #1 must have been activated by **AT#SGACT=1,1** or by **AT#GPRS=1**
AT#FTPOPEN=?	Test command returns the **OK** result code.

3.5.6.6.3. FTP Close - #FTPCLOSE

#FTPCLOSE - FTP Close	**SELINT 0 / 1**
AT#FTPCLOSE	Execution command closes an FTP connection.
AT#FTPCLOSE?	Read command behavior is the same as Execution command.

#FTPCLOSE - FTP Close	**SELINT 2**
AT#FTPCLOSE	Execution command closes an FTP connection.
AT#FTPCLOSE=?	Test command returns the **OK** result code.

3.5.6.6.4. FTP Put - #FTPPUT

#FTPPUT - FTP Put	**SELINT 0 / 1**
AT#FTPPUT= <filename>	Execution command, issued during an FTP connection, opens a data connection and starts sending **<filename>** file to the FTP server. If the data connection succeeds, a **CONNECT** indication is sent,

#FTPPUT - FTP Put	**SELINT 0 / 1**
	afterward a NO CARRIER indication is sent when the socket is closed. Parameter: **<filename>** - string type, name of the file (maximum length 200 characters) Note: use the escape sequence **+++** to close the data connection. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPPUT=?	Test command returns the OK result code.

#FTPPUT - FTP Put	**SELINT 2**
AT#FTPPUT= [<filename>]	Execution command, issued during an FTP connection, opens a data connection and starts sending **<filename>** file to the FTP server. If the data connection succeeds, a **CONNECT** indication is sent. afterward a NO CARRIER indication is sent when the socket is closed. Parameter: **<filename>** - string type, name of the file (maximum length 200 characters) Note: use the escape sequence **+++** to close the data connection. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPPUT=?	Test command returns the **OK** result code.

3.5.6.6.5. FTP Get - #FTPGET

#FTPGET - FTP Get	**SELINT 0 / 1**
AT#FTPGET= <filename>	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server. If the data connection succeeds a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. The file is received on the serial port. Parameter:

#FTPGET - FTP Get	**SELINT 0 / 1**
	<filename> - file name, string type. Note: The command causes an **ERROR** result code to be returned in case no FTP connection has been opened yet. Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.

#FTPGET - FTP Get	**SELINT 2**
AT#FTPGET=[<filename>]	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server. If the data connection succeeds a **CONNECT** indication is sent. The file is received on the serial port. Parameter: **<filename>** - file name, string type. Note: The command causes an **ERROR** result code to be returned in case no FTP connection has been opened yet. Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.
AT#FTPGET=?	Test command returns the OK result code.

3.5.6.6.6. FTP GET in command mode - #FTPGETPKT

#FTPGETPKT - FTP Get in command mode	**SELINT 2**
AT#FTPGETPKT=<filename>[,<viewMode>]	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server while remaining in **command mode**. The data port is opened and we remain in **command mode** and we see the result code **OK**. Retrieval from FTP server of “remotefile” is started, but data are only buffered in the module. It’s possible to read data afterwards issuing #FTPRECV command Parameters:

#FTPGETPKT - FTP Get in command mode	**SELINT 2**
	<filename> - file name, string type. **<viewMode>** - permit to choose view mode (text format or Hexadecimal) Note: The command causes an **ERROR** result code to be returned in case no FTP connection has been opened yet. Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.
AT#FTPGETPKT?	Read command reports current download state for <filename> with <viewMode> chosen, in the format: #FTPGETPKT: <remotefile>,<viewMode>,<eof> <eof> 0 = file currently being transferred 1 = complete file has been transferred to FTP client
AT#FTPGETPKT=?	Test command returns the OK result code.

3.5.6.6.7. FTP Type - #FTPTYPE

#FTPTYPE - FTP Type	**SELINT 0 / 1**
AT#FTPTYPE[=<type>]	Set command, issued during an FTP connection, sets the file transfer type. Parameter: **<type>** - file transfer type: 0 - binary 1 - ascii Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet. Note: If the parameter is omitted then the behaviour of Set command is the same of Read command.
#FTPTYPE?	Read command returns the current file transfer type, in the format: **#FTPTYPE: <type>**
#FTPTYPE=?	Test command returns the range of available values for parameter **<type>**: **#FTPTYPE: (0,1)**

#FTPTYPE - FTP Type	**SELINT 2**
AT#FTPTYPE= [<type>]	Set command, issued during an FTP connection, sets the file transfer type. Parameter: **<type>** - file transfer type: 0 - binary 1 - ascii Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
#FTPTYPE?	Read command returns the current file transfer type, in the format: **#FTPTYPE: <type>**
#FTPTYPE=?	Test command returns the range of available values for parameter **<type>**: **#FTPTYPE: (0,1)**

3.5.6.6.8. FTP Read Message - #FTPMSG

#FTPMSG - FTP Read Message	**SELINT 0 / 1**
AT#FTPMSG	Execution command returns the last response from the server.
AT#FTPMSG?	Read command behaviour is the same as Execution command.

#FTPMSG - FTP Read Message	**SELINT 2**
AT#FTPMSG	Execution command returns the last response from the server.
AT#FTPMSG=?	Test command returns the **OK** result code.

3.5.6.6.9. FTP Delete - #FTPDELE

#FTPDELE - FTP Delete	**SELINT 0 / 1**
AT#FTPDELE= <filename>	Execution command, issued during an FTP connection, deletes a file from the remote working directory. Parameter: **<filename>** - string type, it's the name of the file to delete. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

#FTPDELE - FTP Delete	SELINT 0 / 1
	Note: In case of delayed server response, it is necessary to check if ERROR indication is temporary due to timing out while waiting. In this case #FTPMSG response will result temporary empty. (Checking later #FTPMSG response will match with delayed server response)

#FTPDELE - FTP Delete	SELINT 2
AT#FTPDELE= [<filename>]	Execution command, issued during an FTP connection, deletes a file from the remote working directory. Parameter: **<filename>** - string type, it's the name of the file to delete. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet. Note: In case of delayed server response, it is necessary to check if ERROR indication is temporary due to timing out while waiting. In this case #FTPMSG response will result temporary empty. (Checking later #FTPMSG response will match with delayed server response)
AT#FTPDELE=?	Test command returns the **OK** result code.

3.5.6.6.10. FTP Print Working Directory - #FTPPWD

#FTPPWD - FTP Print Working Directory	SELINT 0 / 1
AT#FTPPWD	Execution command, issued during an FTP connection, shows the current working directory on FTP server. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

#FTPPWD - FTP Print Working Directory	SELINT 2
AT#FTPPWD	Execution command, issued during an FTP connection, shows the current working directory on FTP server. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

#FTPPWD - FTP Print Working Directory	**SELINT 2**
AT#FTPPWD=?	Test command returns the **OK** result code.

3.5.6.6.11. FTP Change Working Directory - #FTPCWD

#FTPCWD - FTP Change Working Directory	**SELINT 0 / 1**
AT#FTPCWD= <dirname>	Execution command, issued during an FTP connection, changes the working directory on FTP server. Parameter: **<dirname>** - string type, it's the name of the new working directory. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

#FTPCWD - FTP Change Working Directory	**SELINT 2**
AT#FTPCWD= [<dirname>]	Execution command, issued during an FTP connection, changes the working directory on FTP server. Parameter: **<dirname>** - string type, it's the name of the new working directory. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPCWD=?	Test command returns the **OK** result code.

3.5.6.6.12. FTP List - #FTPLIST

#FTPLIST - FTP List	**SELINT 0 / 1**

#FTPLIST - FTP List	SELINT 0 / 1
AT#FTPLIST[=<name>]	Execution command, issued during an FTP connection, opens a data connection and starts getting from the server the list of contents of the specified directory or the properties of the specified file. Parameter: **<name>** - string type, it's the name of the directory or file. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet. Note: issuing **AT#FTPLIST<CR>** opens a data connection and starts getting from the server the list of contents of the working directory.

#FTPLIST - FTP List	SELINT 2
AT#FTPLIST[=[<name>]]	Execution command, issued during an FTP connection, opens a data connection and starts getting from the server the list of contents of the specified directory or the properties of the specified file. Parameter: **<name>** - string type, it's the name of the directory or file. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet. Note: issuing **AT#FTPLIST<CR>** opens a data connection and starts getting from the server the list of contents of the working directory.
AT#FTPLIST=?	Test command returns the **OK** result code.

3.5.6.6.13. Get file size - #FTPFSIZE

#FTPFSIZE – Get file size from FTP server	SELINT 2
AT#FTPFSIZE=<filename>	Execution command, issued during an FTP connection, permits to get file size of <filename> file. Note: FTPTYPE=0 command has to be issued before FTPFSIZE command, to set file transfer type to binary mode.
AT# FTPFSIZE=?	Test command returns the OK result code.

3.5.6.6.14. FTP Append - #FTPAPP

#FTPAPP - FTP Append	SELINT 2
AT#FTPAPP= [<filename>]	Execution command, issued during an FTP connection, opens a data connection and append data to existing <filename> file. If the data connection succeeds, a **CONNECT** indication is sent, afterward a NO CARRIER indication is sent when the socket is closed. Parameter: **<filename>** - string type, name of the file. Note: use the escape sequence **+++** to close the data connection. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPAPP=?	Test command returns the **OK** result code.

3.5.6.6.15. Set restart position - # FTPREST

#FTPREST – Set restart position for FTP GET	SELINT 2
AT#FTPREST= <restartposition>	Set command sets the restart position for successive FTPGET (or FTPGETPKT) command. It permits to restart a previously interrupted FTP download from the selected position in byte. Parameter: <restartposition> position in byte of restarting for successive FTPGET (or FTPGETPKT) Note: It's necessary to issue FTPTYPE=0 before successive FTPGET (or FTPGETPKT command) to set binary file transfer type. Note: Setting <restartposition> has effect on successive FTP download. After successive successfully initiated FTPGET(or FTPGETPKT) command

#FTPREST – Set restart position for FTP GET	SELINT 2
	<restartposition> is automatically reset. Note: value set for <restartposition> has effect on next data transfer(data port opened by FTPGET or FTPGETPKT). Then <restartposition> value is automatically assigned to 0 for next download.
AT# FTPREST?	Read command returns the current <restartposition> #FTPREST: <restartposition>
AT# FTPREST=?	Test command returns the OK result code.

3.5.6.6.16. Receive Data In Command Mode - #FTPRECV

#FTPRECV – Receive Data In Command Mode	SELINT 2
AT#FTPRECV= <blocksize>	Execution command permits the user to transfer at most <blocksize> bytes of remote file, provided that retrieving from the FTP server has been started with a previous #FTPGETPKT command, onto the serial port. This number is limited to the current number of bytes of the remote file which have been transferred from the FTP server. Parameters: **< blocksize >** - max number of bytes to read 1..3000 Note: it's necessary to have previously opened FTP data port and started download and buffering of remote file through #FTPGETPKT command Note: issuing **#FTPRECV** when there's no FTP data port opened

#FTPRECV – Receive Data In Command Mode	SELINT 2
	raises an error. Note: data port will stay opened if socket is temporary waiting to receive data(FTPRECV returns 0 and FTPGETPKT gives a EOF 0 indication).
AT# FTPRECV?	Read command reports the number of bytes currently received from FTP server, in the format: #FTPRECV: <available>
AT# FTPRECV=?	Test command returns the range of supported values for <blocksize> parameter.
Example	

```
AT#FTPRECV?
#FTPRECV: 3000

OK
```

Read required part of the buffered data:

```
AT#FTPRECV=400
#FTPRECV: 400

Text row number 1  * 1111111111111111111111111 *
Text row number 2  * 2222222222222222222222222 *
Text row number 3  * 3333333333333333333333333 *
Text row number 4  * 4444444444444444444444444 *
Text row number 5  * 5555555555555555555555555 *
Text row number 6  * 6666666666666666666666666 *
Text row number 7  * 7777777777777777777777777 *
Text row number 8  * 88888888888888888888

OK

AT#FTPRECV =200
#FTPRECV: 200
88888 *
```

#FTPRECV – Receive Data In Command Mode	**SELINT 2**

```
Text row number 9  * 9999999999999999999999999 *
Text row number 10 * AAAAAAAAAAAAAAAAAAAAAAAAA *
Text row number 12 * BBBBBBBBBBBBBBBBBBBBBBBBB *
Text row number 13 * CCCCCCCCCCCCCCCC

OK
```

Note: to check when you have received complete file it's possible to use AT#FTPGETPKT read command:

```
AT#FTPGETPKT?
#FTPGETPKT: sample.txt,0,1

OK
```

(you will get <eof> set to 1)

3.5.6.7. Enhanced Easy GPRS® Extension AT Commands

3.5.6.7.1. Authentication User ID - #USERID

#USERID - Authentication User ID	**SELINT 0 / 1**
AT#USERID [=<user>]	Set command sets the user identification string to be used during the authentication step. Parameter: **<user>** - string type, it's the authentication User Id; the max length for this value is the output of Test command, **AT#USERID=?** (factory default is the empty string ""). Note: If parameter is omitted then the behaviour of Set command is the same of Read command.
AT#USERID?	Read command reports the current user identification string, in the format: **#USERID: <user>**.
AT#USERID=?	Test command returns the maximum allowed length of the string

#USERID - Authentication User ID	**SELINT 0 / 1**
	parameter **<user>**.

Example	`AT#USERID="myName"`
	`OK`
	`AT#USERID?`
	`#USERID: "myName"`
	
	`OK`

#USERID - Authentication User ID	**SELINT 2**
AT#USERID= **[<user>]**	Set command sets the user identification string to be used during the authentication step. Parameter: **<user>** - string type, it's the authentication User Id; the max length for this value is the output of Test command, **AT#USERID=?** (factory default is the empty string “”). Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#USERID?	Read command reports the current user identification string, in the format: **#USERID: <user>**
AT#USERID=?	Test command returns the maximum allowed length of the string parameter **<user>**.

Example	`AT#USERID="myName"`
	`OK`
	`AT#USERID?`
	`#USERID: "myName"`
	
	`OK`

3.5.6.7.2. Authentication Password - #PASSW

#PASSW - Authentication Password	**SELINT 0/1**
AT#PASSW= **<pwd>**	Set command sets the user password string to be used during the authentication step. Parameter: **<pwd>** - string type, it's the authentication password; the max length for this value is the output of Test command, **AT#PASSW=?** (factory default is the empty string “”).
AT#PASSW=?	Test command returns the maximum allowed length of the string parameter **<pwd>**.

Example	`AT#PASSW="myPassword"`
	`OK`

#PASSW - Authentication Password	**SELINT 2**
AT#PASSW= **[<pwd>]**	Set command sets the user password string to be used during the authentication step. Parameter: **<pwd>** - string type, it's the authentication password; the max length for this value is the output of Test command, **AT#PASSW=?** (factory default is the empty string “”). Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#PASSW=?	Test command returns the maximum allowed length of the string parameter **<pwd>**.

Example	`AT#PASSW="myPassword"`
	`OK`

3.5.6.7.3. Packet Size - #PKTSZ

#PKTSZ - Packet Size	**SELINT 0 / 1**
AT#PKTSZ[= **[<size>]]**	Set command sets the default packet size to be used by the TCP/UDP/IP stack for data sending. Parameter: **<size>** - packet size in bytes 0 - automatically chosen by the device 1..512 - packet size in bytes (factory default is 300) Note: issuing **AT#PKTSZ<CR>** is the same as issuing the Read command. Note: issuing **AT#PKTSZ=<CR>** is the same as issuing the command **AT#PKTSZ=0<CR>**.
AT#PKTSZ?	Read command reports the current packet size value. Note: after issuing command **AT#PKTSZ=0**, the Read command reports the value automatically chosen by the device.
AT#PKTSZ=?	Test command returns the allowed values for the parameter **<size>**.

Example	`AT#PKTSZ=100`
	`OK`
	`AT#PKTSZ?`
	`#PKTSZ: 100`
	
	`OK`
	`AT#PKTSZ=0`
	`OK`

#PKTSZ - Packet Size	**SELINT 0 / 1**

	`AT#PKTSZ?`
	`#PKTSZ: 300` *->value automatically chosen by device*
	
	`OK`

#PKTSZ - Packet Size	**SELINT 2**
AT#PKTSZ= [<size>]	Set command sets the default packet size to be used by the TCP/UDP/IP stack for data sending. Parameter: **<size>** - packet size in bytes 0 - automatically chosen by the device 1..1500 - packet size in bytes (factory default is 300) Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#PKTSZ?	Read command reports the current packet size value. Note: after issuing command **AT#PKTSZ=0**, the Read command reports the value automatically chosen by the device.
AT#PKTSZ=?	Test command returns the allowed values for the parameter **<size>**.

Example	`AT#PKTSZ=100`
	`OK`
	`AT#PKTSZ?`
	`#PKTSZ: 100`
	
	`OK`
	`AT#PKTSZ=0`
	`OK`
	`AT#PKTSZ?`
	`#PKTSZ: 300` *->value automatically chosen by device*
	
	`OK`

3.5.6.7.4. Data Sending Time-Out - #DSTO

#DSTO - Data Sending Time-Out	**SELINT 0 / 1**
AT#DSTO[= [<tout>]]	Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one. Parameter: **<tout>** - packet sending time-out in 100ms units (factory default is 50) 0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms

#DSTO - Data Sending Time-Out	**SELINT 0 / 1**
	Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5. Note: this time-out applies to data whose size is less than packet size and whose sending would have been delayed for an undefined time until new data to be sent had been received and full packet size reached. Note: issuing **AT#DSTO<CR>** is the same as issuing the Read command. Note: issuing **AT#DSTO=<CR>** is the same as issuing the command **AT#DSTO=0<CR>**.
AT#DSTO?	Read command reports the current data sending time-out value.
AT#DSTO=?	Test command returns the allowed values for the parameter **<tout>**.

Example	`AT#DSTO=10` ->1 sec. time-out
	`OK`
	`AT#DSTO?`
	`#DSTO: 10`
	
	`OK`

#DSTO -Data Sending Time-Out	**SELINT 2**
AT#DSTO= [<tout>]	Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one. Parameter: **<tout>** - packet sending time-out in 100ms units (factory default is 50) 0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5. Note: this time-out applies to data whose size is less than packet size and whose sending would have been delayed for an undefined time until new data to be sent had been received and full packet size reached. Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#DSTO?	Read command reports the current data sending time-out value.
AT#DSTO=?	Test command returns the allowed values for the parameter **<tout>**.

Example	`AT#DSTO=10` ->1 sec. time-out
	`OK`
	`AT#DSTO?`
	`#DSTO: 10`

#DSTO -Data Sending Time-Out	**SELINT 2**
	OK

3.5.6.7.5. Socket Inactivity Time-Out - #SKTTO

#SKTTO - Socket Inactivity Time-Out	**SELINT 0 / 1**
AT#SKTTO[= [<tout>]]	Set command sets the maximum time with no data exchanging on the socket that the module awaits before closing the socket and deactivating the GPRS context. Parameter: **<tout>** - socket inactivity time-out in seconds units 0 - no time-out. 1..65535 - time-out in sec. units (factory default is 90). Note: this time-out applies when no data is exchanged through the socket for a long time and therefore the socket connection has to be automatically closed; the GPRS context is deactivated only if it has been activated issuing **#SKTOP**; if it has been activated issuing **#SKTD**, now it stays activated. Note: issuing **AT#SKTTO<CR>** is the same as issuing the Read command. Note: issuing **AT+#SKTTO=<CR>** is the same as issuing the command **AT+#SKTTO=0<CR>**.
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter **<tout>**.

