

AT Commands Reference Guide

80000ST10025a Rev. 18 – 2013-09-23



APPLICABILITY TABLE

PRODUCT
GT863-PY
GT864-QUAD
GT864-PY
GC864-QUAD
GC864-QUAD V2
GC864-DUAL V2
GE864-QUAD
GE864-QUAD AUTOMOTIVE V2
GE864-QUAD ATEX
GE864-QUAD V2
GE864-DUAL V2
GE864-GPS
GE865-QUAD
GL865-DUAL
GL865-DUAL V3
GL865-QUAD V3
GL868-DUAL
GL868-DUAL V3
GL865-QUAD
GE910-QUAD
GE910-QUAD V3
GE910-GNSS

SW Versions
10.00.xx8
13.00.xx5
16.00.xx3



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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 are optional, issuing 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.

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**



- **+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>**.



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
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



Numeric Format	Verbose Format
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)*
IP Easy 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
430	not connected
431	already connected
432	context down
433	no photo available
434	can not send photo
IP Easy 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	timeout in opening socket
560	cannot open socket



Numeric Format	Verbose Format
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 SMDCP failure
573	network reject
Custom SIM Lock related errors:	
586	MCL personalisation PIN required
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
613	Data socket yet opened in CmdMode
614	FTP CmdMode data socket closed
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):	
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
SSL related errors (only if command #SELINT=2 has been issued - see §3.5.2.1.1):	
830	SSL generic error
831	SSL cannot activate
832	SSL socket error
833	SSL not connected
834	SSL already connected
835	SSL already activated



Numeric Format	Meaning
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network service
332	network time-out
500	unknown error
512	FDN not allowed number

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

<i>Result Codes</i>	
Numeric form	Verbose form
0	OK
1	CONNECT or CONNECT <text> ³
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200 ⁴

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



Command	Estimated maximum time to get response (Seconds)
	phonebook)
+CPBF	10 (string present in a 250 records full phonebook) 5(string not present)
+CPBW	5
+CACM	5
+CAMP	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 AT57 (data call)
A	30 (voice call) Timeout set with AT57 (data call)
H	30
+CHUP	5
+COPN	10
+CPOL	10 (set command; read command of 84 records)
+CRSM	5
+FRH	Timeout set with AT57
+FTH	Timeout set with AT57
+FRM	Timeout set with AT57
+FTM	Timeout set with AT57
+FRS	Timeout set with the command itself
+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



Command	Estimated maximum time to get response (Seconds)
#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)
#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



Command	Estimated maximum time to get response (Seconds)
	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

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 lose some characters if placed in autobauding at high speeds. Therefore if you encounter this problem fix the baud rate with **+IPR** command.



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
#SMOV	#MWI	#NITZ
#SKIPESC	#E2ESC	#STIA
\$GPSNMUN	#CESTHLCK	#CFLO
+CSTF	+CSDF	+CTZU
+CAPD	+CCWE	+CSIL
+CTZR	#CFF	#CODECINFO
#CMEEMODE	#MMSSNH	

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	#DVIEXT	#PSMRI

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:

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

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**



3.4. AT Commands Availability Table

The following table shows the link Software Version / Product. It is used jointly with the second reported table to verify if the selected AT command is supported by the couple Software Version / Product.

Software Version	Applicable products
<u>SW 10.00.xx8</u> <u>16.00.xx3</u>	GE865-QUAD, GC864-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD AUTOMOTIVE V2, GE864-QUAD ATEX, GL865-DUAL, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL V3, GL868-DUAL, GL865-QUAD, GT863-PY, GT864-PY, GT864-QUAD, GE864-GPS, GE910-QUAD V3
<u>SW 13.00.xx5</u>	GE910-QUAD, GE910-GNSS

The following table lists the AT commands set and matches the availability of every single command with the Telit module by means of the software version as showed on the table above.

COMMAND	<u>SW 10.00.xx8</u> <u>16.00.xx3</u>	<u>SW 13.00.xx5</u>	Function	Page
Command Line General Format – Command Line Prefixes				
AT	•	•	Starting A Command Line	48
A/	•	•	Last Comm Automatic Repetition Prefix	48
AT#/	•	•	Repeat last command	48
#SELINT	•	•	Select Interface Style	50
Hayes AT Commands – Generic Modem Control				
&F	•	•	Set To Factory-Defined Configuration	51
Z	•	•	Soft Reset	51
+FCLASS	•	•	Select Active Service Class	51
&Y	•	•	Designate A Default Reset Basic Profile	52
&P	•	•	Designate A Default Reset Full Profile	52
&W	•	•	Store Current Configuration	52
&Z	•	•	Store Telephone Number In The Module Internal Phonebook	53
&N	•	•	Display Internal Phonebook Stored Numbers	53
+GMI	•	•	Manufacturer Identification	53
+GMM	•	•	Model Identification	54
+GMR	•	•	Revision Identification	54
+GCAP	•	•	Capabilities List	54
+GSN	•	•	Serial Number	54
&V	•	•	Display Current Base Configuration And Profile	54
&V0	•	•	Display Current Configuration And Profile	55
&V1	•	•	S Registers Display	55
&V3	•	•	Extended S Registers Display	55
&V2	•	•	Display Last Connection Statistics	56
\V	•	•	Single Line Connect Message	56
+GCI	•	•	Country Of Installation	56
%L	•	•	Line Signal Level	56
%Q	•	•	Line Quality	57
L	•	•	Speaker Loudness	57
M	•	•	Speaker Mode	57



COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
+CMAR	•	•	Master Reset	57
Hayes AT Commands – DTE-Modem Interface Control				
E	•	•	Command Echo	58
Q	•	•	Quiet Result Codes	58
V	•	•	Response Format	59
X	•	•	Extended Result Codes	60
I	•	•	Identification Information	60
&C	•	•	Data Carrier Detect (DCD) Control	61
&D	•	•	Data Terminal Ready (DTR) Control	61
\Q	•	•	Standard Flow Control	62
&K	•	•	Flow Control	63
&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	72
P	•	•	Pulse Dial	72
A	•	•	Answer	72
H	•	•	Disconnect	72
O	•	•	Return To On Line Mode	73
Hayes AT Commands – Modulation Control				
+MS	•	•	Modulation Selection	73
%E	•	•	Line Quality Monitor And Auto Retrain Or Fallback/Fallforward	74
Hayes AT Commands – Compression Control				
+DS	•	•	Data Compression	74
+DR	•	•	Data Compression Reporting	74
Hayes AT Commands – S Parameters				
S0	•	•	Number Of Rings To Auto Answer	75
S1	•	•	Ring Counter	76
S2	•	•	Escape Character	76
S3	•	•	Command Line Termination Character	77
S4	•	•	Response Formatting Character	78
S5	•	•	Command Line Editing Character	79
S7	•	•	Connection Completion Time-Out	79
S10	•	•	Carrier off with firm time	80
S12	•	•	Escape Prompt Delay	80
S25	•	•	Delay To DTR Off	81
S30	•	•	Disconnect Inactivity Timer	82
S38	•	•	Delay Before Forced Hang Up	83
3GPP TS 27.007 – General				
+CGMI	•	•	Request Manufacturer Identification	84
+CGMM	•	•	Request Model Identification	84
+CGMR	•	•	Request Revision Identification	84
+CGSN	•	•	Request Product SN Identification	85
+CSCS	•	•	Select TE Character Set	85
+CIMI	•	•	Request IMSI	86
+CMUX	•	•	Multiplexing Mode	87
+WS46	•	•	PCCA STD-101 Select Wireless Network	88
+CPWC	•	•	Select preferred MT power class	88
3GPP TS 27.007 – Call Control				
+CHUP	•	•	Hang Up Call	90
+CBST	•	•	Select Bearer Service Type	90



COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
+CCID	•	-	Read ICCID (Integrated Circuit Card Identification)	169
+CSIM	•	•	Generic SIM access	169
+CSVN	•	•	Set Voice Mail Number	171
3GPP TS 27.007 – Mobile Equipment Errors				
+CMEE	•	•	Report Mobile Equipment Error	172
#CMEE MODE	•	•	Set CMEE mode	173
3GPP TS 27.007 – Voice Control				
+VTS	•	•	DTMF Tones Transmission	174
+VTD	•	•	Tone Duration	175
3GPP TS 27.007 – Commands For GPRS				
+CGCLASS	•	•	GPRS Mobile Station Class	176
+CGATT	•	•	GPRS Attach Or Detach	177
+CGEREP	•	•	GPRS Event Reporting	178
+CGREG	•	•	GPRS Network Registration Status	179
+CGDCONT	•	•	Define PDP Context	181
+CGQMIN	•	•	Quality Of Service Profile (Minimum Acceptable)	183
+CGQREQ	•	•	Quality Of Service Profile (Requested)	185
+CGACT	•	•	PDP Context Activate Or Deactivate	187
+CGPADDR	•	•	Show PDP Address	188
+CGDATA	•	•	Enter Data State	190
+CGCMOD	•	•	Modify PDP context	191
3GPP TS 27.007 – Commands For Battery Charger				
+CBC	•	•	Battery Charge	191
3GPP TS 27.005 – General Configuration				
+CSMS	•	•	Select Message Service	193
+CPMS	•	•	Preferred Message Storage	194
+CMGF	•	•	Message Format	198
3GPP TS 27.005 – Message Configuration				
+CSCA	•	•	Service Center Address	199
+CSMP	•	•	Set Text Mode Parameters	200
+CSDH	•	•	Show Text Mode Parameters	205
+CSCB	•	•	Select Cell Broadcast Message Types	206
+CSAS	•	•	Save Settings	208
+CRES	•	•	Restore Settings	209
3GPP TS 27.005 – Message Receiving And Reading				
+CNMI	•	•	New Message Indications To Terminal Equipment	210
+CMGL	•	•	List Messages	221
@CMGL	•	•	List Messages Improved	228
+CMGR	•	•	Read Message	229
@CMGR	•	•	Read Message Improved	237
3GPP TS 27.005 – Message Sending And Writing				
+CMGS	•	•	Send Message	241
+CMSS	•	•	Send Message From Storage	248
+CMGW	•	•	Write Message To Memory	249
+CMGD	•	•	Delete Message	257
+CGSMS	•	•	Select service for MO SMS messages	259
FAX AT Commands – General Configuration				
+FMI	•	•	Manufacturer ID	260
+FMM	•	•	Model ID	260
+FMR	•	•	Revision ID	260
FAX AT Commands – Transmission/Reception Control				
+FTS	•	•	Stop Transmission And Pause	261
+FRS	•	•	Wait For Receive Silence	261
+FTM	•	•	Transmit Data Modulation	262
+FRM	•	•	Receive Data Modulation	262
+FTH	•	•	Transmit Data With HDLC Framing	263
+FRH	•	•	Receive Data With HDLC Framing	264



COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
#ECAM	•	•	Extended Call Monitoring	314
#SMOV	•	•	SMS Overflow	316
#MBN	•	•	Mailbox Numbers	317
#MWI	•	•	Message Waiting Indicator	317
#CODEC	•	•	Audio Codec	319
#NITZ	•	•	Network Timezone	320
#CCLK	•	•	Clock management	322
#ENS	•	•	Enhanced Network Selection	323
#BND ¹⁵	•	•	Select Band	324
#AUTOBND ¹⁷	•	•	Automatic Band Selection	325
#BNDLOCK	•	•	Lock to single band	327
#SKIPESC	•	•	Skip Escape Sequence	326
#E2ESC	•	•	Escape Sequence Guard Time	329
#GAUTH	•	•	PPP-GPRS Connection Authentication Type	330
#GPPPCFG	•	•	PPP-GPRS Parameters Configuration	331
#GPPPCFGEXT	•	-	enables/disables PPP compression	331
#RTCSTAT	•	•	RTC Status	332
#GSMAD	•	•	GSM Antenna Detection	333
#SIMDET	•	•	SIM Detection Mode	334
#ENHSIM	•	•	SIM Enhanced Speed	335
#SNUM	•	•	Subscriber Number	335
#SIMATR	•	•	SIM Answer to reset	336
#CPUMODE	•	-	CPU Clock Mode	336
#GSMCONT	•	•	GSM Context Definition	337
#GSMCONTCFG	•	•	IPEGSM configurations	337
#CGPADDR	•	•	Show Address	338
#NWSANTMR	•	•	Network Selection Timer	339
#CESTHLCK	•	•	Call Establishment Lock	340
#CPASMODE	•	•	Phone activity status	340
#FASTCCID	•	•	ICCID SIM file reading mode	341
#I2CWR	•	•	I2C data via GPIO	341
#I2CRD	•	•	I2C data from GPIO	342
#PSMRI	•	•	Power saving mode ring	343
#SWLEVEL	•	•	Software level selection	344
#CFLO	•	•	Command flow control	344
#CMGLCONCINDEX	•	•	Report concatenated SMS indexes	345
#CODECINFO	•	•	Codec Information	345
#SII	•	•	Second Interface Instance	347
#SYSHALT	• ¹⁶	-	System turn-off	349
#ENASIM	•	-	Enable USIM application	350
#SIMINCFG	• ¹⁶	-	SIMIN pin configuration	349
#LANG	•	•	Select language	350
#CFP	•	•	Call Forwarding Flags	351
#CHUP	•	•	Hang Up Call	352
#ENCALG	•	•	Set Encryption Algorithm	352
#RS485	•	-	RS485 enable/disable and configure	354
+CAPD	•	•	Postpone alarm	156
#CSURVTA	•	•	Network Survey Of Timing Advance	306
#RFSTS	•	•	Read current network status	354
#CMUXMODE	•	•	Set CMUX mode	355
#PORTCFG	-	•	Connect physical ports to Service Access Points	356

¹⁵ Not available for GC864-DUAL, GC864-DUAL V2, GE864-DUAL V2, GL865-DUAL, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL, GL868-DUAL V3 and GE910-QUAD V3

¹⁶ Only available on GL865-QUAD, GL865-DUAL, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL V3, GL868-DUAL



COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
#MSDPUSH	•	•	IVS push mode activation	610
#MSDSEND	•	•	Sending MSD data to IVS	610
+CECALL	•	•	Initiate eCall	610
SSL Commands				
#SSLCFG	•	•	Config general params of a SSL socket	611
#SSLD	•	•	Opening a socket SSL to a remote server	612
#SSLEN	•	•	Enabling a SSL socket	614
#SSLFASTD	•	•	Fast redial	615
#SSLH	•	•	Closing a SSL socket	616
#SSLO	•	•	Restoring a SSL socket afte a +++	616
#SSLRCV	•	•	Reading data from a SSL socket	617
#SSLS	•	•	Reporting the status	618
#SSLSECCFG	•	•	Configuring security params of a SSL socket	618
#SSLSECDATA	•	•	Managing the security data	619
#SSLSEND	•	•	Sending data through a SSL socket	621
#SSLSENDEXT	•	•	Sending data through a secure socket in Command Mode extended	622
Custom AT Commands – AT Run Commands				
#SMSATRUN	•	•	Enable SMS Run AT Service	359
#SMSATRUNCFG	•	•	Set SMS Run AT Service parameters	359
#SMSATWL	•	•	SMS AT Run white list	360
#TCPATRUNCFG	•	•	Set TCP Run AT service parameters	361
#TCPATRUNL	•	•	TCP Run AT Service in server mode	363
#TCPATRUNFRWL	•	•	TCP AT Run Firewall list	364
#TCPATRUNAUTH	•	•	TCP AT Run authentication param list	365
#TCPATRUND	•	•	TCP AT Run in client mode	366
#TCPATRUNCLOSE	•	•	Close TCP Run AT socket	367
#TCPATCMDSEQ	•	•	TCP AT Run command sequence	367
#TCPATCONSER	•	•	TCP Run AT service to serial port	367
#ATRUNDELAY	•	•	Run AT Command execution	368
CONSUME Commands				
#CONSUMECFG	•	•	Configure consume parameters	376
#ENACONSUME	•	•	Enable consume functionality	378
#STATSCONSUME	•	•	Report consume statistics	379
#BLOCKCONSUME	•	•	Block/unblock a type of service	380
Custom AT Commands – Event Monitor Commands				
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#EVMONI	•	•	Event monitoring	370
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#OTAIPUPD	•	•	Starts an OTA Update over IP	389
#OTASNAPIP	•	•	OTA Set IP port and address for OTA over IP	390
#OTASNAPIPCFG	•	•	OTA Set Access Point Name for OTA over IP	392
Custom AT Commands – Multisocket				
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#SI	•	•	Socket Info	396
#SGACT	•	•	Context Activation	397
#SH	•	•	Socket Shutdown	399
#SCFG	•	•	Socket Configuration	399
#SCFGEXT	•	•	Socket Configuration Extended	400
#SCFGEXT2	•	•	Socket Configuration Extended 2	402



COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
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#SD	•	•	Socket Dial	406
#SO	•	•	Socket Restore	407
#SL	•	•	Socket Listen	408
#SA	•	•	Socket Accept	410
#SRECV	•	•	Receive Data In Command Mode	410
#SSEND	•	•	Send Data In Command Mode	412
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#SLUDP	•	•	Socket listen UDP	409
#SGACTAUTH	•	•	IP Easy authentication type	413
#SGACTCFG	•	•	Context activation and configuration	414
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#PADFWD	•	•	PAD forward character	416
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#ST	•	•	Socket Type	422
#SLASTCLOSURE	•	•	Detect the cause of a socket disconnection	423
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#FTPOPEN	•	•	FTP Open	427
#FTPCLOSE	•	•	FTP Close	428
#FTPPUT	•	•	FTP Put	428
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#FTPGETPKT	•	•	FTP Get in command mode	430
#FTPTYPE	•	•	FTP Type	431
#FTPMSG	•	•	FTP Read Message	432
#FTPDELE	•	•	FTP Delete	432
#FTPPWD	•	•	FTP Print Working Directory	433
#FTPCWD	•	•	FTP Change Working Directory	433
#FTPLIST	•	•	FTP List	434
#FTPAPP	•	•	FTP append	435
#FTPAPPEXT	•	•	send data on a FTP data port	435
#FTPFSIZE	•	•	Get file size	434
#FTPRECV	•	•	Receive data in command mode	438
#FTPCFG	•	•	FTP configuration	440
#FTPREST	•	•	Set restart position	437
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#PASSW	•	•	Authentication Password	442
#PKTSZ	•	•	Packet Size	443
#DSTO	•	•	Data Sending Time-Out	444
#SKTTO	•	•	Socket Inactivity Time-Out	445
#SKTSET	•	•	Socket Definition	446
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#QDNS	•	•	Query DNS	449
#CACHEDNS	•	•	DNS Response Caching	450
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COMMAND	SW 10.00.xx8 16.00.xx3	SW 13.00.xx5	Function	Page
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#GPRS	•	•	GPRS fext Activation	456
#SKTD	•	•	Socket Dial	458
#SKTL	•	•	Socket Listen	461
@SKTL	•	•	Socket Listen Improved	465
#E2SLRI	•	•	Socket Listen Ring Indicator	466
#FRWL	•	•	Firewall Setup	467
#FRWLIPV6	-	•	Firewall Setup for IPV6 addresses	469
#GDATAVOL	•	•	GPRS Data Volume	470
#ICMP	•	•	ICMP Support	471
#TCPMAXDAT	•	•	Maximum TCP Payload Size	472
#TCPREASS	•	•	TCP Reassembly	472
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#NWDNS	•	•	DNS from Network	452
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#EADDR	•	•	E-mail Sender Address	475
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#EMAILACT	•	•	E-mail GPRS Context Activation	479
#EMAILD	•	•	E-mail Sending	482
#ESAV	•	•	E-mail Parameters Save	484
#ERST	•	•	E-mail Parameters Reset	484
#EMAILMSG	•	•	SMTP Read Message	485
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#NTP	•	•	Network Time	487
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#CSURVC	•	•	Network Survey (Numeric Format)	494
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#CSURVUC	•	•	Network Survey Of User Defined Channels (Numeric Format)	501
#CSURVB	•	•	BCCH Network Survey	502
#CSURVBC	•	•	BCCH Network Survey (Numeric Format)	503
#CSURVF	•	•	Network Survey Format	503
#CSURVNLF	•	•	<CR><LF> Removing On Easy Scan® Commands Family	504
#CSURVEXT	•	•	Extended Network Survey	505
#CSURVP	•	•	PLMN Network Survey	506
#CSURVPC	•	•	PLMN Network Survey (Numeric Format)	506
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#STGI	•	•	SIM Toolkit Get Information	513
#STSR	•	•	SIM Toolkit Send Response	519
#STTA	•	•	SIM Toolkit Terminal Attach	520
Jammed Detect & Report AT commands				
#JDR	•	•	Jammed Detect & Report	521
#JDRENH	•	•	control Jammed Detect & Report feature	524
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#WSCRIPT	•	•	Write Script	526
#ESCRIP	•	•	Select Active Script	528
#STARTMODESCR	•	•	Script Execution Start Mode	529
#EXECSR	•	•	Execute Active Script	531
#RSCRIPT	•	•	Read Script	531

²² Python is a registered trademark of the Python Software Foundation.



Cuatom AT Commands – GPS Application						
COMMAND	GE865-QUAD, GL865-QUAD, GL865-DUAL, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL, GL868-DUAL V3, GC864-QUAD V2, GC864-DUAL V2, GE910-QUAD V3	GE864- GPS	GE910-QUAD	GE910-GNSS	Function	Page
\$GPSP	•	•	•	•	GPS Controller Power Management	556
\$GPSR	•	•	•	•	GPS Reset	556
\$GPSD	•	•	•	•	GPS Device Type Set	557
\$GPSSW	•	•	•	•	GPS Software Version	559
\$GPSAT	•	•	•	-	GPS Antenna Type Definition	558
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\$GPSACP	•	•	•	•	GPS Actual Position Information	561
\$GPSCON	•	•	•	•	Direct Access To GPS Module	562
\$GPSPS	•	•	•	-	Set the GPS Module In Power Saving Mode	564
\$GPSWK	•	•	•	-	Wake Up GPS From Power Saving Mode	564
\$GPSSAV	•	•	•	•	Save GPS Parameters Configuration	564
\$GPSRST	•	•	•	•	Restore Default GPS Parameters	564
\$GPSIFIX	•	•	•	-	Set GPS SiRFInstantFix™ Parameters	568
\$FTPGETIFIX	•	•	•	-	Get SGEE File for SiRFInstantFix™	565
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\$GPSGPIO	•	-	•	-	GPIO Configuration for GPS control	566
\$GPSSERSPEED	•	•	•	-	Set the GPS serial port speed	569
\$DPATCH	•	-	-	-	Delete Patch from NVM	570
\$EPATCH	•	-	-	-	Enable Patch	570
\$LPATCH	•	-	-	-	List Available Patch	571
\$WPATCH	•	-	-	-	Write Patch on flash	572



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/	<p>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.</p> <p>If A/ is issued before any command line has been executed, the preceding command line is assumed to have been empty (that results in an OK result code).</p> <p>Note: this command works only at fixed IPR.</p> <p>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.</p>	
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.



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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)
GE864-QUAD	•	•	•(default)
GE864-QUAD V2	•	•	•(default)
GE864-GPS			•(default)
GE864-QUAD ATEX			•(default)
GE864-QUAD AUTOMOTIVE V2			•(default)
GC864-QUAD with and without SIM Holder	•	•	•(default)
GC864-QUAD V2 with and without SIM Holder	•	•	•(default)
GC864-DUAL V2			•(default)
GE864-DUAL V2			•(default)
GE865-QUAD			•(default)
GL865-DUAL, GL865-QUAD, GL868-DUAL			•(default)
GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL V3			•(default)
GE910-QUAD	•	•	•(default)
GE910-QUAD V3			•(default)
GE910-GNSS			•(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 ²⁵ 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 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.	

²⁵ 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.



+FCLASS - Select Active Service Class		SELINT 0 / 1 / 2
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>]	<p>Execution command defines the basic profiles which will be loaded on startup.</p> <p>Parameter: <n> 0..1 - profile (default is 0): the wireless module is able to store 2 complete configurations (see &W).</p> <p>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.</p> <p>Note: if parameter is omitted, the command has the same behaviour as AT&Y0</p>	

3.5.3.1.5. Default Reset Full Profile Designation - &P

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

3.5.3.1.6. Store Current Configuration - &W

&W - Store Current Configuration		SELINT 0 / 1 / 2
AT&W[<n>]	<p>Execution command stores on profile <n> the complete configuration of the device.</p> <p>Parameter: <n></p>	



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	<p>Execution command returns all the configuration parameters settings.</p> <p>Note: this command is the same as &V, it is included only for backwards compatibility.</p> <p>Note: this is one of the commands whose output differs depending on the last #SELINT setting.</p> <p>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.</p>	

3.5.3.1.16. S Registers Display - &V1

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

3.5.3.1.17. Extended S Registers Display - &V3

&V3 - Extended S Registers Display		SELINT 0 / 1 / 2
AT&V3	<p>Execution command returns the value of the S registers in decimal and hexadecimal value in the format:</p> <pre> REG DEC HEX <reg0> <dec> <hex> <reg1> <dec> <hex> ... </pre> <p>where <regn> - S register number 000..005 007</p>	



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>	<p>This command requests the MT to reset user data. The user data in the phone will be reset to default values.</p> <p>Parameters: < phone lock code> - string type representing an 8 digits security code. It must be verified before performing the master reset.</p> <p>Note: issuing the command will cause an NVM formatting. After the formatting is completed the module will automatically reboot. It is strongly recommended to issue an AT+CFUN=4 command before starting to format NVM, in order to not interfere with the formatting process.</p> <p>Note: the command is available for SELINT 0 and 1 only in 10.00.xx3 release and onwards.</p>	
AT+CMAR=?	Test command tests for command existence.	