Example	`AT#SKTTO=30` ->(30 sec. time-out)
	`OK`
	`AT#SKTTO?`
	`#SKTTO: 30`
	
	`OK`

#SKTTO - Socket Inactivity Time-Out	**SELINT 2**
AT#SKTTO= [<tout>]	Set command sets the maximum time with no data exchanging on the socket that the module awaits before closing the socket and deactivating the GPRS context. Parameter: **<tout>** - socket inactivity time-out in seconds units 0 - no time-out. 1..65535 - time-out in sec. units (factory default is 90).

#SKTTO - Socket Inactivity Time-Out	SELINT 2
	Note: this time-out applies when no data is exchanged in the socket for a long time and therefore the socket connection has to be automatically closed; the GPRS context is deactivated only if it has been activated issuing **#SKTOP**; if it has been activated issuing **#SKTD**, now it stays activated. Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter **<tout>**.

Example	`AT#SKTTO=30` ->(30 sec. time-out)
	`OK`
	`AT#SKTTO?`
	`#SKTTO: 30`
	
	`OK`

3.5.6.7.6. Socket Definition - #SKTSET

#SKTSET - Socket Definition	SELINT 0 / 1
AT#SKTSET[= <socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command sets the socket parameters values. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 3333) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive disconnect from remote. **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused.

#SKTSET - Socket Definition		**SELINT 0 / 1**
	Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTSET** command, then error message will be issued. Note: the DNS Query to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.	
AT#SKTSET?	Read command reports the socket parameters values, in the format: **AT#SKTSET: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**	
AT#SKTSET=?	Test command returns the allowed values for the parameters.	

Example	`AT#SKTSET=0,1024,"123.255.020.001"`
	`OK`
	`AT#SKTSET=0,1024,"www.telit.net"`
	`OK`	

Note	Issuing command **#QDNS** will overwrite **<remote addr>** setting.	

#SKTSET - Socket Definition		**SELINT 2**
AT#SKTSET= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command sets the socket parameters values. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 3333) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive	

#SKTSET - Socket Definition		**SELINT 2**
	disconnect from remote. **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTSET** command, then an error message will be issued. Note: the DNS Query to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection. Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).	
AT#SKTSET?	Read command reports the socket parameters values, in the format: **AT#SKTSET: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**	
AT#SKTSET=?	Test command returns the allowed values for the parameters.	

Example	`AT#SKTSET=0,1024,"123.255.020.001"`
	`OK`
	`AT#SKTSET=0,1024,"www.telit.net"`
	`OK`	

Note	Issuing command **#QDNS** will overwrite **<remote addr>** setting.	

3.5.6.7.7. Socket Open - #SKTOP

#SKTOP - Socket Open		**SELINT 0 / 1**
AT#SKTOP	Execution command activates the context number 1, proceeds with the authentication with the user ID and password previously set by **#USERID** and **#PASSW** commands, and opens a socket connection with the host specified in the **#SKTSET** command. Eventually, before opening the socket connection, it issues automatically a DNS query to solve the IP address of the host name. If the connection succeeds a **CONNECT** indication is sent, otherwise a **NO**	

#SKTOP - Socket Open	**SELINT 0 / 1**
	CARRIER indication is sent.
AT#SKTOP?	Read command behaviour is the same as Execution command.

Example	`AT#SKTOP`
	..GPRS context activation, authentication and socket open..
	`CONNECT`

#SKTOP - Socket Open	**SELINT 2**
AT#SKTOP	Execution command activates the context number 1, proceeds with the authentication with the user ID and password previously set by **#USERID** and **#PASSW** commands, and opens a socket connection with the host specified in the **#SKTSET** command. Eventually, before opening the socket connection, it issues automatically a DNS query to solve the IP address of the host name. If the connection succeeds a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#SKTOP=?	Test command returns the **OK** result code.

Example	`AT#SKTOP`
	..GPRS context activation, authentication and socket open..
	`CONNECT`

Note	This command is obsolete. It's suggested to use the couple **#SGACT** and **#SO** instead of it.

3.5.6.7.8. Query DNS - #QDNS

#QDNS - Query DNS	**SELINT 0 / 1**
AT#QDNS= <host name>	Execution command executes a DNS query to solve the host name into an IP address. Parameter: **<host name>** - host name, string type. If the DNS query is successful then the IP address will be reported in the result code, as follows: **#QDNS: <host name>,<IP address>** where **<host name>** - string type

#QDNS - Query DNS	SELINT 0 / 1
	<IP address> - string type, in the format "**xxx.xxx.xxx.xxx**" Note: the command has to activate the GPRS context if it was not previously activated. In this case the context is deactivated after the DNS query.
Note	This command requires that the authentication parameters are correctly set and that the GPRS network is present.
Note	Issuing command **#QDNS** will overwrite **<remote addr>** setting for command **#SKTSET**.

#QDNS - Query DNS	SELINT 2
AT#QDNS= [<host name>]	Execution command executes a DNS query to solve the host name into an IP address. Parameter: **<host name>** - host name, string type. If the DNS query is successful then the IP address will be reported in the result code, as follows: **#QDNS: <host name>,<IP address>** where **<host name>** - string type **<IP address>** - string type, in the format "**xxx.xxx.xxx.xxx**" Note: the command has to activate the GPRS context if it was not previously activated. In this case the context is deactivated after the DNS query. It also works with GSM context, but the GSM context has to be activated before.
AT#QDNS=?	Test command returns the **OK** result code.
Note	This command requires that the authentication parameters are correctly set and that the GPRS network is present (or GSM, if GSM context is used).
Note	Issuing command **#QDNS** will overwrite **<remote addr>** setting for command **#SKTSET**.

3.5.6.7.9. DNS Response Caching - #CACHEDNS

#CACHEDNS – DNS Response Caching	SELINT 2
AT#CACHEDNS= [<mode>]	Set command enables caching a mapping of domain names to IP addresses, as does a resolver library.

#CACHEDNS – DNS Response Caching		**SELINT 2**
	Parameter: **<mode>** 0 - caching disabled; it cleans the cache too 1 - caching enabled Note: the validity period of each cached entry (i.e. how long a DNS response remains valid) is determined by a value called the **Time To Live** (**TTL**), set by the administrator of the DNS server handing out the response. Note: it is recommended to clean the cache, if command **+CCLK** has been issued while the DNS Response Caching was enabled.	
AT#CACHEDNS?	Read command reports whether the DNS Response Caching is currently enabled or not, in the format: **#CACHEDNS: <mode>**	
AT#CACHEDNS=?	Test command returns the currently cached mapping along with the range of available values for parameter **<mode>**, in the format: **#CACHEDNS: [<hostn*1*>,<IPaddr*1*>,[…,[<hostn*n*>,<IPaddr*n*>,]]](0,1)** where: **<hostn*n*>** - hostname, string type **<IPaddr*n*>** - IP address, string type, in the format **"xxx.xxx.xxx.xxx"**	

3.5.6.7.10. Manual DNS Selection - #DNS

#DNS – Manual DNS Selection		**SELINT 2**
AT#DNS=<cid>, <primary>, <secondary>	Set command allows to manually set primary and secondary DNS servers either for a PDP context defined by **+CGDCONT** or for a GSM context defined by **#GSMCONT** Parameters: **<cid>** - context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition **<primary>** - **manual primary DNS server**, string type, in the format **"xxx.xxx.xxx.xxx"** used for the specified cid; we're using this	

#DNS – Manual DNS Selection	**SELINT 2**
	value instead of the **primary DNS server** come from the network (default is "0.0.0.0") **<secondary>** - **manual secondary DNS server**, string type, in the format **"xxx.xxx.xxx.xxx"** used for the specified cid; we're using this value instead of the **secondary DNS server** come from the network (default is "0.0.0.0"). Note: if **<primary> is "0.0.0.0.0"** and **<secondary> is not "0.0.0.0"**, then issuing **AT#DNS=…** raises an error. Note: if **<primary> is "0.0.0.0.0"** we're using the **primary DNS server** come from the network as consequence of a context activation. Note: if **<primary> is not "0.0.0.0"** and **<secondary> is "0.0.0.0"**, then we're using only the **manual primary DNS server.** Note: the context identified by **<cid>** has to be previously defined, elsewhere issuing **AT#DNS=…** raises an error. Note: the context identified by **<cid>** has to be not activated yet, elsewhere issuing **AT#DNS=…** raises an error.
AT#DNS?	Read command returns the manual DNS servers set either for every defined PDP context and for the single GSM context (only if defined), in the format: **[#DNS: <cid>,<primary>,<secondary>[<CR><LF>** **#DNS: <cid>,<primary>,<secondary>]]**
AT#DNS=?	Test command reports the supported range of values for the **<cid>** parameter.only, in the format: **#DNS: (0,5),,**

3.5.6.7.11. Socket TCP Connection Time-Out - #SKTCT

#SKTCT - Socket TCP Connection Time-Out	**SELINT 0 / 1**
AT#SKTCT[= <tout>]	Set command sets the TCP connection time-out for the first **CONNECT** answer from the TCP peer to be received.

#SKTCT - Socket TCP Connection Time-Out	**SELINT 0 / 1**
	Parameter: **<tout>** - TCP first **CONNECT** answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600). Note: this time-out applies only to the time that the TCP stack waits for the **CONNECT** answer to its connection request. Note: The time for activate the GPRS and resolving the name with the DNS query (if the peer was specified by name and not by address) is not counted in this time-out. Note: if parameter is omitted then the behaviour of Set command is the same as Read command.
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter **<tout>**.

Example	`AT#SKTCT=600`
	`OK`
	socket first connection answer time-out has been set to 60 s.

#SKTCT - Socket TCP Connection Time-Out	**SELINT 2**
AT#SKTCT=[<tout>]	Set command sets the TCP connection time-out for the first **CONNECT** answer from the TCP peer to be received. Parameter: **<tout>** - TCP first **CONNECT** answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600). Note: this time-out applies only to the time that the TCP stack waits for the **CONNECT** answer to its connection request. Note: The time for activate the GPRS and resolving the name with the DNS query (if the peer was specified by name and not by address) is not counted in this time-out. Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter **<tout>**.

Example	`AT#SKTCT=600`
	`OK`
	socket first connection answer time-out has been set to 60 s.

3.5.6.7.12. Socket Parameters Save - #SKTSAV

#SKTSAV - Socket Parameters Save	**SELINT 0 / 1**
AT#SKTSAV	Execution command stores the current socket parameters in the NVM of the device. The socket parameters to store are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) - Remote Port - Remote Address - TCP Connection Time-Out

Example	`AT#SKTSAV`
	`OK`
	socket parameters have been saved in NVM

Note	If some parameters are not previously specified then a default value will be stored.

#SKTSAV - Socket Parameters Save	**SELINT 2**
AT#SKTSAV	Execution command stores the current socket parameters in the NVM of the device. The socket parameters to store are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) - Remote Port - Remote Address - TCP Connection Time-Out Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#SKTSAV=?	Test command returns the **OK** result code.

Example	`AT#SKTSAV`
	`OK`
	socket parameters have been saved in NVM

Note	If some parameters have not been previously specified then a default value

#SKTSAV - Socket Parameters Save	**SELINT 2**
	will be stored.

3.5.6.7.13. Socket Parameters Reset - #SKTRST

#SKTRST - Socket Parameters Reset	**SELINT 0 / 1**
AT#SKTRST	Execution command resets the socket parameters to the "factory default" configuration and stores them in the NVM of the device. The socket parameters to reset are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out

Example	`AT#SKTRST`
	`OK`
	socket parameters have been reset

#SKTRST - Socket Parameters Reset	**SELINT 2**
AT#SKTRST	Execution command resets the socket parameters to the "factory default" configuration and stores them in the NVM of the device. The socket parameters to reset are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out
AT#SKTRST=?	Test command returns the **OK** result code.

Example	`AT#SKTRST`
	`OK`
	socket parameters have been reset

3.5.6.7.14. GPRS Context Activation - #GPRS

#GPRS - GPRS Context Activation	SELINT 0 / 1
AT#GPRS[= [<mode>]]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request In the case that the GPRS context has been activated, the result code **OK** is preceded by the intermediate result code: **+IP: <ip_address_obtained>** reporting the local IP address obtained from the network. Note: issuing **AT#GPRS<CR>** reports the current status of the GPRS context, in the format: **#GPRS: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated 2 - GPRS context activation pending. Note: issuing **AT#GPRS=<CR>** is the same as issuing the command **AT#GPRS=0<CR>**. Note: if you request a GPRS context deactivation during a call issuing either **AT#GPRS=0** or **AT#EMAILACT=0** and then, after the call termination, you want to request a GPRS context activation through **#GPRS**, you **need** to issue the following sequence of three commands **AT#GPRS=1** **OK** **AT#GPRS=0** **OK** **AT#GPRS=1**

#GPRS - GPRS Context Activation	**SELINT 0 / 1**
	OK
AT#GPRS?	Read command has the same effect as the Execution command **AT#GPRS<CR>**.
AT#GPRS=?	Test command returns the allowed values for parameter **<mode>**.

Example	`AT#GPRS=1`
	`+IP: 129.137.1.1`
	`OK`
	Now GPRS Context has been activated and our IP is 129.137.1.1
	
	`AT#GPRS=0`
	`OK`
	Now GPRS context has been deactivated, IP is lost.

Note	It is strongly recommended to use the same command (e.g. **#GPRS**) to activate the context, deactivate it and interrogate about its status.

#GPRS - GPRS Context Activation	**SELINT 2**
AT#GPRS= [<mode>]	Execution command deactivates/activates the **PDP context #1**, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - **PDP context** activation mode 0 - **PDP context #1** deactivation request 1 - **PDP context #1** activation request In the case that the **PDP context #1** has been activated, the result code **OK** is preceded by the intermediate result code: **+IP: <ip_address_obtained>** reporting the local IP address obtained from the network. Note: at least a **socket identifier** needs to be associated with **PDP context #1** in order to every **#GPRS** action be effective; by default the **PDP context #1** is associated with **socket identifiers 1**, **2** and **3**, but it is possible to modify these associations through **#SCFG**. Trying to issue a **#GPRS** action when **no socket identifier** is associated with **PDP context #1** raises an error. Note: if the **PDP context #1** has been activated issuing **AT#GPRS=1**, then • if you request to deactivate the **PDP context #1** issuing **AT#EMAILACT=0** an **ERROR** is raised and nothing happens

#GPRS - GPRS Context Activation	**SELINT 2**
	- if you request to deactivate the **PDP context #1 during a call** issuing **AT#GPRS=0** and then, after the call termination, you want to activate the **PDP context #1** again through **#GPRS**, you **need** to issue the following sequence of three commands **AT#GPRS=1** **OK** **AT#GPRS=0** **OK** **AT#GPRS=1** **OK** *(Analogous considerations if you want to request the activation of* ***PDP context #1*** *issuing* ***AT#EMAILACT=1****, see* ***#EMAILACT****)* Note: this command is not allowed if GSM context has been activated (see **AT#SGACT=0,1**).
AT#GPRS?	Read command reports the current status of the **PDP context #1**, in the format: **#GPRS: <status>** where: **<status>** 0 - **PDP context #1** deactivated 1 - **PDP context #1** activated 2 - **PDP context #1** activation pending.
AT#GPRS=?	Test command returns the allowed values for parameter **<mode>**.

Example	`AT#GPRS=1`
	`+IP: 129.137.1.1`
	`OK`
	Now ***PDP Context #1*** *has been activated and our IP is 129.137.1.1*
	
	`AT#GPRS=0`
	`OK`
	Now ***PDP Context #1*** *has been deactivated, IP is lost.*

Note	It is strongly recommended to use the same command (e.g. **#GPRS**) to activate the context, deactivate it and interrogate about its status.

3.5.6.7.15. Socket Dial - #SKTD

#SKTD - Socket Dial	**SELINT 0 / 1**
AT#SKTD	Set command opens the socket towards the peer specified in the

#SKTD - Socket Dial	SELINT 0 / 1
[=<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	parameters. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive disconnect from remote. **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: the resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTD** command, then an error message will be issued. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT#SKTD?	Read command reports the socket dial parameters values, in the format: **AT#SKTD: <socket type>,<remote port>,<remote addr>,**

#SKTD - Socket Dial	**SELINT 0 / 1**
	<closure type>,<local port>
AT#SKTD=?	Test command returns the allowed values for the parameters.

Example	`AT#SKTD=0,1024,"123.255.020.001",255`
	`CONNECT`
	
	`AT#SKTD=1,1024,"123.255.020.001", ,1025`
	`CONNECT`
	In this way my local port 1025 is opened to the remote port 1024
	
	`AT#SKTD=0,1024,"www.telit.net", 255`
	`CONNECT`

Note	The main difference between this command and **#SKTOP** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **AT#SKTD** is closed the context (and hence the local IP address) is maintained.

#SKTD - Socket Dial	**SELINT 2**
AT#SKTD= **[<socket type>,** **<remote port>,** **<remote addr>,** **[<closure type>],** **[<local port>]]**	Set command opens the socket towards the peer specified in the parameters. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 1..65535 - port number **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive disconnect from remote. **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused.

#SKTD - Socket Dial	**SELINT 2**
	Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: the resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTD** command, then an error message will be issued. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** Note: this command is not allowed for sockets associated to a GSM context (see **#SCFG**).
AT#SKTD?	Read command reports the socket dial parameters values, in the format: **AT#SKTD: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**
AT#SKTD=?	Test command returns the allowed values for the parameters.

Example	`AT#SKTD=0,1024,"123.255.020.001",255`
	`CONNECT`
	`AT#SKTD=1,1024,"123.255.020.001", ,1025`
	`CONNECT`
	In this way my local port 1025 is opened to the remote port 1024
	`AT#SKTD=0,1024,"www.telit.net", 255`
	`CONNECT`

Note	The main difference between this command and **#SKTOP** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **#SKTD** is closed the context (and hence the local IP address) is maintained.

3.5.6.7.16. Socket Listen - #SKTL

#SKTL - Socket Listen	**SELINT 0 / 1**
AT#SKTL [=<mode>, <socket type>, <input port>,	Execution command opens/closes the socket listening for connection requests. Parameters:

#SKTL - Socket Listen	SELINT 0 / 1
[<closure type>]]	**<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive disconnect from remote. Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **#SKTL: ABORTED** Note: if all parameters are omitted the command returns the current

#SKTL - Socket Listen	**SELINT 0 / 1**
	socket listening **status** and the last settings of parameters **<input port>** and **<closure type>**, in the format: **#SKTL: <status>,<input port>,<closure type>** where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT#SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT#SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<input port>** and **<closure type>**.

Example	*Activate GPRS*
	`AT#GPRS=1`
	`+IP: ###.###.###.###`
	
	`OK`
	Start listening
	`AT#SKTL=1,0,1024`
	`OK`
	`or`
	`AT#SKTL=1,0,1024,255`
	`OK`
	
	Receive connection requests
	`+CONN FROM: 192.164.2.1`
	`CONNECT`
	
	exchange data with the remote host
	
	send escape sequence
	`+++`
	`NO CARRIER`
	Now listen is not anymore active
	
	to stop listening
	`AT#SKTL=0,0,1024, 255`
	`OK`

Note	The main difference between this command and the **#SKTD** is that **#SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **#SKTL** is closed the context (and hence the local IP address) is maintained. The improving command **@SKTL** has been defined.

#SKTL - Socket Listen	SELINT 2
AT#SKTL =[<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 -TCP (default) 1- UDP **<input port>** - local host input port to be listened 1..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is

#SKTL - Socket Listen	SELINT 2
	closed, no listen is anymore active and an unsolicited code is reported: #SKTL: ABORTED Note: when closing the listening socket <input port> is a don’t care parameter
AT#SKTL?	Read command returns the current socket listening **status** and the last settings of parameters **<input port>** and **<closure type>**, in the format: **#SKTL: <status>,<socket type>, <input port>,<closure type>** Where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT#SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<socket type>**, **<input port>** and **<closure type>**.

Example	*Activate GPRS*
	`AT#GPRS=1`
	`+IP: ###.###.###.###`
	`OK`
	Start TCP listening
	`AT#SKTL=1,0,1024`
	`OK`
	or
	`AT#SKTL=1,0,1024,255`
	`OK`
	Receive TCP connection requests
	`+CONN FROM: 192.164.2.1`
	`CONNECT`
	exchange data with the remote host
	send escape sequence
	`+++`
	`NO CARRIER`
	Now listen is not anymore active
	to stop listening
	`AT#SKTL=0,0,1024, 255`
	`OK`

Note	The main difference between this command and **#SKTD** is that **#SKTL** does not contact any peer, nor does any interaction with the GPRS context status,

#SKTL - Socket Listen	**SELINT 2**
	leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **#SKTL** is closed the context (and hence the local IP address) is maintained.

3.5.6.7.17. Socket Listen Improved - @SKTL

@SKTL - Socket Listen Improved	**SELINT 0 / 1**
AT@SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) or after an abortive disconnect from remote. Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device.

@SKTL - Socket Listen Improved	SELINT 0 / 1
	When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **@SKTL: ABORTED** Note: if all parameters are omitted the command returns the current socket listening **status** and the last settings of parameters **<socket type>**, **<input port>** and **<closure type>**, in the format: **@SKTL: <status>,<socket type>,<input port>,<closure type>** Where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT@SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT@SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<socket type>**, **<input port>** and **<closure type>**.

Example	*Activate GPRS*
	`AT#GPRS=1`
	`+IP: ###.###.###.###`
	`OK`
	Start listening
	`AT@SKTL=1,0,1024`
	`OK`
	or
	`AT@SKTL=1,0,1024,255`
	`OK`
	Receive connection requests
	`+CONN FROM: 192.164.2.1`
	`CONNECT`
	exchange data with the remote host
	send escape sequence
	`+++`

@SKTL - Socket Listen Improved	**SELINT 0 / 1**

	`NO CARRIER`
	Now listen is not anymore active
	
	to stop listening
	`AT@SKTL=0,0,1024, 255`
	`OK`

Note	The main difference between this command and the **#SKTD** is that **@SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **@SKTL** is closed the context (and hence the local IP address) is maintained.

3.5.6.7.18. Socket Listen Ring Indicator - #E2SLRI

#E2SLRI - Socket Listen Ring Indicator	**SELINT 0 / 1 / 2**
AT#E2SLRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a Socket Listen connect and, if enabled, the duration of the negative going pulse generated on receipt of connect. Parameter: **<n>** - **RI** enabling 0 - **RI** disabled for Socket Listen connect (factory default) 50..1150 - **RI** enabled for Socket Listen connect; a negative going pulse is generated on receipt of connect and **<n>** is the duration in ms of this pulse.
AT#E2SLRI?	Read command reports whether the Ring Indicator pin response to a Socket Listen connect is currently enabled or not, in the format: **#E2SLRI: <n>**
AT#E2SLRI=?	Test command returns the allowed values for parameter **<status>**.

3.5.6.7.19. Firewall Setup - #FRWL

#FRWL - Firewall Setup	**SELINT 0 / 1**
AT#FRWL[= <action>, <ip_addr>, <net_mask>]	Execution command controls the internal firewall settings. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string

#FRWL - Firewall Setup	**SELINT 0 / 1**
	type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx **<net_mask>** - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Note: the firewall applies for incoming (listening) connections only. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>** If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped. Note: If all parameters are omitted the command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#FRWL: <ip_addr>,<net_mask>** **#FRWL: <ip_addr>,<net_mask>** **….** **OK**
AT#FRWL?	Read command has the same effect as Execution command when parameters are omitted.
AT#FRWL=?	Test command returns the allowed values for parameter **<action>.**

Example	*Let assume we want to accept connections only from our devices which are on the IP addresses ranging from*
	197.158.1.1 to 197.158.255.255
	
	We need to add the following chain to the firewall:
	`AT#FRWL=1,"197.158.1.1","255.255.0.0"`
	`OK`

Note	For outgoing connections made with **#SKTOP** and **#SKTD** the remote host is dynamically inserted into the **ACCEPT** chain for all the connection duration. Therefore the **#FRWL** command shall be used only for defining either the **#SKTL** or the **@SKTL** behaviour, deciding which hosts are allowed to connect to the local device.

#FRWL - Firewall Setup	SELINT 0 / 1
	Rules are not saved in NVM, at startup the rules list will be empty.

#FRWL - Firewall Setup	SELINT 2
AT#FRWL= [<action>, <ip_address>, <net mask>]	Execution command controls the internal firewall settings. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx **<net_mask>** - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Note: the firewall applies for incoming (listening) connections only. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>** If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped.
AT#FRWL?	Read command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#FRWL: <ip_addr>,<net_mask>** **#FRWL: <ip_addr>,<net_mask>** **….** **OK**
AT#FRWL=?	Test command returns the allowed values for parameter **<action>**.
Example	*Let assume we want to accept connections only from our devices which are on the IP addresses ranging from* *197.158.1.1 to 197.158.255.255*

#FRWL - Firewall Setup	**SELINT 2**

	We need to add the following chain to the firewall:
	`AT#FRWL=1,"197.158.1.1","255.255.0.0"`
	`OK`

Note	For outgoing connections made with **#SKTOP** and **#SKTD** the remote host is dynamically inserted into the **ACCEPT** chain for all the connection duration. Therefore the **#FRWL** command shall be used only for defining the **#SKTL** behaviour, deciding which hosts are allowed to connect to the local device. Rules are not saved in NVM, at startup the rules list will be empty.

3.5.6.7.20. GPRS Data Volume - #GDATAVOL

#GDATAVOL - GPRS Data Volume	**SELINT 2**
AT#GDATAVOL= [<mode>]	Execution command reports, for every active PDP context, the amount of data the last GPRS session (and the last GSM session, if GSM context is active) received and transmitted, or it will report the total amount of data received and transmitted during all past GPRS (and GSM) sessions, since last reset. Parameter: **<mode>** 0 - it resets the GPRS data counter for the all the available PDP contexts (1-5) and GSM data counter for GSM context 0 1 - it reports the last GPRS session data counter for the all the set PDP contexts (i.e. all the PDP contexts with APN parameter set using **+CGDCONT**) (and the last GSM session data counter for the GSM context, if set through **#GSMCONT**), in the format: **#GDATAVOL: <cid*n*>,<tot*n*>,<sent*n*>,<received*n*>[<CR><LF>** **#GDATAVOL: <cid*m*>,<tot*m*>,<sent*m*>,<received*m*>[…]]** where: **<cid*n*>** - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition **<tot*n*>** - number of bytes either received or transmitted in the last GPRS (or GSM) session for **<cid*n*>** PDP context; **<sent*n*>** - number of bytes transmitted in the last GPRS (or GSM) session for **<cid*n*>** PDP context;

#GDATAVOL - GPRS Data Volume	**SELINT 2**
	<received*n*> - number of bytes received in the last GPRS (or GSM) session for **<cid*n*>** PDP context; 2 - it reports the total GPRS data counter, since last reset, for the all the set PDP contexts (i.e. all the PDP context with APN parameter set using **+CGDCONT**) and the total GSM data counter for the GSM context, if set through **#GSMCONT**, in the format: **#GDATAVOL: <cid*n*>,<tot*n*>,<sent*n*>,<received*n*>[<CR><LF>** **#GDATAVOL: <cid*m*>,<tot*m*>,<sent*m*>,<received*m*>[…]]** where: **<cid*n*>** - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition **<tot*n*>** - number of bytes either received or transmitted, in every GPRS (or GSM) session since last reset, for **<cid*n*>** PDP context; **<sent*n*>** - number of bytes transmitted, in every GPRS (or GSM) session since last reset, for **<cid*n*>** PDP context; **<received*n*>** - number of bytes received, in every GPRS (or GSM) session since last reset, for **<cid*n*>** PDP context; Note: last GPRS and GSM session counters are not saved in NVM so they are loosen at power off. Note: total GPRS and GSM session counters are saved on NVM.
AT#GDATAVOL=?	Test command returns the range of supported values for parameter **<mode>**.

3.5.6.7.21. ICMP Ping Support - #ICMP

#ICMP - ICMP Ping Support	**SELINT 2**
AT#ICMP=<mode>	Set command enables/disables the ICMP Ping support. Parameter: **<mode>** 0 - disable ICMP Ping support (default) 1 - enable firewalled ICMP Ping support: the module is sending a proper ECHO_REPLY only to a subset of IP Addresses pinging it; this subset of IP Addresses has been previously specified through **#FRWL** (see) 2 - enable free ICMP Ping support; the module is sending a proper

#ICMP - ICMP Ping Support	**SELINT 2**
	ECHO_REPLY to every IP Address pinging it.
AT#ICMP?	Read command returns whether the ICMP Ping support is currently enabled or not, in the format: **#ICMP: <mode>**
AT#ICMP=?	Test command reports the supported range of values for the **<mode>** parameter.

3.5.6.7.22. Maximum TCP Payload Size - #TCPMAXDAT

#TCPMAXDAT - Maximum TCP Payload Size	**SELINT 2**
AT#TCPMAXDAT= <size>	Set command allows to set the maximum TCP payload size in TCP header options. Parameter: **<size>** - maximum TCP payload size accepted in one single TCP/IP datagram; it is sent in TCP header options in SYN packet. 0 - the maximum TCP payload size is automatically handled by module (default). 496..1420 - maximum TCP payload size
AT#TCPMAXDAT?	Read command reports the current maximum TCP payload size, in the format: **#TCPMAXDAT: <size>**
AT#TCPMAXDAT=?	Test command reports the supported range of values for parameter **<size>**

3.5.6.7.23. TCP Reassembly - #TCPREASS

#TCPREASS - TCP Reassembly	**SELINT 2**
AT#TCPREASS= <n>	Set command enables/disables the **TCP reassembly feature**, in order to handle fragmented TCP packets. Parameter: **<n>** 0 - disable TCP reassembly feature (default) 1 - enable TCP reassembly feature

#TCPREASS - TCP Reassembly	**SELINT 2**
AT#TCPREASS?	Read command returns whether the TCP reassembly feature is enabled or not, in the format: **#TCPREASS: <n>**
AT#TCPREASS=?	Test command returns the supported range of values for parameter **<n>**.

3.5.6.7.24. PING request - #PING

#PING – Send PING request	
AT#PING=<IPaddr>[,<retryNum>[,<len>[,<timeout>[,<ttl>]]]]	This command is used to send Ping Echo Request messages and to receive the corresponding Echo Reply. Parameters: **<IPaddr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query **<retryNum>** - the number of Ping Echo Request to send 1-64 (default 4) **<len>** - the lenght of Ping Echo Request message 32-1460 (default 32) **<timeout>** - the timeout, in 100 ms units, waiting a single Echo Reply 1-600 (default 50) **<ttl>** - time to live 1-255 (default 128) Once the single Echo Reply message is receive a string like that is displayed: **#PING: <replyId>,<Ip Address>,<replyTime>,<ttl>** Where: **<replyId>** - Echo Reply number **<Ip Address>** - IP address of the remote host **<replyTime>** - time, in 100 ms units, required to receive the response **<ttl>** - time to live of the Echo Reply message Note1: when the Echo Request timeout expires (no reply received on time)

#PING – Send PING request	
	the response will contain **<replyTime>** set to 600 and **<ttl>** set to 255 Note2: To receive the corresponding Echo Reply is not required to enable separately AT#ICMP Note3: Before send PING Request the GPRS context must have been activated by AT#SGACT=1,1
AT#ICMP=?	Test command reports the supported range of values for the **#PING** command parameters.

Example	`AT#PING=”www.telit.com”`
	`#PING: 01,"81.201.117.177",6,50`
	`#PING: 02,"81.201.117.177",5,50`
	`#PING: 03,"81.201.117.177",6,50`
	`#PING: 04,"81.201.117.177",5,50`
	`OK`

3.5.6.8. E-mail Management AT Commands

3.5.6.8.1. E-mail SMTP Server - #ESMTP

#ESMTP - E-mail SMTP Server	**SELINT 0 / 1**
AT#ESMTP [=<smtp>]	Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name. Parameter: **<smtp>** - SMTP server address, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) Note: the max length for **<smtp>** is the output of Test command. Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: **#ESMTP: <smtp>**
AT#ESMTP=?	Test command returns the max length for the parameter **<smtp>.**

Example	`AT#ESMTP="smtp.mydomain.com"`
	`OK`

Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the e-mail.

#ESMTP - E-mail SMTP Server	**SELINT 2**
AT#ESMTP= [<smtp>]	Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name. Parameter: **<smtp>** - SMTP server address, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) Note: the max length for **<smtp>** is the output of Test command.
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: **#ESMTP: <smtp>**

#ESMTP - E-mail SMTP Server	**SELINT 2**
AT#ESMTP=?	Test command returns the max length for the parameter **<smtp>.**

Example	`AT#ESMTP="smtp.mydomain.com"`
	`OK`

Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the e-mail.

3.5.6.8.2. E-mail Sender Address - #EADDR

#EADDR - E-mail Sender Address	**SELINT 0 / 1**
AT#EADDR [=<e-addr>]	Set command sets the sender address string to be used for sending the e-mail. Parameter: **<e-addr>** - sender address, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#EADDR?	Read command reports the current sender address, in the format: **#EADDR: <e-addr>**
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter **<e-addr>.**

Example	`AT#EADDR="me@email.box.com"`
	`OK`
	`AT#EADDR?`
	`#EADDR: "me@email.box.com"`
	
	`OK`

#EADDR - E-mail Sender Address	**SELINT 2**
AT#EADDR= [<e-add>]	Set command sets the sender address string to be used for sending the e-mail. Parameter: **<e-addr>** - sender address, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”)
AT#EADDR?	Read command reports the current sender address, in the format: **#EADDR: <e-addr>**

#EADDR - E-mail Sender Address	**SELINT 2**
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter **<e-addr>.**

Example	`AT#EADDR="me@email.box.com"`
	`OK`
	`AT#EADDR?`
	`#EADDR: "me@email.box.com"`
	
	`OK`

3.5.6.8.3. E-mail Authentication User Name - #EUSER

#EUSER - E-mail Authentication User Name	**SELINT 0 / 1**
AT#EUSER [=<e-user>]	Set command sets the user identification string to be used during the authentication step of the SMTP. Parameter: **<e-user>** - e-mail authentication User ID, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-user>** parameter shall be empty "". Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#EUSER?	Read command reports the current user identification string, in the format: **#EUSER: <e-user>**
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter **<e-user>**.

Example	`AT#EUSER="myE-Name"`
	`OK`
	`AT#EUSER?`
	`#EUSER: "myE-Name"`
	
	`OK`

Note	It is a different user field than the one used for GPRS authentication (see **#USERID**).

#EUSER - E-mail Authentication User Name	**SELINT 2**
AT#EUSER= [<e-user>]	Set command sets the user identification string to be used during the authentication step of the SMTP. Parameter:

#EUSER - E-mail Authentication User Name		**SELINT 2**
	<e-user> - e-mail authentication User ID, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-user>** parameter shall be empty "".	
AT#EUSER?	Read command reports the current user identification string, in the format: **#EUSER: <e-user>**	
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter **<e-user>**.	

Example	`AT#EUSER="myE-Name"`
	`OK`
	`AT#EUSER?`
	`#EUSER: "myE-Name"`
	
	`OK`	

Note	It is a different user field than the one used for GPRS authentication (see **#USERID**).	

3.5.6.8.4. E-mail Authentication Password - #EPASSW

#EPASSW - E-mail Authentication Password		**SELINT 0 / 1**
AT#EPASSW= <e-pwd>	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: **<e-pwd>** - e-mail authentication password, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-pwd>** parameter shall be empty "".	
AT#EPASSW=?	Test command returns the maximum allowed length of the string parameter **<e-pwd>**.	

Example	`AT#USERID="myPassword"`
	`OK`	

Note	It is a different password field than the one used for GPRS authentication (see **#PASSW**).	

#EPASSW - E-mail Authentication Password		**SELINT 2**
AT#EPASSW= [<e-pwd>]	Set command sets the password string to be used during the authentication step of the SMTP.	

#EPASSW - E-mail Authentication Password	**SELINT 2**
	Parameter: **<e-pwd>** - e-mail authentication password, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-pwd>** parameter shall be empty "".
AT#EPASSW=?	Test command returns the maximum allowed length of the string parameter **<e-pwd>**.

Example	`AT#EPASSW="myPassword"`
	`OK`

Note	It is a different password field than the one used for GPRS authentication (see **#PASSW**).

3.5.6.8.5. E-mail Sending With GPRS Context Activation - #SEMAIL

#SEMAIL - E-mail Sending With GPRS Context Activation	**SELINT 0 / 1**
AT#SEMAIL=<da>,<subj>	Execution command activates a GPRS context, if not previously activated by **#EMAILACT**, and sends an e-mail message. The GPRS context is deactivated when the e-mail is sent. Parameters: **<da>** - destination address, string type (maximum length 100 characters). **<subj>** - subject of the message, string type (maximum length 100 characters). The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported. Note: if the length of one of the string type parameters exceeds the maximum length, then the string is truncated. Note: Care must be taken to ensure that during the command execution,

#SEMAIL - E-mail Sending With GPRS Context Activation	**SELINT 0 / 1**
	no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: maximum length for message body is 1024 bytes, trying to send more data will cause the surplus to be discarded and lost.

Example	`AT#SEMAIL="me@myaddress.com","subject of the mail"`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	`..wait..`
	`OK`
	
	`Message has been sent.`

Note	This command is obsolete. It's suggested to use the couple **#EMAILACT** and **#EMAILD** instead of it.