+CMAR – Master Reset		SELINT 2
AT+CMAR=< phone lock code>	<p>This command requests the MT to reset user data. The user data in the phone will be reset to default values.</p> <p>Parameters:</p>	



	<p>< phone lock code> - string type representing an 8 digits security code. It must be verified before performing the master reset.</p> <p>Note: issuing the command will cause an NVM formatting. After the formatting is completed the module will automatically reboot. It is strongly recommended to issue an AT+CFUN=4 command before starting to format NVM, in order to not interfere with the formatting process.</p>
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>]	<p>Set command enables/disables the command echo.</p> <p>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.</p> <p>Note: if parameter is omitted, the command has the same behaviour of ATE0</p>	
Reference	V25ter	

3.5.3.2.2. Quiet Result Codes - Q

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



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

3.5.3.2.3. Response Format - V

V - Response Format		SELINT 0 / 1 / 2				
ATV[<n>]	<p>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).</p> <p>Parameter: <n> 0 - limited headers and trailers and numeric format of result codes</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>information responses</td> <td><text><CR><LF></td> </tr> <tr> <td>result codes</td> <td><numeric code><CR></td> </tr> </table> <p>1 - full headers and trailers and verbose format of result codes (factory default)</p>	information responses	<text><CR><LF>	result codes	<numeric code><CR>	
information responses	<text><CR><LF>					
result codes	<numeric code><CR>					



V - Response Format		SELINT 0 / 1 / 2				
	<table border="1"> <tr> <td>information responses</td> <td><CR><LF> <text><CR><LF></td> </tr> <tr> <td>result codes</td> <td><CR><LF> <verbose code><CR><LF></td> </tr> </table> <p>Note: the <text> portion of information responses is not affected by this setting.</p> <p>Note: if parameter is omitted, the command has the same behaviour of ATV0</p>	information responses	<CR><LF> <text><CR><LF>	result codes	<CR><LF> <verbose code><CR><LF>	
information responses	<CR><LF> <text><CR><LF>					
result codes	<CR><LF> <verbose code><CR><LF>					
Reference	V25ter					

3.5.3.2.4. Extended Result Codes - X

X - Extended Result Codes		SELINT 0 / 1 / 2
ATX[<n>]	<p>Set command selects the result code messages subset used by the modem to inform the DTE of the result of the commands.</p> <p>Parameter: <n> - (factory default is 1)</p> <p>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.</p> <p>1..4 - on entering dial-mode CONNECT <text> result code is given; all the other result codes are enabled.</p> <p>Note: If parameter is omitted, the command has the same behaviour of ATX0</p>	
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>]	<p>Execution command returns one or more lines of information text followed by a result code.</p> <p>Parameter: <n></p> <p>0 - numerical identifier 1 - module checksum 2 - checksum check result 3 - manufacturer 4 - product name 5 - DOB version</p>	



&D - Data Terminal Ready (DTR) Control	SELINT 2
<p>AT&D[<n>]</p>	<p>Set command controls the Module behaviour to the RS232 DTR transitions.</p> <p>Parameter: <n></p> <ul style="list-style-type: none"> 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 5 - C108/1 operation is enabled; same behaviour as for <n>=2 <p>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.</p> <p>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.</p> <p>Note: if parameter is omitted, the command has the same behaviour of AT&D0</p>
Reference	V25ter

3.5.3.2.8. Standard Flow Control - \Q

\Q - Standard Flow Control	SELINT 0 / 1 / 2
<p>AT\Q[<n>]</p>	<p>Set command controls the RS232 flow control behaviour.</p> <p>Parameter: <n></p> <ul style="list-style-type: none"> 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) <p>Note: if parameter is omitted, the command has the same behaviour as AT\Q0</p>



+IPR - Fixed DTE Interface Rate		SELINT 0 / 1
	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>	<p>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.</p> <p>Parameter: <rate> 0 (default; not supported for 13.00.xxx SW version) ..300 1200 2400 4800 9600 19200 38400 57600 115200 (default for 13.00.xxx SW version) 230400 (supported only for 13.00.xxx SW version, starting from 13.00.xx2) 460800 (supported only for 13.00.xxx SW version, starting from 13.00.xx2) 921600 (supported only for 13.00.xxx SW version, starting from 13.00.xx2)</p> <p>If <rate> is set to 0, then automatic speed detection is enabled and also character format (see +ICF) is set to auto-detect. (default)</p> <p>If <rate> is specified and not 0, DTE-DCE speed is fixed at that speed, hence no speed auto-detection (autobauding) is enabled.</p> <p>Note: While in autobauding mode the 300 baud rate is not supported.</p>	
AT+IPR?	Read command returns the current value of +IPR parameter.	
AT+IPR=?	<p>Test command returns the list of supported autodetectable <rate> values and the list of fixed-only <rate> values in the format:</p> <p>+IPR:(list of supported autodetectable <rate> values), (list of fixed-only <rate> values)</p> <p>In 13.00.xxx SW version test command returns the list of fixed-only <rate> values in the format:</p> <p>+IPR: (list of fixed-only <rate> values)</p>	
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>	<p>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>)</p> <p>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)</p> <p>Note: Hardware flow control (AT+IFC=2,2) is not active in command mode.</p> <p>Note: This command is equivalent to &K command.</p>	
AT+IFC?	<p>Read command returns active flow control settings.</p> <p>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:</p> <p>+IFC: 0,0</p>	
AT+IFC=?	<p>Test command returns all supported values of the parameters <by_te> and <by_ta>.</p>	
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>	<p>Set command controls whether or not the +ILRR: <rate> information text is transmitted from the modem (module) to the DTE.</p> <p>Parameter: <n> 0 - local port speed rate reporting disabled (factory default) 1 - local port speed rate reporting enabled</p> <p>Note: If AT+IPR=0 (in autobauding) local port speed reported will be 0.</p> <p>Note: this information if enabled is sent upon connection.</p>	
AT+ILRR?	<p>Read command returns active setting of <n>.</p>	
AT+ILRR=?	<p>Test command returns all supported values of the parameter <n></p>	
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 (not available for 13.00.xxx SW releases) 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 (for 13.00.xxx SW releases meaningless <format> values are not allowed). 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 be represented as 0.	
AT+ICF=?	Test command returns the ranges of values for the parameters <format> and <parity>	
Reference	V25ter	
Example	<i>Auto detect</i> AT+ICF = 0 OK <i>8N2</i> AT+ICF = 1 OK <i>8O1</i> AT+ICF = 2,0 OK <i>8E1</i> AT+ICF = 2,1 OK <i>8N1</i> AT+ICF = 3 OK <i>7O1</i> AT+ICF = 5,0	



+ICF - DTE-Modem Character Framing		SELINT 0 / 1 / 2
	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>[;]	<p>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.</p> <p>Parameter: <number> - phone number to be dialed</p> <p>Note: type of call (data, fax or voice) depends on last +FCLASS setting.</p> <p>Note: the numbers accepted are 0-9 and *,#,”A”, ”B”, ”C”, ”D”,”+”.</p> <p>Note: for backwards compatibility with landline modems modifiers “T”, ”P”, ”R”, ””, ”W”, “!”, “@” are accepted but have no effect.</p>	
ATD><str>[;]	<p>Issues a call to phone number which corresponding alphanumeric field is <str>; all available memories will be searched for the correct entry.</p> <p>If “;” is present a voice call is performed.</p> <p>Parameter: <str> - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks.</p> <p>Note: parameter <str> is case sensitive.</p> <p>Note: used character set should be the one selected with command Select TE character set +CSCS.</p>	
ATD><mem><n>[;]	<p>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.</p> <p>Parameters: <mem> - phonebook memory storage SM - SIM phonebook FD - SIM fixed dialling-phonebook</p>	



D – Dial	SELINT 2
	<p>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).</p> <p><n> - entry location; it should be in the range of locations available in the memory used.</p>
<p>ATD<n>[;]</p>	<p>Issues a call to phone number in entry location <n> of the active phonebook memory storage (see +CPBS).</p> <p>If “;” is present a voice call is performed.</p> <p>Parameter: <n> - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.</p>
<p>ATDL</p>	<p>Issues a call to the last number dialed.</p>
<p>ATDS=<nr>[;]</p>	<p>Issues a call to the number stored in the MODULE internal phonebook position number <nr>.</p> <p>If “;” is present a voice call is performed.</p> <p>Parameter: <nr> - internal phonebook position to be called (See commands &N and &Z)</p>
<p>ATD<number>I[;] ATD<number>i[;]</p>	<p>Issues a call overwriting the CLIR supplementary service subscription default value for this call</p> <p>If “;” is present a voice call is performed.</p> <p>I - invocation, restrict CLI presentation i - suppression, allow CLI presentation</p>
<p>ATD<number>G[;] ATD<number>g[;]</p>	<p>Issues a call checking the CUG supplementary service information for the current call. Refer to +CCUG command.</p> <p>If “;” is present a voice call is performed.</p>
<p>ATD*<gprs_sc> [*<addr>][*<L2P>] [*<cid>]]#</p>	<p>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.</p> <p>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).</p>



D – Dial		SELINT 2
Example	<p><i>To dial a number in SIM phonebook entry 6:</i> ATD>SM6 OK</p> <p><i>To have a voice call to the 6-th entry of active phonebook:</i> ATD>6; OK</p> <p><i>To call the entry with alphanumeric field "Name":</i> ATD>"Name"; OK</p>	
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	<p>Execution command is used to answer to an incoming call if automatic answer is disabled.</p> <p>Note: This command MUST be the last in the command line and must be followed immediately by a <CR> character.</p>	
Reference	V25ter.	

3.5.3.3.5. Disconnect - H

H - Disconnect		SELINT 0 / 1 / 2
ATH	<p>Execution command is used to close the current conversation (voice, data or fax).</p> <p>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</p>	



H - Disconnect		SELINT 0 / 1 / 2
	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
	<p><min_rate> - it specifies the lowest value at which the DCE may establish a connection. 0 - unspecified</p> <p><max_rate> - it specifies the highest value at which the DCE may establish a connection. 0 - unspecified 300..14400 - rate in bps</p> <p>Note: to change modulation requested use +CBST command.</p>	
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. Parameter: <n> 0 - data compression reporting disabled;	



+DR - Data Compression Reporting		SELINT 0 / 1 / 2
	<p>1 - data compression reporting enabled upon connection.</p> <p>Note: if enabled, the following intermediate result code is transmitted before the final result code:</p> <p>+DR: <compression> (the only supported value for <compression> is "NONE")</p>	
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 sub parameter of an **S-Parameter**, an **ERROR** result code will be issued and the stored value left unchanged.

Reference: V25ter

3.5.3.6.1. Number Of Rings To Auto Answer - S0

S0 - Number Of Rings To Auto Answer		SELINT 0 / 1
ATS0[=<n>]	<p>Set command sets the number of rings required before device automatically answers an incoming call.</p> <p>Parameter: <n> - number of rings 0 - auto answer disabled (factory default) 1..255 - number of rings required before automatic answer.</p>	
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	



S0 - Number Of Rings To Auto Answer		SELINT 2
	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 <i>n</i> ms of idle (see S12 to set <i>n</i>).	
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>]	<p>Set command sets the ASCII character to be used as escape character.</p> <p>Parameter: <char> - escape character decimal ASCII 0..255 - factory default value is 43 (+).</p> <p>Note: the escape sequence consists of three escape characters preceded and followed by <i>n</i> ms of idle (see S12 to set <i>n</i>).</p>	
ATS2?	<p>Read command returns the current value of S2 parameter.</p> <p>Note: the format of the numbers in output is always 3 digits, left-filled with 0s</p>	

3.5.3.6.4. Command Line Termination Character - S3

S3 - Command Line Termination Character		SELINT 0 / 1
ATS3=[<char>]	<p>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.</p> <p>Parameter: <char> - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII CR)</p> <p>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).</p>	
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>]	<p>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.</p> <p>Parameter: <char> - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII <CR>)</p> <p>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.</p>	



S3 - Command Line Termination Character		SELINT 2
	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) 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>]	<p>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.</p> <p>Parameter: <tout> - number of seconds 1..255 - factory default value is 60</p>	
ATS7?	<p>Read command returns the current value of S7 parameter.</p> <p>Note: the format of the numbers in output is always 3 digits, left-filled with 0s</p>	
Reference	V25ter	

3.5.3.6.8. – 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	

3.5.3.6.9. Escape Prompt Delay - S12

S12 - Escape Prompt Delay		SELINT 0 / 1
ATS12[=<time>]	<p>Set command sets:</p> <ol style="list-style-type: none"> 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. <p>Parameter: <time> - expressed in fiftieth of a second 20..255 - factory default value is 50.</p> <p>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.</p>	
ATS12?	Read command returns the current value of S12 parameter.	
ATS12=?	Test command returns the range for <time> without command echo and parenthesis.	



S12 - Escape Prompt Delay		SELINT 0 / 1
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>]	<p>Set command sets:</p> <ol style="list-style-type: none"> 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. <p>Parameter: <time> - expressed in fiftieth of a second 2..255 - factory default value is 50.</p> <p>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.</p>	
ATS12?	<p>Read command returns the current value of S12 parameter.</p> <p>Note: the format of the numbers in output is always 3 digits, left-filled with 0s</p>	

3.5.3.6.10. Delay To DTR Off - S25

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

3.5.3.6.11. Disconnect Inactivity Timer - S30

S30 - Disconnect Inactivity Timer		SELINT 0 / 1
ATS30[=<tout>]	<p>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.</p> <p>Parameter: <tout> - expressed in minutes 0 - disabled, disconnection due to inactivity is disabled (factory default). 1..255 - inactivity time-out value.</p>	
ATS30?	Read command returns the current value of S30 parameter .	
ATS30=?	<p>Test command returns the range for <tout> without command echo and parenthesis.</p> <p>Note: the output depends on the choice made through #SELINT command.</p>	
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>]	<p>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.</p> <p>Parameter: <tout> - expressed in minutes 0 - disabled, disconnection due to inactivity is disabled (factory default). 1..127 - inactivity time-out value</p>	
ATS30?	<p>Read command returns the current value of S30 parameter.</p> <p>Note: the format of the numbers in output is always 3 digits, left-filled with 0s</p>	



3.5.3.6.12. Delay Before Forced Hang Up - S38

S38 -Delay Before Forced Hang Up		SELINT 0 / 1
ATS38[=<delay>]	<p>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.</p> <p>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.</p> <p>Note: <delay> parameter can be used to ensure that data in device buffer is sent before device disconnects.</p>	
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>]	<p>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.</p> <p>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.</p> <p>Note: <delay> parameter can be used to ensure that data in device buffer is sent before device disconnects.</p>	
ATS38?	<p>Read command returns the current value of S38 parameter.</p> <p>Note: the format of the numbers in output is always 3 digits, left-filled with 0s</p>	



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
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 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)	



3.5.4.1.7. Multiplexing Mode - +CMUX

+CMUX - Multiplexing Mode	SELINT 2
<p>AT+CMUX= <mode> [,<subset> [,<port_speed> [,<N1>]]</p>	<p>Set command is used to enable/disable the 3GPP TS 27.010 multiplexing protocol control channel.</p> <p>Parameters:</p> <p><mode> multiplexer transparency mechanism 0 - basic option; it is currently the only supported value.</p> <p><subset> 0 - UIH frames used only; it is currently the only supported value.</p> <p><port_speed > 2 – 19200 bps 3 – 38400 bps 4 – 57600 bps 5 – 115200 bps</p> <p><N1> max frame size, it indicates the maximum length of the information field of CMUX frame (point 5.7.2 of 3GPP TS 07.10) 1 to MaxFrameSize</p> <p>Note: after entering the <i>Multiplexed Mode</i> an inactive timer of five seconds starts. If no CMUX control channel is established before this inactivity timer expires the engine returns to <i>AT Command Mode</i></p> <p>Note: CMUX cannot work with the automatic speed detection; the speed must be set with AT+IPR=<rate> (before sending AT+CMUX) or using the 3rd parameter <port_speed>.</p> <p>If the <port_speed> parameter has been used, the speed will be changed after the OK (response to AT+CMUX). At the end of the CMUX session the IPR preserve the value set with <port_speed>.</p> <p>To be sure that the firmware supports this feature, check it with the test command.</p> <p>Note: all the CMUX protocol parameters are fixed as defined in GSM07.10 and cannot be changed. The parameter <N1> is not supported by all products or software version; to be sure check it with the test command. If <N1> is not supported or not used it will be set to the default value.</p> <p>Note: the default max frame size is: N1=127; using this configuration, the largest allowed CMUX frame (including start and end flag) is 133 bytes long.</p> <p>Note: to set a N1 greater then 127, it is mandatory to configure the module using the command AT#CPUMODE=3</p>
<p>AT+CMUX?</p>	<p>Read command returns all the current values of the parameters in the format:</p>



	+CMUX: <mode>,<subset>,<port_speed>,<N1>
	Note: the <port_speed> will be reported only if it has a supported value.
AT+CMUX=?	Test command returns the range of supported values for parameters <mode>, <subset>, <port_speed> and <N1>.
Reference	3GPP TS 27.007, 3GPP TS 27.010, 3GPP TS 07.10

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	

3.5.4.1.9. Select preferred MT power class - +CPWC

+CPWC – Select preferred MT power class		SELINT 2
AT+CPWC= [<class> [,<band>]]	The set command is used to select the preferred MT power class for each GSM frequency band supported. <class>: numeric parameter which indicates the power class preference to be used; its possible values are: 0 - default power class for the relevant band 1, 2 - allowable power classes on DCS1800 and PCS1900 bands; 4, 5 - allowable power classes on GSM900 and GSM850 bands; <band>: numeric parameter which indicates the band to apply the power class setting; its possible values are: 0 - GSM900 and GSM850; 1 - DCS1800; 2 - PCS1900; Using this command is possible to reduce the Nominal Maximum output power according to the following tables: GSM900 and GSM850	



+CBST - Select Bearer Service Type		SELINT 2
	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 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	



+CRC - Cellular Result Codes		SELINT 2
	<p><mode> 0 - disables extended format reporting (factory default) 1 - enables extended format reporting:</p> <p>When enabled, an incoming call is indicated to the TE with unsolicited result code</p> <p>+CRING: <type></p> <p>instead of the normal RING.</p> <p>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) VOICE - normal voice (TS 11)</p>	
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>]	<p>Set command selects the bearer to be used when no bearer capability information is provided within a mobile terminated call. The command has to be set before the call comes. Parameter values set with +CBST command shall be used when <mode> equals to a data service.</p> <p>Parameter: <mode> 0 - voice (factory default) 2 - fax (TS 62) 4 - data</p> <p>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-transparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-transparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.</p>	
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	



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

+CNUM - Subscriber Number		SELINT 2
AT+CNUM	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>If the ENS functionality has not been previously enabled (see #ENS)</p> </div> <p>Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format:</p> <p>+CNUM: <alpha>,<number>,<type></p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>If the ENS functionality has been previously enabled (see #ENS)</p> </div> <p>Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format:</p> <p>+CNUM: <alpha>,<number>,<type>[<CR><LF> +CNUM: <alpha>,<number>,<type>[...]]</p> <p>where:</p> <p><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 "+").</p> <p>Note: in 13.00.xxx SW release the behaviour doesn't depend on ENS functionality and corresponds to the case when the ENS functionality is enabled.</p>	
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 format:	



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

+COPN - Read Operator Names		SELINT 2
AT+COPN	<p>Execution command returns the list of operator names from the ME in the format:</p> <p>+COPN: <numeric1>,<alpha1>[<CR><LF> +COPN: <numeric2>,<alpha2>[...]]</p> <p>where: <numericn> - string type, operator in numeric format (see +COPS) <alphan> - string type, operator in long alphanumeric format (see +COPS)</p> <p>Note: each operator code <numericn> that has an alphanumeric equivalent <alphan> in the ME memory is returned</p>	
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>]]	<p>Set command enables/disables network registration reports depending on the parameter <mode>.</p> <p>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</p> <p>If <mode>=1, network registration result code reports:</p> <p>+CREG: <stat></p> <p>where <stat></p>	



+CREG - Network Registration Report	SELINT 0 / 1
	<p>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</p> <p>If <mode>=2, network registration result code reports:</p> <p>+CREG: <stat>[,<Lac>,<Ci>]</p> <p>where: <Lac> - Local Area Code for the currently registered on cell <Ci> - Cell Id for the currently registered on cell</p> <p>Note: <Lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p> <p>Note: issuing AT+CREG<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CREG=<CR> is the same as issuing the command AT+CREG=0<CR>.</p>
AT+CREG?	<p>Read command reports the <mode> and <stat> parameter values in the format:</p> <p>+CREG: <mode>,<stat>[,<Lac>,<Ci>]</p> <p>Note: <Lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p>
AT+CREG=?	<p>Test command returns the range of supported <mode></p>
Example	<pre> 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 </pre> <p>OK (the MODULE is registered)</p>



+CREG - Network Registration Report		SELINT 0 / 1
	at+creg? +CREG: 0,1 OK	
Reference	3GPP TS 27.007	

+CREG - Network Registration Report		SELINT 2
AT+CREG= [<mode>]	<p>Set command enables/disables network registration reports depending on the parameter <mode>.</p> <p>Parameter: <mode></p> <ul style="list-style-type: none"> 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 <p>If <mode>=1, network registration result code reports:</p> <p style="padding-left: 20px;">+CREG: <stat></p> <p>where <stat></p> <ul style="list-style-type: none"> 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 <p>If <mode>=2, network registration result code reports:</p> <p style="padding-left: 20px;">+CREG: <stat>[,<Lac>,<Ci>]</p> <p>where: <Lac> - Local Area Code for the currently registered on cell <Ci> - Cell Id for the currently registered on cell</p> <p>Note: <Lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p>	
AT+CREG?	<p>Read command reports the <mode> and <stat> parameter values in the format:</p> <p style="padding-left: 20px;">+CREG: <mode>,<stat>[,<Lac>,<Ci>]</p> <p>Note: <Lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p>	



+COPS - Operator Selection	SELINT 0 / 1
	<p>0 - automatic choice (the parameter <oper> will be ignored) (factory default)</p> <p>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)</p> <p>2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1, 4 or 5 is issued</p> <p>3 - set only <format> parameter (the parameter <oper> will be ignored)</p> <p>4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered</p> <p>5 - manual choice locked (network is kept fixed, if the chosen network is not available, then the mobile has no service)</p> <p><format></p> <p>0 - alphanumeric long form (max length 16 digits)</p> <p>1 - alphanumeric short form</p> <p>2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)]</p> <p><oper>: network operator in format defined by <format> parameter.</p> <p style="text-align: center;">(#COPSMODE=1)</p> <p>Parameters:</p> <p><mode></p> <p>0 - automatic choice (the parameter <oper> will be ignored) (default)</p> <p>1 - manual choice (<oper> field shall be present)</p> <p>2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1 or 4 is issued</p> <p>3 - set only <format> parameter (the parameter <oper> will be ignored)</p> <p>4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered</p> <p><format></p> <p>0 - alphanumeric long form (max length 16 digits)</p> <p>2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)]</p> <p><oper>: network operator in format defined by <format> parameter.</p> <p>Note: <mode> parameter setting is stored in NVM and available at next reboot, if it is not 3 (i.e.: set only <format> parameter).</p> <p>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)</p> <p>Note: <format> parameter setting is never stored in NVM</p>



+CLCK - Facility Lock/Unlock	SELINT 2
	<p><passwd> - shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD</p> <p><class> - sum of integers each representing a class of information (default is 7)</p> <ul style="list-style-type: none"> 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 <p>Note: when <mode>=2 and command successful, it returns: +CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2> [...]]</p> <p>where</p> <p><status> - the current status of the facility</p> <ul style="list-style-type: none"> 0 - not active 1 - active <p><classn> - class of information of the facility</p>
<p>AT+CLCK=?</p>	<p>Test command reports all the facilities supported by the device.</p>
<p>Reference</p>	<p>3GPP TS 27.007</p>
<p>Example</p>	<p><i>Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:</i></p> <pre>AT+CLCK="AO",2 +CLCK: <status>,1 +CLCK: <status>,2 +CLCK: <status>,4</pre>

3.5.4.3.6. Facility Improved Lock/Unlock - @CLCK

@CLCK - Facility Improved Lock/Unlock	SELINT 0 / 1
<p>AT@CLCK= <fac>,<mode> [,<passwd> [,<class>]]</p>	<p>Execution command is used to lock or unlock a ME or a network facility.</p> <p>Parameters:</p> <p><fac> - facility</p> <ul style="list-style-type: none"> "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAO (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)



@CLCK - Facility Improved Lock/Unlock	SELINT 0 / 1
	<p>"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</p> <p><mode> - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status</p> <p><passwd> - shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD</p> <p><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</p> <p>Note: when <mode>=2 and command successful, it returns: @CLCK: <status>[,<class1> [<CR><LF>@CLCK: <status>,<class2>[...]]</p> <p>where <status> - the current status of the facility 0 - not active 1 - active <classn> - class of information of the facility</p>
AT@CLCK=?	Test command reports all the facilities supported by the device.
Reference	3GPP TS 27.007
Example	<p><i>Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:</i></p> <pre>AT@CLCK="AO",2 @CLCK: <status>,1 @CLCK: <status>,2 @CLCK: <status>,4 OK</pre>



+CLIP - Calling Line Identification Presentation		SELINT 2
	Note: in the +CLIP: response they are currently not reported either the subaddress information (it's always "" after the 2 nd comma) and the subaddress type information (it's always 128 after the 3 rd comma)	
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 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 (<m>), where	



+CLIR - Calling Line Identification Restriction		SELINT 0 / 1
	<p><n> - facility status on the Mobile</p> <ul style="list-style-type: none"> 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent) <p><m> - facility status on the Network</p> <ul style="list-style-type: none"> 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>]	<p>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.</p> <p>Parameter:</p> <p><n> - facility status on the Mobile</p> <ul style="list-style-type: none"> 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?	<p>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</p> <p><n> - facility status on the Mobile</p> <ul style="list-style-type: none"> 0 - CLIR facility according to CLIR service network status 1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent) <p><m> - facility status on the Network</p> <ul style="list-style-type: none"> 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.	



+CCFC - Call Forwarding Number And Condition		SELINT 0 / 1 / 2
	<p>where:</p> <p><status> - current status of the network service 0 - not active 1 - active</p> <p><classn> - same as <class></p> <p><time> - it is returned only when <reason>=2 (“no reply”) and <cmd>=2.</p> <p>The other parameters are as seen before.</p>	
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>]]]	<p>Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported.</p> <p>Parameters:</p> <p><n> - enables/disables the presentation of an unsolicited result code: 0 - disable 1 - enable</p> <p><cmd> - enables/disables or queries the service at network level: 0 - disable 1 - enable 2 - query status</p> <p><class> - is a sum of integers each representing a class of information which the command refers to; default is 7 (voice + data + fax)</p> <ul style="list-style-type: none"> 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 <p>Note: the response to the query command is in the format:</p> <p>+CCWA: <status>,<class1>[<CR><LF> +CCWA: <status>,<class2>[...]]</p> <p>where <status> represents the status of the service:</p>	



+CCWA - Call Waiting	SELINT 0 / 1
	<p>0 - inactive 1 - active <classn> - same as <class></p> <p>Note: the unsolicited result code enabled by parameter <n> is in the format:</p> <p>+CCWA: <number>,<type>,<class>,<alpha>,<cli_validity></p> <p>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</p> <p>Note: if parameter <cmd> is omitted then network is not interrogated.</p> <p>Note: in the query command the class parameter must not be issued.</p> <p>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.</p> <p>Note: The command AT+CCWA=1,0 has no effect a non sense and must not be issued.</p> <p>Note: issuing AT+CCWA<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CCWA=<CR> is the same as issuing the command AT+CCWA=0<CR>.</p>
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=	Set command allows the control of the call waiting supplementary service.



+CLCC - List Current Calls	SELINT 0 / 1
	<p><dir> - call direction 0 - mobile originated call 1 - mobile terminated call</p> <p><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)</p> <p><mode> - call type 0 - voice 1 - data 2 - fax 9 - unknown</p> <p><mpty> - multiparty call flag 0 - call is not one of multiparty (conference) call parties 1 - call is one of multiparty (conference) call parties</p> <p><number> - string type phone number in format specified by <type></p> <p><type> - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+")</p> <p>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.</p>
Reference	3GPP TS 27.007

+CLCC - List Current Calls	SELINT 2
<p>AT+CLCC</p>	<p>Execution command returns the list of current calls and their characteristics in the format:</p> <p>[+CLCC:<id1>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>,<alpha>[<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>,<alpha>[...]]]</p> <p>where:</p> <p><idn> - call identification number <dir> - call direction 0 - mobile originated call 1 - mobile terminated call</p>



+CSSN - SS Notification	SELINT 2
	<p>originated call setup, an unsolicited code:</p> <p>+CSSI: <code1> is sent to TE before any other MO call setup result codes, where: <code1>:</p> <ul style="list-style-type: none"> 0 - unconditional call forwarding is active 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 <p>When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code:</p> <p>+CSSU: <code2> is sent to TE, where: <code2>:</p> <ul style="list-style-type: none"> 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
<p>AT+CCUG=[<n>[,<index>[,<info>]]]</p>	<p>Set command allows control of the Closed User Group supplementary service [GSM 02.85].</p> <p>Parameters:</p> <p><n></p> <ul style="list-style-type: none"> 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. <p><index></p> <ul style="list-style-type: none"> 0.9 - CUG index 10 - no index (preferential CUG taken from subscriber data) (default) <p><info></p> <ul style="list-style-type: none"> 0 - no information (default) 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG



+CPAS - Phone Activity Status		SELINT 2
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 <i>the called phone has answered to your call</i> 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. 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	



+CFUN - Set Phone Functionality		SELINT 0 / 1
	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 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 . The parameter <rst> is not supported by all products or software versions; to be sure check it with the test command.	