#SEMAIL - E-mail Sending With GPRS Context Activation	**SELINT 2**
AT#SEMAIL=[<da>,<subj>]	Execution command activates a GPRS context, if not previously activated by **#EMAILACT**, and sends an e-mail message. The GPRS context is deactivated when the e-mail is sent. Parameters: **<da>** - destination address, string type. (maximum length 100 characters) **<subj>** - subject of the message, string type. (maximum length 100 characters) The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported. Note: if the length of one of the string type parameters exceeds the maximum length, then the string is truncated. Note: Care must be taken to ensure that during the command execution, no other commands are issued.

#SEMAIL - E-mail Sending With GPRS Context Activation	**SELINT 2**
	To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: maximum length for message body is 1024 bytes, trying to send more data will cause the surplus to be discarded and lost. Note: this command is not allowed if GSM context is active (see **AT#SGACT=0,1**).
AT#SEMAIL=?	Test command returns the **OK** result code.

Example	`AT#SEMAIL="me@myaddress.com","subject of the mail"`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	..wait..
	`OK`
	Message has been sent.

3.5.6.8.6. E-mail GPRS Context Activation - #EMAILACT

#EMAILACT - E-mail GPRS Context Ativation	**SELINT 0 / 1**
AT#EMAILACT[=[<mode>]]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request Note: issuing **AT#EMAILACT<CR>** reports the current status of the GPRS context for the e-mail, in the format: **#EMAILACT: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated Note: issuing **AT#EMAILACT=<CR>** is the same as issuing the command

#EMAILACT - E-mail GPRS Context Ativation	**SELINT 0 / 1**

	**AT#EMAILACT=0<CR>**.
	
	Note: if you request a GPRS context deactivation during a call issuing either **AT#GPRS=0** or **AT#EMAILACT=0** and then, after the call termination, you want to request a GPRS context activation through **#EMAILACT**, you **need** to issue the following sequence of three commands
	
	`AT#EMAILACT=1`
	`OK`
	`AT#EMAILACT=0`
	`OK`
	`AT#EMAILACT=1`
	`OK`

AT#EMAILACT?	Read command has the same effect of the Execution command **AT#EMAILACT<CR>**.
AT#EMAILACT=?	Test command returns the allowed values for parameter **<mode>**.

Example	`AT#EMAILACT=1`
	`OK`
	Now GPRS Context has been activated
	
	`AT# EMAILACT=0`
	`OK`
	Now GPRS context has been deactivated.

Note	It is strongly recommended to use the same command (e.g. **#EMAILACT**) to activate the context, deactivate it and interrogate about its status.

#EMAILACT - E-mail GPRS Context Ativation	**SELINT 2**
AT#EMAILACT=[<mode>]	Execution command deactivates/activates the **PDP context #1**, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - **PDP context** activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request Note: at least a **socket identifier** needs to be associated with **PDP context #1** in order to every **#EMAILACT** action be effective; by default the **PDP context #1** is associated with **socket identifiers 1**, **2** and **3**, but it is possible to modify these associations through **#SCFG**. Trying to issue a **#EMAILACT** action when **no socket identifier** is associated with **PDP context #1** raises an error.

#EMAILACT - E-mail GPRS Context Ativation	**SELINT 2**

	Note: if the **PDP context #1** has been activated issuing **AT#EMAILACT=1**, then
	• if you request to deactivate the **PDP context #1** issuing **AT#GPRS=0** DTE receives the final result code **OK** but nothing really happens
	• if you request to deactivate the **PDP context #1 during a call** issuing **AT#EMAILACT=0** and then, after the call termination, you want to activate the **PDP context #1** again through **#EMAILACT**, you **need** to issue the following sequence of three commands
	`AT#EMAILACT=1`
	`OK`
	`AT#EMAILACT=0`
	`OK`
	`AT#EMAILACT=1`
	`OK`
	(Analogous considerations if you want to request the activation of ***PDP context #1*** *issuing* ***AT#GPRS=1****, see* ***#GPRS****)*
	Note: this command is not allowed if GSM context is active (see **AT#SGACT=0,1**).

AT#EMAILACT?	Read command reports the current status of the GPRS context for the e-mail, in the format: **#EMAILACT: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated
AT#EMAILACT=?	Test command returns the allowed values for parameter **<mode>**.

Example	`AT#EMAILACT=1`
	`OK`
	Now GPRS Context has been activated
	`AT# EMAILACT=0`
	`OK`
	Now GPRS context has been deactivated.

Note	It is strongly recommended to use the same command (e.g. **#EMAILACT**) to activate the context, deactivate it and interrogate about its status.

3.5.6.8.7. E-mail Sending - #EMAILD

#EMAILD - E-mail Sending	**SELINT 0 / 1**
AT#EMAILD=<da>,<subj>	Execution command sends an e-mail message if GPRS context has already been activated by either **AT#EMAILACT=1** or **AT#GPRS=1**. Parameters: **<da>** - destination address, string type (maximum length 100 characters). **<subj>** - subject of the message, string type (maximum length 100 characters). The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported. Note: if the length of one of the string type parameters exceeds the maximum length, then the string is truncated. Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR** / **+CMS ERROR:<err>** response before issuing further commands. Note: maximum length for message body is 1024 bytes, trying to send more data will cause the surplus to be discarded and lost.

Example	`AT#EMAILD=”me@myaddress.com”,”subject of the mail”`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	`..wait..`
	`OK`
	`Message has been sent.`

Note	The only difference between this command and the **#SEMAIL** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#EMAILACT** setting, thus, when the connection made with **#EMAILD** is closed, the context status is maintained.

#EMAILD - E-mail Sending	**SELINT 2**

#EMAILD - E-mail Sending	**SELINT 2**
AT#EMAILD=[<da>, <subj>]	Execution command sends an e-mail message if GPRS context has already been activated by either **AT#SGACT=1,1** or **AT#EMAILACT=1** or **AT#GPRS=1**. It is also possible to send an e-mail on the GSM context, if it has already been activated by **AT#SGACT=0,1**. Parameters: **<da>** - destination address, string type. (maximum length 100 characters) **<subj>** - subject of the message, string type. (maximum length 100 characters) The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported. Note: if the length of one of the string type parameters exceeds the maximum length, then the string is truncated. Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: maximum length for message body is 1024 bytes, trying to send more data will cause the surplus to be discarded and lost.
AT#EMAILD=?	Test command returns the **OK** result code.

Example	`AT#EMAILD=”me@myaddress.com”,”subject of the mail”`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	..wait..
	`OK`
	Message has been sent.

Note	The only difference between this command (set using GPRS context)

#EMAILD - E-mail Sending	**SELINT 2**
	and the **#SEMAIL** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#EMAILACT** (**#SGACT**) setting, thus, when the connection made with **#EMAILD** is closed, the context status is maintained.

3.5.6.8.8. E-mail Parameters Save - #ESAV

#ESAV - E-mail Parameters Save	**SELINT 0 / 1**
AT#ESAV	Execution command stores the e-mail parameters in the NVM of the device. The e-mail parameters to store are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server
Note	If some parameters have not been previously specified then a default value will be taken.

#ESAV - E-mail Parameters Save	**SELINT 2**
AT#ESAV	Execution command stores the e-mail parameters in the NVM of the device. The e-mail parameters to store are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server
AT#ESAV=?	Test command returns the **OK** result code.
Note	If some parameters have not been previously specified then a default value will be taken.

3.5.6.8.9. E-mail Parameters Reset - #ERST

#ERST - E-mail Parameters Reset	**SELINT 0 / 1**
AT#ERST	Execution command resets the e-mail parameters to the "factory default" configuration and stores them in the NVM of the device. The e-mail parameters to reset are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server

#ERST - E-mail Parameters Reset	**SELINT 2**
AT#ERST	Execution command resets the e-mail parameters to the "factory default" configuration and stores them in the NVM of the device. The e-mail parameters to reset are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server
AT#ERST=?	Test command returns the **OK** result code.

3.5.6.8.10. SMTP Read Message - #EMAILMSG

#EMAILMSG - SMTP Read Message	**SELINT 0 / 1**
AT#EMAILMSG	Execution command returns the last response from SMTP server.
AT#EMAILMSG?	Read command has the same behaviour as Execution command.

#EMAILMSG - SMTP Read Message	**SELINT 2**
AT#EMAILMSG	Execution command returns the last response from SMTP server.
AT#EMAILMSG=?	Test command returns the **OK** result code.

3.5.6.9. Easy Scan® Extension AT Commands

NOTE:

it is strongly suggested to issue all the Easy Scan® Extension AT commands with **NO SIM** inserted, to avoid a potential conflict with normal module operations, such as "incoming call", "periodic location update, "periodic routing area update" and so on.

3.5.6.9.1. Network Survey - #CSURV

#CSURV - Network Survey	**SELINT 0 / 1**
AT#CSURV [=<s>,<e>] AT*CSURV	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. If parameters are omitted, a full band scan is performed.

#CSURV - Network Survey	SELINT 0 / 1
[=<s>,<e>] *(both syntax are possible)*	Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..CELL_SUITABLE - C0 is a suitable cell. CELL_LOW_PRIORITY - the cell is low priority based on the received system information. CELL_FORBIDDEN - the cell is forbidden. CELL_BARRED - the cell is barred based on the received system information. CELL_LOW_LEVEL - the cell **<rxLev>** is low. CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available…etc.

#CSURV - Network Survey	**SELINT 0 / 1**
	<numArfcn> - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - arfcn of a valid channel in the BA list (*n* is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch>** - packet broadcast control channel 0 - pbcch not activated on the cell 1 - pbcch activated on the cell **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value

#CSURV - Network Survey	SELINT 0 / 1
	<alpha> - alpha parameter for power control **<pcMeasCh>** - type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **arfcn: <arfcn> rxLev: <rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm) Lastly, the **#CSURV** output ends in two ways, depending on the last **#CSURVF** setting: if **#CSURVF=0** or **#CSURVF=1** The output ends with the string: **Network survey ended** if **#CSURVF=2** the output ends with the string: **Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)** where **<NoARFCN>** - number of scanned frequencies **<NoBCCH>** - number of found BCCh
AT#CSURV? **AT*CSURV?**	Read command has the same behaviour as Execution command with parameters omitted.

Example

```
AT#CSURV

Network survey started…

arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281
cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48
numChannels: 5 array: 14 19 22 48 82


arfcn: 14 rxLev: 8
```

#CSURV - Network Survey		SELINT 0 / 1

	`Network survey ended`
	
	`OK`	

Note	The command is executed within max. 2 minutes.	

#CSURV - Network Survey		SELINT 2
AT#CSURV[= [<s>,<e>]] AT*CSURV[= [<s>,<e>]] *(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. Issuing **AT#CSURV<CR>**, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: (For BCCH-Carrier) **arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code; if **#CSURVF** last setting is 0, **<bsic>** is a decimal number, else it is a 2-digits octal number **<rxLev>** - decimal number; it is the receiption level (in dBm) **<ber>** - decimal number; it is the bit error rate (in %) **<mcc>** - hexadecimal 3-digits number; it is the mobile country code **<mnc>** - hexadecimal 2-digits number; it is the mobile network code **<lac>** - location area code; if **#CSURVF** last setting is 0, **<lac>** is a decimal	

#CSURV - Network Survey	SELINT 2
	number, else it is a 4-digits hexadecimal number **<cellId>** - cell identifier; if **#CSURVF** last setting is 0, **<cellId>** is a decimal number, else it is a 4-digits hexadecimal number **<cellStatus>** - string type; it is the cell status ..CELL_SUITABLE - C0 is a suitable cell. CELL_LOW_PRIORITY - the cell is low priority based on the received system information. CELL_FORBIDDEN - the cell is forbidden. CELL_BARRED - the cell is barred based on the received system information. CELL_LOW_LEVEL - the cell **<rxLev>** is low. CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available…etc. **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numArfcn>** - decimal number; it is the number of valid channels in the Cell Channel Description **<arfcn*n*>** - decimal number; it is the arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - decimal number; it is the number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 2. if **#CSURVEXT=0** this information is displayed only for serving cell 3. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - decimal number; it is the arfcn of a valid channel in the BA list (*n* is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 2. if **#CSURVEXT=0** this information is displayed only for serving cell 3. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch>** - packet broadcast control channel 0 - pbcch not activated on the cell 1 - pbcch activated on the cell **<nom>** - network operation mode 1

#CSURV - Network Survey	**SELINT 2**
	2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH (For non BCCH-Carrier) **arfcn: <arfcn> rxLev: <rxLev>** where: **<arfcn>** - decimal number; it is the RF channel **<rxLev>** - decimal number; it is the receiption level (in dBm) Lastly, the **#CSURV** output ends in two ways, depending on the last **#CSURVF** setting: if **#CSURVF=0** or **#CSURVF=1** The output ends with the string: **Network survey ended** if **#CSURVF=2** the output ends with the string:

#CSURV - Network Survey	**SELINT 2**
	Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>) where **<NoARFCN>** - number of scanned frequencies **<NoBCCH>** - number of found BCCh

Example

```
AT#CSURV

Network survey started…

arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281
cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48
numChannels: 5 array: 14 19 22 48 82


arfcn: 14 rxLev: 8


Network survey ended

OK
```

Note	The command is executed within max. 2 minute.

3.5.6.9.2. Network Survey - #CSURVC

#CSURVC - Network Survey (Numeric Format)	**SELINT 0 / 1**
AT#CSURVC [=<s>,<e>] **AT*CSURVC [=<s>,<e>]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. If parameters are omitted, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: (For BCCH-Carrier) **<arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,** **<cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]]**

#CSURVC - Network Survey (Numeric Format)	SELINT 0 / 1
	[,<numChannels>[,<ba1> ..[<ba32>]][,<pbcch> [,<nom>,<rac>,<spgc>, <pat>,<nco>,<t3168>,<t3192>,<drxmax>,<ctrlAck>,<bsCVmax>, <alpha>,<pcMeasCh>]]] **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..0 - C0 is a suitable cell (CELL_SUITABLE). 1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY). 2 - the cell is forbidden (CELL_FORBIDDEN). 3 - the cell is barred based on the received system information (CELL_BARRED). 4 - the cell **<rxLev>** is low (CELL_LOW_LEVEL). 5 - none of the above e.g. exclusion timer running, no BCCH available…etc.. (CELL_OTHER). **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - arfcn of a valid channel in the BA list (*n* is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier.

#CSURVC - Network Survey (Numeric Format)	**SELINT 0 / 1**
	(The following informations will be printed only if GPRS is supported in the cell) **<pbcch>** - packet broadcast control channel 0 - pbcch not activated on the cell 1 - pbcch activated on the cell **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh>** - type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **<arfcn>,<rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm) The output ends with the string: **Network survey ended**
AT#CSURVC?	Read command has the same behaviour as the Execution command with parameters omitted

#CSURVC - Network Survey (Numeric Format)	SELINT 0 / 1
AT*CSURVC?	

Example

```
AT#CSURVC

Network survey started…

48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82


14,8


Network survey ended

OK
```

Note	The command is executed within max. 2 minute. The information provided by **#CSURVC** is the same as that provided by **#CSURV**. The difference is that the output of **#CSURVC** is in numeric format only.

#CSURVC - Network Survey (Numeric Format)	SELINT 2
AT#CSURVC[=[<s>,<e>]] AT*CSURVC[=[=<s>,<e>]] *(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. Issuing **AT#CSURVC<CR>**, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: Network survey started… and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: (For BCCH-Carrier) <arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>, <cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]] [,<numChannels>[,<ba1> ..[<ba32>]][,<pbcch> [,<nom>,<rac>,<spgc>, <pat>,<nco>,<t3168>,<t3192>,<drxmax>,<ctrlAck>,<bsCVmax>, <alpha>,<pcMeasCh>]]] <CR><LF><CR><LF><CR><LF>

#CSURVC - Network Survey (Numeric Format)	**SELINT 2**
	where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code; if **#CSURVF** last setting is 0, **<bsic>** is a decimal number, else it is a 2-digits octal number **<rxLev>** - decimal number; it is the receiption level (in dBm) **<ber>** - decimal number; it is the bit error rate (in %) **<mcc>** - hexadecimal 3-digits number; it is the mobile country code **<mnc>** - hexadecimal 2-digits number; it is the mobile network code **<lac>** - location area code; if **#CSURVF** last setting is 0, **<lac>** is a decimal number, else it is a 4-digits hexadecimal number **<cellId>** - cell identifier; if **#CSURVF** last setting is 0, **<cellId>** is a decimal number, else it is a 4-digits hexadecimal number **<cellStatus>** - string type; it is the cell status ..0 - C0 is a suitable cell (CELL_SUITABLE). 1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY). 2 - the cell is forbidden (CELL_FORBIDDEN). 3 - the cell is barred based on the received system information (CELL_BARRED). 4 - the cell **<rxLev>** is low (CELL_LOW_LEVEL). 5 - none of the above e.g. exclusion timer running, no BCCH available...etc.. (CELL_OTHER). **<numArfcn>** - decimal number; it is the number of valid channels in the Cell Channel Description **<arfcn*n*>** - decimal number; it is the arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - decimal number; it is the number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - decimal number; it is the arfcn of a valid channel in the BA list (*n* is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier.

#CSURVC - Network Survey (Numeric Format)	**SELINT 2**
	(The following informations will be printed only if GPRS is supported in the cell) **<pbcch>** - packet broadcast control channel 0 - pbcch not activated on the cell 1 - pbcch activated on the cell **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax>** - blocked sequenc countdown max value **<alpha>** - alpha parameter for power control **<pcMeasCh>** - type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **<arfcn>,<rxLev>** where: **<arfcn>** - decimal number; it is the RF channel **<rxLev>** - decimal number; it is the receiption level (in dBm) The last information from **#CSURVC** depends on the last **#CSURVF** setting: **#CSURVF=0** or **#CSURVF=1**

#CSURVC - Network Survey (Numeric Format)	**SELINT 2**
	The output ends with the string: **Network survey ended** **#CSURVF=2** the output ends with the string: **Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)** where **<NoARFCN>** - number of scanned frequencies **<NoBCCH>** - number of found BCCh

Example	`AT#CSURVC`
	
	`Network survey started…`
	
	`48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82`
	
	`14,8`
	
	`Network survey ended`
	
	`OK`

Note	The command is executed within max. 2 minute. The information provided by **#CSURVC** is the same as that provided by **#CSURV**. The difference is that the output of **#CSURVC** is in numeric format only.

3.5.6.9.3. Network Survey - #CSURVU

#CSURVU - Network Survey Of User Defined Channels	**SELINT 0 / 1**
AT#CSURVU=[<ch1>[,<ch2>[,…[,<ch10>]]]] **AT*CSURVU=[<ch1>[,<ch2>[,…[,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURV**. Parameters: **<ch*n*>** - channel number (arfcn) Note: issuing **AT#CSURVU=<CR>** is the same as issuing the command **AT#CSURVU=0<CR>**.

Example	`AT#CSURVU=59,110`
	
	`Network survey started…`

#CSURVU - Network Survey Of User Defined Channels	SELINT 0 / 1

```
arfcn: 59 bsic: 16 rxLev: -76 ber: 0.00 mcc: 546 mnc: 1 lac: 54717
cellId: 21093 cellStatus: CELL_SUITABLE numArfcn 2 arfcn: 36 59


arfcn: 110 rxLev: -107


Network survey ended

OK
```

Note	The command is executed within max. 2 minute.

#CSURVU - Network Survey Of User Defined Channels	SELINT 2
AT#CSURVU=[<ch1>[,<ch2>[,...[,<ch10>]]]] AT*CSURVU=[<ch1>[,<ch2>[,...[,<ch10>]]]] *(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURV**. Parameters: **<ch*n*>** - channel number (arfcn)

Example

```
AT#CSURVU=59,110

Network survey started…

arfcn: 59 bsic: 16 rxLev: -76 ber: 0.00 mcc: 546 mnc: 1 lac: 54717
cellId: 21093 cellStatus: CELL_SUITABLE numArfcn 2 arfcn: 36 59


arfcn: 110 rxLev: -107


Network survey ended

OK
```

Note	The command is executed within max. 2 minute.

3.5.6.9.4. Network Survey - #CSURVUC

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	SELINT 0 / 1
AT#CSURVUC=[	Execution command allows to perform a quick survey through the given

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	SELINT 0 / 1
<ch1>[,<ch2>[,…[,<ch10>]]]] AT*CSURVUC=[<ch1>[,<ch2>[,…[,<ch10>]]]] *(both syntax are possible)*	channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURVC**. Parameters: **<ch*n*>** - channel number (arfcn) Note: issuing **AT#CSURVUC=<CR>** is the same as issuing the command **AT#CSURVUC=0<CR>**.

Example	`AT#CSURVUC=59,110`
	
	`Network survey started…`
	
	`59,16,-76,0.00,546,1,54717,21093,0,2,36 59`
	
	`110,-107`
	
	`Network survey ended`
	
	`OK`

Note	The command is executed within max. 2 minute. The information provided by **#CSURVUC** is the same as that provided by **#CSURVU**. The difference is that the output of **#CSURVUC** is in numeric format only.

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	SELINT 2
AT#CSURVUC=[<ch1>[,<ch2>[,…[,<ch10>]]]] AT*CSURVUC=[<ch1>[,<ch2>[,…[,<ch10>]]]] *(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURVC**. Parameters: **<ch*n*>** - channel number (arfcn)
Example	`AT#CSURVUC=59,110`

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	**SELINT 2**

	`Network survey started…`
	
	`59,16,-76,0.00,546,1,54717,21093,0,2,36 59`
	
	`110,-107`
	
	`Network survey ended`
	
	`OK`

Note	The command is executed within max. 2 minute. The information provided by **#CSURVUC** is the same as that provided by **#CSURVU**. The difference is that the output of **#CSURVUC** is in numeric format only.

3.5.6.9.5. BCCH Network Survey - #CSURVB

#CSURVB - BCCH Network Survey	**SELINT 0 / 1**
AT#CSURVB=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result format is like command **#CSURV**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVB=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

#CSURVB - BCCH Network Survey	**SELINT 2**
AT#CSURVB=[<n>]	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result format is like command **#CSURV**.

#CSURVB - BCCH Network Survey	**SELINT 2**
	Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVB=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

3.5.6.9.6. BCCH Network Survey - #CSURVBC

#CSURVBC - BCCH Network Survey (Numeric Format)	**SELINT 0 / 1**
AT#CSURVBC=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVBC=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

#CSURVBC - BCCH Network Survey (Numeric Format)	**SELINT 2**
AT#CSURVBC=[<n>]	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVBC=?	Test command reports the range of values for parameter **<n>** in the format:

#CSURVBC - BCCH Network Survey (Numeric Format)	SELINT 2
	(1-M) where **M** is the maximum number of available frequencies depending on last selected band.

3.5.6.9.7. Network Survey Format - #CSURVF

#CSURVF - Network Survey Format	SELINT 0 / 1
AT#CSURVF[=[<format>]]	Set command controls the format of the numbers output by all the Easy Scan® Parameter: **<format>** - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text Note: issuing **AT#CSURVF<CR>** is the same as issuing the Read command. Note: issuing **AT#CSURVF=<CR>** is the same as issuing the command **AT#CSURVF=0<CR>**.
AT#CSURVF?	Read command reports the current number format, as follows: **<format>**
AT#CSURVF=?	Test command reports the supported range of values for the parameter **<format>**.

#CSURVF - Network Survey Format	SELINT 2
AT#CSURVF=[<format>]	Set command controls the format of the numbers output by all the Easy Scan® Parameter: **<format>** - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text
AT#CSURVF?	Read command reports the current number format, as follows: **<format>**
AT#CSURVF=?	Test command reports the supported range of values for the parameter **<format>**.

3.5.6.9.8. <CR><LF> Removing On Easy Scan® Commands Family - #CSURVNLF

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family	**SELINT 0 / 1**
AT#CSURVNLF [=<value>]	Set command enables/disables the automatic **<CR><LF>** removing from each information text line. Parameter: **<value>** 0 - disables **<CR><LF>** removing; they'll be present in the information text (factory default) 1 - remove **<CR><LF>** from imformation text Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVNLF?	Read command reports whether automatic **<CR><LF>** removing is currently enabled or not, in the format: **<value>**
AT#CSURVNLF=?	Test command reports the range of values for parameter **<value>**.

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family	**SELINT 2**
AT#CSURVNLF= [<value>]	Set command enables/disables the automatic **<CR><LF>** removing from each information text line. Parameter: **<value>** 0 - disables **<CR><LF>** removing; they'll be present in the information text (factory default) 1 - remove **<CR><LF>** from imformation text
AT#CSURVNLF?	Read command reports whether automatic **<CR><LF>** removing is currently enabled or not, in the format: **<value>**
AT#CSURVNLF=?	Test command reports the range of values for parameter **<value>**.

3.5.6.9.9. Extended Network Survey - #CSURVEXT

#CSURVEXT - Extended Network Survey	**SELINT 0 / 1**

#CSURVEXT - Extended Network Survey	SELINT 0 / 1
AT#CSURVEXT [=<value>]	Set command enables/disables extended network survey. Parameter: **<value>** 0 - disables extended network survey (factory default) 1 - enables extended network survey; all the network survey execution commands (**#CSURV, #CSURVC, #CSURVU, #CSURVUC, #CSURVB, #CSURVBC**) display the BAList for every valid scanned BCCh carrier 2 - enables extended network survey; all the network survey execution commands (**#CSURV, #CSURVC, #CSURVU, #CSURVUC, #CSURVB, #CSURVBC**) display the BAList for every valid scanned BCCh carrier and, if GPRS is supported in the cell, they report some GPRS informations carried by the System Information 13 of the BCCh Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format: **<value>**
AT#CSURVEXT=?	Test command reports the range of values for parameter **<value>.**

#CSURVEXT - Extended Network Survey	SELINT 2
AT#CSURVEXT [=<value>]	Set command enables/disables extended network survey. Parameter: **<value>** 0 - disables extended network survey (factory default) 1 - enables extended network survey; all the network survey execution commands (**#CSURV, #CSURVC, #CSURVU, #CSURVUC, #CSURVB, #CSURVBC**) display the BAList for every valid scanned BCCh carrier 2 - enables extended network survey; all the network survey execution commands (**#CSURV, #CSURVC, #CSURVU, #CSURVUC, #CSURVB, #CSURVBC**) display the BAList for every valid scanned BCCh carrier and, if GPRS is supported in the cell, they report some GPRS informations carried by the System Information 13 of the BCCh
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format: **<value>**

#CSURVEXT - Extended Network Survey	SELINT 2
AT#CSURVEXT=?	Test command reports the range of values for parameter **<value>**.

3.5.6.9.10. PLMN Network Survey - #CSURVP

#CSURVP - PLMN Network Survey	SELINT 2
AT#CSURVP=<plmn>	Execution command performs a quick network survey through channels. The survey stops as soon as a BCCH carriers belonging to the selected PLMN is found. The result format is like command **#CSURV**. Parameter: **<plmn>** - the desidered PLMN in numeric format
AT#CSURVP=?	Test command returns OK

3.5.6.9.11. PLMN Network Survey (Numeric Format) - #CSURVPC

#CSURVPC - PLMN Network Survey (Numeric Format)	SELINT 2
AT#CSURVPC= <plmn>	Execution command performs a quick network survey through channels. The survey stops as soon as a BCCH carriers belonging to the selected PLMN is found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<plmn>** - the desidered PLMN in numeric format
AT#CSURVPC=?	Test command returns OK

3.5.6.10. SIM Toolkit AT Commands

3.5.6.10.1. SIM Tookit Interface Activation - #STIA

#STIA - SIM Toolkit Interface Activation	SELINT 2
AT#STIA= [<mode> [,<timeout>]]	Set command is used to activate the SAT sending of unsolicited indications when a **proactive command** is received from SIM. Parameters: **<mode>** 0 - disable SAT (default for all products, except GE865-QUAD and GE864-

#STIA - SIM Toolkit Interface Activation		**SELINT 2**
	DUAL V2) 1 - enable SAT without unsolicited indication **#STN** (default for GE865-QUAD and GE864-DUAL V2) 2 - enable SAT and extended unsolicited indication **#STN** (see **#STGI**) 3 - enable SAT and reduced unsolicited indication **#STN** (see **#STGI**) 17 - enable SAT without unsolicited indication #STN and 3GPP TS 23.038 alphabet used 18 - enable SAT and extended unsolicited indication #STN (see #STGI) and 3GPP TS 23.038 alphabet used 19 - enable SAT and reduced unsolicited indication #STN (see #STGI)and 3GPP TS 23.038 alphabet used 33 - enable SAT without unsolicited indication #STN and UCS2 alphabet used 34 - enable SAT and extended unsolicited indication #STN (see #STGI)and UCS2 alphabet used 35 - enable SAT and reduced unsolicited indication #STN (see #STGI)and UCS2 alphabet used **<timeout>** - time-out for user responses 1..255 - time-out in minutes (default 10). Any ongoing (but unanswered) **proactive command** will be aborted automatically after **<timeout>** minutes. In this case, the terminal response is either "ME currently unable to process command", or if applicable, "No response from user". In addition an unsolicited indication will be sent to the external application: **#STN: <cmdTerminateValue>** where: **<cmdTerminateValue>** is defined as **<cmdType> + terminate offset**; the terminate offset equals 100. Note: every time the SIM application issues a **proactive command** that requires user interaction an unsolicited code will be sent, if enabled with **#STIA** command, as follows: • if **<mode>** parameter of **#STIA** command has been set to 3 (reduced unsolicited indication) an unsolicited indication will be sent, indicating the type of **proactive command** issued by the SIM: **#STN: <cmdType>**	

#STIA - SIM Toolkit Interface Activation	SELINT 2

- if **<mode>** parameter of **#STIA** command has been set to 2 (extended unsolicited indication) the format of the unsolicited indication depends on the specific command:

*if **<cmdType>=1** (REFRESH)*

an unsolicited notification will be sent to the user:

#STN: <cmdType>,<refresh type>

where:
<refresh type>
0 - SIM Initialization and Full File Change Notification;
1 - File Change Notification;
2 - SIM Initialization and File Change Notification;
3 - SIM Initialization;
4 - SIM Reset

In this case neither **#STGI** nor **#STSR** commands are required:

- **AT#STGI** is accepted anyway.
- **AT#STSR=<cmdType>,0** will answer **OK** but do nothing.

*if **<cmdType>=17** (SEND SS)*
*if **<cmdType>=19** (SEND SHORT MESSAGE)*
*if **<cmdType>=20** (SEND DTMF)*
*if **<cmdType>=32** (PLAY TONE)*

an unsolicited notification will be sent if allowed by SIM (see GSM 11.14):

#STN: <cmdType>[,<text>]

where:
<text> - (optional) text to be displayed to user

In these cases neither **#STGI** nor **#STSR** commands are required:

- **AT#STGI** is accepted anyway.

#STIA - SIM Toolkit Interface Activation **SELINT 2**

- **AT#STSR=<cmdType>,0** will answer **OK** but do nothing.

In case of SEND SHORT MESSAGE (**<cmdType>**=19) command if sending to network fails an unsolicited notification will be sent

#STN: 119

*if **<cmdType>=33** (DISPLAY TEXT)*

an unsolicited notification will be sent if allowed by SIM (see GSM 11.14):

#STN: <cmdType>[,<cmdDetails>[,<text>]

where:
<cmdDetails> - unsigned Integer used as a bit field.
  0..255 - used as a bit field:
    bit 1:
      0 - normal priority
      1 - high priority
    bits 2 to 7: reserved for future use
    bit 8:
      0 - clear message after a delay
      1 - wait for user to clear message
<text> - (optional) text to be displayed to user

In this case:
1. if **<cmdDetails>/bit8** is **0** neither **#STGI** nor **#STSR** commands are required:
    - **AT#STGI** is accepted anyway.
    - **AT#STSR=<cmdType>,0** will answer **OK** but do nothing.
2. If **<cmdDetails>/bit8** is 1 **#STSR** command is required

*if **<cmdType>=40** (SET UP IDLE MODE TEXT)*

an unsolicited notification will be sent:

#STN: <cmdType>[,<text>]

where:

#STIA - SIM Toolkit Interface Activation	SELINT 2

<text> - (optional)text to be displayed to user

In these cases neither **#STGI** nor **#STSR** commands are required:

- **AT#STGI** is accepted anyway.
- **AT#STSR=<cmdType>,0** will answer **OK** but do nothing.

*if **<cmdType>=18** (SEND USSD)*

an unsolicited notification will be sent to the user:

#STN: <cmdType>[,<text>]

where:
<text> - optional text string sent by SIM

In this case:

- **AT#STSR=18,20** can be sent to end USSD transaction.
- **AT#STGI** is accepted anyway.
- **AT#STSR=<cmdType>,0** will answer **OK** but do nothing.

*if **<cmdType>=5** (SET UP EVENT LIST)*

an unsolicited notification will be sent:

#STN: <cmdType>[,<event list mask>]

where:
<event list mask> - (optional)hexadecimal number representing the list of events to monitor (see GSM 11.14)
- '00' = MT call
- '01' = Call connected
- '02' = Call disconnected
- '03' = Location status
- '04' = User activity
- '05' = Idle screen available
- '06' = Card reader status (if class "a" is supported)
- '07' = Language selection
- '08' = Browser Termination (if class "c" is supported)

#STIA - SIM Toolkit Interface Activation	SELINT 2
	- '09' = Data available (if class "e" is supported) - '0A' = Channel status (if class "e" is supported) The hexadecimal number is actually a bit mask, where each bit, when set, indicates that the corresponding event has to be monitored (e.g., if <event list mask> is 0x0001, it means that MT call has to be monitored). In these cases neither **#STGI** nor **#STSR** commands are required: • **AT#STGI** is accepted anyway. • **AT#STSR=<cmdType>,0** will answer **OK** but do nothing. All other commands: the unsolicited indication will report just the proactive command type: **#STN: <cmdType>** Note: if the **call control** or **SMS control facility in the SIM** is activated, when the customer application makes an outgoing call, or sends an SS or USSD, or an SMS, the following **#STN** unsolicited indication could be sent, according to GSM 11.14, to indicate whether the outgoing call has been accepted, rejected or modified by the SIM, or if the SMS service centre address or destination has been changed: **#STN: <cmdTerminateValue>,<Result>[,<TextInfo>[,<Number>[,<MODestAddr>]]]** where **<cmdTerminateValue>** 150 - SMS control response 160 - call/SS/USSD response **<Result>** 0 - Call/SMS not allowed 1 - Call/SMS allowed 2 - Call/SMS allowed with modification **<Number>** - Called number, Service Center Address or SS String in ASCII format. **<MODestAddr>** - MO destination address in ASCII format. **<TextInfo>** - alpha identifier provided by the SIM in ASCII format.

#STIA - SIM Toolkit Interface Activation	**SELINT 2**
	Note: an unsolicited result code **#STN: 254** is sent if the user has indicated the need to end the proactive SIM application session (**AT#STSR=<cmdType>,**16 i.e. "proactive SIM application session terminated by the user" according to GSM 11.14). The TA does not need to respond directly, i.e. **AT#STSR** is not required. It is possible to restart the SAT session from the main menu again with the command **AT#STGI=37**. Note: The settings are saved on user profile and available on following reboot. SIM Toolkit activation/deactivation is only performed at power on.
AT#STIA?	Read command can be used to get information about the SAT interface in the format: **#STIA: <state>,<mode>,<timeout>,<SatProfile>** where: **<state>** - the device is in one of the following state: 0 - SIM has not started its application yet 1 - SIM has started its application (SAT main menu ready) **<mode>** - SAT and unsolicited indications enabling status (see above) **<timeout>** - time-out for user responses (see above) **<SatProfile>** - SAT Terminal Profile according to GSM 11.14, i. e. the list of SIM Application Toolkit facilities that are supported by the ME. The profile cannot be changed by the TA. Note: In SAT applications usually an SMS message is sent to the network provider containing service requests, e.g. to send the latest news. The provider returns a message with the requested information. Before activating SAT it is recommended to set the SMS text mode with command **AT+CMGF=1** and to enable unsolicited indications for incoming SMS messages with command **+CNMI**.
AT#STIA=?	Test command returns the range of available values for the parameters **<mode>** and **<timeout>**.
Note	Just one instance at a time, the one which first issued **AT#STIA=*n*** (with *n* different from zero), is allowed to issue SAT commands, and this is valid till

#STIA - SIM Toolkit Interface Activation	**SELINT 2**
	the same instance issues **AT#STIA=0**. After power cycle another instance can enable SAT.
Note	A typical SAT session on AT interface starts after an **#STN: 37** unsolicited code is received, if enabled(see above). At that point usually an **AT#STGI=37** command is issued (see **#STGI**), and after the SAT main menu has been displayed on TE an **AT#STSR=37,0,x** command is issued to select an item in the menu (see **#STSR**).

3.5.6.10.2. SIM Tookit Get Information - #STGI

#STGI - SIM Tookit Get Information	**SELINT 2**
AT#STGI= [<cmdType>]	**#STGI** set command is used to request the parameters of a **proactive command** from the ME. Parameter: **<cmdType>** - **proactive command** ID according to GSM 11.14 (decimal); these are only those command types that use the AT interface; SAT commands which are not using the AT interface (not MMI related SAT commands, e.g. PROVIDE LOCAL INFORMATION) are executed without sending any indication to the user 1 - REFRESH 5 – SET UP EVENT LIST 16 - SET UP CALL 17 - SEND SS 18 - SEND USSD 19 - SEND SHORT MESSAGE 20 - SEND DTMF 32 - PLAY TONE 33 - DISPLAY TEXT 34 - GET INKEY 35 - GET INPUT 36 - SELECT ITEM 37 - SET UP MENU 40 – SET UP IDLE MODE TEXT Requested command parameters are sent using an **#STGI** indication:

#STGI - SIM Tookit Get Information	SELINT 2

#STGI: <parameters>

where **<parameters>** depends upon the ongoing **proactive command** as follows:

*if **<cmdType>=1** (REFRESH)*

#STGI: <cmdType>,<refresh type>
where:
<refresh type>
0 - SIM Initialization and Full File Change Notification;
1 - File Change Notification;
2 - SIM Initialization and File Change Notification;
3 - SIM Initialization;
4 - SIM Reset

*if **<cmdType>=5** (SET UP EVENT LIST)*

#STGI: <cmdType>,<event list mask>

where:
<event list mask> - hexadecimal number representing the list of events to monitor (see GSM 11.14):

- '00' = MT call
- '01' = Call connected
- '02' = Call disconnected
- '03' = Location status
- '04' = User activity
- '05' = Idle screen available
- '06' = Card reader status (if class "a" is supported)
- '07' = Language selection
- '08' = Browser Termination (if class "c" is supported)
- '09' = Data available (if class "e" is supported)
- '0A' = Channel status (if class "e" is supported)

The hexadecimal number is actually a bit mask, where each bit, when set, indicates that the corresponding event has to be monitored (e.g., if <event list mask> is 0x0001, it means that MT call has to be monitored).