+CPIN - Enter PIN			SELINT 0 / 1
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	#ESCRIP	+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
&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	\$GPSNMUN
#CGMI	#EUSER	+GSN	\$GPSACP
#CGMM	#EPASSW	+CHUP	\$GPSWK
#CGMR	#SEMAIL	+CRLP	\$GPSSAV
#CGSN	#EMAILD	+CR	\$GPSRST
#CAP	#ESAV	+CRC	\$GPSCON
#SRS	#ERST	+CSNS	
#SRP	#EMAILMSG	+CREG	
#STM	#CSURV	+COPS	
#PCT	#CSURVC	+CLIP	
#SHDN	#CSURVU	+CPAS	



+CPIN - Enter PIN	SELINT 2																																																																
	<p>when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18)</p> <p>PH-NET PIN - ME is waiting network personalization password to be given</p> <p>PH-NET PUK - ME is waiting network personalization unblocking password to be given</p> <p>PH-NETSUB PIN - ME is waiting network subset personalization password to be given</p> <p>PH-NETSUB PUK - ME is waiting network subset personalization unblocking password to be given</p> <p>PH-SP PIN - ME is waiting service provider personalization password to be given</p> <p>PH-SP PUK - ME is waiting service provider personalization unblocking password to be given</p> <p>PH-CORP PIN - ME is waiting corporate personalization password to be given</p> <p>PH-CORP PUK - ME is waiting corporate personalization unblocking password to be given</p> <p>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></p>																																																																
AT+CPIN=?	Test command returns OK result code.																																																																
Example	<pre>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</pre>																																																																
Note	<p>What follows is a list of the commands which are accepted when ME is pending SIM PIN or SIM PUK</p> <table border="1"> <thead> <tr> <th>A</th> <th>#DAC</th> <th>#CSURVNLf</th> <th>+CPIN</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>#VAUX</td> <td>#CSURVEXT</td> <td>+CSQ</td> </tr> <tr> <td>H</td> <td>#VAUXSAV</td> <td>#JDR</td> <td>+CIND</td> </tr> <tr> <td>O</td> <td>#CBC</td> <td>#WSCRIPT</td> <td>+CMER</td> </tr> <tr> <td>E</td> <td>#AUTOATT</td> <td>#ESCRIPt</td> <td>+CCLK</td> </tr> <tr> <td>I</td> <td>#MONI</td> <td>#RSCRIPt</td> <td>+CALA</td> </tr> <tr> <td>L</td> <td>#SERVINfO</td> <td>#LSCRIPt</td> <td>+CALD</td> </tr> <tr> <td>M</td> <td>#QSS</td> <td>#DSCRIPt</td> <td>+CRSM</td> </tr> <tr> <td>P</td> <td>#DIALMODE</td> <td>#REBOOT</td> <td>+CALM</td> </tr> <tr> <td>Q</td> <td>#ACAL</td> <td>#CMUXSCR</td> <td>+CRSL</td> </tr> <tr> <td>S</td> <td>#ACALEXT</td> <td>#STARTMODESCR</td> <td>+CLVL</td> </tr> <tr> <td>T</td> <td>#CODEC</td> <td>#EXECSCR</td> <td>+CMUT</td> </tr> <tr> <td>V</td> <td>#SHFEC</td> <td>#RSEN</td> <td>+CLAC</td> </tr> <tr> <td>X</td> <td>#HFMICG</td> <td>#CCID</td> <td>+CMEE</td> </tr> <tr> <td>Z</td> <td>#HSMICG</td> <td></td> <td>+CGREG</td> </tr> <tr> <td>&C</td> <td>#SHFSD</td> <td>#PLMNMODE</td> <td>+CBC</td> </tr> </tbody> </table>	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
A	#DAC	#CSURVNLf	+CPIN																																																														
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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																																																														
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X	#HFMICG	#CCID	+CMEE																																																														
Z	#HSMICG		+CGREG																																																														
&C	#SHFSD	#PLMNMODE	+CBC																																																														



3.5.4.4.4. Signal Quality - +CSQ

+CSQ - Signal Quality	SELINT 0 / 1
AT+CSQ	<p>Execution command reports received signal quality indicators in the form:</p> <p>+CSQ: <rsssi>,<ber> where <rsssi> - 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</p> <p><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</p> <p>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.</p>
AT+CSQ?	<p>Read command has the same effect as Execution command.</p>
AT+CSQ=?	<p>Test command returns the supported range of values of the parameters <rsssi> and <ber>.</p> <p>Note: although +CSQ is an execution command without parameters, ETSI 07.07 requires the Test command to be defined.</p>
Reference	3GPP TS 27.007

+CSQ - Signal Quality	SELINT 2
AT+CSQ	<p>Execution command reports received signal quality indicators in the form:</p> <p>+CSQ: <rsssi>,<ber> where <rsssi> - 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</p> <p><ber> - bit error rate (in percent)</p>



+CIND - Indicator Control	SELINT 0/1/2
	<p>+CIND: ((<descr>, (list of supported <ind>s))[,(<descr>, (list of supported <ind>s))][,...]])</p> <p>where:</p> <p><descr> - indicator names as follows (along with their <ind> ranges)</p> <p>“battchg” - battery charge level <ind> - battery charge level indicator range 0..5 99 - not measurable</p> <p>“signal” - signal quality <ind> - signal quality indicator range 0..7 99 - not measurable</p> <p>“service” - service availability <ind> - service availability indicator range 0 - not registered to any network 1 - registered</p> <p>“sounder” - sounder activity <ind> - sounder activity indicator range 0 - there’s no any sound activity 1 - there’s some sound activity</p> <p>“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”</p> <p>“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</p> <p>“roam” - roaming <ind> - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network</p> <p>“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.</p> <p>“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</p>
Example	<p><i>Next command causes all the indicators to be registered</i> AT+CIND=1,1,1,1,1,1,1,1,1</p> <p><i>Next command causes all the indicators to be de-registered</i></p>



+CIND - Indicator Control		SELINT 0/1/2
	AT+CIND=0,0,0,0,0,0,0,0,0 <i>Next command to query the current value of all indicators</i> 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>]]]]]	<p>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).</p> <p>Parameters:</p> <p><mode> - controls the processing of unsolicited result codes</p> <ul style="list-style-type: none"> 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. <p><keyp> - keypad event reporting</p> <ul style="list-style-type: none"> 0 - no keypad event reporting <p><disp> - display event reporting</p> <ul style="list-style-type: none"> 0 - no display event reporting <p><ind> - indicator event reporting</p> <ul style="list-style-type: none"> 0 - no indicator event reporting 2 - indicator event reporting <p><bfr> - TA buffer clearing</p> <ul style="list-style-type: none"> 0 - TA buffer of unsolicited result codes is cleared when <mode> 1..3 is entered <p>Note: After AT+CMER has been switched on, URCs for all registered indicators will be issued.</p> <p>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.</p>	



+CPBW - Write Phonebook Entry	SELINT 2
AT+CPBW=?	<p>therefore parameters <number>, <type> and <text> must be omitted.</p> <p>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:</p> <p>+CPBW: (list of supported <index>s),<nlength>, (list of supported <type>s),<tlength></p> <p>where:</p> <p><nlength> - integer type value indicating the maximum length of field <number>.</p> <p><tlength> - integer type value indicating the maximum length of field <text></p> <p>Note: for all SW versions except 13.00.xxx, the value of <nlength> could vary, depending on whether or not the ENS functionality has been previously enabled (see #ENS), in the following situations:</p> <ol style="list-style-type: none"> 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 <ol style="list-style-type: none"> 1. if “MB” memory storage has been selected (see +CPBS) and the SIM supports the Extension6 service <p>For 13.00.xxx SW version the value of <nlength> doesn't depend on ENS functionality setting.</p>
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

+CCLK - Clock Management	SELINT 0 / 1
AT+CCLK [=<time>]	<p>Set command sets the real-time clock of the ME.</p> <p>Parameter:</p> <p><time> - current time as quoted string in the format : "yy/MM/dd,hh:mm:ss±zz"</p> <p>yy - year (two last digits are mandatory), range is 00..99</p> <p>MM - month (two last digits are mandatory), range is 01..12</p> <p>dd - day (two last digits are mandatory);</p> <p>The range for dd(day) depends either on the month and on the year it refers to.</p> <p>Available ranges are:</p> <p>(01..28)</p> <p>(01..29)</p> <p>(01..30)</p> <p>(01..31)</p> <p>Trying to enter an out of range value will raise an error</p>



+CCLK - Clock Management		SELINT 0 / 1
	<p>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</p> <p>Note: If the parameter is omitted the behaviour of Set command is the same as Read command.</p>	
AT+CCLK?	<p>Read command returns the current setting of the real-time clock, in the format <time>.</p> <p>Note: the three last characters of <time> are not returned by +CCLK? because the ME doesn't support time zone information.</p>	
AT+CCLK=?	Test command returns the OK result code.	
Example	<pre>AT+CCLK="02/09/07,22:30:00+00" OK AT+CCLK? +CCLK: "02/09/07,22:30:25" OK</pre>	
Reference	3GPP TS 27.007	

+CCLK - Clock Management		SELINT 2
AT+CCLK=<time>	<p>Set command sets the real-time clock of the ME.</p> <p>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</p> <p>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</p>	
AT+CCLK?	<p>Read command returns the current setting of the real-time clock, in the format <time>.</p> <p>Note: the three last characters of <time>, i.e. the time zone information, are</p>	



+CALA - Alarm Management		SELINT 0 / 1
	<p>where:</p> <p><n> and <type> as before</p> <p><tlength> - maximum <text> field length, integer type</p> <p>Note: an enhanced version of Test command has been defined, AT+CALA=??, providing the range of available values for <rlength> and <silent> too.</p>	
AT+CALA=??	<p>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:</p> <p>+CALA: (list of supported <n>s),(list of supported <type>s),<tlength>, <rlength>,(list of supported <silent>s)</p> <p>where:</p> <p><n>, <type>, <tlength> and <silent> as before</p> <p><rlength> - maximum <recurr> field length, integer type</p>	
Example	AT+CALA="02/09/07,23:30:00+00" OK	
Reference	ETSI 07.07, ETSI 27.007	

+CALA - Alarm Management		SELINT 2
<p>AT+CALA= <time>[,<n>[,<type> [,<text>[,<recurr> [,<silent>]]]]]</p>	<p>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.</p> <p>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.</p> <p>Parameters:</p> <p><time> - current alarm time as quoted string</p> <p>"" - (empty string) deletes the current alarm and resets all the +CALA parameters to the "factory default" configuration</p> <p>"hh:mm:ss±zz" - format to be used only when issuing +CALA with parameter <recurr> too.</p> <p>"yy/MM/dd, hh:mm:ss±zz" - generic format: it's the same as defined for +CCLK (see)</p> <p><n> - index of the alarm</p> <p>0 - The only value supported is 0.</p> <p><type> - alarm behaviour type</p> <p>0 - reserved for other equipment use.</p> <p>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).</p> <p>2 - the MODULE wakes up in "alarm mode" if at the alarm time it was off,</p>	



	<p><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</p> <p><auxmode>: 1 yy/MM/dd (default) 2 yyyy/MM/dd</p> <p>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.</p>
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>

3.5.4.4.15. Setting time format - +CSTF

+CSTF – setting time format		SELINT 2
AT+CSTF=[<mode>]	<p>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.</p> <p>Parameters: <mode>: 1 HH:MM (24 hour clock; default) 2 HH:MM a.m./p.m.</p>	
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>	



3.5.4.4.16. Time Zone reporting - +CTZR

+CTZR – Time Zone reporting		SELINT 2
AT+CTZR=<onoff>	<p>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.</p> <p>Parameters: <onoff>: 0 Disable time zone change event reporting (default) 1 Enable time zone change event reporting</p>	
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>	

3.5.4.4.17. Automatic Time Zone update - +CTZU

+CTZU – automatic Time Zone update		SELINT 2
AT+CTZU=<onoff>	<p>This command enables and disables automatic time zone update via NITZ.</p> <p>Parameters: <onoff>: 0 Disable automatic time zone update via NITZ (default) 1 Enable automatic time zone update via NITZ</p> <p>Note: despite of the name, the command AT+CTZU=1 enables automatic update of the date and time set by AT+CCLK command (not only time zone). This happens when a Network Identity and Time Zone (NITZ) message is sent by the network. This command is the ETSI standard equivalent of Telit custom command AT#NITZ=1. If command AT+CTZU=1, or AT#NITZ=1 (or both) has been issued, NITZ message will cause a date and time update.</p>	
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>	



3.5.4.4.18. Restricted SIM Access - +CRSM

+CRSM - Restricted SIM Access	SELINT 0 / 1 / 2
<p>AT+CRSM= <command> [,<fileid> [,<P1>,<P2>,<P3> [,<data>]]]</p>	<p>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.</p> <p>Parameters:</p> <p><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</p> <p><fileid> - identifier of an elementary data file on SIM. Mandatory for every command except STATUS.</p> <p><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</p> <p><data> - information to be read/written to the SIM (hexadecimal character format).</p> <p>The response of the command is in the format:</p> <p>+CRSM: <sw1>,<sw2>[,<response>]</p> <p>where:</p> <p><sw1>,<sw2> - information from the SIM about the execution of the actual command either on successful or on failed execution.</p> <p><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.</p> <p>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.</p> <p>Note: use only decimal numbers for parameters <command>, <fileid>, <P1>, <P2> and <P3>.</p>
<p>AT+CRSM=?</p>	<p>Test command returns the OK result code</p>
<p>Reference</p>	<p>3GPP TS 27.007, GSM 11.11</p>



3.5.4.4.20. Ringer Sound Level - +CRSL

+CRSL - Ringer Sound Level		SELINT 0
AT+CRSL[= <level>]	<p>Set command is used to select the incoming call ringer sound level of the device.</p> <p>Parameter: <level> - ringer sound level 0 - Off 1 - low 2 - middle 3 - high 4 - progressive</p> <p>Note: if parameter is omitted then the behaviour of Set command is the same as Read command</p>	
AT+CRSL?	<p>Read command reports the current <level> setting of the call ringer in the format:</p> <p>+CRSL: <level></p>	
AT+CRSL=?	<p>Test command reports <level> supported values as compound value.</p> <p>For compatibility with previous versions, Test command returns +CRSL: (0-3)</p> <p>An enhanced version of Test command has been defined: AT+CRSL=??, that provides the complete range of values for <level>.</p>	
AT+CRSL=??	<p>Enhanced Test command returns the complete range of supported values for the parameter <mode>:</p> <p>+CRSL: (0-4)</p>	
Reference	3GPP TS 27.007	

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



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

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

3.5.4.4.21. Loudspeaker Volume Level - +CLVL

+CLVL - Loudspeaker Volume Level		SELINT 0 / 1
AT+CLVL[=<level>]	<p>Set command is used to select the volume of the internal loudspeaker audio output of the device.</p> <p>Parameter: <level> - loudspeaker volume 0..<i>max</i> - the value of <i>max</i> can be read by issuing the Test command AT+CLVL=?</p> <p>Note: If the parameter is omitted the behavior of Set command is the same as Read command.</p>	
AT+CLVL?	<p>Read command reports the current <level> setting of the loudspeaker volume in the format:</p> <p>+CLVL: <level></p>	
AT+CLVL=?	<p>Test command reports <level> supported values range in the format:</p>	



+CLVL - Loudspeaker Volume Level		SELINT 0 / 1
	+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	

3.5.4.4.22. 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. 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	



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

3.5.4.4.23. Silence command - +CSIL

+CSIL – silence command		SELINT 2
AT+CSIL=[<mode>]	<p>This command enables/disables the silent mode. When the phone is in silent mode, all signalling tones from MT are suppressed.</p> <p>Parameters: <mode>: 0 Silent mode off (default) 1 Silent mode on</p>	
AT+CSIL?	<p>Read command reports the currently selected <mode> in the format:</p> <p>+CSIL: <mode></p>	
AT+CSIL=?	Test command reports the supported range of values for parameter <mode>	

3.5.4.4.24. Accumulated Call Meter - +CACM

+CACM - Accumulated Call Meter		SELINT 0 / 1
AT+CACM[=<pwd>]	<p>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.</p> <p>Parameter: <pwd> - to access this command PIN2 is required; if PIN2 has been already input once after startup, it is required no more</p> <p>Note: If the parameter is omitted the behavior of Set command is the same as Read command.</p>	



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

+CPUC - Price Per Unit And Currency Table		SELINT 2
AT+CPUC= <currency>, <ppu>[,<pwd>]	<p>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.</p> <p>Parameters:</p> <p><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.</p> <p><ppu> - price per unit, string type (dot is used as decimal separator) e.g. "1989.27"</p> <p><pwd> - SIM PIN2; if PIN2 has been already input once after startup, it is required no more</p>	
AT+CPUC?	<p>Read command reports the current values of <currency> and <ppu> parameters in the format:</p> <p>+CPUC : <currency>,<ppu></p>	
AT+CPUC=?	Test command returns the OK result code	
Reference	3GPP TS 27.007	



3.5.4.4.27. Call meter maximum event - +CCWE

+CCWE – Call Meter maximum event		SELINT 2
AT+CCWE=<mode>	<p>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.</p> <p>Parameters: <mode>: 0 Disable the call meter warning event (default) 1 Enable the call meter warning event</p> <p>Note: the set command will respond with an error if the Accumulated Call Meter service is not active in SIM</p>	
AT+CCWE?	<p>Read command reports the currently selected <mode> in the format:</p> <p>+CCWE: <mode></p>	
AT+CCWE=?	<p>Test command reports the supported range of values for parameter <mode></p>	

3.5.4.4.28. Available AT Commands - +CLAC

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

3.5.4.4.29. Delete Alarm - +CALD

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



+CSIM – Generic SIM access	SELINT 0 / 1 / 2
	13 SIM failure (<i>SIM no response</i>)
AT+CSIM=?	Test command returns the OK result code.
Example	<p>Lock SIM interface AT+CSIM=1 OK</p> <p><i>STATUS</i> AT+CSIM=10,"A0F2000002" +CSIM: 8,"00009000"</p> <p>OK</p> <p><i>STATUS</i> AT+CSIM=10,A0F2000016 +CSIM:48,"000002A87F2002000000000000099300220800838A838A9000"</p> <p>OK</p> <p><i>SELECT EF 6F07</i> AT+CSIM=14,A0A40000026F07 +CSIM: 4,"9F0F"</p> <p>OK</p> <p><i>GET RESPONSE</i> AT+CSIM=10,A0C000000F +CSIM: 34,"000000096F0704001A001A010200009000"</p> <p>OK</p> <p><i>SELECT EF 6F30</i> AT+CSIM=14,A0A40000026F30 +CSIM: 4,"9F0F"</p> <p>OK</p> <p><i>READ BINARY</i> AT+CSIM=10,A0B00000FC +CSIM:508,"FFFFFF1300831300901300541300301300651300381300801301801 3000113110913013013009813007713005913004313008113009513014013002313 0016330420130041FFFFFFFFFFFFFF21436542F41922F28822F201FFFFFFFFFFFFFFF FFF FFF FFF FFF</p>



+CSVM – Set Voice Mail Number		SELINT 2
	numbering plan (contains the character "+")	
	Note: Set command only checks for parameters values validity; it does not any actual write to SIM to update voice mail number.	
AT+CSVM?	Read command returns the currently selected voice mail number and the status (i.e. enabled/disabled) in the format +CSVM:<mode>,<number>,<type>	
AT+CSVM=?	Test command reports the range for the parameters <mode> and <type> .	

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 format: +CMEE: 0, 1, 2	



+CMEE - Report Mobile Equipment Error		SELINT 0 / 1
	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>	



+VTS - DTMF Tones Transmission		SELINT 2
	<p>if the length of first parameter is just one ASCII character</p> <p>0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current +VTD setting is.</p> <p>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.</p> <p>Note: this commands operates in voice mode only (see +FCLASS).</p> <p>Note: the character P does not correspond to any DTMF tone, but it is interpreted as a pause of 3 seconds between the preceding and succeeding DTMF string elements</p>	
AT+VTS=?	<p>Test command provides the list of supported <dtmf>s and the list of supported <duration>s in the format:</p> <p>(list of supported <dtmf>s)[,(list of supported <duration>s)]</p>	
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>]	<p>Set command sets the length of tones transmitted with +VTS command.</p> <p>Parameter: <duration> - duration of a tone</p> <p>0 - the duration of every single tone is dependent on the network (factory default)</p> <p>1..255 - duration of every single tone in 1/10 sec.</p> <p>Note: If parameter is omitted the behavior of Set command is the same as Read command.</p>	
AT+VTD?	<p>Read command reports the current Tone Duration, in the format:</p> <p><duration></p>	
AT+VTD=?	<p>Test command provides the list of supported <duration>s in the format:</p> <p>(list of supported <duration>s)</p>	
Reference	3GPP TS 27.007 and TIA IS-101	

+VTD - Tone Duration		SELINT 2
AT+VTD= <duration>	<p>Set command sets the length of tones transmitted with +VTS command.</p> <p>Parameter: <duration> - duration of a tone</p> <p>0 - the duration of every single tone is dependent on the network (factory default)</p> <p>1..255 - duration of every single tone in 1/10 sec.</p>	
AT+VTD?	<p>Read command reports the current Tone Duration, in the format:</p> <p><duration></p>	



+CGEREP - GPRS Event Reporting		SELINT 2
	<p>The mobile equipment has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately</p> <p>+CGEV: ME CLASS <class> The mobile equipment has forced a change of MS class. The highest available class is reported (see +CGCLASS)</p>	
AT+CGEREP?	<p>Read command returns the current <mode> and <bfr> settings, in the format:</p> <p>+CGEREP: <mode>,<bfr></p>	
AT+CGEREP=?	<p>Test command reports the supported range of values for the +CGEREP command parameters.</p>	
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>]]	<p>Set command controls the presentation of an unsolicited result code +CGREG: (see format below).</p> <p>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:</p> <p>+CGREG: <stat></p> <p>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</p> <p>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:</p> <p>+CGREG: <stat>[,<lac>,<ci>]</p> <p>where: <stat> - registration status (see above for values)</p>	



+CGREG - GPRS Network Registration Status		SELINT 0 / 1
	<p><lac> - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) <ci> - cell ID in hexadecimal format</p> <p>Note: <lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p> <p>Note: issuing AT+CGREG<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CGREG=<CR> is the same as issuing the command AT+CGREG=0<CR>.</p>	
AT+CGREG?	<p>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:</p> <p>+CGREG:<n>,<stat>[,<lac>,<ci>]</p> <p>Note: <lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.</p>	
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>]	<p>Set command controls the presentation of an unsolicited result code +CGREG: (see format below).</p> <p>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:</p> <p>+CGREG: <stat></p> <p>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</p>	



+CGDCONT - Define PDP Context		SELINT 0 / 1
	<p>0 - off (default if value is omitted) 1 - on <pd1>, ..., <pdN> - zero to N string parameters whose meanings are specific to the <PDP_type></p> <p>Note: a special form of the Set command, +CGDCONT=<cid>, causes the values for context number <cid> to become undefined.</p> <p>Note: issuing AT+CGDCONT<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CGDCONT=<CR> returns the OK result code.</p>	
AT+CGDCONT?	<p>Read command returns the current settings for each defined context in the format:</p> <p>+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>[...]]</p>	
AT+CGDCONT=?	<p>Test command returns values supported as a compound value</p>	
Example	<pre>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</pre>	
Reference	3GPP TS 27.007	

+CGDCONT - Define PDP Context		SELINT 2
<p>AT+CGDCONT= [<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,...[,pdN]]]]]]]]]]</p>	<p>Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid></p> <p>Parameters:</p> <p><cid> - (PDP Context Identifier) numeric parameter which specifies a particular PDP context definition.</p> <p>1..max - where the value of max is returned by the Test command</p> <p><PDP_type> - (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol</p> <p>"IP" - Internet Protocol "IPV6" - Internet Protocol version 6</p> <p><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.</p> <p><PDP_addr> - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated</p>	



+CGQMIN - Quality Of Service Profile (Minimum Acceptable)		SELINT 2
	<p>the supported values for the subparameters in the format:</p> <p>+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)</p> <p>Note: only the “IP” PDP_Type is currently supported.</p>	
Example	<pre>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</pre>	
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
<p>AT+CGQREQ[= <cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]]</p>	<p>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>.</p> <p>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</p> <p>If a value is omitted for a particular class then this class is not checked.</p> <p>Note: a special form of the Set command, +CGQREQ=<cid> causes the requested profile for context number <cid> to become undefined.</p> <p>Note: issuing AT+CGQREQ<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CGQREQ=<CR> returns the OK result code.</p>	
<p>AT+CGQREQ?</p>	<p>Read command returns the current settings for each defined context in the format:</p> <p>+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean><CR><LF>[<CR><LF>+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean><CR><LF>[...]]</p>	



+CGACT - PDP Context Activate Or Deactivate		SELINT 0 / 1
Example	AT+CGACT? +CGACT: 1,1 OK AT+CGACT=1,1 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	



+CGPADDR - Show PDP Address		SELINT 0 / 1
	<p>defined contexts are returned.</p> <p><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</p>	
AT+CGPADDR=?	Test command returns a list of defined <cid> s.	
Example	<pre>AT#GPRS=1 +IP: xxx.yyy.zzz.www OK AT+CGPADDR=1 +CGPADDR: 1,"xxx.yyy.zzz.www" OK AT+CGPADDR=? +CGPADDR: (1) OK</pre>	
Reference	3GPP TS 27.007	

+CGPADDR - Show PDP Address		SELINT 2
AT+CGPADDR=[<cid>[,<cid>[,...]]]	<p>Execution command returns a list of PDP addresses for the specified context identifiers in the format:</p> <p>+CGPADDR: <cid>,<PDP_addr>[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[...]]</p> <p>Parameters:</p> <p><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.</p> <p><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></p>	
AT+CGPADDR=?	Test command returns a list of defined <cid> s.	
Example	<pre>AT#GPRS=1 +IP: xxx.yyy.zzz.www OK AT+CGPADDR=1</pre>	



+CGPADDR - Show PDP Address		SELINT 2
	<pre>+CGPADDR: 1,"xxx.yyy.zzz.www"</pre> <pre>OK</pre> <pre>AT+CGPADDR=?</pre> <pre>+CGPADDR: (1)</pre> <pre>OK</pre>	
Reference	3GPP TS 27.007	

3.5.4.7.10. Enter Data State - +CGDATA

+CGDATA - Enter Data State		SELINT 0 / 1
<pre>AT+CGDATA=[<L2P>,<cid>[,<cid>[...]]]</pre>	<p>Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types.</p> <p>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).</p> <p>Note: if parameter <L2P> is omitted, the layer 2 protocol is unspecified</p>	
<pre>AT+CGDATA=?</pre>	<p>Test command reports information on the supported layer 2 protocols.</p> <p>Note: the representation format of the Test command output is not included in parenthesis</p>	
Example	<pre>AT+CGDATA=?</pre> <pre>+CGDATA: "PPP"</pre> <pre>OK</pre> <pre>AT+CGDATA="PPP",1</pre> <pre>CONNECT</pre>	
Reference	3GPP TS 27.007	

+CGDATA - Enter Data State		SELINT 2
<pre>AT+CGDATA=[<L2P>,<cid>[,<cid>[...]]]</pre>	<p>Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types.</p> <p>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).</p> <p>Note: if parameter <L2P> is omitted, the layer 2 protocol is unspecified</p>	
<pre>AT+CGDATA=?</pre>	<p>Test command reports information on the supported layer 2 protocols.</p>	



+CGDATA - Enter Data State		SELINT 2
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>]]]	<p>The execution command is used to modify the specified PDP context(s) with respect to QoS profiles.</p> <p>If no <cid<i>i</i>> is specified the command modifies all active contexts.</p> <p>Parameters: <cid<i>i</i>>: a numeric parameter which specifies a particular PDP context</p>	
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	<p>Execution command returns the current Battery Charge status in the format:</p> <p>+CBC: <bc>,<bl></p> <p>where:</p> <p><bc> - battery charge status</p> <ul style="list-style-type: none"> 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 <p><bl> - battery charge level, only if <bc>=0</p> <ul style="list-style-type: none"> 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. 	



+CBC - Battery Charge		SELINT 0 / 1
	<p>Note: <bc>=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.</p> <p>Note: without battery/power connected on VBATT pins or during a power fault the unit is not working, therefore values <bc>=2 and <bc>=3 will never appear.</p> <p>Note: <bcl> indicates battery charge level only if battery is connected and charger is not connected</p>	
AT+CBC?	Read command has the same effect as Execution command.	
AT+CBC=?	<p>Test command returns parameter values supported as a compound value. For compatibility with previous versions, Test command returns</p> <p>+CBC: (0-2),(0-100)</p> <p>An enhanced version of Test command has been defined: AT+CBC=??, that provides the complete range of values for <bc> and <bcl>.</p> <p>Note: although +CBC is an execution command, ETSI 07.07 requires the Test command to be defined.</p>	
AT+CBC=??	<p>Enhanced test command returns the complete range of values for <bc> and <bcl>:</p> <p>+CBC: (0-3),(0-100)</p>	
Example	<p>AT+CBC +CBC: 0,75</p> <p>OK</p>	
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	<p>Execution command returns the current Battery Charge status in the format:</p> <p>+CBC: <bc>,<bcl></p> <p>where:</p> <p><bc> - battery status</p> <ul style="list-style-type: none"> 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 <p><bcl> - battery charge level, only if <bc>=0</p> <ul style="list-style-type: none"> 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 	



+ CBC - Battery Charge		SELINT 2
	<p>50 - battery charge remained is estimated to be 50%</p> <p>75 - battery charge remained is estimated to be 75%</p> <p>100 - battery is fully charged.</p> <p>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.</p> <p>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.</p> <p>Note: <bcl> indicates battery charge level only if battery is connected and charger is not connected</p>	
AT+CBC=?	<p>Test command returns parameter values supported as a compound value.</p> <p>+CBC: (0-3),(0-100)</p> <p>Note: although +CBC is an execution command, ETSI 07.07 requires the Test command to be defined.</p>	
Example	<p>AT+CBC +CBC: 0,75 OK</p>	
Note	<p>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.</p>	
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>]	<p>Set command selects messaging service <service>. It returns the types of messages supported by the ME:</p> <p>Parameter: <service> 0 - The syntax of SMS AT commands is compatible with GSM 27.005 (factory default)</p> <p>Set command returns current service setting along with the types of messages supported by the ME:</p>	



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

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



+CPMS - Preferred Message Storage		SELINT 2
M O D E = 0		<p><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</p> <p>Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so <memw>=<mems>="SM".</p> <p>Note: the received class 0 SMS are stored in the "ME" memory regardless the <mems> setting and they are automatically deleted at power off.</p>
# S M S M O D E = 0	AT+CPMS?	<p>Read command reports the message storage status in the format:</p> <p>+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>,<mems>,<useds>,<totals></p> <p>where <memr>, <memw> and <mems> are the selected storage memories for reading, writing and storing respectively.</p>
	AT+CPMS=?	<p>Test command reports the supported values for parameters <memr>, <memw> and <mems></p>
# S M S M	Example	<p>AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10</p> <p>OK <i>(you have 5 out of 10 SMS SIM positions occupied)</i></p>
	Reference	GSM 27.005
(#SMSMODE=1)		
# S M S M O D E = 1	AT+CPMS= <memr> [,<memw> [,<mems>]]	<p>Set command selects memory storages <memr>, <memw> and <mems> to be used for reading, writing, sending and storing SMs.</p> <p>Parameters:</p> <p><memr> - memory from which messages are read and deleted "SM" - SIM SMS memory storage</p> <p><memw> - memory to which writing and sending operations are made "SM" - SIM SMS memory storage</p> <p><mems> - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage</p> <p>The command returns the memory storage status in the format:</p> <p>+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals></p> <p>where:</p>
# S M		



+CPMS - Preferred Message Storage		SELINT 2
S M O D E = 1		<p><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</p> <p>Note: The only supported memory storage for reading, writing and sending SMs is the SIM internal memory "SM": <memr>=<memw>=<mems>="SM".</p>
# S M S M O D E = 1	AT+CPMS?	<p>Read command reports the message storage status in the format:</p> <p>+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>,<mems>,<useds>,<totals></p> <p>where <memr>, <memw> and <mems> are the selected storage memories for reading, writing and storing respectively.</p>
	AT+CPMS=?	Test command reports the supported values for parameters <memr>, <memw> and <mems>
	Example	<p>AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10</p> <p>OK (you have 5 out of 10 SMS SIM positions occupied)</p>
	Reference	GSM 27.005

3.5.5.1.3. Message Format - +CMGF

+CMGF - Message Format		SELINT 0 / 1
AT+CMGF[= [<mode>]]	<p>Set command selects the format of messages used with send, list, read and write commands.</p> <p>Parameter: <mode> 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode</p> <p>Note: issuing AT+CMGF<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CMGF=<CR> is the same as issuing the command AT+CMGF=0<CR>.</p>	
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	



+CSMP - Set Text Mode Parameters		SELINT 0 / 1
	<p>Note: issuing AT+CSMP<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CSMP=<CR> is the same as issuing the command AT+CSMP=0<CR>.</p> <p>Note: <vp>, <pid> and <dcs> default values are loaded from first SIM <i>SMS Parameters</i> profile, if present. If it is not present, then the default values are those above indicated.</p>	
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	<p>Set the parameters for an outgoing message with 24 hours of validity period and default properties:</p> <pre>AT+CSMP=17,167,0,0 OK</pre>	
Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038	

+CSMP - Set Text Mode Parameters		SELINT 2
<p>Note: the behaviour of command +CPMS differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</p>		
(#SMSMODE=0)		
# S M S M O D E = 0 # S M S M O D	AT+CSMP= [<fo> [,<vp> [,<pid> [,<dcs>]]]]	<p>Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (AT+CMGF=1)</p> <p>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 <i>not present</i> [01] - Validity Period field present in <i>enhanced format</i>: it is currently</p>



+CSMP - Set Text Mode Parameters		SELINT 2
E = 0 # S M S M O D E = 0 # S M S M O D E = 0 # S M S M O D E = 0		<p>converted in [00], i.e. <i>not present</i></p> <p>[10] - Validity Period field present in <i>relative format</i>, (i.e. integer type, see below)</p> <p>[11] - Validity Period field present in <i>absolute format</i> (i.e. quoted time-string type); we strongly suggest to not use this format because its implementation is currently under refinement</p> <p>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</p> <p>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]);</p> <p>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</p> <p><vp> - depending on <fo> setting: if <fo> asks for a Validity Period in <i>relative format</i> <vp> shall be integer type (default 167, i.e. 24 hours); if <fo> asks for a Validity Period in <i>absolute format</i> we strongly suggest to modify it in <i>relative format</i>, 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 <i>relative format</i> 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;</p> <p><pid> - 3GPP TS 23.040 TP-Protocol-Identifier in integer format (default 0). <dcs> - depending on the command or result code: 3GPP TS 23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme</p> <p>Note: the current settings are stored through +CSAS Note: <vp>, <pid> and <dcs> default values are loaded from first SIM <i>SMS Parameters</i> profile, if present. If it is not present, then the default values are those above indicated.</p>
	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



+CSMP - Set Text Mode Parameters		SELINT 2
		OK
Reference		GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038
(#SMSMODE=1)		
# S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1	AT+CSMP= [<fo> [,<vp> [,<pid> [,<dcs>]]]]	<p>Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (AT+CMGF=1)</p> <p>Parameters:</p> <p><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]):</p> <p>bit[1]bit[0]: Message Type Indicator, 2-bit field describing the message type;</p> <p>[00] - SMS-DELIVER;</p> <p>[01] - SMS-SUBMIT (default) ;</p> <p>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]);</p> <p>bit[4]bit[3]: Validity Period Format, 2-bit field indicating whether or not the Validity Period field is present (default is [10]):</p> <p>[00] - Validity Period field <i>not present</i></p> <p>[01] - Validity Period field present in <i>enhanced format</i>(i.e. quoted time-string type, see below)</p> <p>[10] - Validity Period field present in <i>relative format</i>, (i.e. integer type, see below)</p> <p>[11] - Validity Period field present in <i>absolute format</i> (i.e. quoted time-string type, see below)</p> <p>bit[5]: Status Report Request, 1-bit field indicating the MS is requesting a status report (default is [0]);</p> <p>[0] - MS is not requesting a status report</p> <p>[1] - MS is requesting a status report</p> <p>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]);</p> <p>bit[7]: Reply Path, 1-bit field indicating the request for Reply Path (default is [0]);</p> <p>[0] - Reply Path not requested</p> <p>[1] - Reply Path requested</p> <p><vp> - depending on <fo> setting:</p> <p>a) if <fo> asks for a <i>Not Present</i> Validity Period, <vp> can be any type and it will be not considered;</p> <p>b) if <fo> asks for a Validity Period in <i>relative format</i>, <vp> shall be integer type (default 167, i.e. 24 hours);</p> <p>0..143 - (<vp> + 1) x 5 minutes</p> <p>144..167 - 12 hours + ((<vp> - 143) x 30 minutes)</p> <p>168..196 - (<vp> - 166) x 1 day</p>



+CSMP - Set Text Mode Parameters		SELINT 2
# S M S M O D E = 1	AT+CSMP?	<p>Read command reports the current setting in the format:</p> <p>+CSMP: <fo>,<vp>,<pid>,<dcs></p> <p>Note: if the Validity Period Format (<fo>'s bit[4]bit[3]) is [00] (i.e. <i>Not Present</i>), <vp> is represented just as a quoted empty string ("").</p>
	AT+CSMP=?	Test command returns the OK result code.
	Example	<p><i>Set the parameters for an outgoing message with 24 hours of validity period and default properties:</i></p> <p>AT+CSMP=17,167,0,0 OK</p> <p><i>Set the parameters for an outgoing message with validity period in enhanced format: the <vp> string actually codes 24 hours of validity period.</i></p> <p>AT+CSMP=9,"01A80000000000" OK</p> <p><i>Set the parameters for an outgoing message with validity period in enhanced format: the <vp> string actually codes 60 seconds of validity period.</i></p> <p>AT+CSMP=9,"023C0000000000" OK</p> <p><i>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.</i></p> <p>AT+CSMP=9,"03925803000000" OK</p>
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>]]	<p>Set command controls whether detailed header information is shown in text mode (+CMGF=1) result codes.</p> <p>Parameter: <show></p> <p>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></p>	



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



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1		<p>is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too.</p> <p><mt> - result code indication reporting for SMS-DELIVER</p> <p>0 - No SMS-DELIVER indications are routed to the TE and messages are stored in SIM.</p> <p>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: <ul style="list-style-type: none"> <mems> - memory storage where the new message is stored (see +CPMS) <index> - location on the memory where SMS is stored. </p> <p>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:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CMT: <alpha>,<length><CR><LF><pdu> where: <ul style="list-style-type: none"> <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 </p> <p style="text-align: center;">(TEXT Mode)</p> <p>+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: <ul style="list-style-type: none"> <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>: <ul style="list-style-type: none"> 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 </p>



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
1 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1 # S M		<ul style="list-style-type: none"> • 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 number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) <p>Class 2 messages and messages in the “store” message waiting indication group result in indication as defined in <mt>=1.</p> <p>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.</p> <p><bm> - broadcast reporting option</p> <p>0 - Cell Broadcast Messages are not sent to the DTE</p> <p>2 - New Cell Broadcast Messages are sent to the DTE with the unsolicited result code:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CBM: <length><CR><LF><PDU></p> <p>where:</p> <p><length> - PDU length</p> <p><PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data></p> <p>where:</p> <p><sn> - message serial number</p> <p><mid> - message ID</p> <p><dcs> - Data Coding Scheme</p> <p><pag> - page number</p> <p><pags> - total number of pages of the message</p> <p><data> - CBM Content of Message</p> <ul style="list-style-type: none"> • 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) <p><ds> - SMS-STATUS-REPORTs reporting option</p> <p>0 - status report receiving is not reported to the DTE and is not stored</p> <p>1 - the status report is sent to the DTE with the following unsolicited result</p>



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
S M O D E = 0 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1		<p>code:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CDS: <length><CR><LF><PDU></p> <p>where:</p> <p> <length> - PDU length <PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CDS: <fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st></p> <p>where:</p> <p> <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</p> <p>2 - if a status report is stored, then the following unsolicited result code is sent:</p> <p>+CDSI: <memr>,<index></p> <p>where:</p> <p> <memr> - memory storage where the new message is stored "SM" <index> - location on the memory where SMS is stored</p> <p><bfr> - buffered result codes handling method:</p> <p>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)</p> <p>1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=1..3 is entered.</p>
# S M S	AT+CNMI?	Read command returns the current parameter settings for +CNMI command in the form: +CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>
M O D	AT+CNMI=?	Test command reports the supported range of values for the +CNMI command parameters.
E = 1	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



+CNMI - New Message Indications To Terminal Equipment		SELINT 2																															
# S M S M O D E = 1	Note	<p>suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.</p> <p>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:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;"> Message Class or Indication group, as in the DCS <i><mt></i> settings in different sessions </td> <td style="width: 33%; text-align: center;"> SM Class is No Class OR SM Class is 0 or 1 or 3 OR SM is an Indication with group "Discard" </td> <td style="width: 33%; text-align: center;"> SM Class is 3 </td> </tr> <tr> <td style="text-align: center;"> <i><mt></i>=2 for session "0" AND <i><mt></i>=<i>anyvalue</i> for other session(s) </td> <td style="text-align: center;"> URC is shown only on session "0" </td> <td></td> </tr> <tr> <td style="text-align: center;"> <i><mt></i>=3 for session "0" AND <i><mt></i>=0 or 1 for other session(s) </td> <td></td> <td style="text-align: center;"> URC is shown only on session "0" </td> </tr> </table> <p>The URC behaviour in all the other cases follows rules reported on below table concerning <mt> parameter. Storing and acknowledgement on the other hand follow rules specified on instance 0.</p>	Message Class or Indication group, as in the DCS <i><mt></i> 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	<i><mt></i> = 2 for session "0" AND <i><mt></i> = <i>anyvalue</i> for other session(s)	URC is shown only on session "0"		<i><mt></i> = 3 for session "0" AND <i><mt></i> = 0 or 1 for other session(s)		URC is shown only on session "0"																						
	Message Class or Indication group, as in the DCS <i><mt></i> 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																														
<i><mt></i> = 2 for session "0" AND <i><mt></i> = <i>anyvalue</i> for other session(s)	URC is shown only on session "0"																																
<i><mt></i> = 3 for session "0" AND <i><mt></i> = 0 or 1 for other session(s)		URC is shown only on session "0"																															
# S M S M O D E = 1	Note	<p>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.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2"></th> <th colspan="5">SM CLASS</th> </tr> <tr> <th>0 / msg waiting discard</th> <th>1 / no class</th> <th>2</th> <th>3</th> <th>msg waiting store</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="text-align: center; vertical-align: middle;"><mt></td> <td style="text-align: center;">0</td> <td>Store in <mems></td> <td>Store in <mems></td> <td>Store in SIM</td> <td>Store in <mems></td> <td>Store in <mems></td> </tr> <tr> <td style="text-align: center;">1</td> <td>Store in <mems> - Send ind +CMTI</td> <td>Store in <mems> - Send ind +CMTI</td> <td>Store in SIM - Send ind +CMTI</td> <td>Store in <mems> - Send ind +CMTI</td> <td>Store in <mems> - Send ind +CMTI</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Route msg to TE: +CMT²⁷</td> <td>Route msg to TE: +CMT^l</td> <td>Store in SIM - Send ind +CMTI</td> <td>Route msg to TE: +CMT^l</td> <td>Store in <mems> - Send ind +CMTI</td> </tr> </tbody> </table>			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	2	Route msg to TE: +CMT ²⁷	Route msg to TE: +CMT ^l	Store in SIM - Send ind +CMTI	Route msg to TE: +CMT ^l	Store in <mems> - Send ind +CMTI
		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																											
	2	Route msg to TE: +CMT ²⁷	Route msg to TE: +CMT ^l	Store in SIM - Send ind +CMTI	Route msg to TE: +CMT ^l	Store in <mems> - Send ind +CMTI																											

²⁷ The SM is not stored!



+CNMI - New Message Indications To Terminal Equipment		SELINT 2						
	3	<table border="1" style="width: 100%;"> <tr> <td style="width: 20%;">Store in <mems> - Send ind +CMTI</td> <td style="width: 20%;">Store in <mems>- Send ind +CMTI</td> <td style="width: 20%;">Store in SIM - Send ind +CMTI</td> <td style="width: 20%;">Route msg to TE: +CMT^d</td> <td style="width: 20%;">Store in <mems> - Send ind +CMTI</td> </tr> </table> <p>where <mems> is the memory where the received messages are stored (see +CPMS)</p>	Store in <mems> - Send ind +CMTI	Store in <mems>- Send ind +CMTI	Store in SIM - Send ind +CMTI	Route msg to TE: +CMT ^d	Store in <mems> - Send ind +CMTI	
Store in <mems> - Send ind +CMTI	Store in <mems>- Send ind +CMTI	Store in SIM - Send ind +CMTI	Route msg to TE: +CMT ^d	Store in <mems> - Send ind +CMTI				
Note	<p>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:</p> <table border="1" style="width: 100%;"> <tr> <th colspan="2" style="background-color: #e0e0e0;"><ds> settings in different sessions</th> </tr> <tr> <td style="width: 60%;"><ds>=1 for session "0" AND <ds>=2 for at least one of the other sessions</td> <td style="text-align: center;">URC +CDS is shown only on session "0" and no status report is stored on SIM</td> </tr> <tr> <td style="width: 60%;"><ds>=0 for session "0" AND <ds>=2 for at least one of the other sessions</td> <td style="text-align: center;">no URC is shown on any session and no status report is stored on SIM</td> </tr> </table>		<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
<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>]	<p>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).</p> <p>The parameter type and the command output depend on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>Parameter: <stat> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages.</p> <p>Each message to be listed is represented in the format:</p> <p>+CMGL: <index>,<stat>,<length><CR><LF><pdu></p>



+CMGL - List Messages	SELINT 0 / 1
	<p>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</p> <p style="text-align: center;">(Text Mode)</p> <p>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.</p> <p>Each message to be listed is represented in the format (the information written in italics will be present depending on +CSDH last setting):</p> <p>+CMGL: <index>,<stat>,<oa/da>,,[,<toa/toda>,<length>] <CR><LF> <data></p> <p>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) <toa/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</p> <p>Each message delivery confirm is represented in the format:</p> <p>+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st></p> <p>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</p> <p>Note: OK result code is sent at the end of the listing.</p>



+CMGL - List Messages		SELINT 2
M S M O D E = 0 # S M S M O D E = 0 # S M S M O D E = 0 # S M S M O D E = 0	<p><length> - length of the PDU in bytes <pdu> - message in PDU format according to GSM 3.40</p> <p style="text-align: center;">(Text Mode)</p> <p>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.</p> <p>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):</p> <p>+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<toa/toda>,<length>]<CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<toa/toda>,<length>]<CR><LF><data>[...]]</p> <p>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 <toa/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</p> <ul style="list-style-type: none"> • 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) <p>If there is at least one message delivery confirm to be listed the representation format is:</p>	



+CMGL - List Messages	SELINT 2
S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1	<p>If there is at least one message to be listed the representation format is:</p> <p>+CMGL: <code><index>,<stat>,<alpha>,<length><CR><LF><pdu>[<CR><LF><pdu>[...]]</code></p> <p>where:</p> <ul style="list-style-type: none"> <code><index></code> - message position in the memory storage list. <code><stat></code> - status of the message <code><alpha></code> - string type alphanumeric representation of <code><da></code> or <code><oa></code>, corresponding to an entry found in the phonebook; used character set is the one selected with command <code>+CSCS</code>. <code><length></code> - length of the PDU in bytes <code><pdu></code> - message in PDU format according to GSM 3.40 <p style="text-align: center;">(Text Mode)</p> <p>Parameter:</p> <p><code><stat></code> "REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages.</p> <p>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 <code>+CSDH</code> last setting):</p> <p>+CMGL: <code><index>,<stat>,<oa/da>,<alpha>,<scts>[,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF><pdu>[...]]</code></p> <p>where:</p> <ul style="list-style-type: none"> <code><index></code> - message position in the storage <code><stat></code> - message status <code><oa/da></code> - originator/destination address, string type, represented in the currently selected character set (see <code>+CSCS</code>) <code><alpha></code> - string type alphanumeric representation of <code><da></code> or <code><oa></code>, corresponding to an entry found in the phonebook; used character set is the one selected with command <code>+CSCS</code>. <code><scts></code> - TP-Service Centre Time Stamp in Time String Format <code><tooa/toda></code> - type of number <code><oa/da></code> 129 - number in national format



+CMGL - List Messages		SELINT 2
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>]	<p>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).</p> <p>The parameter type and the command output depend on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>Parameter: <stat> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages.</p> <p>Each message to be listed is represented in the format:</p> <p>@CMGL: <index>,<stat>,<length><CR><LF><pdu></p> <p>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</p> <p style="text-align: center;">(Text Mode)</p> <p>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.</p> <p>Each message to be listed is represented in the format (the information written in italics will be present depending on +CSDH last setting):</p> <p>@CMGL: <index>,<stat>,<oa/da>,[,<toa/toda>,<length>]</p>	



@CMGL - List Messages Improved		SELINT 0
	<p><CR><LF> <data></p> <p>where</p> <p><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) <toa/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</p> <p>Each message delivery confirm is represented in the format:</p> <p>@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st></p> <p>where</p> <p><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</p> <p>Note: The command differs from the +CMGL because at the end of the listing a <CR><LF> is put before the OK result code.</p> <p>Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.</p>	
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	<p>If Text Mode (+CMGF=1) the Test command output is not included in parenthesis</p> <p>AT@CMGL=? @CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"</p>	
Reference	GSM 27.005	

@CMGL - List Messages Improved		SELINT 1
AT@CMGL [=<stat>]	<p>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).</p> <p>The parameter type and the command output depend on the last settings of</p>	



@CMGL - List Messages Improved	SELINT 1
	<p>Each message delivery confirm is represented in the format:</p> <p>@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st></p> <p>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</p> <p>Note: The command differs from the +CMGL because at the end of the listing a <CR><LF> is put before the OK result code.</p> <p>Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.</p>
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	<p>If Text Mode (+CMGF=1) the Test command output is not included in parenthesis</p> <p>AT@CMGL=? @CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"</p>
Reference	GSM 27.005

3.5.5.3.4. Read Message - +CMGR

+CMGR - Read Message	SELINT 0 / 1
<p>AT+CMGR= <index></p>	<p>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).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>The output has the following format:</p> <p>+CMGR: <stat>,<length><CR><LF><pdu></p> <p>where</p>



+CMGR - Read Message		SELINT 0 / 1
	<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
<i>Note: the behaviour of command +CMGR differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</i>		
(#SMSMODE=0)		
# S M S M O D E = 0	AT+CMGR= <index>	<p>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).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>If there is a message in location <index>, the output has the following format:</p> <p>+CMGR: <stat>,<alpha>,<length><CR><LF><pdu></p> <p>where</p> <ul style="list-style-type: none"> <stat> - status of the message <ul style="list-style-type: none"> 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. <p>The status of the message and entire message data unit <pdu> is returned.</p>
# S M S		



+CMGR - Read Message		SELINT 2
# S M S M O D E = 0		<p>set (see +CSCS) If <dc> 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)</p> <p>Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>Note: an error result code is sent on empty record <index>.</p>
	AT+CMGR=?	Test command returns the OK result code
	Reference	GSM 27.005
(#SMSMODE=1)		
# S M S M O D E = 1	AT+CMGR=<index>	<p>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).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>If there is a message in location <index>, the output has the following format:</p> <p>+CMGR: <stat>,<alpha>,<length><CR><LF><pdu></p> <p>where</p> <ul style="list-style-type: none"> <stat> - status of the message <ul style="list-style-type: none"> 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. <p>The status of the message and entire message data unit <pdu> is returned.</p>
# S M S		



+CMGR - Read Message		SELINT 2
# S M S M O D E = 1	<p><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.</p> <p><sca> - Service Centre number</p> <p><tooa>, <toda >, <tosca> - type of number <oa>, <da>, <sca></p> <p>129 - number in national format</p> <p>145 - number in international format (contains the "+")</p> <p><length> - text length</p> <p><data> - TP-User_data</p> <ul style="list-style-type: none"> • If <dcs> indicates that GSM03.38 default alphabet is used: <ul style="list-style-type: none"> - if TE character set other than "HEX" (refer command Select TE Character Set +CSCS) : ME/TA converts GSM alphabet into current TE character set - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM 7 bit default alphabet into two IRA character long hexadecimal number (e.g. character Π (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55)) • 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) <p>Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.</p>	
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>	<p>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).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>The output has the following format:</p> <p>@CMGR: <stat>,<length><CR><LF><pdu></p>	



@CMGR - Read Message Improved		SELINT 0
	<p><length> - text length <text> - message text</p> <p>Note: the command differs from the +CMGR because after the message <pdu> or <text> a <CR><LF> is put before the OK result code.</p> <p>Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>Note: an error result code is sent on empty record <index>.</p>	
AT@CMGR=?	Test command has no effect; the answer is OK	
Reference	GSM 27.005	

@CMGR - Read Message Improved		SELINT 1
AT@CMGR= <index>	<p>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).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (message format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>The output has the following format:</p> <p>@CMGR: <stat>,<length><CR><LF><pdu></p> <p>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.</p> <p>The status of the message and entire message data unit <pdu> is returned.</p> <p style="text-align: center;">(Text Mode)</p> <p>Output format for received messages:</p> <p>@CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><text></p> <p>Output format for either sent or unsent messages:</p>	



+CMGS - Send Message	SELINT 0 / 1
<p>AT+CMGS=<da> [,<tda>]</p>	<p>Execution command sends to the network a message.</p> <p>Parameters: <da> - destination address, string type. <tda> - type of destination address 129 - number in national format 145 - number in international format (contains the "+")</p> <p>After command line is terminated with <CR>, the device responds sending a four character sequence prompt:</p> <p><CR><LF><greater_than><space> (IRA 13, 10, 62, 32)</p> <p>After this prompt text can be entered; the entered text should be formatted as follows:</p> <ul style="list-style-type: none"> - if current <dc> (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 <dc> (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) <p>Note: the DCD signal shall be in ON state while text is entered.</p> <p>Note: the echoing of entered characters back from the TA is controlled by echo command E</p> <p>To send the message issue Ctrl-Z char (0x1A hex). To exit without sending the message issue ESC char (0x1B hex).</p> <p>If message is successfully sent to the network, then the result is sent in the format:</p> <p>+CMGS: <mr> where <mr> - message reference number.</p> <p>Note: if message sending fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p>



+CMGS - Send Message		SELINT 2
S M S M O D E = 0		<p>To send the message issue Ctrl-Z char (0x1A hex). To exit without sending the message issue ESC char (0x1B hex).</p> <p>If message is successfully sent to the network, then the result is sent in the format:</p> <p>+CMGS: <mr></p> <p>where <mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format.</p> <p>Note: if message sending fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p> <p>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.</p>
	AT+CMGS=?	Test command returns 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)		
# S M S M O D E = 1	<i>(PDU Mode)</i> AT+CMGS= <length>	(PDU Mode)
# S M S		<p>Execution command sends to the network a message.</p> <p>Parameter: <length> - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164</p> <p>After command line is terminated with <CR>, the device responds sending a four character sequence prompt:</p> <p><CR><LF><greater_than><space> (IRA 13, 10, 62, 32)</p> <p>and waits for the specified number of bytes.</p> <p>Note: the DCD signal shall be in ON state while PDU is given.</p>



+CMGS - Send Message		SELINT 2
M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1	<p>Note: the echoing of given characters back from the TA is controlled by echo command E</p> <p>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.</p> <p>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.</p> <p>To send the message issue Ctrl-Z char (0x1A hex). To exit without sending the message issue ESC char (0x1B hex).</p> <p>If message is successfully sent to the network, then the result is sent in the format:</p> <p>+CMGS: <mr></p> <p>where <mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format.</p> <p>Note: if message sending fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p>	
(Text Mode) AT+CMGS=<da> [,<toda>]	<p style="text-align: center;">(Text Mode)</p> <p>Execution command sends to the network a message.</p> <p>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 "+")</p> <p>After command line is terminated with <CR>, the device responds sending a four character sequence prompt:</p> <p><CR><LF><greater_than><space> (IRA 13, 10, 62, 32)</p> <p>After this prompt text can be entered; the entered text should be formatted as follows:</p> <p>- if current <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is</p>	



+CMGS - Send Message	SELINT 2
<p># S M S M O D E = 1</p> <p># S M S M O D E = 1</p> <p># S M S M O D E = 1</p>	<p>used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set:</p> <ul style="list-style-type: none"> - if TE character set other than "HEX" (refer command Select TE Character Set +CSCS): ME/TA converts the entered text into the GSM 7 bit default alphabet according to rules of Annex A in TS27.005; backspace can be used to delete last character and carriage returns can be used; - if TE character set is "HEX": the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into the GSM 7 bit default alphabet characters. (e.g. 17 (IRA 49 and 55) will be converted to character Π (GSM 7 bit default alphabet 23)). <p>after every <CR> entered by the user the sequence <CR><LF><greater_than><space> is sent to the TE.</p> <p>- 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)</p> <p>Note: the DCD signal shall be in ON state while text is entered.</p> <p>Note: the echoing of entered characters back from the TA is controlled by echo command E</p> <p>To send the message issue Ctrl-Z char (0x1A hex). To exit without sending the message issue ESC char (0x1B hex).</p> <p>If message is successfully sent to the network, then the result is sent in the format:</p> <p>+CMGS: <mr></p> <p>where <mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format.</p> <p>Note: if message sending fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p>



+CMGS - Send Message		SELINT 2
		Note: it is possible to send a concatenation of at most 10 SMS; the maximum number of chars depends on the <dc>: 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 returns 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> [,<tda>]]		<p>Execution command sends to the network a message which is already stored in the <memw> storage (see +CPMS) at the location <index>.</p> <p>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. <tda> - type of destination address 129 - number in national format 145 - number in international format (contains the "+")</p> <p>If message is successfully sent to the network then the result is sent in the format:</p> <p>+CMSS: <mr> where: <mr> - message reference number.</p> <p>If message sending fails for some reason, an error code is reported:</p> <p>+CMS ERROR:<err></p> <p>Note: to store a message in the <memw> storage see command +CMGW.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p>
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> [,<tda>]]	<p>Execution command sends to the network a message which is already stored in the <memw> storage (see +CPMS) at the location <index>.</p> <p>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. <tda> - type of destination address 129 - number in national format 145 - number in international format (contains the "+")</p> <p>If message is successfully sent to the network then the result is sent in the format:</p> <p>+CMSS: <mr> where: <mr> - message reference number.</p> <p>If message sending fails for some reason, an error code is reported:</p> <p>+CMS ERROR:<err></p> <p>Note: to store a message in the <memw> storage see command +CMGW.</p> <p>Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</p>	
AT+CMSS=?	Test command returns 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)	
	<p>Execution command writes in the <memw> memory storage a new message.</p> <p>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</p>	



+CMGW - Write Message To Memory	SELINT 0 / 1
	<p>The device responds to the command with the prompt '>' and waits for the specified number of bytes.</p> <p>To write the message issue Ctrl-Z char (0x1A hex). To exit without writing the message issue ESC char (0x1B hex).</p> <p>If message is successfully written in the memory, then the result is sent in the format:</p> <p>+CMGW: <index> where: <index> - message location index in the memory <memw>.</p> <p>If message storing fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.</p> <p>Note: in PDU Mode, only SUBMIT messages can be stored in memory and only with status 2 or 3.</p>
<p><i>(Text Mode)</i> AT+CMGW[=<da>[,< toda>[,<stat>]]]</p>	<p style="text-align: center;">(Text Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>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</p> <p>After command line is terminated with <CR>, the device responds sending a four character sequence prompt:</p> <p><CR><LF><greater_than><space> (IRA 13, 10, 62, 32)</p> <p>After this prompt text can be entered; the entered text should be formatted as follows:</p> <p>- if current <dc> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-</p>



+CMGW - Write Message To Memory	SELINT 0 / 1
	<p>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.</p> <p>- 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)</p> <p>Note: the DCD signal shall be in ON state while text is entered.</p> <p>Note: the echoing of entered characters back from the TA is controlled by echo command E</p> <p>To write the message issue Ctrl-Z char (0x1A hex). To exit without writing the message issue ESC char (0x1B hex).</p> <p>If message is successfully written in the memory, then the result is sent in the format:</p> <p>+CMGW: <index> where: <index> - message location index in the memory <memw>.</p> <p>If message storing fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.</p> <p>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.</p> <p>Note: in Text Mode, only SUBMIT messages can be stored in memory and only with status "STO UNSENT" or "STO SENT".</p>
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
<p><i>Note: the behaviour of command +CMGW differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE).</i></p>	
<p>(#SMSMODE=0)</p>	



+CMGW - Write Message To Memory		SELINT 2
		number of chars depends on the <dc>: 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)		
# S M S M O D E = 1 # S M S M O D E = 1 # S M S M O D E = 1	<i>(PDU Mode)</i> 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: <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



+CMGW - Write Message To Memory		SELINT 2
O D E = 1		<p>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)</p> <p>Note: the DCD signal shall be in ON state while text is entered.</p> <p>Note: the echoing of entered characters back from the TA is controlled by echo command E</p> <p>To write the message issue Ctrl-Z char (0x1A hex).</p> <p>To exit without writing the message issue ESC char (0x1B hex).</p> <p>If message is successfully written in the memory, then the result is sent in the format:</p> <p>+CMGW: <index> where: <index> - message location index in the memory <memw>.</p> <p>If message storing fails for some reason, an error code is reported.</p> <p>Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.</p> <p>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 value an error is raised.</p> <p>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".</p>
	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.