*if **<cmdType>=16** (SET UP CALL)*

#STGI - SIM Tookit Get Information	SELINT 2
	#STGI: <cmdType>,<commandDetails>,[<confirmationText>], <calledNumber> where: **<commandDetails>** - unsigned integer, used as an enumeration 0 Set up call, but only if not currently busy on another call 1 Set up call, but only if not currently busy on another call, with redial 2 Set up call, putting all other calls (if any) on hold 3 Set up call, putting all other calls (if any) on hold, with redial 4 Set up call, disconnecting all other calls (if any) 5 Set up call, disconnecting all other calls (if any), with redial **<confirmationText>** - string for user confirmation stage **<calledNumber>** - string containing called number *if **<cmdType>=17** (SEND SS)* *if **<cmdType>=18** (SEND USSD)* *if **<cmdType>=19** (SEND SHORT MESSAGE)* *if **<cmdType>=20** (SEND DTMF)* *if **<cmdType>=32** (PLAY TONE)* *if **<cmdType>=40** (SET UP IDLE MODE TEXT)* **#STGI: <cmdType>[,<text>]** where: **<text>** - text to be displayed to user *if **<cmdType>=33** (DISPLAY TEXT)* **#STGI: <cmdType>,<cmdDetails>[,<text>]** where: **<cmdDetails>** - unsigned Integer used as a bit field. 0..255 - used as a bit field: **bit 1**: 0 - normal priority 1 - high priority **bits 2 to 7**: reserved for future use **bit 8**: 0 - clear message after a delay

#STGI - SIM Tookit Get Information	**SELINT 2**
	1 - wait for user to clear message **<text>** - text to be displayed to user *if <cmdType>=34 (GET INKEY)* **#STGI: <cmdType>,<commandDetails>,<text>** where: **<commandDetails>** - unsigned Integer used as a bit field. 0..255 - used as a bit field: **bit 1**: 0 - Digits only (0-9, *, # and +) 1 - Alphabet set; **bit 2**: 0 - SMS default alphabet (GSM character set) 1 - UCS2 alphabet **bit 3**: 0 - Character sets defined by bit 1 and bit 2 are enabled 1 - Character sets defined by bit 1 and bit 2 are disabled and the "Yes/No" response is requested **bits 4 to 7**: 0 **bit 8**: 0 - No help information available 1 - Help information available **<text>** - String as prompt for text. *if <cmdType>=35 (GET INPUT)* **#STGI: <cmdType>,<commandDetails>,<text>,<responseMin>, <responseMax>[,<defaultText>]** where: **<commandDetails>** - unsigned Integer used as a bit field. 0..255 - used as a bit field: **bit 1**: 0 - Digits only (0-9, *, #, and +) 1 - Alphabet set **bit 2**: 0 - SMS default alphabet (GSM character set)

#STGI - SIM Tookit Get Information	SELINT 2
	1 - UCS2 alphabet **bit 3**: 0 - ME may echo user input on the display 1 - User input shall not be revealed in any way. Hidden entry mode (see GSM 11.14) is only available when using digit input. In hidden entry mode only characters (‘0’-‘9’, ‘*’ and ‘#‘) are allowed. **bit 4**: 0 - User input to be in unpacked format 1 - User input to be in SMS packed format **bits 5 to 7**: 0 **bit 8**: 0 - No help information available 1 - Help information available **<text>** - string as prompt for text **<responseMin>** - minimum length of user input 0..255 **<responseMax>** - maximum length of user input 0..255 **<defaultText>** - string supplied as default response text *if **<cmdType>=36** (SELECT ITEM)* The first line of output is: **#STGI: <cmdType>,<commandDetails>,<numOfItems>[,<titleText>] <CR><LF>** One line follows for every item, repeated for **<numOfItems>**: **#STGI: <cmdType>,<itemId>,<itemText>[,<nextActionId>]** where: **<commandDetails>** - unsigned Integer used as a bitfield 0..255 - used as a bit field: **bit 1**: 0 - Presentation type is not specified 1 - Presentation type is specified in bit 2 **bit 2**: 0 - Presentation as a choice of data values if bit 1 = '1' 1 - Presentation as a choice of navigation options if bit 1 is '1'

#STGI - SIM Tookit Get Information	SELINT 2

bit 3:
  0 - No selection preference
  1 - Selection using soft key preferred
bits 4 to 7:
  0
bit 8:
  0 - No help information available
  1 - Help information available

<numOfItems> - number of items in the list
<titleText> - string giving menu title
<itemId> - item identifier
  1..**<numOfItems>**
<itemText> - title of item
<nextActionId> - the next proactive command type to be issued upon execution of the menu item.
  0 - no next action information available.

if ***<cmdType>=37*** *(SET UP MENU)*

The first line of output is:

#STGI: <cmdType>,<commandDetails>,<numOfItems>,<titleText><CR><LF>

One line follows for every item, repeated for **<numOfItems>**:

#STGI: <cmdType>,<itemId>,<itemText>[,<nextActionId>]

where:
<commandDetails> - unsigned Integer used as a bitfield
  0..255 - used as a bit field:
bit 1:
  0 - no selection preference
  1 - selection using soft key preferred
bit 2 to 7:
  0
bit 8:
  0 - no help information available
  1 - help information available

<numOfItems> - number of items in the list
<titleText> - string giving menu title

#STGI - SIM Tookit Get Information	**SELINT 2**
	<itemId> - item identifier 1..**<numOfItems>** **<itemText>** - title of item **<nextActionId>** - the next proactive command type to be issued upon execution of the menu item. 0 - no next action information available. Note: upon receiving the **#STGI** response, the TA must send **#STSR** command (see below) to confirm the execution of the proactive command and provide any required user response, e.g. selected menu item.
AT#STGI?	The read command can be used to request the currently ongoing **proactive command** and the SAT state in the format **#STGI: <state>,cmdType>** where: **<state>** - SAT interface state (see **#STIA**) **<cmdType>** - ongoing proactive command An error message will be returned if there is no pending command.
AT#STGI=?	Test command returns the range for the parameters **<state>** and **<cmdType>**.
Note	The unsolicited notification sent to the user: **#STN: 37** is an indication that the main menu of the SIM Application has been sent to the TA. It will be stored by the TA so that it can be displayed later at any time by issuing an **AT#STGI=37** command. A typical SAT session on AT interface starts after an **#STN: 37** unsolicited code is received, if enabled. At that point usually an **AT#STGI=37** command is issued, and after the SAT main menu has been displayed on TE an **AT#STSR=37,0,x** command is issued to select an item in the menu (see below). The session usually ends with a SIM action like sending an SMS, or starting a call. After this, to restart the session from the beginning going back to SAT main menu it is usually required an **AT#STSR=37,16** command. The unsolicited notification sent to the user: **#STN:237**

#STGI - SIM Tookit Get Information	**SELINT 2**
	is an indication that the main menu of the SIM Application has been removed from the TA, and it is no longer available. In this case **AT#STGI=37** command response will be always **ERROR**.

3.5.6.10.3. SIM Tookit Send Response - #STSR

#STSR - SIM Tookit Send Response	**SELINT 2**
AT#STSR= **[<cmdType>,** **<userResponse>** **[,<data>]]**	The write command is used to provide to SIM user response to a command and any required user information, e.g. a selected menu item. Parameters: **<cmdType>** - integer type; **proactive command** ID according to GSM 11.14 (see **#STGI**) **<userResponse>** - action performed by the user 0 - command performed successfully (call accepted in case of call setup) 16 - proactive SIM session terminated by user 17 - backward move in the proactive SIM session requested by the user 18 - no response from user 19 - help information required by the user 20 - USSD/SS Transaction terminated by user 32 - TA currently unable to process command 34 - user has denied SIM call setup request 35 - user cleared down SIM call before connection or network release **<data>** - data entered by user, depending on **<cmdType>**, only required if **<Result>** is 0: *Get Inkey* **<data>** contains the key pressed by the user; used character set should be the one selected with **+CSCS**. Note: if, as a user response, a binary choice (Yes/No) is requested by the SIM application using bit 3 of the **<commandDetails>** parameter the valid content of the **<inputString>** is: a) "IRA", "8859-1", "PCCP437" charsets: "Y" or "y" (positive answer) and "N" or "n" (negative answer) b) UCS2 alphabet "0079" or "0059" (positive answer) and "006E" or "004E" (negative answer) *Get Input* **<data>** - contains the string of characters entered by the user (see above) *Select Item*

#STSR - SIM Tookit Send Response	SELINT 2
	<data> - contains the item identifier selected by the user Note: Use of icons is not supported. All icon related actions will respond with no icon available.
AT#STSR?	The read command can be used to request the currently ongoing **proactive command** and the SAT state in the format **#STSRI: <state>,<cmdType>** where: **<state>** - SAT interface state (see **#STIA**) **<cmdType>** - ongoing proactive command An error message will be returned if there is no pending command.
AT#STSR=?	Test command returns the range for the parameters **<state>** and **<cmdType>**.

3.5.6.10.4. SIM Tookit terminal Attach - #STTA

#STTA – SIM Toolkit Terminal Attach	SELINT 2
AT#STTA=<state>	This command attaches/detaches the SIM Toolkit application to the AT instance reserved for this use. Parameters: **<state>:** attached state 0 – SIM Toolkit detaches 1 – SIM Toolkit attaches If SIM Toolkit application has been already attached/detached the command does nothing and returns OK.
AT#STTA?	Read command reports the current **<state>** in the format: **#STTA: <state>**
AT#STTA=?	Test command reports the supported range of values for parameter **<state>**
Note	The AT instance reserved for the SIM Toolkit application is the #3. Issuing AT#STTA=<state> when the AT instance has been already

	attached to another service (CMUX, SMSATRUN/TCPATRUN, OTA) causes an ERROR result code to be returned.

3.5.6.11. Jammed Detect & Report AT Commands

3.5.6.11.1. Jammed Detect & Report - #JDR

#JDR - Jammed Detect & Report	SELINT 0 / 1
AT#JDR[= [<mode> [,<MNPL>, <DCMN>]]]	Set command allows to control the Jammed Detect & Report feature. The MODULE can detect if a communication Jammer is active in its range and give indication to the user of this condition either on the serial line with an unsolicited code or on a dedicated GPIO by rising it. Parameters: **<mode>** - behaviour mode of the Jammed Detect & Report 0 - disables Jammed Detect & Report (factory default) 1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR GPIO2/JDR **Low** - Normal Operating Condition GPIO2/JDR **High** - Jammed Condition. 2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 3 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=2**. 4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 5 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=4**.

#JDR - Jammed Detect & Report	**SELINT 0 / 1**
	<MNPL> - Maximum Noise Power Level 0..127 (factory default is 70) **<DCMN>** - Disturbed Channel Minimum Number 0..254 (factory default is 5) Note: issuing **AT#JDR<CR>** is the same as issuing the Read command. Note: issuing **AT#JDR=<CR>** is the same as issuing the command **AT#JDR=0<CR>**.
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format: **#JDR: <mode>,<MNPL>,<DCMN>**
AT#JDR=?	Test command reports the supported range of values for the parameters **<mode>**,**<MNPL>** and **<DCMN>**

Example	`AT#JDR=2`
	`OK`
	...jammer enters in the range...
	`#JDR: JAMMED`
	...jammer exits the range...
	`#JDR: OPERATIVE`

Note	It is suggested not to change the default setting for Maximum Noise Power Level and Disturbed Channel Minimum Number. If the device is installed in a particular environment where the default values are not satisfactory the two parameters **<MNPL>** and **<DCMN>** permit to adapt the detection to all conditions.

#JDR - Jammed Detect & Report	**SELINT 2**
AT#JDR=[<mode>[,<MNPL>,<DCMN>]]	Set command allows to control the Jammed Detect & Report feature. The MODULE can detect if a communication Jammer is active in its range and give indication to the user of this condition either on the serial line with an unsolicited code or on a dedicated GPIO by rising it. Parameters: **<mode>** - behaviour mode of the Jammed Detect & Report 0 - disables Jammed Detect & Report (factory default)

#JDR - Jammed Detect & Report	SELINT 2
	1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR GPIO2/JDR **Low** - Normal Operating Condition GPIO2/JDR **High** - Jammed Condition. 2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 3 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=2**. 4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 5 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=4**. 6 - enables the Jammed Detect (this value is available only for 10.00.xxx release); the Jammed condition is reported in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred UNKNOWN – default state before first successful PLMN searching **<MNPL>** - Maximum Noise Power Level 0..127 (factory default is 70) **<DCMN>** - Disturbed Channel Minimum Number 0..254 (factory default is 5)
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise

#JDR - Jammed Detect & Report	SELINT 2
	Power Level and Disturbed Channel Minimum Number, in the format: **#JDR: <mode>,<MNPL>,<DCMN>**
AT#JDR=?	Test command reports the supported range of values for the parameters **<mode>**,**<MNPL>** and **<DCMN>**

Example	`AT#JDR=2`
	`OK`
	...jammer enters in the range...
	`#JDR: JAMMED`
	...jammer exits the range...
	`#JDR: OPERATIVE`
	
	`AT#JDR=6`
	`#JDR: JAMMED //when jammed`
	`OK`
	
	`AT#JDR=6`
	`#JDR: OPERATIVE //when in normal operating mode`
	`OK`
	
	`AT#JDR=6`
	`#JDR: UNKNOWN // default state before 1st PLMN searching`
	`OK`

Note	It is suggested not to change the default setting for Maximum Noise Power Level and Disturbed Channel Minimum Number. If the device is installed in a particular environment where the default values are not satisfactory the two parameters **<MNPL>** and **<DCMN>** permit to adapt the detection to all conditions.

3.5.6.12. Easy Script® Extension - Python[23] Interpreter, AT Commands

3.5.6.12.1. Write Script - #WSCRIPT

#WSCRIPT - Write Script	SELINT 0 / 1
AT#WSCRIPT= <script_name>, <size> [,<hidden>]	Execution command causes the MODULE to store a file in the Easy Script® related NVM, naming it **<script_name>** The file should be sent using RAW ASCII file transfer. It is important to set properly the port settings. In particular: **Flow control: hardware.** **Baud rate: 115200 bps** Parameters: **<script_name>** - name of the file in NVM, string type (max 16 chars, case sensitive). **<size>** - file size in bytes **<hidden>** - file hidden attribute 0 - file content is readable with **#RSCRIPT** (default). 1 - file content is hidden, **#RSCRIPT** command will report empty file. The device shall prompt a three character sequence **<greater_than><greater_than><greater_than>** (IRA 62, 62, 62)

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[23] PYTHON is a registered trademark of the Python Software Foundation.

#WSCRIPT - Write Script	**SELINT 0 / 1**
	after command line is terminated with **<CR>**; after that a file can be entered from TE, sized **<size>** bytes. The operations completes when all the bytes are received. If writing ends successfully, the response is **OK**; otherwise an error code is reported. Note: the file name should be passed between quotes; every textual script file must have **.py** extension, whilst every pre-compiled executable script file must have **.pyo** extension; file names are case sensitive. Note: when sending the script be sure that the line terminator is **<CR><LF>** and that your terminal program does not change it. Note: with the hidden attribute it is possible to protect your files from being viewed and copied, only the file name can be viewed, its content is hidden even if the file is still being run correctly. It's your care to maintain knowledge on what the file contains.
AT#WSCRIPT=?	Test command returns **OK** result code.

Example	`AT#WSCRIPT="First.py ",54,0`
	>>> *here receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then type or send the script, sized 54 bytes*
	`OK`
	Script has been stored.

Note	It's recommended to use the extension **.py** only for textual script files and the extension **.pyo** only for pre-compiled executable script files.

#WSCRIPT - Write Script	**SELINT 2**
AT#WSCRIPT= [<script_name>, <size>, [,<hidden>]]	Execution command causes the MODULE to store a file in the Easy Script® related NVM, naming it **<script_name>** The file should be sent using RAW ASCII file transfer. It is important to set properly the port settings. In particular: **Flow control: hardware.** **Baud rate: 115200 bps** Parameters: **<script_name>** - name of the file in NVM, string type (max 16 chars, case sensitive).

#WSCRIPT - Write Script	**SELINT 2**
	<size> - file size in bytes **<hidden>** - file hidden attribute 0 - file content is readable with **#RSCRIPT** (default). 1 - file content is hidden, **#RSCRIPT** command will report empty file. The device shall prompt a five character sequence **<CR><LF><greater_than><greater_than><greater_than>** **(IRA 13, 10, 62, 62, 62)** after command line is terminated with **<CR>**; after that a file can be entered from TE, sized **<size>** bytes. The operations completes when all the bytes are received. If writing ends successfully, the response is **OK**; otherwise an error code is reported. Note: the file name should be passed between quotes; every textual script file must have **.py** extension, whilst every pre-compiled executable script file must have **.pyo** extension; file names are case sensitive. Note: when sending the script be sure that the line terminator is **<CR><LF>** and that your terminal program does not change it. Note: with the hidden attribute it is possible to protect your files from being viewed and copied, only the file name can be viewed, its content is hidden even if the file is still being run correctly. It's your care to maintain knowledge on what the file contains.
AT#WSCRIPT=?	Test command returns **OK** result code.

Example	`AT#WSCRIPT="First.py ",54,0`
	>>> *here receive the prompt; then type or send the textual script, sized 54 bytes*
	
	`OK`
	
	Textual script has been stored

Note	It's recommended to use the extension **.py** only for textual script files and the extension **.pyo** only for pre-compiled executable script files.

3.5.6.12.2. Select Active Script - #ESCRIPT

#ESCRIPT - Select Active Script	**SELINT 0 / 1**
AT#ESCRIPT[=	Set command selects either

#ESCRIPT - Select Active Script	SELINT 0 / 1
[<script_name>]]	a) the name of the textual script file that will be compiled and executed by the Easy Script® compiler at startup according to last **#STARTMODESCR** setting, or b) the name of the pre-compiled executable file that will be executed at startup according to last **#STARTMODESCR** setting. We call this file (either textual or pre-compiled) the **current script**. Parameter: **<script_name>** - file name, string type (max 16 chars, case sensitive). Note: all textual script files must have **.py** extension; all pre-compiled executable files must have **.pyo** extension. Note: **<script_name>** must match to the name of a file written by **#WSCRIPT** in order to have it run. Note: the command does not check whether a textual script named **<script_name>** does exist or not in the Easy Script® related NVM. If the file **<script_name>** is not present at startup then the compiler will not execute. Note: issuing **AT#ESCRIPT<CR>** is the same as issuing the Read command. Note: issuing **AT#ESCRIPT=<CR>** is the same as issuing the command **AT#ESCRIPT=""<CR>**.
AT#ESCRIPT?	Read command reports as a quoted string the file name of the **current script**.
AT#ESCRIPT=?	Test command returns **OK** result code.