+CMGD - Delete Message		SELINT 2
# S M S M O D E = 0		<p>2 - delete all read messages from <memr> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched</p> <p>3 - delete all read messages from <memr> storage, sent and unsent mobile originated messages, leaving unread messages untouched</p> <p>4 - delete all messages from <memr> storage.</p> <p>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.</p> <p>Note: if the location to be deleted is empty, an error message is reported.</p>
	AT+CMGD=?	<p>Test command shows the valid memory locations and optionally the supported values of <delflag>.</p> <p>+CMGD: (supported <index>s list)[,(supported <delflag>s list)]</p>
	Example	<p>AT+CMGD=? +CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4)</p> <p>OK</p>
	Reference	GSM 27.005
(#SMSMODE=1)		
# S M S M O D E = 1	AT+CMGD= <index> [,<delflag>]	<p>Execution command deletes from memory <memr> the message(s).</p> <p>Parameter:</p> <p><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)</p> <p><delflag> - an integer indicating multiple message deletion request.</p> <p>0 (or omitted) - delete message specified in <index></p> <p>1 - delete all read messages from <memr> storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched</p> <p>2 - delete all read messages from <memr> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched</p> <p>3 - delete all read messages from <memr> storage, sent and unsent mobile originated messages, leaving unread messages untouched</p> <p>4 - delete all messages from <memr> storage.</p> <p>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.</p>
	AT+CMGD=?	<p>Test command shows the valid memory locations and optionally the supported values of <delflag>.</p>



+CMGD - Delete Message		SELINT 2
		+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

3.5.5.4.5. Select service for MO SMS messages - +CGSMS

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



3.5.6. FAX Class 1 AT Commands

3.5.6.1. General Configuration

3.5.6.1.1. 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	

3.5.6.1.2. 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	

3.5.6.1.3. 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	



3.5.6.2. Transmission/Reception Control

3.5.6.2.1. 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	

3.5.6.2.2. 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	



3.5.6.2.3. Transmit Data Modulation - +FTM

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

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



3.5.6.2.4. Receive Data Modulation - +FRM

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

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

3.5.6.2.5. Transmit Data With HDLC Framing - +FTH

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



3.5.6.2.6. Receive Data With HDLC Framing - +FRH

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

3.5.6.3. Serial Port Control

3.5.6.3.1. Select Flow Control - +FLO

+FLO - Select Flow Control Specified By Type		SELINT 0 / 1 / 2
AT+FLO=<type>	<p>Set command selects the flow control behaviour of the serial port in both directions: from DTE to DTA and from DTA to DTE.</p> <p>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)</p> <p>Note: This command is a shortcut of the +IFC command. Note: +FLO's settings are functionally a subset of &K's ones.</p>	
AT+FLO?	<p>Read command returns the current value of parameter <type></p> <p>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:</p> <p>+FLO: 0</p>	
AT+FLO=?	<p>Test command returns all supported values of the parameter <type>.</p> <p>Note: test command result is without command echo.</p>	
Reference	ITU T.31 and TIA/EIA-578-A specifications	



3.5.6.3.2. Serial Port Rate - +FPR

+FPR - Select Serial Port Rate		SELINT 0 / 1 / 2
AT+FPR=<rate>	<p>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.</p> <p>Parameter: <rate> - serial port speed selection 0 – autobauding</p> <p>Note: it has no effect and is included only for backward compatibility with landline modems</p>	
AT+FPR?	Read command returns the current value of parameter <rate>	
AT+FPR=?	<p>Test command returns all supported values of the parameters <rate>.</p> <p>Note: test command result is without command echo.</p>	
Reference	ITU T.31 and TIA/EIA-578-A specifications	

3.5.6.3.3. Double Escape Character Replacement - +FDD

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



#CEER – Extended numeric error report		SELINT 2
22	Number changed	
26	Non selected user clearing	
27	Destination out of order	
28	Invalid number format (incomplete number)	
29	Facility rejected	
30	Response to STATUS ENQUIRY	
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	



#FPLMN – Forbidden PLMN deletion		SELINT 2
	60)	
AT#FPLMN?	Read command reports whether the periodic deletion is currently enabled or not, and the deletion period, in the format: #FPLMN: <enable>,<period>	
AT#FPLMN=?	Test command reports available values for parameters <enable> and <period> .	

3.5.7.1.15. 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. 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.	

3.5.7.1.16. 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 .	



#SHDN - Software Shutdown		SELINT 0 / 1
AT#SHDN?	Read command has the same behaviour as Execution command.	

#SHDN - Software Shutdown		SELINT 2
AT#SHDN	<p>Execution command causes device detach from the network and shut down. Before definitive shut down an OK response is returned.</p> <p>Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command.</p> <p>Note: to turn it on again Hardware pin ON/OFF must be tied low.</p>	
AT#SHDN=?	Test command returns the OK result code.	

3.5.7.1.17. Extended Reset - #Z

#Z – Extended reset		SELINT 2
AT#Z=<profile>	<p>Set command loads both base section and extended section of the specified user profile stored with AT&W and selected with AT&P.</p> <p>Parameter <profile> 0 – user profile 0 1 – user profile 1</p>	
AT#Z=?	Test command tests for command existence.	

3.5.7.1.18. Periodic Reset - #ENHRST

#ENHRST – Periodic ReSeT		SELINT 2
AT#ENHRST=<mod>[,<delay>]	<p>Set command enables/disables the unit reset after <delay> minutes.</p> <p>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</p> <p>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</p> <p>Note: the particular case AT#ENHRST=1,0 causes the immediate module reboot. In this case if AT#ENHRST=1,0 follows an AT command that stores some parameters in NVM, it is recommended to insert a delay of at least 5 seconds before to issue AT#ENHRST=1,0, to permit the complete NVM storing.</p>	



#ENHRST – Periodic ReSeT	SELINT 2
AT#ENHRST?	Read command reports the current parameter settings for # EHRST command in the format: # EHRST: < 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 ...

3.5.7.1.19. Wake From Alarm Mode - #WAKE

#WAKE - Wake From Alarm Mode	SELINT 0 / 1
AT#WAKE[=<opmode>]	<p>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.</p> <p>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.</p> <p>Note: if parameter is omitted, the command returns the operating status of the device in the format:</p> <p>#WAKE: <status></p> <p>where: <status> 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity.</p>



#WAKE - Wake From Alarm Mode	SELINT 2
	1 - alarm mode or normal operating mode with some alarm activity.
AT#WAKE=?	Test command returns OK result code.

3.5.7.1.20. 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 <i>working range</i> 1 - the device temperature is out of the <i>working range</i> Note: typical <i>temperature working range</i> 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 <i>temperature working range</i> ; 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 <i>working range</i> 1 - the device temperature is out of the <i>working range</i> Note: typical <i>temperature working range</i> is (-10°C..+55°C); anyway you are strongly recommended to consult the “Hardware User Guide” to verify the real



#QTEMP - Query Temperature Overflow	SELINT 2
	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 <i>temperature working range</i> , elsewhere proper functioning of the device is not ensured.

3.5.7.1.21. Temperature Monitor - #TEMPMON

#TEMPMON - Temperature Monitor	SELINT 2
AT#TEMPMON= <mod> [,<urcmode> [,<action> [,<hyst_time> [,<GPIO>]]]]	<p>Set command sets the behaviour of the module internal temperature monitor.</p> <p>Parameters:</p> <p><mod></p> <ul style="list-style-type: none"> 0 - sets the command parameters. 1 - triggers the measurement of the module internal temperature, reporting the result in the format: <p>#TEMPMEAS: <level>,<value></p> <p>where:</p> <ul style="list-style-type: none"> <level> - threshold level <ul style="list-style-type: none"> -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. <p><i>Setting of the following optional parameters has meaning only if <mod>=0</i></p> <p><urcmode> - URC presentation mode.</p> <ul style="list-style-type: none"> 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: <p>#TEMPMEAS: <level>,<value></p> <p>where:</p> <ul style="list-style-type: none"> <level> and <value> are as before <p><action> - sum of integers, each representing an action to be done whenever the module internal temperature reaches either operating or extreme levels</p>



	<p>(default is 0). If <action> is not zero, it is mandatory to set the <hyst_time> parameter too.</p> <p>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 output pin <GPIO> is tied LOW. If this <action> is required, it is mandatory to set the <GPIO> parameter too.</p> <p><hyst_time> - 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 <action> is not zero. 0..255 - time in seconds</p> <p><GPIO> - GPIO number. valid range is “any output pin” (see “Hardware User’s Guide”). This parameter is needed and required only if <action>=4 is required.</p> <p>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.</p> <p>Note: last <action>, <hyst_time> and <GPIO> settings are saved in NVM too, but they are not related to the current CMUX instance only (see +cmux).</p>
AT#TEMPMON?	<p>Read command reports the current parameter settings for #TEMPMON command in the format:</p> <p>#TEMPMON: <urcmode>,<action>[,<hyst_time>[,<GPIO>]]</p>
AT#TEMPMON=?	<p>Test command reports the supported range of values for parameters <mod>, <urcmode>, <action>, <hyst_time> and <GPIO></p>



Note	<p>In the following table typical temperature bounds are represented for all products except GE864-QUAD AUTOMOTIVE V2 and GE864-QUAD ATEX</p> <table border="1"> <tr> <td>Extreme Temperature Lower Bound</td> <td>-30°C</td> </tr> <tr> <td>Operating Temperature Lower Bound</td> <td>-10°C</td> </tr> <tr> <td>Operating Temperature</td> <td></td> </tr> <tr> <td>Operating Temperature Upper Bound</td> <td>55°C</td> </tr> <tr> <td>Extreme Temperature Upper Bound</td> <td>80°C</td> </tr> </table> <p>In the following table typical temperature bounds are represented for GE864-QUAD AUTOMOTIVE V2 and GE864-QUAD ATEX products.</p> <table border="1"> <tr> <td>Extreme Temperature Lower Bound</td> <td>-50°C</td> </tr> <tr> <td>Operating Temperature Lower Bound</td> <td>-30°C</td> </tr> <tr> <td>Operating Temperature</td> <td></td> </tr> <tr> <td>Operating Temperature Upper Bound</td> <td>85°C</td> </tr> <tr> <td>Extreme Temperature Upper Bound</td> <td>120°C</td> </tr> </table>	Extreme Temperature Lower Bound	-30°C	Operating Temperature Lower Bound	-10°C	Operating Temperature		Operating Temperature Upper Bound	55°C	Extreme Temperature Upper Bound	80°C	Extreme Temperature Lower Bound	-50°C	Operating Temperature Lower Bound	-30°C	Operating Temperature		Operating Temperature Upper Bound	85°C	Extreme Temperature Upper Bound	120°C
	Extreme Temperature Lower Bound	-30°C																			
Operating Temperature Lower Bound	-10°C																				
Operating Temperature																					
Operating Temperature Upper Bound	55°C																				
Extreme Temperature Upper Bound	80°C																				
Extreme Temperature Lower Bound	-50°C																				
Operating Temperature Lower Bound	-30°C																				
Operating Temperature																					
Operating Temperature Upper Bound	85°C																				
Extreme Temperature Upper Bound	120°C																				



3.5.7.1.22. Set General Purpose Output - #SGPO

#SGPO - Set General Purpose Output		SELINT 0 / 1
AT#SGPO=[<stat>]	<p>Set command sets the value of the general purpose output pin GPIO2.</p> <p>Parameter: <stat> 0 - output pin cleared to 0 (Low) 1 - output pin set to 1 (High)</p> <p>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.</p> <p>Note: issuing AT#SGPO<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#SGPO=<CR> is the same as issuing the command AT#SGPO=0<CR>.</p>	
AT#SGPO?	<p>Read command reports the #SGPO command setting, hence the opposite status of the open collector pin in the format:</p> <p>#SGPO: <stat>.</p>	
AT#SGPO=?	<p>Test command reports the supported range of values of parameter <stat>.</p>	

3.5.7.1.23. General Purpose Input - #GGPI

#GGPI - General Purpose Input		SELINT 0 / 1
AT#GGPI=[<dir>]	<p>Set command sets the general purpose input pin GPIO1.</p> <p>Parameter: <dir> - auxiliary input GPIO1 setting 0 - the Read command AT#GGPI? reports the logic input level read from GPIO1 pin.</p> <p>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.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command</p>	
AT#GGPI?	<p>Read command reports the read value for the input pin GPIO1, in the format:</p> <p>#GGPI: <dir>,<stat></p>	



#GGPI - General Purpose Input	SELINT 0 / 1
<p>where <dir> - direction setting (see #GGPI=<dir>) <stat> - logic value read from pin GPIO1</p> <p>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.</p>	
AT#GGPI=?	Test command reports supported range of values for parameter <dir>.

3.5.7.1.24. General Purpose Input/Output Pin Control - #GPIO

#GPIO - General Purpose Input/Output Pin Control	SELINT 0/1
<p>AT#GPIO=[<pin>, <mode>[,<dir>]]</p>	<p>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.</p> <p>Parameters:</p> <p><pin> - GPIO pin number; supported range is from 1 to a value that depends on the hardware.</p> <p><mode> - its meaning depends on <dir> setting:</p> <ul style="list-style-type: none"> 0 - no meaning if <dir>=0 - INPUT <ul style="list-style-type: none"> - 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 <ul style="list-style-type: none"> - 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 <ul style="list-style-type: none"> - 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 <p><dir> - GPIO pin direction</p> <ul style="list-style-type: none"> 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) <p>Note: when <mode>=2 (and <dir> is omitted) the command reports the direction and value of pin GPIO<pin> in the format:</p> <p>#GPIO: <dir>,<stat></p> <p>where: <dir> - current direction setting for the GPIO<pin></p>



#GPIO - General Purpose Input/Output Pin Control		SELINT 0/1
	<p><stat></p> <ul style="list-style-type: none"> <input type="checkbox"/> logic value read from pin GPIO<pin> in the case the pin <dir> is set to input; <input type="checkbox"/> logic value present in output of the pin GPIO<pin> in the case the pin <dir> is currently set to output; <input type="checkbox"/> no meaning value for the pin GPIO<pin> in the case the pin <dir> is set to alternate function or Tristate pull down <p>Note: "ALTERNATE FUNCTION" value is valid only for following pins:</p> <ul style="list-style-type: none"> <input type="checkbox"/> GPIO4 - alternate function is "RF Transmission Control" <input type="checkbox"/> GPIO5 - alternate function is "RF Transmission Monitor" <input type="checkbox"/> GPIO6 - alternate function is "Alarm Output" (see +CALA and #ALARMPIN) <input type="checkbox"/> GPIO7 - alternate function is "Buzzer Output" (see #SRP) <p>Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided.</p> <p>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 INPUT. Check the product HW user guide to verify if Tristate pull down settings is available and if it is the default at system start-up</p>	
AT#GPIO?	<p>Read command reports the read direction and value of all GPIO pins, in the format:</p> <p>#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[...]]</p> <p>where <dir> - as seen before <stat> - as seen before</p>	
AT#GPIO=?	<p>Test command reports the supported range of values of the command parameters <pin>, <mode> and <dir>.</p>	
Example	<pre>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</pre>	

#GPIO - General Purpose Input/Output Pin Control		SELINT 2
AT#GPIO=[<pin>,	Execution command sets the value of the general purpose output pin GPIO <pin>	



#GPIO - General Purpose Input/Output Pin Control	SELINT 2
<p><mode>[,<dir>]]</p>	<p>according to <dir> and <mode> parameter. Not all configurations for the three parameters are valid.</p> <p>Parameters:</p> <p><pin> - GPIO pin number; supported range is from 1 to a value that depends on the hardware.</p> <p><mode> - its meaning depends on <dir> setting:</p> <p>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 - no meaning if <dir>=4 - 2nd ALTERNATE FUNCTION</p> <p>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 - no meaning if <dir>=4 - 2nd ALTERNATE FUNCTION</p> <p>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 value if <dir>=3 - TRISTATE PULL DOWN - Reports a no meaning value if <dir>=4 - 2nd ALTERNATE FUNCTION</p> <p><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) 4 - pin direction is 2nd ALTERNATE FUNCTION (see Note).</p> <p>Note: when <mode>=2 (and <dir> is omitted) the command reports the direction and value of pin GPIO<pin> in the format:</p> <p>#GPIO: <dir>,<stat></p> <p>where:</p> <p><dir> - current direction setting for the GPIO<pin> <stat></p> <ul style="list-style-type: none"> <input type="checkbox"/> logic value read from pin GPIO<pin> in the case the pin <dir> is set to input; <input type="checkbox"/> logic value present in output of the pin GPIO<pin> in the case the pin <dir> is currently set to output; <input type="checkbox"/> no meaning value for the pin GPIO<pin> in the case the pin <dir> is set to alternate function or Tristate pull down <p>Note: "ALTERNATE FUNCTION" value is valid only for following pins:</p>



#GPIO - General Purpose Input/Output Pin Control	SELINT 2
	<ul style="list-style-type: none"> <input type="checkbox"/> GPIO4 - alternate function is "RF Transmission Control" <input type="checkbox"/> GPIO5 - alternate function is "RF Transmission Monitor" <input type="checkbox"/> GPIO6 - alternate function is "Alarm Output" (see +CALA and #ALARMPIN) <input type="checkbox"/> GPIO7 - alternate function is "Buzzer Output" (see #SRP) <p>Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided.</p> <p>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 INPUT. Check the product HW user guide to verify if Tristate pull down settings is available and if it is the default at system start-up</p>
AT#GPIO?	<p>Read command reports the read direction and value of all GPIO pins, in the format:</p> <p>#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[...]]</p> <p>where <dir> - as seen before <stat> - as seen before</p>
AT#GPIO=?	<p>Test command reports the supported range of values of the command parameters <pin>, <mode> and <dir>.</p>
Example	<pre>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</pre>

3.5.7.1.25. Alarm Pin - #ALARMPIN

#ALARMPIN – Alarm Pin	SELINT 2
AT#ALARMPIN=<pin>	<p>Set command sets the GPIO pin for the ALARM pin</p> <p>Parameters: <pin> defines which GPIO shall be used as ALARM pin instead of GPIO6/ALARM. For the <pin> actual range check the "Hardware User Guide". Default value is 6.</p>



	Note: the setting is saved in NVM Note: setting <pin> equal to 0 disables the ALARM pin
AT#ALARMPIN?	Read command returns the current parameter settings for #ALARMPIN command in the format: #ALARMPIN: <pin>
AT#ALARMPIN=?	Test command reports the supported range of values for parameter <pin>.

3.5.7.1.26. 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 (default for GL865-DUAL, GL868-DUAL, GE910-QUAD, GE910-QUAD V3 and GE910-GNSS) 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 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 the 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>.

3.5.7.1.27. 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.



#ADC - Read Analog/Digital Converter input		SELINT 2
	<p>Parameters:</p> <p><adc> - index of pin For the number of available ADCs see HW User Guide</p> <p><mode> - required action 2 - query ADC value <dir> - direction; its interpretation is currently not implemented 0 - no effect.</p> <p>Note: The command returns the last valid measure.</p>	
AT#ADC?	<p>Read command reports all pins voltage, converted by ADC, in the format:</p> <p>#ADC: <value> <CR><LF>#ADC: <value>[...]</p>	
AT#ADC=?	<p>Test command reports the supported range of values of the command parameters <adc>, <mode> and <dir>.</p>	

3.5.7.1.30. Digital/Analog Converter Control - #DAC

#DAC - Digital/Analog Converter Control		SELINT 0 / 1
AT#DAC[= <enable> [,<value>]]	<p>Set command enables/disables the DAC_OUT pin.</p> <p>Parameters:</p> <p><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</p> <p>Note: integrated output voltage = MAX_VOLTAGE * value / 1023</p> <p>Note: if all parameters are omitted then the behaviour of Set command is the same as the Read command.</p>	
AT#DAC?	<p>Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format:</p> <p>#DAC: <enable>,<value></p>	
AT#DAC=?	<p>Test command reports the range for the parameters <enable> and <value>.</p>	
Example	<p>Enable the DAC out and set its integrated output to the 50% of the max value:</p> <p>AT#DAC=1,511 OK</p> <p>Disable the DAC out:</p> <p>AT#DAC=0 OK</p>	
Note	<p>With this command the DAC frequency is selected internally.</p>	



#DAC - Digital/Analog Converter Control		SELINT 0 / 1
	<p>D/A converter must not be used during POWERSAVING.</p> <p>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.</p>	

#DAC - Digital/Analog Converter Control		SELINT 2
AT#DAC= [<enable> [,<value>]]	<p>Set command enables/disables the DAC_OUT pin.</p> <p>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</p> <p>Note: integrated output voltage = MAX_VOLTAGE * value / 1023</p>	
AT#DAC?	<p>Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format:</p> <p>#DAC: <enable>,<value></p>	
AT#DAC=?	<p>Test command reports the range for the parameters <enable> and <value>.</p>	
Example	<p><i>Enable the DAC out and set its integrated output to the 50% of the max value:</i></p> <p>AT#DAC=1,511 OK</p> <p><i>Disable the DAC out:</i></p> <p>AT#DAC=0 OK</p>	
Note	<p>With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING.</p> <p>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.</p>	

3.5.7.1.31. Auxiliary Voltage Output Control - #VAUX

#VAUX- Auxiliary Voltage Output Control		SELINT 0 / 1
AT#VAUX[=<n>,<stat>]	<p>Set command enables/disables the Auxiliary Voltage pins output.</p> <p>Parameters:</p>	



#VAUX- Auxiliary Voltage Output Control	SELINT 0 / 1
	<p><n> - VAUX pin index 1 - there is currently just one VAUX pin</p> <p><stat> 0 - output off 1 - output on 2 - query current value of VAUX pin</p> <p>Note: when <stat>=2 and command is successful, it returns:</p> <p>#VAUX: <value></p> <p>where: <value> - power output status 0 - output off 1 - output on</p> <p>Note: If all parameters are omitted the command has the same behaviour as Read command.</p> <p>Note: for the GPS product: if the Auxiliary Voltage pin output is disabled while GPS is powered on they'll both also be turned off.</p> <p>Note: for the GPS products, at commands \$GPSP, \$GPSPS, \$GPSWK control VAUX and can interfere with AT# command.</p>
AT#VAUX?	<p>Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format:</p> <p>#VAUX: <value></p>
AT#VAUX=?	<p>Test command reports the supported range of values for parameters <n>, <stat>.</p>
NOTE:	<p>Command available only on GE864-QUAD and GC864-QUAD with SW 10.00.xxx</p>

#VAUX- Auxiliary Voltage Output Control	SELINT 2
<p>AT#VAUX= [<n>,<stat>]</p>	<p>Set command enables/disables the Auxiliary Voltage pins output.</p> <p>Parameters: <n> - VAUX pin index 1 - there is currently just one VAUX pin</p> <p><stat> 0 - output off 1 - output on 2 - query current value of VAUX pin</p> <p>Note: when <stat>=2 and command is successful, it returns:</p> <p>#VAUX: <value></p>



#VAUX- Auxiliary Voltage Output Control		SELINT 2
	<p>where: <value> - power output status 0 - output off 1 - output on</p> <p>Note: for the GPS product: if the Auxiliary Voltage pins output is disabled while GPS is powered on they'll both also be turned off.</p> <p>Note: for the GPS products, at commands \$GPSP, \$GPS, \$GPSWK control VAUX and can interfere with AT# command.</p> <p>Note: the current setting is stored through #VAUXSAV</p>	
AT#VAUX?	<p>Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format:</p> <p>#VAUX: <value></p>	
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	

3.5.7.1.32. 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.	

3.5.7.1.33. V24 Output pins mode - #V24MODE

#V24MODE - V24 Output Pins Mode		SELINT 2
AT#V24MODE=<port>, <mode>, <when>	<p>Set command sets the <port> serial interface functioning <mode>.</p> <p>Parameters: <port> - serial port: 0 – ASC0 (AT command port) 1 – ASC1 (trace port)</p> <p><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</p> <p><when> - When the command is applied: 0 – Always (default) 1 – In power saving only</p>	
AT#V24MODE?	<p>Read command returns actual functioning <mode> for all ports in the format:</p> <p>#V24MODE: 0,<mode_port0>,<when0>[<CR><LF></p>	



#V24MODE - V24 Output Pins Mode	SELINT 2
	<p>#V24MODE: 1,<mode_port1>,<when1> [<CR><LF></p> <p>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</p>
AT#V24MODE=?	Test command reports supported range of values for parameters <port>, <mode> and <when>.

3.5.7.1.34. V24 Output Pins Configuration - #V24CFG

#V24CFG - V24 Output Pins Configuration	SELINT 2
AT#V24CFG=<pin>,<mode>	<p>Set command sets the AT commands serial port interface output pins mode.</p> <p>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.</p>
AT#V24CFG?	<p>Read command returns actual mode for all the pins (either output and input) in the format:</p> <p>#V24CFG: <pin1>,<mode1>[<CR><LF><CR><LF> #V24CFG: <pin2>,<mode2>[...]]</p> <p>Where: <pinn> - AT command serial port interface HW pin <moden> - AT commands serial port interface hardware pin mode</p>
AT#V24CFG=?	Test command reports supported range of values for parameters <pin> and <mode>.



#TXMONMODE- RF Transmission Monitor Mode	SELINT 2
	<p>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.</p> <p>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.</p> <p>Note: if user sets GPIO 5 as input or output the TXMON does not follow the above behaviour.</p> <p>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.</p>
AT#TXMONMODE?	<p>Read command reports the <mode> parameter set value, in the format:</p> <p>#TXMONMODE: <mode></p>
AT#TXMONMODE=?	<p>Test command reports the supported values for <mode> parameter.</p>

3.5.7.1.37. Battery And Charger Status - #CBC

#CBC- Battery And Charger Status	SELINT 0 / 1
AT#CBC	<p>Execution command returns the current Battery and Charger state in the format:</p> <p>#CBC: <ChargerState>,<BatteryVoltage></p> <p>where:</p> <p><ChargerState> - battery charger state</p> <ul style="list-style-type: none"> 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed <p><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.</p>
AT#CBC?	<p>Read command has the same meaning as Execution command.</p>
AT#CBC=?	<p>Test command returns the OK result code.</p>

#CBC- Battery And Charger Status	SELINT 2
AT#CBC	<p>Execution command returns the current Battery and Charger state in the format:</p> <p>#CBC: <ChargerState>,<BatteryVoltage></p> <p>where:</p> <p><ChargerState> - battery charger state</p>



#CBC- Battery And Charger Status		SELINT 2
	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.	

3.5.7.1.38. 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 when the module is in GPRS class B (see AT+CGCLASS). 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. 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. 2 - disables GPRS auto-attach property (available also for class “CG”)	
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> .	



#MONI - Cell Monitor	SELINT 0 / 1
	<p>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.</p> <p>Parameter: <number> 0..6 - it is the ordinal number of a cell, in a the neighbour list of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related informations from the whole set of seven cells in the neighbour list of the serving cell.</p> <p>Note: issuing AT#MONI<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#MONI=<CR> is the same as issuing the command AT#MONI=0<CR>.</p>
AT#MONI?	<p>Execution command reports GSM-related informations for selected cell and dedicated channel (if exists).</p> <p>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></p> <p>b) When the network name is unknown, the format is: #MONI: <cc> <nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv></p> <p>c) When extracting data for an adjacent cell, the format is: #MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm</p> <p>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</p> <p>Note: TA: <timadv> is reported only for the serving cell.</p>



#MONI - Cell Monitor	SELINT 0 / 1
	<p>1. If the last setting done by #MONI is 7, the execution command produces a table-like formatted output, as follows:</p> <p>a. First row reports the identifying name of the ‘columns’ #MONI: Cell BSIC LAC CellId ARFCN Power C1 C2 TA RxQual PL MN<CR><LF></p> <p>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></p> <p>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>]</p> <p>where: <C1value> - C1 reselection parameter <C2value> - C2 reselection parameter <i>other parameters as before</i></p>
<p>AT#MONI=?</p>	<p>Test command reports the maximum number of cells, in the neighbour list of the serving cell, from which we can extract GSM-related informations, along with the ordinal number of the current selected cell, in the format:</p> <p>#MONI: (<MaxCellNo>,<CellSet>)</p> <p>where: <MaxCellNo> - maximum number of cells, in the neighbour list of the serving cell, from which we can extract GSM-related informations (for compatibility with previous versions of code this value is always 5). <CellSet> - the last setting done with command #MONI.</p> <p>An enhanced version of the Test command has been defined: AT#MONI=??</p> <p>Note: The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.</p>
<p>AT#MONI=??</p>	<p>Enhanced test command reports the maximum number of cells, in the neighbour list of the serving cell and including it, from which we can extract GSM-related informations, along with the ordinal number of the current selected cell, in the format:</p>



#MONI - Cell Monitor	SELINT 0 / 1
	<p>#MONI: (<MaxCellNo>,<CellSet>)</p> <p>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.</p> <p>Note: The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.</p>
Example	<p><i>Set command selects the cell 0</i></p> <pre>at#moni=0 OK</pre> <p><i>Execution command reports GSM-related information for cell 0</i></p> <pre>at#moni #MONI: I WIND BSIC:70 RxQual:0 LAC:55FA Id:1D23 ARFCN:736 PWR:-83dbm TA:1 OK</pre> <p><i>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</i></p> <pre>at#moni=7 OK</pre> <p><i>Execution command reports the requested information in table-like format</i></p> <pre>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</pre>
Note	<p>The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.</p>
Note	<p>The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.</p>

#MONI - Cell Monitor	SELINT 2
<p>AT#MONI[= [<number>]]</p>	<p>#MONI is both a set and an execution command.</p> <p>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.</p>



#MONI - Cell Monitor	SELINT 2
	<p>#MONI: Cell BSIC LAC CellId ARFCN Power C1 C2 TA RxQual PL MN<CR><LF></p> <p>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></p> <p>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>]</p> <p>where: <C1value> - C1 reselection parameter <C2value> - C2 reselection parameter <i>other parameters as before</i></p>
AT#MONI=?	<p>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 informations, along with the ordinal number of the current selected cell, in the format:</p> <p>#MONI: (<MaxCellNo>,<CellSet>)</p> <p>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 informations. This value is always 6. <CellSet> - the last setting done with command #MONI.</p>
Example	<p><i>Set command selects the cell 0</i> at#moni=0 OK</p> <p><i>Execution command reports GSM-related information for cell 0</i> at#moni #MONI: I WIND BSIC:70 RxQual:0 LAC:55FA Id:1D23 ARFCN:736 PWR:-83dbm TA:1</p> <p>OK</p> <p><i>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</i> at#moni=7 OK</p> <p><i>Execution command reports the requested information in table-like format</i> at#moni</p>



#SERVINFO - Serving Cell Information		SELINT 0 / 1
	<p>”III” <RAC> - Routing Area ColoUr Code <PAT> - Priority Access Threshold 0 3..6</p> <p>Note: during a call, a SMS sending/receiving or a location update the values of <GPRS>, <PB-ARFCN>, <NOM>, <RAC> and <PAT> parameters don't make sense.</p>	
AT#SERVINFO?	Read command has the same effect as Execution command	
AT#SERVINFO=?	Test command tests for command existence (available only for 10.0x.xx5 and following versions)	

#SERVINFO - Serving Cell Information		SELINT 2
AT#SERVINFO	<p>Execution command reports information about serving cell, in the format:</p> <p>#SERVINFO: <B-ARFCN>,<dBm>,<NetNameAsc>,<NetCode>,<BSIC>,<LAC>,<TA>,<GPRS>[,<PB-ARFCN>],[<NOM>],<RAC>[,<PAT>]]</p> <p>where:</p> <ul style="list-style-type: none"> <B-ARFCN> - BCCH ARFCN of the serving cell <dBm> - received signal strength in dBm <NetNameAsc> - operator name, quoted string type <NetCode> - string representing the network operator in numeric format: 5 or 6 digits [country code (3) + network code (2 or 3)] <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 <ul style="list-style-type: none"> 0 - not supported 1 - supported <p>The following information will be present only if GPRS is supported in the cell</p> <p><PB-ARFCN> -</p> <ul style="list-style-type: none"> • if PBCCH is supported by the cell <ul style="list-style-type: none"> ○ if its content is the PBCCH ARFCN of the serving cell, then <PB-ARFCN> is available ○ else the label “hopping” will be printed • else <PB-ARFCN> is not available <p><NOM> - Network Operation Mode ”I” “II” ”III”</p>	



#SERVINFO - Serving Cell Information	SELINT 2
	<p><RAC> - Routing Area Colour Code <PAT> - Priority Access Threshold 0 3..6</p> <p>Note: during a call, a SMS sending/receiving or a location update the values of <GPRS>, <PB-ARFCN>, <NOM>, <RAC> and <PAT> parameters don't make sense.</p>
AT#SERVINFO=?	Test command tests for command existence (available only for 10.0x.xx5 and following versions)

3.5.7.1.42. Network Survey Of Timing Advance - #CSURVTA

#CSURVTA – Network Survey Of Timing Advance	SELINT 2
<p>AT#CSURVTA=<ch1>,[<ch2>],[...,[<chn>]]</p>	<p>Execution command allows to perform a quick survey of timing advance through the given channels or through top 6 neighbour cells.</p> <p>Parameters: <chn> - channel number (arfcn) or 1024</p> <p><u>If <ch1> is different than 1024.</u> After issuing the command the device responds with the string:</p> <p>Network survey started...</p> <p>and, after a while, a list of timing advance values, one for each received carrier, is reported, each of them in the format:</p> <p>arfcn: <arfcn> TA: <TAValue><CR><LF><CR><LF><CR><LF></p> <p>where: <arfcn> - decimal number; it is the RF channel <TAValue> - decimal number; it is the timing advance value in bit periods (1 bit period = 48/13 μs); the range of this value is 0-63; this value is -1 if time advance measurement fails</p> <p>Lastly, the #CSURVTA output ends in two ways, depending on the last #CSURVF setting:</p> <p style="text-align: center;">if #CSURVF=0 or #CSURVF=1</p> <p>The output ends with the string:</p> <p>Network survey ended</p>



	<p style="text-align: center;">if #CSURVF=2</p> <p>the output ends with the string:</p> <p>Network survey ended (Carrier: <NoARFCN> BCCh: 0)</p> <p>where <NoARFCN> - number of scanned frequencies</p> <p>Note: the maximum number of channels is 20.</p> <p>Note: during the execution of this command calls and sms, either incoming or outgoing, are not supported.</p> <p>Note: after the end of this command it is strongly suggested to wait at least 5 seconds before sending other AT commands.</p> <p>Note: this command can only be executed when mobile is in idle state.</p> <p>Note: it is possible to measure timing advance of cells that do not belong to current selected PLMN or current neighbour cell list.</p> <p>Note: if serving cell timing advance is needed, it is strongly suggested to measure its timing advance with this command, adding serving cell ARFCN to the list, in order to have even measures.</p> <p>Note: the command may be aborted and return ERROR in case of higher priority protocol stack event.</p> <p>Note: AT#CSURVNLF configuration affects this command behaviour.</p> <p>Note: AT#CSURVEXT configuration does not affect this command behaviour.</p> <p><u>If there is only one parameter and <ch1> is equal to 1024.</u> After issuing the command the device responds with the string</p> <p>ARFCN dBm MCC MNC LAC cell TA<CR><LF></p> <p>followed by the list of top 6 neighbour ARFCN parameters, including timing advance, in the format:</p> <p><arfcn> <dBm> <mcc> <mnc> <lac> <id> <TAValue><CR><LF></p> <p>where: <arfcn> - decimal number; it is the RF channel <dBm> - decimal number; it is received signal strength in dBm <mcc> - hexadecimal number; it is mobile country code</p>
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	<p><mnc> - hexadecimal number; it is mobile network code <lac> - hexadecimal number; it is location area code <id> - hexadecimal number; it is cell id <TAValue> - decimal number; it is the timing advance value in bit periods (1 bit period = 48/13 μs); the range of this value is 0-63; this value is -1 if time advance measurement fails</p>
<p>AT#CSURVTA=?</p>	<p>Test command response is OK.</p>
<p>Example</p>	<p>AT#CSURVTA=9,7,4</p> <p>Network survey started ...</p> <p>arfcn: 9 TA: 2</p> <p>arfcn: 7 TA: 11</p> <p>arfcn: 4 TA: 2</p> <p>Network survey ended</p> <p>OK</p> <p>AT#CSURVTA=1024 ARFCN dBm MCC MNC LAC cell TA 1004 -75 222 01 D5BD 5265 0 25 -81 222 01 D5BD 520F 11 15 -91 222 01 D5BD 5251 7 19 -93 222 01 D5BD 5219 12 12 -96 222 01 D5BD 5266 1</p> <p>OK</p>



#QSS - Query SIM Status		SELINT 0 / 1
	#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>]	<p>Set command enables/disables the Query SIM Status unsolicited indication in the ME.</p> <p>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:</p> <p style="text-align: center;">#QSS: <status></p> <p>where: <status> - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED</p> <p>2 - enabled; the ME informs at every SIM status change through the following unsolicited indication:</p> <p style="text-align: center;">#QSS: <status></p> <p>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).</p> <p>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.</p>	
AT#QSS?	<p>Read command reports whether the unsolicited indication #QSS is currently enabled or not, along with the SIM status, in the format:</p> <p style="text-align: center;">#QSS: <mode>,<status> (<mode> and <status> are described above)</p>	
AT#QSS=?	Test command returns the supported range of values for parameter <mode>.	



3.5.7.1.45. ATD Dialing Mode - #DIALMODE

#DIALMODE - ATD Dialing Mode	SELINT 0 / 1
<p>AT#DIALMODE[= <mode>]</p>	<p>Set command sets ATD modality.</p> <p>Parameter: <mode></p> <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> DIALING (MO in progress) RINGING (remote ring) CONNECTED (remote call accepted) RELEASED (after ATH) DISCONNECTED (remote hang-up) <p>Note: The setting is saved in NVM and available on following reboot.</p> <p>Note: In case a BUSY tone is received and at the same time ATX0 is enabled ATD will return NO CARRIER instead of DISCONNECTED.</p> <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command.</p>
<p>AT#DIALMODE?</p>	<p>Read command returns current ATD dialing mode in the format:</p> <p>#DIALMODE: <mode></p>
<p>AT#DIALMODE=?</p>	<p>Test command returns the range of values for parameter <mode></p>

#DIALMODE - Dialing Mode	SELINT 2
<p>AT#DIALMODE= [<mode>]</p>	<p>Set command sets dialing modality.</p> <p>Parameter: <mode></p> <ul style="list-style-type: none"> 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 received, monitoring step by step the call status: <ul style="list-style-type: none"> DIALING (MO in progress) RINGING (remote ring) CONNECTED (remote call accepted) RELEASED (after ATH)



#ACAL - Automatic Call		SELINT 2
	Note: type of call depends on the last issue of command +FCLASS.	
AT#ACAL?	<p>Read command reports whether the automatic call function is currently enabled or not, in the format:</p> <p>#ACAL: <mode></p> <p>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.</p> <p>AT#ACAL? #ACAL : 2</p> <p>OK</p> <p>Due to this possible situation it is strongly recommended not to use contemporaneously both commands.</p>	
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.	

3.5.7.1.47. Extended Automatic Call - #ACALEXT

#ACALEXT - Extended Automatic Call		SELINT 0 / 1 / 2
AT#ACALEXT= <mode>,<index>	<p>Set command enables/disables the extended automatic call function.</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - disables the automatic call function (factory default) 1 - enables the automatic call function from “ME” phonebook. 2 - enables the automatic call function from “SM” phonebook. <p><index> - it indicates a position in the currently selected phonebook.</p> <p>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.</p> <p>Note: type of call depends on the last issue of command +FCLASS.</p>	
AT#ACALEXT?	<p>Read command reports either whether the automatic call function is currently enabled or not, and the last <index> setting in the format:</p> <p>#ACALEXT: <mode>,<index></p>	
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	



#ACALEXT - Extended Automatic Call		SELINT 0 / 1 / 2
	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.	

3.5.7.1.48. Extended Call Monitoring - #ECAM

#ECAM - Extended Call Monitoring		SELINT 0 / 1
AT#ECAM[= [<onoff>]]	<p>This command enables/disables the call monitoring function in the ME.</p> <p>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:</p> <p>#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]</p> <p>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</p> <p>Note: the unsolicited indication is sent along with usual codes (OK, NO CARRIER, BUSY...).</p>	



#ECAM - Extended Call Monitoring		SELINT 0 / 1
	<p>Note: issuing AT#ECAM<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#ECAM=<CR> returns the OK result code.</p>	
AT#ECAM?	<p>Read command reports whether the extended call monitoring function is currently enabled or not, in the format:</p> <p>#ECAM: <onoff></p>	
AT#ECAM=?	<p>Test command returns the list of supported values for <onoff></p>	

#ECAM - Extended Call Monitoring		SELINT 2
AT#ECAM= [<onoff>]	<p>This command enables/disables the call monitoring function in the ME.</p> <p>Parameter: <onoff></p> <ul style="list-style-type: none"> 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: <p>#ECAM: <ccid>,<ccstatus>,<calltype>,,,[<number>,<type>]</p> <p>where</p> <ul style="list-style-type: none"> <ccid> - call ID <ccstatus> - call status <ul style="list-style-type: none"> 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy <calltype> - call type <ul style="list-style-type: none"> 1 - voice 2 - data <number> - called number (valid only for <ccstatus>=1) <type> - type of <number> <ul style="list-style-type: none"> 129 - national number 145 - international number <p>Note: the unsolicited indication is sent along with usual codes (OK, NO CARRIER, BUSY...).</p>	
AT#ECAM?	<p>Read command reports whether the extended call monitoring function is currently enabled or not, in the format:</p>	



#MWI - Message Waiting Indication	SELINT 2
	<p>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..</p> <p>The URC format is:</p> <p>#MWI: <status>,<indicator>[,<count>]</p> <p>where:</p> <p><status></p> <ul style="list-style-type: none"> 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> <p><indicator></p> <ul style="list-style-type: none"> 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context only) 3 - Fax 4 - E-mail 5 - Other <p><count> - message counter: network information reporting the number of pending messages related to the message waiting indicator <indicator>.</p> <p>The presentation at startup of the message waiting indicators status, as they are currently stored on SIM, is as follows:</p> <p>#MWI: <status>[,<indicator>[,<count>]][<CR><LF> #MWI: <status>,<indicator>[,<count>][...]]]</p> <p>where:</p> <p><status></p> <ul style="list-style-type: none"> 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>. <p><indicator></p> <ul style="list-style-type: none"> 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context) 3 - Fax 4 - E-mail 5 - Other <p><count> - message counter: number of pending messages related to the message waiting indicator <indicator> as it is stored on SIM.</p>
AT#MWI?	<p>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 format is:</p>



#CODEC - Audio Codec		SELINT 2
AT#CODEC= [<codec>]	<p>Set command sets the audio codec mode.</p> <p>Parameter: <codec> 0 - all the codec modes are enabled (factory default) 1..31 - sum of integers each representing a specific codec mode:</p> <ul style="list-style-type: none"> 1 - FR, full rate mode enabled (This is the only option available for SW 13.00.xxx) 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 <p>Note: the full rate mode is added by default to any setting in the SETUP message (as specified in ETSI 04.08), but the call drops if the network assigned codec mode has not been selected by the user.</p> <p>Note: the setting 0 is equivalent to the setting 31.</p> <p>Note: The codec setting is saved in the profile parameters.</p>	
AT#CODEC?	<p>Read command returns current audio codec mode in the format:</p> <p>#CODEC: <codec></p>	
AT#CODEC=?	<p>Test command returns the range of available values for parameter <codec></p>	
Example	<p>AT#CODEC=14 OK</p> <p><i>sets the codec modes HR (4), EFR (2) and AMR-FR (8)</i></p>	

3.5.7.1.53. Network Timezone - #NITZ

#NITZ - Network Timezone		SELINT 0 / 1
AT#NITZ[= [<val> [,<mode>]]]	<p>Set command enables/disables automatic date/time updating and Network Timezone unsolicited indication.</p> <p>Date and time information can be sent by the network after GSM registration or after GPRS attach.</p> <p>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</p>	



#NITZ - Network Timezone	SELINT 2
	<p>GL868-DUAL, GE910-QUAD, GE910-QUAD V3 and GE910-GNSS: 7)</p> <p><mode> 0 - disables #NITZ URC (factory default) 1 - enables #NITZ URC; after date and time updating the following unsolicited indication is sent:</p> <p>#NITZ: <datetime></p> <p>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)</p> <p>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.</p> <p>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”</p>
AT#NITZ?	<p>Read command reports whether (a) automatic date/time updating, (b) Full Network Name applying, (c) #NITZ URC (as well as its format) are currently enabled or not, in the format:</p> <p>#NITZ: <val>,<mode></p>
AT#NITZ=?	<p>Test command returns supported values of parameters <val> and <mode>.</p>

3.5.7.1.54. Clock management - #CCLK

#CCLK - Clock Management	SELINT 2
AT#CCLK=<time>	<p>Set command sets the real-time clock of the ME.</p> <p>Parameter: <time> - current time as quoted string in the format: "yy/MM/dd,hh:mm:ss±zz,d"</p>



#CCLK - Clock Management	SELINT 2
	<p>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</p> <p>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.</p>
AT#CCLK?	<p>Read command returns the current setting of the real-time clock, in the format <time>.</p> <p>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"</p>
AT#CCLK=?	Test command returns the OK result code.
Example	<p>AT#CCLK="02/09/07,22:30:00+04,1" OK AT#CCLK? #CCLK: "02/09/07,22:30:25+04,1" OK</p>

3.5.7.1.55. Enhanced Network Selection - #ENS

#ENS - Enhanced Network Selection	SELINT 2
AT#ENS=[<mode>]	<p>Set command is used to activate the ENS functionality.</p> <p>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:</p> <ul style="list-style-type: none"> ➤ at every next power-up <ul style="list-style-type: none"> 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



	<p>a Automatic Band Selection enabled (AT#AUTOBND=2) only if the previous setting was equal to AT#AUTOBND=0</p> <p>b PLMN list not fixed (AT#PLMNMODE=1).</p> <p>Note: the new setting will be available just at first next power-up.</p> <p>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.</p> <p>Note: on version 10.0x.xx4 the set command AT#ENS=1 doesn’t enable the SIM Application Toolkit if the command AT#ENASIM? returns 1.</p>
AT#ENS?	<p>Read command reports whether the ENS functionality is currently enabled or not, in the format:</p> <p>#ENS: <mode> where: <mode> as above</p>
AT#ENS=?	Test command reports the available range of values for parameter <mode> .
Reference	Cingular Wireless LLC Requirement

3.5.7.1.56. Select Band - #BND

#BND - Select Band	SELINT 0 / 1
AT#BND[= [<band>]]	<p>Set command selects the current band.</p> <p>Parameter <band>:</p> <ul style="list-style-type: none"> 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) <p>Note: This setting is maintained even after power off.</p> <p>Note: issuing AT#BND<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#BND=<CR> is the same as issuing the command AT#BND=0<CR>.</p>
AT#BND?	<p>Read command returns the current selected band in the format:</p> <p>#BND: <band></p>
AT#BND=?	Test command returns the supported range of values of parameter <band> .



3.5.7.1.58. Lock to single band - #BNDLOCK

#BNDLOCK – Lock to single band	SELINT 2
<p>AT#BNDLOCK=<LockedBand></p>	<p>This command allows to set the single band the device must be locked to, selectable within those allowed for the specific product.</p> <p>Parameters: <LockedBand>:</p> <ul style="list-style-type: none"> 0 - disables band locking (factory default); 1 - enables band locking on GSM 900MHz; 2 - enables band locking on DCS 1800MHz; 3 - enables band locking on GSM 850MHz; 4 - enables band locking on PCS 1900MHz. <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific CMUX instance.</p> <p>Note: the new setting takes effect after a new registration procedure to the network. For this reason it is strongly recommended a power cycle (power-off and power-on the device) after new setting. Another possibility is to keep the device on and to force a new registration to the network as in the following example: - set AT+COPS=1,2,00001 (manual registration to not existing real network) - wait for +CREG: 0,3 - set AT+COPS=0,0 (for automatic registration) or set AT+COPS=1,0,... (for manual registration)</p> <p>Note: in case of a four bands device with current setting AT#AUTOBND=0 there might be conflicts between AT#BND and AT#BNDLOCK stored values. It is user responsibility to set proper values avoiding conflicts (no cross check is available between the two commands).</p>
<p>AT#BNDLOCK?</p>	<p>Read command reports the currently stored parameter <LockedBand> in the format: #BNDLOCK: <LockedBand></p>
<p>AT#BNDLOCK=?</p>	<p>Test command reports the supported range of values for parameter <LockedBand> according to specific product.</p>



3.5.7.1.59. Skip Escape Sequence - #SKIPESC

#SKIPESC - Skip Escape Sequence		SELINT 0 / 1
AT#SKIPESC[= [<mode>]]	<p>Set command enables/disables skipping the escape sequence +++ while transmitting during a data connection.</p> <p>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.</p> <p>Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting.</p> <p>Note: issuing AT#SKIPESC<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#SKIPESC=<CR> is the same as issuing the command AT#SKIPESC=0<CR>.</p>	
AT#SKIPESC?	<p>Read command reports whether escape sequence skipping is currently enabled or not, in the format:</p> <p>#SKIPESC: <mode></p>	
AT#SKIPESC=?	Test command reports supported range of values for parameter <mode> .	

#SKIPESC - Skip Escape Sequence		SELINT 2
AT#SKIPESC= [<mode>]	<p>Set command enables/disables skipping the escape sequence +++ while transmitting during a data connection.</p> <p>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.</p> <p>Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting.</p>	
AT#SKIPESC?	<p>Read command reports whether escape sequence skipping is currently enabled or not, in the format:</p> <p>#SKIPESC: <mode></p>	
AT#SKIPESC=?	Test command reports supported range of values for parameter <mode> .	



#E2ESC - Escape Sequence Guard Time	SELINT 2
Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with S12 .	

3.5.7.1.61. 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
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> .



3.5.7.1.62. PPP-GPRS Parameters Configuration - #GPPPCFG

#GPPPCFG - PPP-GPRS Parameters Configuration	SELINT 2
AT#GPPPCFG= <hostIPAddress> [,<LCPTimeout> [,<PPPmode>]]	<p>Set command sets three parameters for a PPP-GPRS connection.</p> <p>Parameters:</p> <p><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.</p> <p><LCPTimeout> - LCP response timeout value in 100ms units 10..600 - hundreds of ms (factory default is 25)</p> <p><PPPmode> - PPP mode</p> <ul style="list-style-type: none"> 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, 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 3 - active mode, the module starts autonomously the LCP negotiation immediately after the CONNECT message; LCP termination is performed by the module <p>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.</p>
AT# GPPPCFG?	<p>Read command reports the current PPP-GPRS connection parameters in the format:</p> <p>#GPPPCFG: <hostIPAddress>,<LCPTimeout>,<PPPmode></p>
AT# GPPPCFG=?	<p>Test command returns the range of supported values for parameter <LCPTimeout> and <PPPmode>, in the format:</p> <p>#GPPPCFG: (10-600),(0-3)</p>

3.5.7.1.63. Enables/disables PPP compression - #GPPPCFGEXT

#GPPPCFGEXT – enables/disables PPP compression	SELINT 2
AT#GPPPCFGEXT =<Comp>[,<unused_ A>[,<unused_B>[,<u nused_C>]]]	<p>Set command enables/disables the use of protocol and address/control field compression in PPP.</p> <p>Parameter:</p> <p>< Comp ></p> <ul style="list-style-type: none"> 0 – disables compression 1 – enables compression (default)



#GPPPCFGEXT – enables/disables PPP compression		SELINT 2
AT#GPPPCFGEXT?	Read command returns the current configuration parameters value: #GPPPCFGEXT: < Comp >,0,0,0<CR><LF>	
AT#GPPPCFGEXT=?	Test command returns the range of supported values for all the parameters.	

3.5.7.1.64. 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>	



	<p><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:</p> <p>#GSMAD: <presence></p> <p>where: <presence> is as before</p> <p><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</p> <p><detGPIO> - defines which GPIO shall be used as input by the Antenna Detection algorithm. For the <detGPIO> actual range see Test Command</p> <p><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.</p> <p>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.</p> <p>Note: GPIO is set to LOW when antenna is connected. Set to HIGH otherwise</p> <p>Note: #GSMAD parameters, excluding <urcmode>, are saved in NVM.</p>
AT#GSMAD?	<p>Read command returns the current parameter settings for #GSMAD command in the format:</p> <p>#GSMAD: <mod>,<urcmode>,<interval>,<detGPIO>,<repGPIO></p>
AT#GSMAD=?	<p>Test command reports the supported range of values for parameters <mod>, <urcmode>, <interval>, <detGPIO> and <repGPIO>.</p>

3.5.7.1.66. SIM Detection Mode - #SIMDET

#SIMDET - SIM Detection Mode		SELINT 2
AT#SIMDET= <mode>	<p>Set command specifies the SIM Detection mode</p> <p>Parameter: <mode> - SIM Detection mode 0 - ignore SIMIN pin and simulate the status 'SIM Not Inserted'</p>	



	<p>1 - ignore SIMIN pin and simulate the status 'SIM Inserted'</p> <p>2 - automatic SIM detection through SIMIN Pin (default)</p>
AT#SIMDET?	<p>Read command returns the currently selected Sim Detection Mode in the format:</p> <p>#SIMDET: <mode>,<simin></p> <p>where: <mode> - SIM Detection mode, as before <simin> - SIMIN pin real status 0 - SIM not inserted 1 - SIM inserted</p>
AT#SIMDET=?	Test command reports the supported range of values for parameter <mode>

3.5.7.1.67. SIM Enhanced Speed - #ENHSIM

#ENHSIM - SIM Enhanced Speed		SELINT 2
AT#ENHSIM=<mod>	<p>Set command activates or deactivates the Sim Enhanced Speed Functionality.</p> <p>Parameter: <mod> 0 - Not Active (default for all 7.3.xxx software release) 1 - BRF is (F=512 D=8) (default for 10.00.xxx software release)</p> <p><i>(For BRF definition refer to ISO-7816-3)</i></p> <p>Note: value <mod> is saved in NVM and will be used since next module startup or new SIM insertion.</p> <p>Note: module will use the slowest speed between the one programmed and the one supported by the SIM.</p>	
AT#ENHSIM?	<p>Read command returns whether the Sim Enhanced Speed Functionality is currently activated or not, in the format:</p> <p>#ENHSIM: <mod></p>	
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	

3.5.7.1.68. Subscriber number - #SNUM

#SNUM – Subscriber Number		SELINT 2
AT#SNUM=	Set command writes the MSISDN information related to the subscriber (own	



<p><index>,<number>[,<alpha>]</p>	<p>number) in the EFmsisdn SIM file.</p> <p>Parameter:</p> <p><index> - record number The number of record in the EFmsisdn depends on the SIM. If only <index> value is given, then delete the EFmsisdn record in location <index> is deleted. For all SW versions except 13.00.xxx, if the ENS functionality has not been previously enabled (see #ENS), <index>=1 is the only value admitted. For 13.00.xxx SW version all records are available, irrespective of ENS functionality setting.</p> <p><number> - string containing the phone number The string could be written between quotes. For all SW versions except 13.00.xxx, if the ENS functionality has been previously enabled (see #ENS) “+” at start only is also admitted (international numbering scheme). For 13.00.xxx SW version “+” at start only is always admitted, irrespective of ENS functionality setting.</p> <p><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.</p> <p>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).</p>
<p>AT#SNUM=?</p>	<p>Test command returns the OK result code</p>

3.5.7.1.69. SIM Answer to Reset - #SIMATR

<p>#SIMATR – SIM Answer To Reset SELINT 2</p>	
<p>AT#SIMATR</p>	<p>This command returns the characters collected from the Reset/ATR procedure.</p> <p>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).</p>

3.5.7.1.70. CPU Clock Mode - #CPUMODE

<p>#CPUMODE - CPU Clock Mode SELINT 2</p>	
<p>AT#CPUMODE= <mode></p>	<p>Set command specifies the CPU clock mode</p> <p>Parameter:</p>



	<p>50..65535 – timeout value in hundreds of milliseconds</p> <p>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.</p> <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance.</p>
AT#GSMCONTCFG?	<p>Read command returns the current configuration parameters value:</p> <p>#GSMCONTCFG:<actTo>,0,0,0<CR><LF></p>
AT#GSMCONTCFG=?	<p>Test command returns the range of supported values for all the subparameters.</p>

3.5.7.1.73. Show Address - #CGPADDR

#CGPADDR - Show Address	SELINT 2
<p>AT#CGPADDR= [<cid>[,<cid> [,...]]]</p>	<p>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</p> <p>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).</p> <p>Note: if no <cid> is specified, the addresses for all defined contexts are returned.</p> <p>Note: issuing the command with more than 6 parameters raises an error.</p> <p>Note: the command returns only one row of information for every specified <cid>, even if the same <cid> is present more than once.</p> <p>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:</p> <p>#CGPADDR: <cid>,<address>[<CR><LF> #CGPADDR: <cid>,<address>[...]]</p> <p>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</p>



	<p>dynamic address assigned during the GSM context activation.</p> <p>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>.</p> <p>Note: if no address is available the empty string (“”) is represented as <address>.</p>
AT#CGPADDR=?	Test command returns a list of defined <cid> s.
Example	<pre>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</pre>

3.5.7.1.74. 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).	
	<p>Parameter:</p> <p><tmr> - timer value in units of seconds 5 3600 - time in seconds (default 5 secs.)</p>	
AT#NWSCANTMR	Execution command reports time, in seconds, when the next scan activity will be executed. The format is:	
	<p>#NWSCANTMREXP: <time></p> <p>Note: if <time> is zero it means that the timer is not running</p>	
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)	



3.5.7.1.75. Call Establishment Lock - #CESTHLCK

#CESTHLCK – Call establishment lock		SELINT 2
AT#CESTHLCK=[<closure_type >]	<p>This command can be used to disable call abort before the DCE enters connected state.</p> <p>< 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</p>	
AT#CESTHLCK?	<p>Read command returns the current setting of <closure_type> parameter in the format:</p> <p>#CESTHLCK: <closure_type></p>	
AT#CESTHLCK=?	<p>Test command returns the supported range of values for the <closure_type> parameter</p>	

3.5.7.1.76. Phone Activity Status - #CPASMODE

#CPASMODE – AT+CPAS answer mode		SELINT 2
AT#CPASMODE=<mode>	<p>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</p> <p>Parameter: <mode> - AT+CPAS response selection 0 – standard AT+CPAS response (factory default) 1 – modified AT+CPAS response.</p> <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance</p>	
AT#CPASMODE?	<p>Read command reports the currently selected <mode> in the format: #CPASMODE: <mode></p>	
AT#CPASMODE=?	<p>Test command reports the supported range of values for parameter <mode></p>	



3.5.7.1.77. ICCID SIM file reading mode - #FASTCCID

#FASTCCID – Set ICCID SIM file reading mode		SELINT 2
AT#FASTCCID= [<fast>]	<p>The set command is used to specify the ICCID reading mode.</p> <p><fast>: a numeric parameter which indicates the reading mode</p> <p>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 for all products, except for GE910-QUAD and GE910-GNSS)</p> <p>1 – the ICCID value is read from the SIM card during SIM card initialization (default for GE910-QUAD and GE910-GNSS)</p> <p>Note: the value is saved in NVM and has effect only at the next power cycle.</p>	
AT#FASTCCID?	<p>The read command returns the currently selected reading mode in the form:</p> <p>#FASTCCID: <fast></p>	
AT#FASTCCID=?	<p>Test command reports the supported list of currently available <fast>s.</p>	

3.5.7.1.78. Write to I2C - #I2CWR

#I2CWR – Write to I2C		SELINT 2
AT#I2CWR= <sdaPin>, <sclPin>, <deviceId>, <registerId>, <len>	<p>This command is used to Send Data to an I2C peripheral connected to module GPIOs</p> <p><sdaPin >: GPIO number for SDA . Valid range is “any input/output pin” (see Test Command.)</p> <p><sclPin>: GPIO number to be used for SCL. Valid range is “any output pin” (see Test Command).</p> <p><deviceId>: address of the I2C device, with the LSB, used for read/write command. It doesn't matter if the LSB is set to 0 or to 1. 10 bit addressing supported. Value has to be written in hexadecimal form (without 0x).</p> <p><registerId>: Register to write data to , range 0..255. Value has to be written in hexadecimal form (without 0x).</p> <p><len>: number of data to send. Valid range is 1-254.</p> <p>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).</p>	



#I2CWR – Write to I2C	SELINT 2
	<p>Data shall be written in Hexadecimal Form.</p> <p>If data are successfully sent, then the response is OK.</p> <p>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</p> <p>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</p> <p>NOTE: At the end of the execution GPIO will be restored to the original setting (check AT#GPIO Command)</p> <p>NOTE: device address, register address where to read\ write to, and date bytes have to be written in hexadecimal form without 0x.</p>
AT#I2CWR=?	Test command reports the supported list of currently available <service>s.