#ESCRIPT - Select Active Script	SELINT 2
AT#ESCRIPT= [<script_name>]	Set command selects either c) the name of the textual script file that will be compiled and executed by the Easy Script® compiler at startup according to last **#STARTMODESCR** setting, or d) the name of the pre-compiled executable file that will be executed at startup according to last **#STARTMODESCR** setting. We call this file (either textual or pre-compiled) the **current script**. Parameter:

#ESCRIPT - Select Active Script	**SELINT 2**
	<script_name> - file name, string type (max 16 chars, case sensitive). Note: all textual script files must have **.py** extension; all pre-compiled executable files must have **.pyo** extension. Note: **<script_name>** must match to the name of a file written by **#WSCRIPT** in order to have it run. Note: the command does not check whether a textual script named **<script_name>** does exist or not in the Easy Script® related NVM. If the file **<script_name>** is not present at startup then the compiler will not execute.
AT#ESCRIPT?	Read command reports as a quoted string the file name of the **current script**.
AT#ESCRIPT=?	Test command returns **OK** result code.

3.5.6.12.3. Script Execution Start Mode - #STARTMODESCR

#STARTMODESCR - Script Execution Start Mode	**SELINT 0 / 1**
AT#STARTMODESCR[= <script_start_mode> [,<script_start_to>]]	Set command sets the **current script** (see **#ESCRIPT**) execution start mode. Parameter: **<script_start_mode>** - **currente script** execution start mode 0 - **current script** will be executed at startup only if the **DTR** line is found **Low** (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the MODULE will behave normally answering only to AT commands on the serial port (factory default). 1 - **current script** will be executed at startup only if the user does not send any AT command on the serial port for the time interval specified in **<script_start_to>** parameter, otherwise the Easy Script® interpreter will not execute and the MODULE will behave normally answering only to AT commands on the serial port. The **DTR** line is not tested. 2 - **current script** will be executed at startup in any case. **DTR** line and if the user does not send any AT command on the serial port have no influence on script execution. But AT command interface will be available on serial port ASC0 and connected to third AT parser instance. See "Easy Script in Python" document for further details on this execution start mode.

#STARTMODESCR - Script Execution Start Mode	**SELINT 0 / 1**
	<script_start_to> - **current script** start time-out; 10..60 - time interval in seconds; this parameter is used only if parameter **<script_start_mode>** is set to 1; it is the waiting time for an AT command on the serial port to disable active script execution start. If the user does not send any AT command on the serial port for the time specified in this parameter active script will not be executed (default is 10). Note: issuing **AT#STARTMODESCR<CR>** is the same as issuing the Read command.
AT#STARTMODESCR?	Read command reports the **current script** start mode and the **current script** start time-out, in the format: **#STARTMODESCR= <script_start_mode>,<script_start_timeout>**
AT#STARTMODESCR=?	Test command returns the range of available values for parameters **<script_start_mode>** and **<script_start_timeout>**, in the format: **#STARTMODESCR: (0-2),(10-60)**

#STARTMODESCR - Script Execution Start Mode	**SELINT 2**
AT#STARTMODESCR= <script_start_mode> [,<script_start_to>]	Set command sets the **current script** (see **#ESCRIPT**) execution start mode. Parameter: **<script_start_mode>** - **currente script** execution start mode 0 - **current script** will be executed at startup only if the **DTR** line is found **Low** (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the MODULE will behave normally answering only to AT commands on the serial port (factory default). 1 - **current script** will be executed at startup only if the user does not send any AT command on the serial port for the time interval specified in **<script_start_to>** parameter, otherwise the Easy Script® interpreter will not execute and the MODULE will behave normally answering only to AT commands on the serial port. The **DTR** line is not tested. 2 - **current script** will be executed at startup in any case. **DTR** line and if the user does not send any AT command on the serial port have no influence on script execution. But AT command interface will be available on serial port ASC0 and connected to third AT parser instance. See "Easy Script in Python" document for further

#STARTMODESCR - Script Execution Start Mode	SELINT 2
	details on this execution start mode. **<script_start_to>** - **current script** start time-out; 10..60 - time interval in seconds; this parameter is used only if parameter **<script_start_mode>** is set to 1; it is the waiting time for an AT command on the serial port to disable active script execution start. If the user does not send any AT command on the serial port for the time specified in this parameter active script will not be executed (default is 10).
AT#STARTMODESCR?	Read command reports the **current script** start mode and the **current script** start time-out, in the format: **#STARTMODESCR= <script_start_mode>,<script_start_timeout>**
AT#STARTMODESCR=?	Test command returns the range of available values for parameters **<script_start_mode>** and **<script_start_timeout>**, in the format: **#STARTMODESCR: (0-2),(10-60)**

3.5.6.12.4. Execute Active Script - #EXECSCR

#EXECSCR - Execute Active Script	SELINT 0 / 1
AT#EXECSCR	Execution command causes the **current script** (see **#ESCRIPT**) execution not at startup. This command is useful when the execution at startup has been blocked deliberately and the user wants to control execution start.
AT#EXECSCR?	Read command has the same behaviour as execution command
AT#EXECSCR=?	Test command returns **OK** result code.

#EXECSCR - Execute Active Script	SELINT 2
AT#EXECSCR	Execution command causes the **current script** (see **#ESCRIPT**) execution not at startup. This command is useful when the execution at startup has been blocked deliberately and the user wants to control execution start.
AT#EXECSCR=?	Test command returns **OK** result code.

3.5.6.12.5. Read Script - #RSCRIPT

#RSCRIPT - Read Script	**SELINT 0 / 1**
AT#RSCRIPT= `<script_name>`	Execution command reports the content of file **<script_name>**. Parameter: **<script_name>** - file name, string type (max 16 chars, case sensitive). The device shall prompt a three character sequence **<less_than><less_than><less_than>** **(IRA 60, 60, 60)** followed by the file content. Note: if the file **<script_name>** was saved with the hidden attribute, then an empty file is reported with the **OK** result code. Note: If the file **<script_name>** is not present an error code is reported.
AT#RSCRIPT=?	Test command returns **OK** result code.

Example	`AT#RSCRIPT="First.py "`
	hereafter receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then the script is displayed, immediately after the prompt
	`<<<import MDM`
	
	`MDM.send('AT\r',10)`
	`Ans=MDM.receive(20)`
	`OK`

#RSCRIPT - Read Script	**SELINT 2**
AT#RSCRIPT= [<script_name>]	Execution command reports the content of file **<script_name>**. Parameter: **<script_name>** - file name, string type (max 16 chars, case sensitive). The device shall prompt a five character sequence **<CR><LF><less_than><less_than><less_than>** **(IRA 13, 10, 60, 60, 60)** followed by the file content. Note: if the file **<script_name>** was saved with the hidden attribute, then an empty file is reported with the **OK** result code. Note: If the file **<script_name>** is not present an error code is reported.
AT#RSCRIPT=?	Test command returns **OK** result code.
Example	`AT#RSCRIPT="First.py "`

#RSCRIPT - Read Script	**SELINT 2**

	hereafter receive the prompt; then the script is displayed, immediately after the prompt
	`<<<import MDM`
	
	`MDM.send('AT\r',10)`
	`Ans=MDM.receive(20)`
	`OK`

3.5.6.12.6. List Script Names - #LSCRIPT

#LSCRIPT - List Script Names	**SELINT 0 / 1**
AT#LSCRIPT	Execution command reports either the list of file names for the files currently stored in the Easy Script® related NVM and the available free NVM memory in the format: **[#LSCRIPT: <script_name1> <size1>...** **[<CR><LF><CR><LF>#LSCRIPT: <script_name*n*> <size*n*>]]** **<CR><LF><CR><LF>#LSCRIPT: free bytes: <free_NVM>** where: **<script-name*n*>** - file name, quoted string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<free_NVM>** - size of available NVM memory in bytes
AT#LSCRIPT?	Read command has the same behavior of Execution command.

Example	`AT#LSCRIPT`
	`#LSCRIPT: First.py 51`
	
	`#LSCRIPT: Second.py 178`
	
	`#LSCRIPT: Third.py 95`
	
	`#LSCRIPT: free bytes: 20000`
	
	`OK`

#LSCRIPT - List Script Names	**SELINT 2**
AT#LSCRIPT	Execution command reports either the list of file names for the files currently stored in the Easy Script® related NVM and the available free NVM memory in the format: **[#LSCRIPT: <script_name1>,<size1>...** **[<CR><LF>#LSCRIPT: <script_name*n*>,<size*n*>]]** **<CR><LF>#LSCRIPT: free bytes: <free_NVM>**

#LSCRIPT - List Script Names	**SELINT 2**
	where: **<script-name*n*>** - file name, quoted string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<free_NVM>** - size of available NVM memory in bytes
AT#LSCRIPT=?	Test command returns **OK** result code.

Example	`AT#LSCRIPT`
	`#LSCRIPT: “First.py”,51`
	`#LSCRIPT: “Second.py”,178`
	`#LSCRIPT: “Third.py”,95`
	`#LSCRIPT: free bytes: 20000`
	
	`OK`

#LCSCRIPT - List Script Names	**SELINT 2**
AT#LCSCRIPT	Execution command reports either the list of file names for the files currently stored in the Easy Script® related NVM, adding CRC16 information, and the available free NVM memory in the format: **[#LCSCRIPT: <script_name1>,<size1>[,<crc1>]...** **[<CR><LF>#LCSCRIPT: <script_name*n*>,<size*n*>[,<crc*n*>]]]** **<CR><LF>#LCSCRIPT: free bytes: <free_NVM>** where: **<script-name*n*>** - file name, quoted string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<crc*n*>** - CRC16 poly (x^16+x^12+x^5+1) of script in hex format **<free_NVM>** - size of available NVM memory in bytes Note: CRC16 is calculated using the standard CRC16-CCITT x^16+x^12+x^5+1 polynomial (0x1021 representation) with initial value FFFF. Note: if one file currently stored in NVM is in use than CRC16 cannot be calculated and execution command does not report **<crc*n*>** for that file. This is always true if command is executed by a Python script because at least the file pointed by #ESCRIPT is in use.
AT#LCSCRIPT= <script_name>	Execution command reports size and CRC16 information of file **<script_name>** in the format:

#LCSCRIPT - List Script Names	SELINT 2
	[#LCSCRIPT: <script_name>,<size>[,<crc>]] where: **<script-name>** - file name, quoted string type (max 16 chars, case sensitive) **<size>** - size of script in bytes **<crc>** - CRC16 poly (x^16+x^12+x^5+1) of script in hex format Parameter: **<script_name>** - file name, string type (max 16 chars, case sensitive). Note: CRC16 is calculated using the standard CRC16-CCITT x^16+x^12+x^5+1 polynomial (0x1021 representation) with initial value FFFF. Note: if file **<script_name>** is in use than CRC16 cannot be calculated and execution command does not report **<crc>**. Note: if file **<script_name>** is not in the list of files stored in NVM execution command exits with error message.
AT#LCSCRIPT=?	Test command returns **OK** result code.
Example	

```
AT#LCSCRIPT
#LCSCRIPT: “First.py”,51,8FD6
#LCSCRIPT: “Second.py”,178,A034
#LCSCRIPT: “Third.py”,120,7C48
#LCSCRIPT: free bytes: 20000

OK


AT#LCSCRIPT=“Second.py”
#LCSCRIPT: “Second.py”,178,A034

OK
```

If file Third.py is already in use.

```
AT#LCSCRIPT
#LCSCRIPT: “First.py”,51,8FD6
#LCSCRIPT: “Second.py”,178,A034
#LCSCRIPT: “Third.py”,120
#LCSCRIPT: free bytes: 20000

OK
```

3.5.6.12.7. Delete Script - #DSCRIPT

#DSCRIPT - Delete Script	**SELINT 0 / 1**
AT#DSCRIPT= <script_name>	Execution command deletes a file from Easy Script® related NVM memory. Parameter: **<script_name>** - name of the file to delete, string type (max 16 chars, case sensitive) Note: if the file **<script_name>** is not present an error code is reported.
AT#DSCRIPT=?	Test command returns **OK** result code.
Example	AT#DSCRIPT="Third.py" OK

#DSCRIPT - Delete Script	**SELINT 2**
AT#DSCRIPT= [<script_name>]	Execution command deletes a file from Easy Script® related NVM memory. Parameter: **<script_name>** - name of the file to delete, string type (max 16 chars, case sensitive) Note: if the file **<script_name>** is not present an error code is reported.
AT#DSCRIPT=?	Test command returns **OK** result code.
Example	AT#DSCRIPT="Third.py" OK

3.5.6.12.8. Reboot - #REBOOT

#REBOOT - Reboot	**SELINT 0 / 1**
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running.
AT#REBOOT?	Read command has the same behaviour of Execution command.
AT#REBOOT=?	Test command returns **OK** result code.

Example	`AT#REBOOT`
	`OK`
	
	`… Module Reboots …`

#REBOOT - Reboot		**SELINT 2**
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running.	
AT#REBOOT=?	Test command returns **OK** result code.	

Example	`AT#REBOOT`
	`OK`
	
	`… Module Reboots …`	

3.5.6.12.9. CMUX Interface Enable - #CMUXSCR

#CMUXSCR - CMUX Interface Enable		**SELINT 2**
AT#CMUXSCR= <enable>,[<rate>]	Set command enables/disables the 3GPP TS 27.010 multiplexing protocol control channel (see **+CMUX**) at startup before the **current script** (see **#ESCRIPT**) execution and specifies the **DTE** speed at which the device sends and receives CMUX frames (used to fix the **DTE-DCE** interface speed). Parameters: **<enable>** - enables/disables CMUX interface at startup. 0 - it disables CMUX interface at startup, before **current script** execution (factory default) 1 - it enables CMUX interface at startup, before **current script** execution **<rate>** 300 1200 2400 4800 9600 19200 38400 57600 115200 (default) If **<rate>** is omitted the value is unchanged **<enable>** and **<rate>** values are saved in NVM	

#CMUXSCR - CMUX Interface Enable	SELINT 2
AT#CMUXSCR ?	Read command returns the current value of **#CMUXSCR** parameters in the format: **#CMUXSCR: <enable>,<rate>**
AT#CMUXSCR =?	Test command reports the range for the parameters **<enable>** and **<rate>**

3.5.6.13. GPS AT Commands Set

3.5.6.13.1. GPS Controller Power Management - $GPSP

$GPSP - GPS Controller Power Management	SELINT 0 / 1 / 2
AT$GPSP=<status>	Set command allows to manage power-up or down of the GPS controller Parameter: **<status>** 0 - GPS controller is powered down 1 - GPS controller is powered up (default) Note: for the GPS product (GE863-GPS): if the GPS controller is powered down while **VAUX** pin is enabled they'll both also be also powered off.

$GPSP - GPS Controller Power Management	**SELINT 0 / 1 / 2**
	Note: the current setting is stored through **$GPSSAV**
AT$GPSP?	Read command reports the current value of the **<status>** parameter, in the format: **$GPSP: <status>**
AT$GPSP=?	Test command reports the range of supported values for parameter **<status>**

Example	`AT$GPSP=0`
	`OK`

3.5.6.13.2. GPS Reset - $GPSR

$GPSR - GPS Reset	**SELINT 0 / 1 / 2**
AT$GPSR= <reset_type>	Execution command allows to reset the GPS controller. Parameter: **<reset_type>** 0 - Hardware reset: the GPS receiver is reset and restarts by using the values stored in the internal memory of the GPS receiver. 1 - Coldstart (No Almanac, No Ephemeris): this option clears all data that is currently stored in the internal memory of the GPS receiver including position, almanac, ephemeris, and time. The stored clock drift however, is retained. It is available in controlled mode only. 2 - Warmstart (No ephemeris): this option clears all initialization data in the GPS receiver and subsequently reloads the data that is currently displayed in the Receiver Initialization Setup screen. The almanac is retained but the ephemeris is cleared. It is available in controlled mode only. 3 - Hotstart (with stored Almanac and Ephemeris): the GPS receiver restarts by using the values stored in the internal memory of the GPS receiver; validated ephemeris and almanac. It is available in controlled mode only.
AT$GPSR=?	Test command reports the range of supported values for parameter **<reset_type>**

Example	`AT$GPSR=0`
	`OK`

3.5.6.13.3. GPS Device Type Set - $GPSD

$GPSD - GPS Device Type Set	**SELINT 0 / 1 / 2**

$GPSD - GPS Device Type Set	SELINT 0 / 1 / 2
AT$GPSD= <device_type>	Set command defines which GPS device is connected to the module. It dedicates the Serial port #1 of the module (TRACE) to receive the GPS strings from the GPS module. Parameter: **<device type>** 0 - none; the serial port is not connected to GPS device and available for standard use 1 - currently has no meaning, maintained for backward compatibility 2 - serial port connected to GPS serial port: controlled mode (default) 3 - currently has no meaning, maintained for backward compatibility Note: In case of GM862-GPS **<device type>** has always value 2, if you set any other value it will give ERROR. Note: the current setting is stored through **$GPSSAV**
AT$GPSD?	Read command reports the current value of **<device_type>** parameter, in the format: **$GPSD: <device_type>**
AT$GPSD=?	Test command reports the range of supported values for parameter **<device_type>**

Example	`AT$GPSD=0`
	`OK`

3.5.6.13.4. GPS Software Version - $GPSSW

$GPSSW - GPS Software Version	SELINT 0 / 1 / 2
AT$GPSSW	Execution command provides GPS Module software version in the format: **$GPSSW: <sw version>**
AT$GPSSW?	Read command has the same meaning as the Execution command
AT$GPSSW=?	Test command returns the **OK** result code

Example	`AT$GPSSW`
	`$GPSSW: GSW3.1.1_3.1.00.07-C23P1.00`
	`OK`

3.5.6.13.5. GPS Antenna Type Definition - $GPSAT

$GPSAT - GPS Antenna Type Definition	**SELINT 0 / 1 / 2**
AT$GPSAT=<type>	Set command selects the GPS antenna used. Parameter: **<type>** 0 - GPS Antenna not power supplied by the module 1 - GPS Antenna power supplied by the module (default) Note: if current **<type>** is 0, either **$GPSAV** and **$GPSAI** have no meaning. Note: the current setting is stored through **$GPSSAV**
AT$GPSAT?	Read command returns the currently used antenna, in the format: **$GPSAT: <type>**
AT$GPSAT=?	Test command reports the range of supported values for parameter **<type>**