3.5.7.1.79. Read to I2C - #I2CRD

#I2CRD – Read to I2C	SELINT 2
<p>AT#I2CRD= <sdaPin>, <sciPin>, <deviceId>, <registerId>, <len></p>	<p>This command is used to Receive Data from an I2C peripheral connected to module GPIOs</p> <p><sdaPin >: GPIO number for SDA . Valid range is “any input/output pin” (see Test Command.)</p> <p><sciPin>: GPIO number to be used for SCL. Valid range is “any output pin” (see Command Test).</p> <p><deviceId>: address of the I2C device, with the LSB, used for read\write command. It doesn’t matter if the LSB is set to 0 or to 1. 10 bit addressing supported. Value has to be written in hexadecimal form (without 0x before).</p> <p><registerId>: Register to read data from, range 0..255. Value has to be written in hexadecimal form (without 0x before).</p> <p><len>: number of data to receive. Valid range is 1-254.</p> <p>Data Read from I2C will be dumped in Hex:</p>



#I2CRD – Read to I2C	SELINT 2
	<p>E.g. AT#I2CRD=2,3,20,10,12 #I2CRD: 00112233445566778899AABBCC OK</p> <p>NOTE: If data requested are more than data available in the device, dummy data (normally 0x00 or 0xff) will be dumped.</p> <p>NOTE: At the end of the execution GPIO will be restored to the original setting (check AT#GPIO Command)</p> <p>NOTE: device address, register address where to read from\ write to, and date bytes have to be written in hexadecimal form without 0x.</p>
AT#I2CRD=?	Test command reports the supported list of currently available <service>s.

3.5.7.1.80. Power saving mode ring - #PSMRI

#PSMRI – Power Saving Mode Ring	SELINT 2
AT#PSMRI= <x>	<p>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.</p> <p>The duration of this pulse is determined by the value of <x>.</p> <p>Parameter: <x> - RI enabling 0 - disables RI pin response for URC message(factory default) 50-1150 - enables RI pin response for URC messages.</p> <p>Note: when RING signal from incoming call/SMS/socket listen is enabled, the behaviour for #PSMRI will be ignored.</p> <p>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)</p> <p>Note: the behavior for #PSMRI is invoked, only when modem is in sleep mode (AT+CFUN=5 and DTR Off on Main UART)</p> <p>Note: the value set by command is stored in the profile extended section and doesn't depend on the specific AT instance</p>
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>



#CFLO – Command Flow Control		SELINT 2
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>	

3.5.7.1.83. 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,... 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	

3.5.7.1.84. 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:	



#CODECINFO – Codec Information	SELINT 2
	<p>8 - FAMR, AMR full rate mode enabled 16 - HAMR, AMR half rate mode enabled</p> <p>(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</p> <p><codec_setn> 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</p> <p>Note: The command refers to codec information in speech call and to channel mode in data/fax call.</p> <p>Note: if AT#CODEC is 0, the reported codec set for <format>=0 is 31 (all codec).</p>
AT#CODECINFO?	<p>Read command reports <format> and <mode> parameter values in the format:</p> <p>#CODECINFO: <format>,<mode></p>
AT#CODECINFO=?	<p>Test command returns the range of supported <format> and <mode>.</p>

3.5.7.1.85. Second Interface Instance - #SII

#SII – Second Interface Instance	SELINT 2
<p>AT#SII=<inst>[,<rate>[,<format>[,<parity>]]]</p>	<p>This command activates one of the three AT instances available, and assigns it to the ASC1 serial port at a particular speed and format.</p> <p>Parameters: <inst>: is a number that identifies the instance that will be activated on ASC1. The</p>



	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>

3.5.7.1.86. SIMIN pin configuration - #SIMINCFG

#SIMINCFG – SIMIN pin configuration	SELINT 2
AT#SIMINCFG=<GPIO_pin>	This command allows to configure a General Purpose I/O pin as SIM DETECT input Parameters: <GPIO_pin> - GPIO pin number: 0 – no GPIO pin is selected (default value) 1 to <i>Max_GPIO_Pin_Number</i> Note: <i>Max_GPIO_Pin_Number</i> is the highest GPIO pin number available: this value depends on the hardware. (See Test command or Hardware User Guide)
AT#SIMINCFG?	Read command reports the selected GPIO pin in the format: #SIMINCFG: <GPIO_pin>
AT#SIMINCFG=?	Test command reports supported range of values for parameter <GPIO_pin>

3.5.7.1.87. System turn-off - #SYSHALT

#SYSHALT – system turn-off	SELINT 0,1,2
AT#SYSHALT[= <GPIO_restore>, <DTR_wakeup_en>]	The module is turned off. It can be awoken by reset pin, alarm or DTR pin transition to low. Parameters: <GPIO_restore >: 0 – GPIOs and serial ports pins are left unchanged (default) 1 – GPIO and serial pins are set in input with pull down <DTR_wakeup_en>: 0 – DTR has no effect on module turned off by SYSHALT (default) 1 – DTR transition from high to low turns on again the module turned off



<p>AT#ENCALG?</p>	<p>Read command reports the currently selected <encGSM> and <encGPRS>, and the last used <usedGSM> and <usedGPRS> in the format:</p> <p>#ENCALG: <encGSM>,<encGPRS>,<usedGSM>,<usedGPRS></p> <p>Parameters:</p> <p><usedGSM>:</p> <ul style="list-style-type: none"> 0 – no GSM encryption algorithm 1 – A5/1 2 – A5/2 4 – A5/3 <p><usedGPRS>:</p> <ul style="list-style-type: none"> 0 – no GPRS encryption algorithm 1 – GEA1 2 – GEA2
<p>AT#ENCALG=?</p>	<p>Test command reports the supported range of values for parameters in the format:</p> <p>< encGSM > and <encGPRS>.</p>
<p>Example</p>	<p>AT#ENCALG? #ENCALG: 5,2,1,1</p> <p>OK</p> <p>AT#ENCALG=5,1 OK</p> <p><i>sets the GSM encryption algorithm A5/1 and A5/3, and the GPRS encryption algorithm GEA1. It will be available at the next reboot.</i></p> <p>AT#ENCALG? #ENCALG: 5,2,1,1</p> <p><i>The last two values indicate that the last used GSM encryption algorithm is A5/1 and the last used GPRS encryption algorithm is GEA1</i></p> <p><i>After reboot</i></p> <p>AT#ENCALG? #ENCALG: 5,1,1,1</p>



3.5.7.1.93. RS485 enable/disable and configure - #RS485

#RS485 – RS485 enable/disable and configure	SELINT 2
<p>AT#RS485=<enable> [,<gpio>]</p>	<p>Set command enables/disables the half-RS485 standard using an additional configurable GPIO. The GPIO is set ON when the UART of module is transmitting and it is reset as soon as transmission is completed. Optionally it allows specifying the GPIO to use.</p> <p>Parameters: <enable> - enable/disable the simulation: 0 – disable half-RS485 1 – enable half-RS485</p> <p>Note: if gpio is omitted, the first available GPIO will be selected.</p> <p><gpio> - GPIO pin number: The test command returns the range of usable GPIO; this value depends on the hardware. Note: if <enable>=0, <gpio> has no meaning and can be omitted, otherwise it is mandatory to set this parameter.</p> <p>Note: the value set by command is stored in NVM.</p> <p>Note: sending two consecutive enable commands without a disable between them will produce an error; the configuration will remain the first.</p>
<p>AT#RS485?</p>	<p>Read command reports the current state and the selected GPIO in the format: #RS485: < enable >,< gpio ></p>
<p>AT#RS485=?</p>	<p>Test command reports the supported range of values for the parameters < enable > and < gpio ></p>

3.5.7.1.94. Read current network status - #RFSTS

#RFSTS – Read current network status	SELINT 2
<p>AT#RFSTS</p>	<p>Execution command reads current network status, in the format:</p> <p>#RFSTS:<PLMN>,<ARFCN>,<RSSI>,<LAC>,<RAC>,<TXPWR>,<MM>,<RR>,<NOM>,<CID>,<IMSI>,<NetNameAsc>,<SD>,<ABND></p> <p>Where:</p> <p><PLMN> - Country code and operator code(MCC, MNC) <ARFCN> - GSM Assigned Radio Channel</p>



	<p><RSSI> - Received Signal Strength Indication <LAC> - Localization Area Code <RAC> - Routing Area Code <TXPWR> - Tx Power <MM> - Mobility Management State (NOT AVAILABLE) <RR> - Radio Resource State (NOT AVAILABLE) <NOM> - Network Operator Mode <CID> - Cell ID <IMSI> - International Mobile Subscriber Identity <NetNameAsc> - Operator name <SD> - Service Domain 0 - No Service 1 - CS only 2 - PS only 3 - CS+PS</p> <p><ABND> - Active Band 1 - GSM 850 2 - GSM 900 3 - DCS 1800 4 - PCS 1900</p>
AT#RFSTS=?	Test command tests for command existence.

3.5.7.1.95. Set CMUX Mode - #CMUXMODE

#CMUXMODE – CMUX Mode Set	SELINT 2
AT#CMUXMODE=<mode>	<p>Set command specifies the CMUX mode</p> <p>Parameter: <mode> 0 – Old break octect format (0x01) and ignore DTR feature is disabled (default) 1 – New break octect format (0x03) and ignore DTR feature is disabled 4 – Old break octect format (0x01) and ignore DTR feature is enabled 5 – New break octect format (0x03) and ignore DTR feature is enabled</p> <p>If the ignore DTR feature is enabled, then the DCE doesn't care the state and the transitions of the DTR line of the DTE. Otherwise a transition of the DTR instructs the DCE to disable the CMUX and switches to the normal command mode.</p> <p>Note: a software or hardware reset restores the default value.</p>



AT#CMUXMODE?	Read command reports the currently selected <mode> in the format: #CMUXMODE: <mode>
AT#CMUXMODE=?	Test command reports the supported range of values for parameter <mode> Response: #CMUXMODE: (0,1,4,5)

3.5.7.1.96. Connect physical ports to Service Access Points - #PORTCFG

#PORTCFG – connect physical ports to Service Access Points		SELINT 2
AT#PORTCFG=<Variant>	<p>Set command allows to connect Service Access Points (software anchorage points) to the external physical ports giving a great flexibility. Examples of Service Access Points: AT Parser Instance #1,#2, #3, TT(Telit Trace).</p> <p>Parameter: <Variant> 0 – default value 9 – available only for GE910-GNSS Please, refer to “GE910 Family Ports Arrangements User Guide” document for a detailed explanation of port configurations</p> <p>Note: in order to enable the set port configuration, the module has to be rebooted.</p>	
AT#PORTCFG?	<p>Read command reports: <requested> value shows the requested configuration that will be activated on the next power off /on of the module; <active> value shows the actual configuration.</p> <p>#PORTCFG: <requested>,<active></p>	
AT#PORTCFG=?	<p>Test command reports a brief description of the supported ports arrangement solutions. For each <Variant> parameter value are displayed, on one row, the allowed couples formed by: a physical port and the logically connected internal software Access Point (AT, TT). On each row are reported the couples concerning both configurations: USB cable plugged into USB port or not plugged in. AT, indicated on each command row result, can be AT0, AT1, or AT2.</p>	

3.5.7.1.97. Change and insert file system password - #FILEPWD

#FILEPWD – Change and insert file system password		SELINT 2
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<p>AT#FILEPWD=<Mode>,<Pw d>[,<NewPw>]</p>	<p>This command changes and inserts file system password.</p> <p>Parameters:</p> <p><Mode>: 1 – insert file system password; 2 – change file system password.</p> <p><Pw>: current password when inserting password, old password when changing password, string type (factory default is the empty string “”).</p> <p><NewPw>: new password when changing password, string type (only allowed if <Mode> parameter is 2).</p> <p>Note: maximum password length is 12 characters. Note: password is saved in NVM. Note: password value doesn’t depend on the specific CMUX instance.</p> <p>Note: in default configuration current password is equal to the empty string “” and password will be always considered inserted.</p> <p>Note: if current password is different from the empty string “”, password will be always not inserted at power on. Note: if current password is different from the empty string “”, after successful password insertion (<Mode> 1) password will remain inserted until power off. Note: after successful password change (<Mode> 2) password will be not inserted.</p> <p>Note: if current password is different from the empty string “” and password is not inserted then AT commands that make use of the file system (SCRIPT, M2M, MMS) will have either ERROR or +CME ERROR: 16 or +CME ERROR: incorrect password response depending on AT+CMEE setting.</p>
<p>AT#FILEPWD=?</p>	<p>Test command reports the supported range of values for parameters.</p>
<p>Example</p>	<p>AT#FILEPWD=2,"","mynewpwd" OK</p> <p>AT#FILEPWD=1,"mynewpwd" OK</p>



3.5.7.2. AT Run Commands

3.5.7.2.1. 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	
Notes:	<ul style="list-style-type: none"> By default the SMS ATRUN service is disabled It can be activated either by the command AT#SMSATRUN or receiving a special SMS that can be sent from a Telit server. 	

3.5.7.2.2. 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 – 5 (2 – 3 in 13.00.xxx SW release), default 3. <urcmod>:



#SMSATWL – SMS AT Run White List	SELINT 2
	<p>< entryType >: 0 – Phone Number 1 – Password</p> <p>NOTE: A maximum of two Password Entry can be present at same time in the white List</p> <p><string>: string parameter enclosed between double quotes containing or the phone number or the password</p> <p>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</p> <p>NOTE: When the character “*” is used, it means that all the numbers that begin with the defined digit are part of the white list.</p> <p>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.</p>
AT#SMSATWL?	<p>Read command returns the list elements in the format:</p> <p>#SMSATWL: [<entryType>,<string>]</p>
AT#SMSATWL=?	<p>Test command returns the supported values for the parameter <action>, <index> and <entryType></p>

3.5.7.2.4. Set TCP Run AT Service parameter - #TCPATRUNCFG

#TCPATRUNCFG – Set TCP AT Run Service Parameters	SELINT 2
<p>AT#TCPATRUNCFG= <connId> ,<instance> ,<tcpPort> ,<tcpHostPort> ,<tcpHost> [,<uremod> [,<timeout> [,<authMode> [,<retryCnt> [,<retryDelay>]]]]]</p>	<p>Set command configures the TCP AT RUN service Parameters:</p> <p><connId> socket connection identifier. Default 1.</p> <p>Range 1..6. This parameter is mandatory.</p> <p><instance>: AT instance that will be used by the service to run the AT Command. Default 2. Range 2 – 5 (2 – 3 in 13.00.xxx SW release). This parameter is mandatory.</p> <p><tcpPort> Tcp Listen port for the connection to the service in server mode. Default 1024. Range 1...65535. This parameter is mandatory.</p>



#TCPATRUNCFG – Set TCP AT Run Service Parameters	SELINT 2
<p><tcpHostPort> Tcp remote port of the Host to connect to, in client mode. Default 1024. Range 1...65535. This parameter is mandatory.</p> <p><tcpHost> IP address of the Host, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query <p>This parameter is mandatory. Default “”.</p> <p><urcmoD>:</p> <ul style="list-style-type: none"> 0 – disable unsolicited messages 1 - enable an unsolicited message when the TCP socket is connected or disconnect (default). <p>When unsolicited is enabled, an asynchronous TCP Socket connection is indicated to TE with unsolicited result code:</p> <p>#TCPATRUN: <iphostaddress></p> <p>When unsolicited is enabled, the TCP socket disconnection is indicated to TE with unsolicited result code:</p> <p>#TCPATRUN: <DISCONNECT></p> <p>Unsolicited is dumped on the instance that requested the service activation.</p> <p><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.</p> <p><authMode>: determines the authentication procedure in server mode:</p> <ul style="list-style-type: none"> 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 successful” will close authentication phase. <p>Note: if username and/or password are not allowed (see AT#TCPATRUNAauth) the connection will close immediately.</p>	



#TCPATRUNCFG – Set TCP AT Run Service Parameters		SELINT 2
	<p><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.</p> <p><retryDelay>: in client mode, delay between one attempt and the other. In minutes. Default: 2. Range 1...3600.</p> <p>Note2: the current settings are stored in NVM.</p> <p>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).</p> <p>Note 4: the set command returns ERROR if the command AT#TCPATRUND? returns 1 as <mod> parameter or the command AT#TCPATRUND? returns 1 as <mod> parameter</p>	
AT#TCPATRUNCFG?	<p>Read command returns the current settings of parameters in the format:</p> <p>#TCPATRUNCFG: <connId>,<instance>,<tcpPort>,<tcpHostPort>,<tcpHost>,<urcmode>,<timeout>,<authMode>,<retryCnt>,<retryDelay></p>	
AT#TCPATRUNCFG=?	<p>Test command returns the supported values for the TCPATRUNCFG parameters</p>	

3.5.7.2.5. TCP Run AT Service in listen (server) mode - #TCPATRUND

#TCPATRUND – Enables TCP AT Run Service in listen (server) mode		SELINT 2
AT#TCPATRUND= <mod>	<p>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.</p> <p>Parameter: < mod ></p> <p>0: Service Disabled 1: Service Enabled</p> <p>Note1: If SMSATRUND is active on the same instance (see AT#TCPATRUNCFG) the command will return ERROR.</p> <p>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</p>	



#TCPATRNL – Enables TCP AT Run Service in listen (server) mode		SELINT 2
	<p>be rejected.</p> <p>Note3: the current settings are stored in NVM.</p> <p>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).</p>	
AT#TCPATRNL?	<p>Read command returns the current settings of <mode> and the value of <stat> in the format:</p> <p>#TCPATRNL: <mod>,<stat></p> <p>where:</p> <p><stat> - connection status 0 – not in listen 1 - in listen or active</p>	
AT#TCPATRNL =?	Test command returns the supported values for the TCPATRNL parameters	

3.5.7.2.6. TCP AT Run Firewall List - #TCPATRUNFRWL

# TCPATRUNFRWL – TCP AT Run Firewall List		SELINT 2
<p>AT#TCPATRUNFRWL = <action>, <ip_addr>, <net_mask></p>	<p>Set command controls the internal firewall settings for the TCPATRNL connection.</p> <p>Parameters:</p> <p><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.</p> <p><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</p> <p><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</p> <p>Command returns OK result code if successful.</p> <p>Firewall general policy is DROP, therefore all packets that are not included into an ACCEPT chain rule will be silently discarded.</p> <p>When a packet comes from the IP address incoming_IP, the firewall chain rules will be scanned for matching with the following criteria:</p>	



#TCPATRUNKRVL – TCP AT Run Firewall List	SELINT 2
	<p>incoming_IP & <net_mask> = <ip_addr> & <net_mask></p> <p>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.</p> <p>Note1: A maximum of 5 firewall can be present at same time in the List.</p> <p>Note2: the firewall list is saved in NVM</p>
AT#TCPATRUNKRVL?	<p>Read command reports the list of all ACCEPT chain rules registered in the Firewall settings in the format:</p> <pre>#TCPATRUNKRVL: <ip_addr>,<net_mask> #TCPATRUNKRVL: <ip_addr>,<net_mask> ... OK</pre>
AT#TCPATRUNKRVL=?	Test command returns the allowed values for parameter <action> .

3.5.7.2.7. TCP AT Run Authentication Parameters List - #TCPATRUNAETH

#TCPATRUNAETH – TCP AT Run Authentication Parameters List	SELINT 2
AT#TCPATRUNAETH = <action>, <userid>, <passw>	<p>Execution command controls the authentication parameters for the TCPATRUNK connection.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <action> - command action <ul style="list-style-type: none"> 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 <p>Command returns OK result code if successful.</p> <p>Note1: A maximum of 3 entry (password and userid) can be present at same time in the List.</p> <p>Note2: the Authentication Parameters List is saved in NVM.</p>
AT#TCPATRUNAETH?	Read command reports the list of all ACCEPT chain rules registered in the Authentication settings in the format:



#TCPATRUNAATH – TCP AT Run Authentication Parameters List		SELINT 2
	#TCPATRUNAATH: <user_id>,<passw> #TCPATRUNAATH: <user_id>,<passw> ... OK	
AT#TCPATRUNAATH=?	Test command returns the allowed values for parameter <action>.	

3.5.7.2.8. TCP AT Run in dial (client) mode - #TCPATRUND

#TCPATRUND – Enables TCP Run AT Service in dial (client) mode		SELINT 2
AT#TCPATRUND=<mod>	<p>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).</p> <p>Parameter: < mod ></p> <ul style="list-style-type: none"> 0: Service Disabled 1: Service Enabled <p>Note1: If SMSATRUN is active on the same instance (see AT#TCPATRUNCFG) the command will return ERROR.</p> <p>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.</p> <p>Note3: the current setting are stored in NVM</p> <p>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).</p> <p>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.</p>	
AT# TCPATRUND?	<p>Read command returns the current settings of <mode> and the value of <stat> in the format:</p> <p>#TCPATRUND: <mod>,<stat></p> <p>where:</p> <ul style="list-style-type: none"> <stat> - connection status 0 - not connected 1 – connected or connecting at socket level 	



#TCPATRUND – Enables TCP Run AT Service in dial (client) mode		SELINT 2
	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	

3.5.7.2.9. 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.	
AT#TCPATRUNCLOSE =?	Test command returns OK	

3.5.7.2.10. 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	

3.5.7.2.11. 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 >	



3.5.7.3. Event Monitor Commands

3.5.7.3.1. Enable EvMoni Service - #ENAEVMONI

#ENAEVMONI – Enable EvMoni Service		SELINT 2
AT#ENAEVMONI= <mod>	<p>Set command enables/disables the EvMoni service.</p> <p>Parameter: < mod ></p> <p>0: Service Disabled (default) 1: Service Enabled</p> <p>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.</p> <p>Note2: the current settings are stored in NVM.</p>	
AT#ENAEVMONI?	<p>Read command returns the current settings of <mode> and the value of <stat> in the format:</p> <p># ENAEVMONI: <mod>,<stat></p> <p>where: <stat> - service status 0 – not active (default) 1 - active</p>	
AT#ENAEVMONI =?	Test command returns the supported values for the ENAEVMONI parameters	

3.5.7.3.2. EvMoni Service parameter - #ENAEVMONICFG

#ENAEVMONICFG – Set EvMoni Service Parameters		SELINT 2
AT#ENAEVMONICFG= <instance> [,<urcmo> [,<timeout>]]	<p>Set command configures the EvMoni service.</p> <p>Parameter: <instance>: AT instance that will be used by the service to run the AT Command. Range 2 – 5 (2 – 3 in 13.00.xxx SW release). (Default: 3)</p> <p><urcmo>: 0 – disable unsolicited message 1 - enable an unsolicited message when an AT command is executed after an event is occurred (default)</p> <p>When unsolicited is enabled, the AT Command is indicated to TE with</p>	



#ENAEVMONICFG – Set EvMoni Service Parameters	SELINT 2
	<p>unsolicited result code:</p> <p>#EVMONI: <Text></p> <p>e.g.:</p> <p>#EVMONI: AT+CGMR;+CGSN;+GSN;+CCLK</p> <p>Unsolicited is dumped on the instance that requested the service activation.</p> <p><timeout>: It defines in minutes the maximum time for a command execution. If timeout expires the module will be rebooted. (Default: 5)</p> <p>Note 1: the current settings are stored in NVM.</p> <p>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.</p> <p>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</p>
AT#ENAEVMONICFG?	<p>Read command returns the current settings of parameters in the format:</p> <p>#ENAEVMONICFG:<instance>,<urcmod>,<timeout></p>
AT# ENAEVMONICFG =?	<p>Test command returns the supported values for the ENAEVMONICFG parameters</p>

3.5.7.3.3. Event Monitoring - #EVMONI

#EVMONI – Set the single Event Monitoring	SELINT 2
<p>AT#EVMONI= <label>, <mode>, [,<paramType > ,<param>]</p>	<p>Set command enables/disables the single event monitoring, configures the related parameter and associates the AT command</p> <p><label>: string parameter (that has to be enclosed between double quotes) indicating the event under monitoring. It can assume the following values:</p> <ul style="list-style-type: none"> • VBATT - battery voltage monitoring (not yet implemented) • DTR - DTR monitoring (not yet implemented) • ROAM - roaming monitoring • CONTDEACT - context deactivation monitoring • RING - call ringing monitoring • STARTUP – module start-up monitoring



#EVMONI – Set the single Event Monitoring	SELINT 2
	<ul style="list-style-type: none"> • 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 • DTMF1 – monitoring on user defined DTMF string • DTMF2 – monitoring on user defined DTMF string • DTMF3 – monitoring on user defined DTMF string • DTMF4 – monitoring on user defined DTMF string • CONSUME1 – used to define an action to be used in consume functionality (see parameter <action_id> in #CONSUMECFG command) • CONSUME2 – used to define an action to be used in consume functionality (see parameter <action_id> in #CONSUMECFG command) • CONSUME3 – used to define an action to be used in consume functionality (see parameter <action_id> in #CONSUMECFG command) • CONSUME4 – used to define an action to be used in consume functionality (see parameter <action_id> in #CONSUMECFG command) • CONSUME5 – used to define an action to be used in consume functionality (see parameter <action_id> in #CONSUMECFG command) <p><mode>:</p> <p>0 – disable the single event monitoring (default) 1 – enable the single event monitoring</p> <p>< 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.</p> <p><param>: it can be a numeric or string value depending on the value of <paramType> and on the type of event.</p> <p>If <paramType> is 0, then <param> is a string containing the AT command:</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • If <label> is VBATT, <paramType> can assume values in the range 0 - 2. <ul style="list-style-type: none"> ○ if <paramType> = 1, <param> indicates the battery voltage



#CMGW - Write Message To Memory	SELINT 2
	<p>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)</p> <p>If message is successfully written in the memory, then the result is sent in the format:</p> <p>#CMGW: <index> where: <index> - message location index in the memory <memw>.</p> <p>If message storing fails for some reason, an error code is reported.</p>
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.