Example	`AT$GPSAT=1`
	`OK`

Note	Refer to the HW user guide for the compatible GPS antennas

3.5.6.13.6. GPS Antenna Supply Voltage Readout - $GPSAV

$GPSAV - GPS Antenna Supply Voltage Readout	**SELINT 0 / 1 / 2**
AT$GPSAV	Execution command returns the measured GPS antenna's supply voltage in mV
AT$GPSAV?	Read command has the same meaning as the Execution command
AT$GPSAV=?	Test command returns the **OK** result code

Example	`AT$GPSAV`
	`$GPSAV:3800`
	`OK`

Note	It has meaning only if current **$GPSAT** setting is not 0

3.5.6.13.7. GPS Antenna Current Readout - $GPSAI

$GPSAI - GPS Antenna Current Readout	**SELINT 0 / 1 / 2**
AT$GPSAI	Execution command reports the GPS antenna's current consumption in the format: **$GPSAI:<value>[,<status>]** where: **<value>** - the measured current in mA **<status>** 0 - GPS antenna OK 1 - GPS antenna consumption out of the limits

$GPSAI - GPS Antenna Current Readout	**SELINT 0 / 1 / 2**
	Note: the output **<status>** is available only if the antenna protection is activated (see **$GPSAP**)
AT$GPSAI?	Read command has the same meaning as the Execution command
AT$GPSAI=?	Test command returns the **OK** result code

Example	`AT$GPSAI?`
	`$GPSAI:040,0`
	`OK`

Note	It has meaning only if current **$GPSAT** setting is not 0

3.5.6.13.8. GPS Antenna Protection - $GPSAP

$GPSAP - GPS Antenna Protection	**SELINT 0 / 1 / 2**
AT$GPSAP=<set>[,<value>]	Set command allows to activate an automatic protection in case of high current consumption of GPS antenna. The protection disables the GPS antenna supply voltage. Parameters: **<set>** 0 - deactivate current antenna protection (default) 1 - activate current antenna protection **<value>** - the antenna current limit value in mA 0..200 The parameter **<value>** has meaning only if parameter **<set>**=1, otherwise it is not accepted. Note: the new setting is stored through **$GPSSAV**
AT$GPSAP?	Read command reports the current activation status of antenna automatic protection and the current antenna limit value, in the format: **$GPSAP: <set>,<value>**
AT$GPSAP=?	Test command reports the range of supported values for parameters **<set>** and **<value>**

Example	`AT$GPSAP=0`
	`OK`
	Note : no SW control on antenna status (HW current limitation only)
	
	`AT$GPSAP=1,25`
	`OK`
	activate current antenna protection with related current limit
	
	`AT$GPSAP?`
	`$GPSAP:1,50`

$GPSAP - GPS Antenna Protection	**SELINT 0 / 1 / 2**
	`OK` *Antenna protection activated with 50mA limit*
Note	The module is already provided of an Hardware protection for the high current consumption that is automatically activated if the consumption exceeds 50mA

3.5.6.13.9. GPS NMEA Serial Port Speed - $GPSS

$GPSS - GPS Serial Port Speed	**SELINT 0 / 1 / 2**
AT$GPSS=<speed>	Set command allows to select the speed of the NMEA serial port. Parameter: **<speed>** 4800 - (default) 9600 19200 38400 57600 Note: the new setting is stored through **$GPSSAV**
AT$GPSS?	Read command returns the current serial ports speed in the format: **$GPSS: <speed>**
AT$GPSS=?	Test command returns the available range for **<speed>**

3.5.6.13.10. Unsolicited NMEA Data Configuration - $GPSNMUN

$GPSNMUN - Unsolicited NMEA Data Configuration	**SELINT 0 / 1 / 2**
AT$GPSNMUN= <enable> [,<GGA>,<GLL>, <GSA>,<GSV>, <RMC>,<VTG >]	Set command permits to activate an Unsolicited streaming of GPS data (in NMEA format) through the standard GSM serial port and defines which NMEA sentences will be available Parameters: **<enable>** 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated with the following unsolicited response syntax:

$GPSNMUN - Unsolicited NMEA Data Configuration	SELINT 0 / 1 / 2
	$GPSNMUN:<CR><NMEA SENTENCE><CR> 2 - NMEA data stream activated with the following unsolicited response syntax: <NMEA SENTENCE><CR> 3 - dedicated NMEA data stream; it is not possible to send AT commands; with the escape sequence '+++' the user can return to command mode **<GGA>** - Global Positioning System Fix Data 0 - disable (default) 1 - enable **<GLL>** - Geographical Position - Latitude/Longitude 0 - disable (default) 1 - enable **<GSA>** - GPS DOP and Active Satellites 0 - disable (default) 1 - enable **<GSV>** - GPS Satellites in View 0 - disable (default) 1 - enable **<RMC>** - recommended Minimum Specific GPS Data 0 - disable (default) 1 - enable **<VTG>** - Course Over Ground and Ground Speed 0 - disable (default) 1 - enable
AT$GPSNMUN?	Read command returns whether the unsolicited GPS NMEA data streaming is currently enabled or not, along with the NMEA sentences availability status, in the format: **$GPSNMUN:<enable>,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >**
AT$GPSNMUN=?	Test command returns the supported range of values for parameters **<enable>, <GGA>, <GLL>, <GSA>, <GSV>, <RMC>, <VTG>**

Example	`AT$GPSNMUN=1,0,0,1,0,0,0`
	`OK`
	These sets the GSA as available sentence in the unsolicited message
	
	`AT$GPSNMUN=0`
	`OK`
	Turn-off the unsolicited mode
	
	`AT$GPSNMUN?`
	`$GPSNMUN: 1,0,0,1,0,0,0`
	`OK`
	Give the current frame selected (GSA)

$GPSNMUN - Unsolicited NMEA Data Configuration	**SELINT 0 / 1 / 2**

	The unsolicited message will be:
	`$GPSNMUN:`
	`$GPGSA,A,3,23,20,24,07,13,04,02,,,,,,2.4,1.6,1.8*3C`

Reference	NMEA 01803 Specifications
Note	*The command is available in "Controlled Mode" only* *The available NMEA Sentences are depending on the GPS receiver used* *In GE863-GPS and GM862-GPS the fields PDOP and VDOP are not available* *Use NMEA serial port instead if full DOP info are needed*

3.5.6.13.11. Get Acquired Position - $GPSACP

$GPSACP - Get Acquired Position	**SELINT 0 / 1 / 2**
AT$GPSACP	Execution command returns information about the last GPS position in the format: **$GPSACP: <UTC>,<latitude>,<longitude>,<hdop>,<altitude>, <fix>,<cog>,<spkm>,<spkn>,<date>,<nsat>** where: **<UTC>** - UTC time (hhmmss.sss) referred to GGA sentence **<latitude>** - format is ddmm.mmmm N/S (referred to GGA sentence) where: dd - degrees 00..90 mm.mmmm - minutes 00.0000..59.9999 N/S: North / South **<longitude>** - format is dddmm.mmmm E/W (referred to GGA sentence) where: ddd - degrees 000..180 mm.mmmm - minutes 00.0000..59.9999 E/W: East / West **<hdop>** - x.x - Horizontal Diluition of Precision (referred to GGA sentence) **<altitude>** - x.x Altitude - mean-sea-level (geoid) in meters (referred to GGA sentence) **<fix>** - 0 - Invalid Fix 2 - 2D fix

$GPSACP - Get Acquired Position		**SELINT 0 / 1 / 2**
	3 - 3D fix **<cog>** - ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) where: ddd - degrees 000..360 mm - minutes 00..59 **<spkm>** - x.x Speed over ground (Km/hr) (referred to VTG sentence) **<spkn>** - x.x- Speed over ground (knots) (referred to VTG sentence) **<date>** - ddmmyy Date of Fix (referred to RMC sentence) where: dd - day 01..31 mm - month 01..12 yy - year 00..99 - 2000 to 2099 **<nsat>** - nn - Total number of satellites in use (referred to GGA sentence) 00..12	
AT$GPSACP?	Read command has the same meaning as the Execution command	
AT$GPSACP=?	Test command returns the **OK** result code	

Example	`AT$GPSACP`
	`$GPSACP:080220.479,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09`
	
	`OK`	

3.5.6.13.12. Direct Access to GPS Module - $GPSCON

$GPSCON - Direct Access to GPS Module		**SELINT 0 / 1 / 2**
AT$GPSCON	Execution command allows to set the GSM baseband in transparent mode in order to have a direct access to the serial port of the GPS module. The GSM module will transfer directly the received data to the GPS module, without checking or elaborating them. Note: the command is usable only in “controlled mode”. Note: in case of an incoming call from GSM, this will be visible on the RING	

$GPSCON - Direct Access to GPS Module	**SELINT 0 / 1 / 2**
	pin of serial port. Note: the escape sequence is "+++" Note: the Serial Port Speed can be maximum 38400 bps
AT$GPSCON=?	Test command returns the **OK** result code

3.5.6.13.13. Set The GPS Module In Programming Mode - $GPSPRG

$GPSPRG - Set The GPS Module In Programming Mode	**SELINT 0 / 1 / 2**
AT$GPSPRG	Execution command allows to switch on the GPS part in BOOT mode and set the GSM processor in Transparent Mode, in order to permit the re-programming of th GPS flash memory. Note: the escape sequence is "+++" Note: it is possible to issue **$GPSPRG** only if the Serial Port Speed is fixed 38400 bps
AT$GPSPRG?	Read command has the same effect as Execution command.
AT$GPSPRG=?	Test command returns the **OK** result code

3.5.6.13.14. Set The GPS Module In Power Saving Mode - $GPSPS

$GPSPS - Set The GPS Module In Power Saving Mode	**SELINT 0 / 1**
AT$GPSPS[=<mode>[,<PTF_Period>]]	Set command allows to set the GPS module in Power saving mode. Parameters: **<mode>** - the GPS receiver can operate in three modes 0 - full power mode, power saving disabled (default); it is the standard operating mode; power is supplied to the receiver continuously and the GPS receiver continues to operate without an interrupt. 1 - tricklepower mode; the power to the SiRF chipset is cycled periodically, so that it operates only a fraction of the time; power is applied only when a position fix is scheduled. 2 - push-to-fix mode; the GPS receiver is generally off, but turns on frequently enough to collect ephemeris data to maintain the GPS1 real-time clock calibration so that, upon user request, a position fix can be provided quickly after power-up. **<PTF_Period>** - push-to-fix period, numeric value in secs; when mode is push-to-fix, the receiver turns on periodically according to this parameter; default value is 1800 sec. This parameter has meaning only

$GPSPS - Set The GPS Module In Power Saving Mode	SELINT 0 / 1
	when **<mode>**=2 **NOTE: with at$gpsps=2,x, during the push to fix period VAUX is turned off. VAUX can be controlled by AT#VAUX command, too.**
AT$GPSPS?	Read command returns the current power saving mode and push-to-fix period, in the format: **$GPSPS: <mode>,<PTF_Period>**
AT$GPSPS	Execution command has the same effect as the Read command
AT$GPSPS=?	Test command returns the available range for **<mode>** and **<PTF_Period>**
Note	Available in "controlled mode" only

$GPSPS - Set The GPS Module In Power Saving Mode	SELINT 2
AT$GPSPS= <mode [,<PTF_Period>]	Set command allows to set the GPS module in Power saving mode. Parameters: **<mode>** - the GPS receiver can operate in three modes 0 - full power mode, power saving disabled (default); it is the standard operating mode; power is supplied to the receiver continuously and the GPS receiver continues to operate without an interrupt. 1 - tricklepower mode; the power to the SiRF chipset is cycled periodically, so that it operates only a fraction of the time; power is applied only when a position fix is scheduled. 2 - push-to-fix mode; the GPS receiver is generally off, but turns on frequently enough to collect ephemeris data to maintain the GPS1 real-time clock calibration so that, upon user request, a position fix can be provided quickly after power-up. **<PTF_Period>** - push-to-fix period, numeric value in secs; when mode is push-to-fix, the receiver turns on periodically according to this parameter; default value is 1800 sec. This parameter has meaning only when **<mode>**=2 **NOTE: with at$gpsps=2,x, during the push to fix period VAUX is turned off. VAUX can be controlled by AT#VAUX command, too.**
AT$GPSPS?	Read command returns the current power saving mode and push-to-fix period, in the format: **$GPSPS: <mode>,<PTF_Period>**
AT$GPSPS=?	Test command returns the available range for **<mode>** and **<PTF_Period>**
Note	Available in "controlled mode" only

3.5.6.13.15. Wake Up GPS From Power Saving Mode - $GPSWK

$GPSWK - Wake Up GPS From Power Saving Mode	**SELINT 0 / 1 / 2**
AT$GPSWK	Execution command allows to wake up the GPS module if set in sleeping mode due to power saving. Note: if the GPS module is in tricklepower mode, it will start up, make the fix and then continue to work in power saving mode. Note: if the GPS module is in push-to-fix mode, issuing **$GPSWK** pemits to wake up it before the push to fix period; after the new fix the GPS module will return in push-to-fix mode with the same parameters. Note: this command turn on the VAUX, so it could interfere with AT#VAUX command.
AT$GPSWK=?	Test command returns the **OK** result code
Note	Available in "controlled mode" only

3.5.6.13.16. Save GPS Parameters Configuration - $GPSSAV

$GPSSAV - Save GPS Parameters Configuration	**SELINT 0 / 1 / 2**
AT$GPSSAV	Execution command stores the current GPS parameters in the NVM of the device.
AT$GPSSAV=?	Test command returns the **OK** result code
Example	`AT$GPSSAV` `OK`
Note	The module must be restarted to use the new configuration

3.5.6.13.17. Restore To Default GPS Parameters - $GPSRST

$GPSRST - Restore To Default GPS Parameters	**SELINT 0 / 1 / 2**
AT$GPSRST	Execution command resets the GPS parameters to "Factory Default" configuration and stores them in the NVM of the device.
AT$GPSRST=?	Test command returns the **OK** result code
Example	`AT$GPSRST` `OK`
Note	The module must be restarted to use the new configuration

3.5.6.13.18. GPS Controller Disabling - $GPSCMODE

$GPSCMODE - GPS Controller Disabled at Start-up With Charger Inserted	**SELINT 0 / 1 / 2**
AT$GPSCMODE=<n>	Execution command allows to keep off the GSP controller when the module is woken up by charger insertion. The GPS controller can be turned on by AT$GPSP=1. Parameter: **<n>** 0 – GPS controller on at start-up (factory default) 1 – GSP controller off at start-up with charger inserted Note: the new setting is stored through **$GPSSAV**
AT$GPSCMODE ?	Read command reports whether GPS controller is enabled or not when the module is turned on by the charger insertion, in the format: **$GPSCMODE : <n>**
AT$GPSCMODE =?	reports the supported values for **<n>** parameter..

3.5.6.14. SAP AT Commands Set

3.5.6.14.1. Remote SIM Enable - #RSEN

#RSEN – Remote SIM Enable	**SELINT 2**
AT#RSEN=<mode> [,<sapformat> [,<role> [,<muxch> [,<beacon> [,<scriptmode>]]]]]	Set command is used to enable/disable the **Remote SIM** feature. The command returns **ERROR** if requested on a non multiplexed interface Parameter: **<mode>** 0 - disable 1 - enable **<sapformat>** 1 - binary SAP (default) **<role>** 0 - remote SIM Client (default) • *If the ME doesn't support the Easy Script Extension®* or • ***<scriptmode>*** *is omitted or* • ***<scriptmode>*** *is 0* **<muxch>** - MUX Channel Number; mandatory if **<mode>=1** 1..3 *If the ME support the Easy Script Extension®* and

#RSEN – Remote SIM Enable	**SELINT 2**
	<scriptmode> is 1 **<muxch>** - MDM interface number in scripts; mandatory if **<mode>=1** 1 - MDM interface 2 - MDM2 interface **<beacon>** - retransmition timer of SAP Connection Request 0 - only one transmition (default) 1..100 - timer interval in seconds. **<scriptmode>** - script mode enable; setting this subparameter has a meaning only if the ME supports the Easy Script® Extension 0 - disable script mode (see subparameter **<muxch>**) 1 - enable script mode (see subparameter **<muxch>**) Note: enabling the **Remote SIM** feature when the SIM is already inserted causes the module to: • de-register from the actual network • de-initialize the current SIM. Note: issuing the command on a not multiplexed interface (see **+CMUX**) cause an **ERROR** to be raised in all the situations except when: • the ME supports the Easy Script Extension® and • **<scriptmode>** is 1 Note: if the **Remote SIM** feature has been activated the SAP connection status is signalled with the following URC: **#RSEN: <conn>** where **<conn>** - connection status 0 - disconnected 1 - connected
AT#RSEN?	Read command returns the SAP connection status in the format: **#RSEN: <conn>** where **<conn>** - connection status, as before
AT#RSEN=?	Test command reports the range of values for all the parameters.

3.5.6.15. Telefonica OpenGate M2M AT Commands Set

For more detailed information about the AT commands dedicated for Telefonica Open Gate M2M protocol handling please consult the OpenGate M2M Protocol User Guide.

4. List of acronyms

ARFCN	Absolute Radio Frequency Channel Number
AT	Attention command
BA	BCCH Allocation
BCCH	Broadcast Control Channel
CA	Cell Allocation
CBM	Cell Broadcast Message
CBS	Cell Broadcast Service
CCM	Current Call Meter
CLIR	Calling Line Identification Restriction
CTS	Clear To Send
CUG	Closed User Group
DCD	Data Carrier Detect
DCE	Data Communication Equipment
DCS	Digital Cellular System
DGPS	Differential GPS, the use of GPS measurements, which are differentially corrected
DNS	Domain Name System
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi Fraquency
DTR	Data Terminal Ready
GGA	GPS Fix data
GLL	Geographic Position – Latitude/Longitude
GLONASS	Global positioning system maintained by the Russian Space Forces
GMT	Greenwich Mean Time
GNSS	Any single or combined satellite navigation system (GPS, GLONASS and combined GPS/GLONASS)
GPRS	Global Packet Radio Service
GPS	Global Positioning System
GSA	GPS DOP and Active satellites
GSM	Global System Mobile
GSV	GPS satellites in view
HDLC	High Level Data Link Control
HDOP	Horizontal Dilution of Precision
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol

IRA	International Reference Alphabet
IWF	Interworking Function
MO	Mobile Originated
MT	*either* Mobile Terminated *or* Mobile Terminal
NMEA	National Marine Electronics Association
NVM	Non Volatile Memory
PCS	Personal Communication Service
PDP	Packet Data Protocol
PDU	Packet Data Unit
PIN	Personal Identification Number
PPP	Point to Point Protocol
PUK	Pin Unblocking Code
RLP	Radio Link Protocol
RMC	Recommended minimum Specific data
RTS	Request To Send
SAP	SIM Access Profile
SCA	Service Center Address
SMS	Short Message Service
SMSC	Short Message Service Center
SMTP	Simple Mail Transport Protocol
TA	Terminal Adapter
TCP	Transmission Control Protocol
TE	Terminal Equipment
UDP	User Datagram Protocol
USSD	Unstructured Supplementary Service Data
UTC	Coordinated Universal Time
VDOP	Vertical dilution of precision
VTG	Course over ground and ground speed
WAAS	Wide Area Augmentation System