3.5.7.4. CONSUME Commands

3.5.7.4.1. Configure consume parameters - #CONSUMECFG

#CONSUMECFG – configure consume parameters	SELINT 2
<p>AT#CONSUMECFG=<rule_id>[,<service_type>[,<rule_enable>[,<period>[,<limit_amount>[,<action_id>]]]]]</p>	<p>This command sets the parameters related to the consume functionality</p> <p>Parameters:</p> <p><rule_id> Index of the rule to apply to a defined <service_type> Range: (0-10) The available rules are 10 and their identifier ranges from 1 to 10. The special case of <rule_id>=0 is explained below in a note.</p> <p><service_type> Type of service to count: 0 – No service (default) 1 – SMS Sent 2 – SMS Received 3 – Total SMS 4 – CS MO Calls 5 – CS MT Calls 6 – Total CS Calls 7 – IP All Data Sent</p>



	<p>8 – IP All Data Received 9 – IP All Data 10 – IP All Data Sent (with Header) 11 – IP All Data Received (with Header) 12 – IP All Data (with Header)</p> <p><rule_enable> Enable the counter on the rule 0 – rule disabled (default) 1 – rule enabled</p> <p><period> Time period over which the service type data are counted: 0 – life (entire module life) (default) 1 – 8760 (hours)</p> <p><limit_amount> Limit amount of data to count. 0 is default value and means no set limit: in this case only the counter is active. 0 – 4294967295 KBytes, for <service_type>=7,8,9,10,11 and 12 0 – 65535 number of SMS, for <service_type>=1,2, and 3 0 – 65535 minutes, for <service_type>=4,5 and 6</p> <p><action_id> Identifier of the action to trigger when the threshold limit has been reached. It corresponds to the AT command associated to the event CONSUMEX, where X=1,...5. (Refer to #EVMONI command) Range: (0-5); 0 means no action associated: in this case only the counter is active.</p> <p>Note: the Set command #CONSUMECFG=0 has a special behaviour: for all the enabled rules, the data and time of related counters are reset (<u>if they are not-life counters</u>)</p> <p>Note: the values set by command are directly stored in NVM and don't depend on the specific CMUX instance</p> <p>Note: the life counters are disabled if <enable> parameter of AT#ENACONSUME is equal to 0</p> <p>Note: a rule can be changed only setting <rule_enable>=0. The data and time of related counter are also reset (<u>if it's not a life counter</u>).</p> <p>Note: when the period expires and the limit amount of data has not been reached, then the counted data are reset, so the counting in the next period starts from 0.</p>
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	Note: if a service is blocked, then the related (life or not) counter is stopped also in terms of time (as well as in terms of data obviously).
AT#CONSUMECFG?	Read command returns the current settings for each rule in the format: #CONSUMECFG: <rule_id>,<service_type>,<rule_enable>,<period>,<limit_amount>,<action_id>
AT#CONSUMECFG=?	Test command reports the supported range of values for all parameters

3.5.7.4.2. Enable consume functionality - #ENACONSUME

#ENACONSUME – enable consume functionality	SELINT 2
AT#ENACONSUME=<enable>[,<storing_mode>[,<storing_period>]]	<p>Set command enables/disables the consume functionality.</p> <p>Parameters:</p> <p><enable> 0 – disable consume functionality (default) 1 – disable consume functionality except life counters 2 – enable consume functionality</p> <p><storing_mode>: 0 – the counters are saved in NVM at every shutdown (default) 1 – the counters are saved in NVM at every shutdown and periodically at regular intervals specified by <storing_period> parameter</p> <p><storing_period> - number of hours after that the counters are saved; numeric value in hours; range (0,8-24); 0 is default value and means no set period (as <storing_mode>=0)</p> <p>Note: the values set by command are directly stored in NVM and don't depend on the specific CMUX instance</p> <p>Note: when the functionality is disabled with <enable>=0, the data counters are stopped but not reset: to reset them (<u>except life counters</u>) set <rule_enable>=0 with AT#CONSUMECFG command.</p> <p>Note: when the functionality is disabled with <enable>=1, the data counters are stopped <u>except life counters</u>.</p> <p>Note: the life counters are never reset, neither in terms of counted data nor in terms of time</p>
AT#ENACONSUME?	Read command returns the current settings for all parameters in the



	<p><counted_data> Number of data counted during <current_time></p> <p><threshold> Limit amount of data to count (set in parameter <limit_amount> with AT#CONSUMECFG)</p> <p><current_time> Number of passed hours in the current <period></p> <p><period> Number of total hours in the period where the data are counted (corresponds to the value set in <period> with AT#CONSUMECFG)</p> <p>1 – life counter: the command returns the values of life counters for every service type in the format:</p> <p>#STATSCONSUME: <service_1>,<life_data>,<current_time><CR><LF>#STATSCONSUME: <service_2>,<life_data>,<current_time><CR><LF>...<CR><LF>#STATSCONSUME: <service_12>,<life_data>,<current_time></p> <p>where <service_i> is defined as <service_type> above</p> <p><life_data> Number of data counted during entire life time period</p> <p><current_time> Number of passed hours during entire life time period</p> <p>Note: issuing AT#STATSCONSUME without parameters has the same effect as AT#STATSCONSUME=0</p>
AT#STATSCONSUME=?	Test command returns OK result code

3.5.7.4.4. Block/unblock a type of service - #BLOCKSCONSUME

#BLOCKCONSUME – block/unblock a type of service	SELINT 2
AT#BLOCKCONSUME=<service_type>,<block>	<p>Execution command blocks/unblocks a type of service</p> <p>Parameter: <service_type></p>



#OTASNAP – OTA Set Network Access Point	SELINT 0/1
	<p>Note3: a change of the value of <company_name> parameter causes a new FOTA Registration procedure</p> <p>Note4: if the <company_name> is an empty string, an ERROR is returned</p> <p>Note5: the setting is saved in NVM</p>
AT#OTASNAP?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAP: <addr>[,<company_name>]</p>
AT#OTASNAP	<p>Execution command has the same effect as the Read command</p>
AT#OTASNAP=?	<p>Test command returns the maximum length of <addr> field and maximum length of <company_name> field. The format is:</p> <p>#OTASNAP: <nlength>,<tlength></p> <p>where:</p> <p><nlength> - integer type value indicating the maximum length of field <addr></p> <p><tlength> - integer type value indicating the maximum length of field <company_name></p>
Example	<pre>AT#OTASNAP="SMS Number","Client Alpha" OK AT#OTASNAP? #OTASNAP:"SMS Number","Client Alpha" OK AT#OTASNAP=? #OTASNAP: 21,15 OK</pre>

#OTASNAP – OTA Set Network Access Point	SELINT 2
AT#OTASNAP= <addr>[,<company_name>]	<p>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.</p> <p>Parameters:</p> <p><addr> - string parameter which specifies the phone number</p> <p><company_name> - string parameter containing a client identifier</p> <p>Note1: a special form of the Set command, #OTASNAP="", causes the deletion of the SMS number</p> <p>Note2: the value of <addr> parameter can be overwritten from the OTA server by the Provisioning SMS</p> <p>Note3: a change of the value of <company_name> parameter causes a new FOTA Registration procedure</p>



#OTASNAP – OTA Set Network Access Point		SELINT 2
	<p>Note4: if the <company_name> is an empty string, an ERROR is returned</p> <p>Note5: the setting is saved in NVM</p>	
AT#OTASNAP?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAP: <addr>[,<company_name>]</p>	
AT#OTASNAP=?	<p>Test command returns the maximum length of <addr> field and maximum length of <company_name> field. The format is:</p> <p>#OTASNAP: <nlength>,<tlength></p> <p>where:</p> <p><nlength> - integer type value indicating the maximum length of field <addr> <tlength> - integer type value indicating the maximum length of field <company_name></p>	
Example	<pre>AT#OTASNAP="SMS Number","Client Alpha" OK AT#OTASNAP? #OTASNAP:"SMS Number","Client Alpha" OK AT#OTASNAP=? #OTASNAP: 21,15 OK</pre>	

3.5.7.5.2. OTA Set User Answer - #OTASUAN

#OTASUAN – OTA Set User Answer		SELINT 0/1
AT#OTASUAN= <response>[,<mode>[,<bfr>]]	<p>Set command:</p> <ol style="list-style-type: none"> 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 allows the TE to accept or reject the request <p>Parameters:</p> <p><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</p> <p><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.</p>	



#OTASUAN – OTA Set User Answer	SELINT 0/1
	<p>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</p> <p>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</p> <p><bfr> - numeric parameter that controls the effect on buffered codes when <mode> 1 or 2 is entered</p> <p>0 – MT buffer of unsolicited result codes #OTAEV is cleared when <mode> 1 or 2 is entered</p> <p>1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when <mode> 1 or 2 is entered</p> <p>Note: the following unsolicited result codes and the corresponding events are defined:</p> <p>#OTAEV: Do you want to upgrade the firmware? A management server request to start the firmware upgrade. The user answer is expected</p> <p>#OTAEV: User Answer Timeout Expected User Answer not received within server defined time interval</p> <p>#OTAEV: Automatic Fw Upgrade Requested An automatic Fw Upgrade procedure has started</p> <p>#OTAEV: Start Fw Download The firmware download is started</p> <p>#OTAEV: Fw Download Complete The firmware download is finished</p> <p>#OTAEV: OTA Fw Upgrade Failed The Fw upgrade has failed</p> <p>#OTAEV: Module Upgraded To New Fw The Fw upgrade is successfully finished</p> <p>#OTAEV: Server notified about successfull FW Upgrade The final SMS has been sent to the server notifying the successful FW upgrade</p> <p>"#OTAEV: Registered" The module has registered itself to a server</p> <p>"#OTAEV: Not registered" The registration procedure has failed</p>



#OTASUAN – OTA Set User Answer	SELINT 2
	<p>on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE</p> <p><bfr> - numeric parameter that controls the effect on buffered codes when <mode> 1 or 2 is entered</p> <p>0 – MT buffer of unsolicited result codes #OTAEV is cleared when <mode> 1 or 2 is entered</p> <p>1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when <mode> 1 or 2 is entered</p> <p>Note: the following unsolicited result codes and the corresponding events are defined:</p> <p>#OTAEV: Do you want to upgrade the firmware? A management server request to start the firmware upgrade. The user answer is expected</p> <p>#OTAEV: User Answer Timeout Expected User Answer not received within server defined time interval</p> <p>#OTAEV: Automatic Fw Upgrade Requested An automatic Fw Upgrade procedure has started</p> <p>#OTAEV: Start Fw Download The firmware download is started</p> <p>#OTAEV: Fw Download Complete The firmware download is finished</p> <p>#OTAEV: OTA Fw Upgrade Failed The Fw upgrade has failed</p> <p>#OTAEV: Module Upgraded To New Fw The Fw upgrade is successfully finished</p> <p>#OTAEV: Server notified about successful FW Upgrade The final SMS has been sent to the server notifying the successful FW upgrade</p> <p>"#OTAEV: Registered" The module has registered itself to a server</p> <p>"#OTAEV: Not registered" The registration procedure has failed</p> <p>"#OTAEV: Company Name Registered" The company name is registered</p>



#OTASUAN – OTA Set User Answer		SELINT 2
	<p>"#OTAEV: Company Name not registered" The company name is not registered</p> <p>"#OTAEV: Provisioned" A server has provisioned the module</p> <p>"#OTAEV: Notified" A server has notified the module</p>	
AT# OTASUAN?	<p>Read command reports the current settings in the format:</p> <p>#OTASUAN: ,<mode>,<bfr></p>	
AT#OTASUAN=?	Test command returns values supported as a compound value	
Example	<p>AT#OTASUAN=,2,1 OK AT#OTASUAN? #OTASUAN: ,2,1 OK AT#OTASUAN=? #OTASUAN: (0-2),(0-2),(0,1) OK</p>	

3.5.7.5.3. OTA Set Ring Indicator - #OTASETRI

#OTASETRI - OTA Set Ring Indicator		SELINT 0/1
AT#OTASETRI= [<n>]	<p>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>.</p> <p>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.</p> <p>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.</p> <p>Note: the setting is saved in the profile parameters</p>	
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:	



#OTASETTRI - OTA Set Ring Indicator		SELINT 0/1
	#OTASETTRI: <n>	
	Note: as seen before, the value <n>=0 means that the RI pin response to the URC is disabled.	
AT#OTASETTRI	Execution command has the same effect as the Read command	
AT#OTASETTRI=?	Reports the range of supported values for parameter <n>	

#OTASETTRI - OTA Set Ring Indicator		SELINT 2
AT#OTASETTRI= [<n>]	<p>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>.</p> <p>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.</p> <p>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.</p> <p>Note: the setting is saved in the profile parameters</p>	
AT#OTASETTRI?	<p>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:</p> <p>#OTASETTRI: <n></p> <p>Note: as seen before, the value <n>=0 means that the RI pin response to the URC is disabled.</p>	
AT#OTASETTRI=?	Reports the range of supported values for parameter <n>	

3.5.7.5.4. Saves IP port and IP address for OTA over IP - #OTAIPCFG

#OTAIPCFG – Saves IP port and IP address for OTA over IP		SELINT 0/1
AT#OTAIPCFG=<IPort>,<IP addr>[,<unused>]	<p>This command saves in NVM the IP port number and IP address of the OTA server.</p> <p>Parameters: <IPort >: IP port of the OTA server <IPaddr>: IP address of the OTA server, string type. This parameter can</p>	



	<p>be any valid IP address in the format: “xxx.xxx.xxx.xxx”</p> <p>Note: the values set by the command are directly stored in NVM and don’t depend on the specific CMUX instance.</p> <p>Note2: a special form of the Set command, #OTAIPCFG=<IPort>,”” sets the IP address to “0.0.0.0”.</p>
AT#OTAIPCFG?	<p>Read command reports the currently selected <IPort > and <IPaddr> in the format:</p> <p>#OTAIPCFG: <IPort >,<IPaddr>,0</p>
AT#OTAIPCFG	Execution command has the same effect as the Read command
AT#OTAIPCFG=?	Test command reports the range of supported values for parameters <IPort> and <unused>

#OTAIPCFG – Saves IP port and IP address for OTA over IP		SELINT 2
AT#OTAIPCFG=<IPort>,<IPaddr>[,<unused>]	<p>This command saves in NVM the IP port number and IP address of the OTA server.</p> <p>Parameters: <IPort >: IP port of the OTA server <IPaddr>: IP address of the OTA server, string type. This parameter can be any valid IP address in the format: “xxx.xxx.xxx.xxx”</p> <p>Note: the values set by the command are directly stored in NVM and don’t depend on the specific CMUX instance.</p> <p>Note2: a special form of the Set command, #OTAIPCFG=<IPort>,”” sets the IP address to “0.0.0.0”.</p>	
AT#OTAIPCFG?	<p>Read command reports the currently selected <IPort > and <IPaddr> in the format:</p> <p>#OTAIPCFG: <IPort >,<IPaddr>,0</p>	
AT#OTAIPCFG=?	Test command reports the range of supported values for parameters <IPort> and <unused>	

3.5.7.5.5. Starts an OTA Update over IP - #OTAIPUPD

#OTAIPUPD – Starts an OTA Update over IP		SELINT 0/1/2
AT#OTAIPUPD	<p>This command starts an OTA Update over IP.</p> <p>Note: in order to complete the update, the device has to be registered in the OTA server.</p>	



#OTASNAPIP – OTA Set IP port and address for OTA over IP		SELINT 0/1
	<p>Note3: the values of <IPort> and <IPaddr> parameters can be overwritten from the OTA server by any SMS (Command, RSA Discovery Registration ...)</p> <p>Note4: a change of the value of <company_name> parameter causes a new FOTA Registration procedure</p> <p>Note5: if the <company_name> is an empty string, an ERROR is returned</p> <p>Note6: all the settings are saved in NVM but <mynumber></p>	
AT#OTASNAPIP?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAPIP: <IPort>,<IPaddr>[,<company_name>],0</p>	
AT#OTASNAPIP	<p>Execution command has the same effect as the Read command</p>	
AT#OTASNAPIP=?	<p>Test command returns the range for <IPort> values and the maximum length of <mynumber> field and of <company_name> field. The format is:</p> <p>#OTASNAPIP: (0-65535),,<nlength>,<tlength></p> <p>where:</p> <p><nlength> - integer type value indicating the maximum length of field <mynumber></p> <p><tlength> - integer type value indicating the maximum length of field <company_name></p>	

#OTASNAPIP – OTA Set IP port and address for OTA over IP		SELINT 2
AT#OTASNAPIP=<IPort>,<IPaddr>[,<mynumber>[,<company_name>[,<unused>]]]	<p>Set command specifies the IP port number and IP address that the module has to use to send the Remote Registration message. If the current IMSI hasn't been yet registered, the Remote Registration message is automatically sent.</p> <p>Parameters:</p> <p><IPort> - IP port of the OTA server</p> <p><IPaddr> - IP address of the OTA server, string type. This parameter can be any valid IP address in the format: "xxx.xxx.xxx.xxx"</p> <p><mynumber> - string parameter which specifies the phone number of the client</p> <p><company_name> - string parameter containing a client identifier</p> <p>Note1: the command returns ERROR if the APN has not been set through the command AT#OTASNAPIPFCFG</p> <p>Note2: a special form of the Set command, #OTASNAP=<IPort>,"", sets the IP address to "0.0.0.0".</p> <p>Note3: the values of <IPort> and <IPaddr> parameters can be overwritten from the OTA server by any SMS (Command, RSA Discovery Registration ...)</p>	



#OTASNAPIP – OTA Set IP port and address for OTA over IP		SELINT 2
	<p>Note4: a change of the value of <company_name> parameter causes a new FOTA Registration procedure</p> <p>Note5: if the <company_name> is an empty string, an ERROR is returned</p> <p>Note6: all the settings are saved in NVM but < mynumber></p>	
AT#OTASNAPIP?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAPIP: <IPort>,<IPaddr>[,<company_name>],0</p>	
AT#OTASNAPIP=?	<p>Test command returns the range for <IPort> values and the maximum length of <mynumber> field and of <company_name> field. The format is:</p> <p>#OTASNAPIP: (10-65535),,<nlength>,<tlength></p> <p>where:</p> <p><nlength> - integer type value indicating the maximum length of field <mynumber></p> <p><tlength> - integer type value indicating the maximum length of field <company_name></p>	

3.5.7.5.7. OTA Set Access Point Name for OTA over IP - #OTASNAIPCFG

#OTASNAIPCFG – OTA Set Access Point Name for OTA over IP		SELINT 0/1
<p>AT#OTASNAIPCFG= <bearer>,<APN>[,<username>,<password>[,<rspTimeout>]]</p>	<p>Set command specifies the bearer (GSM or GPRS) and the APN that the module has to use to send the Remote Registration message.</p> <p>The APN is the Access Point Name in case of GPRS bearer or the internet service provider number in case of GSM bearer.</p> <p>Parameters:</p> <p><bearer> 0 – Undefined (default value) 1 – GSM 2 - GPRS</p> <p><APN> - string parameter; in case of GPRS bearer: Access Point Name, a logical name that is used to select the GGSN or the external packet data network; in case of GSM bearer: phone number of the internet service provider</p> <p><username> - string parameter, used only if the context requires it</p> <p><password> - string parameter, used only if the context requires it</p> <p><rspTimeout> - used when waiting for a response from OTA server, after the module has sent a message: if there's no response within this timeout period the</p>	



#OTASNAPIPCFG – OTA Set Access Point Name for OTA over IP	SELINT 2
	<p>module has sent a message: if there's no response within this timeout period the TCP connection is closed.</p> <p>0 - no timeout 1..65535 - timeout value in seconds (default 300 s.)</p> <p>Note1: if the <bearer> is set to 0, then the APN is erased. If the bearer is already 0, any <APN> or <username> or <password> will not be set</p> <p>Note2: the values of <bearer>, <APN>, <username> and <password> parameters can be overwritten from the OTA server by any SMS (Command, RSA Discovery Registration ...)</p> <p>Note3: all the settings are saved in NVM</p>
AT#OTASNAPIPCFG?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAPIPCFG: <bearer>,<APN>[,<username>[,<password>[,<rspTimeout>]]]</p>
AT#OTASNAPIPCFG=?	<p>Test command returns the range for <bearer> values, the maximum length of <APN>, <username> and <password> string parameters and the range for <rspTimeout> values. The format is:</p> <p>#OTASNAPIPCFG: (0-2),99,49,49,(0-65535)</p>

3.5.7.6. Multisocket AT Commands

3.5.7.6.1. Socket Status - #SS

#SS - Socket Status	SELINT 2
AT#SS[=<connId>]	<p>Execution command reports the current status of the socket:</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p>The response format is:</p> <p>#SS: <connId>,<state>,<locIP>,<locPort>,<remIP>,<remPort></p> <p>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.</p>



#SS - Socket Status	SELINT 2
	<p>3 - Socket suspended with pending data. 4 - Socket listening. 5 - Socket with an incoming connection. Waiting for the user accept or shutdown command.</p> <p><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.</p> <p><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.</p> <p>Note: issuing #SS<CR> causes getting information about status of all the sockets; the response format is:</p> <p>#SS: <connId1>,<state1>,<locIP1>,<locPort1>,<remIP1>,<remPort1> <CR><LF> ... #SS: <connId6>,<state6>,<locIP6>,<locPort6>,<remIP6>,<remPort6></p>
AT#SS=?	Test command reports the range for parameter <connId>.
Example	<pre>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: 2,4,91.80.90.162,1000 OK</pre>



#SS - Socket Status	SELINT 2
	<p>We have information only about socket number 2</p>

3.5.7.6.2. Socket Info - #SI

#SI - Socket Info	SELINT 2
<p>AT#SI[=<connId>]</p>	<p>Execution command is used to get information about socket data traffic.</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p>The response format is:</p> <p>#SI: <connId>,<sent>,<received>,<buff_in>,<ack_waiting></p> <p>where:</p> <ul style="list-style-type: none"> <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 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



#SI - Socket Info	SELINT 2
	<p>Note: parameters associated with a socket identified by <connId> are cleared when the socket itself is connected again(#SD or #SA after #SL). Until then, if previous connection has been established and closed, old values are yet available.</p> <p>Note: not yet acknowledged data are available only for TCP connections; the value <ack_waiting> is always 0 for UDP connections.</p> <p>Note: issuing #SI<CR> causes getting information about data traffic of all the sockets; the response format is:</p> <pre>#SI: <connId1>,<sent1>,<received1>,<buff_in1>,<ack_waiting1> <CR><LF> ... #SI: <connId6>,<sent6>,<received6>,<buff_in6>,<ack_waiting6></pre>
AT#SI=?	Test command reports the range for parameter <connId>.
Example	<pre>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 <i>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.</i> AT#SI=1 #SI: 1,123,400,10,50 OK <i>We have information only about socket number 1</i></pre>

3.5.7.6.3. Context Activation - #SGACT

#SGACT - Context Activation	SELINT 2
AT#SGACT=<cid>,<stat>[,<userId>,<pwd>]	<p>Execution command is used to activate or deactivate either the GSM context or the specified PDP context.</p> <p>Parameters: <cid> - PDP context identifier</p>



#SGACT - Context Activation		SELINT 2
	<p>#SGACT: <cid5>,<Stat5></p> <p>where: <cidn> - as <cid> before <statn> - context status 0 - context deactivated 1 - context activated</p>	
AT#SGACT=?	Test command reports the range for the parameters <cid> and <stat>	
Note	It is strongly recommended to use the same command (e.g. #SGACT) to activate the context, deactivate it and interrogate about its status.	

3.5.7.6.4. Socket Shutdown - #SH

#SH - Socket Shutdown		SELINT 2
AT#SH=<connId>	<p>This command is used to close a socket.</p> <p>Parameter: <connId> - socket connection identifier 1..6</p>	
AT#SH=?	Test command reports the range for parameter <connId>.	

3.5.7.6.5. Socket Configuration - #SCFG

#SCFG - Socket Configuration		SELINT 2
AT#SCFG= <connId>,<cid>, <pktSz>,<maxTo>, <connTo>,<txTo>	<p>Set command sets the socket configuration parameters.</p> <p>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.</p>	



#SCFG - Socket Configuration		SELINT 2
	<p>0 - no timeout 1..255 - timeout value in hundreds of milliseconds (default 50)</p> <p>Note: these values are automatically saved in NVM.</p> <p>Note: if DNS resolution is required, max DNS resolution time(20 sec) has to be considered in addition to <connTo></p>	
AT#SCFG?	<p>Read command returns the current socket configuration parameters values for all the six sockets, in the format:</p> <pre>#SCFG: <connId1>,<cid1>,<pktsz1>,<maxTo1>,<connTo1>,<txTo1> <CR><LF> ... #SCFG: <connId6>,<cid6>,<pktsz6>,<maxTo6>,<connTo6>,<txTo6> <CR><LF></pre>	
AT#SCFG=?	Test command returns the range of supported values for all the subparameters.	
Example	<pre>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</pre>	

3.5.7.6.6. Socket Configuration Extended - #SCFGEXT

#SCFGEXT - Socket Configuration Extended		SELINT 2
AT#SCFGEXT= <conned>,<srMode>, <recvDataMode>, <keepalive>, [<ListenAutoRsp> [<sendDataMode>]]	<p>Set command sets the socket configuration extended parameters.</p> <p>Parameters:</p> <p><connId> - socket connection identifier 1..6</p> <p><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:</p>	



	<p>SRING : <connId>,<recData>,<data> same as before and <data> is data received displayed following <dataMode> value 3 – Data view with UDP datagram informations: SRING : <sourceIP>,<sourcePort><connId>,<recData>,<dataLeft>,<data> same as before with <sourceIP>,<sourcePort> and <dataLeft> that means the number of bytes left in the UDP datagram</p> <p>Note: <srMode> value 3 is not available in SW 13.00.xxx</p> <p><recvDataMode> - data view mode for received data in command mode(AT#SRECV or <srMode> = 2) 0- text mode (default) 1- hexadecimal mode</p> <p><keepalive> - Set the TCP Keepalive value in minutes 0 – Deactivated (default) 1 – 240 – Keepalive time in minutes</p> <p><ListenAutoRsp> - Set the listen auto-response mode, that affects the commands AT#SL and AT#SLUDP 0 - Deactivated (default) 1 – Activated</p> <p><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</p> <p>Note: these values are automatically saved in NVM. Note: Keepalive is available only on TCP connections.</p> <p>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.</p>
<p>AT#SCFGEXT?</p>	<p>Read command returns the current socket extended configuration parameters values for all the six sockets, in the format:</p> <p>#SCFGEXT:<connId1>,<srMode1>,<dataMode1>,<keepalive1>,<ListenAutoRsp1>,0<CR><LF></p> <p>...</p> <p>#SCFGEXT:<connId6>,<srMode6>,<dataMode6>,<keepalive6>,<ListenAutoRsp6>,0<CR><LF></p>



AT#SCFGEXT=?	Test command returns the range of supported values for all the subparameters.
Example	<p>Socket 1 set with data view string, text data mode, a keepalive time of 30 minutes and listen auto-response set.</p> <p>Socket 3 set with data amount string, hex recv data mode, no keepalive and listen auto-response not set.</p> <p>Socket 4 set with hex recv and send data mode</p> <pre>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</pre>

3.5.7.6.7. Socket configuration Extended 2 - #SCFGEXT2

#SCFGEXT2 - Socket Configuration Extended 2	SELINT 2
<p>AT#SCFGEXT2= <connId>,<bufferStart> [,<abortConnAttempt> [,<stringLen > [,<stringTo > [,<noCarrierMode>]]]]</p>	<p>Set command sets the socket configuration extended parameters for features not included in #SCFGEXT command.</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p><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.</p> <p>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 when new data received from serial port</p> <p>Note: is necessary to avoid overlapping of the two methods. Enabling new method, the old method for transmission timer(#SCFG) is</p>



	<p>automatically disabled to avoid overlapping.</p> <p>Note: check if new data have been received from serial port is done with a granularity that is directly related to #SCFG <txTo> setting with a maximum period of 1 sec.</p> <p><abortConnAttempt> - Enable connection attempt(#SD/#SKTD/#SKTOP) abort before CONNECT(online mode) or OK(command mode)</p> <p>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)</p> <p>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.</p> <p><sringLen> - this parameter sets the length of data received in one SRING URC in sring mode 2 or 3 (see AT#SCFGEXT)</p> <p>0 – factory default, means 64 bytes 1 – means that the length is equal to the maximum TCP payload size accepted in download in case of TCP connections, same as 0 in case of UDP connections 64..1472</p> <p><sringTo> - this parameter sets the delay among one SRING URC and the other, in sring mode 2 or 3 (see AT#SCFGEXT)</p> <p>0 – factory default, means 10 hundreds of milliseconds 1..10: value in hundreds of milliseconds Note: values are automatically saved in NVM.</p> <p>Note2: in case AT#BASE64 has been set on the same connId, the parameter <sringLen> will affect the length of the data read from the socket at each SRING, but this length will always be a multiple of 78 or 76 (depending on the type of decoding set with AT#BASE64) and user will get less due to decoding.</p> <p><noCarrierMode> - this parameter permits to choose NO CARRIER indication format when the socket is closed as follows</p> <p>0 – NO CARRIER (default)</p>
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	<p>Indication is sent as usual, without additional information</p> <p>1 – NO CARRIER:<connId> Indication of current <connId> socket connection identifier is added</p> <p>2 – NO CARRIER:<connId>,<cause> Indication of current <connId> socket connection identifier and closure <cause> are added For possible <cause> values, see also #SLASTCLOSURE</p> <p>Note: like #SLASTCLOSURE, in case of subsequent consecutive closure causes are received, the original disconnection cause is indicated.</p> <p>Note: in the case of command mode connection and remote closure with subsequent inactivity timeout closure without retrieval of all available data(#SRECV or SRING mode 2), it is indicated cause 1 for both possible FIN and RST from remote.</p>
<p>AT#SCFGEXT2?</p>	<p>Read command returns the current socket extended configuration parameters values for all the six sockets, in the format:</p> <p>#SCFGEXT2:<connId1>,<bufferStart1> <abortConnAttempt1>,<sringLen1>, <sringTo1>,<noCarrierMode1><CR><LF> ... #SCFGEXT2:<connId6>,<bufferStart6>, <abortConnAttempt6>,<sringLen6>, <sringTo6>,<noCarrierMode6><CR><LF></p>
<p>AT#SCFGEXT2=?</p>	<p>Test command returns the range of supported values for all the subparameters.</p>
<p>Example</p>	<p>AT#SCFGEXT2=1,1 OK</p> <p>AT#SCFGEXT2=2,1 OK</p> <p>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</p>



	<p>OK</p> <p>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</p> <p>OK</p> <p>AT#SCFG=1,1,300,90,600,30 OK</p> <p>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.</p>
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3.5.7.6.8. Socket configuration Extended 3 - #SCFGEXT3

#SCFGEXT3 - Socket Configuration Extended 3	SELINT 2
<p>AT#SCFGEXT3= <connId> [,<unused_A> [,<closureTypeCmdModeEnabling> [,<unused_B> [,<unused_C> [,<unused_D>]]]]]</p>	<p>Set command sets the socket configuration extended parameters for features not included in #SCFGEXT command nor in #SCFGEXT2 command.</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p><closureTypeCmdModeEnabling> - Setting this parameter, successive #SD or #SL with <closureType> parameter 255 setting takes effect in command mode. It has been introduced due to retrocompatibility reason regarding <closureType> behaviour in command mode.</p> <p>0 – #SD or #SL <closureType> 255 in command mode has no effect 1 – #SD or SL <closureType> 255 in command mode takes effect</p> <p>Note: parameter is saved in NVM</p>
<p>AT#SCFGEXT3?</p>	<p>Read command returns the current socket extended configuration parameters values for all the six sockets, in the format:</p>



#SCFGEXT3 - Socket Configuration Extended 3	SELINT 2
	<pre>#SCFGEXT3:<connId1>,0,<closureTypeCmdModeEnabling1>, 0,0,0<CR><LF> ... #SCFGEXT3:<connId6>,0,<closureTypeCmdModeEnabling6>, 0,0,0<CR><LF></pre>
AT#SCFGEXT3=?	Test command returns the range of supported values for all the parameters.

3.5.7.6.9. Socket Dial - #SD

#SD - Socket Dial	SELINT 2
<pre>AT#SD=<connId>, <txProt>,<rPort>, <IPAddr> [,<closureType> [,<IPort> [,<connMode>]]]</pre>	<p>Execution command opens a remote connection via socket.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <connId> - socket connection identifier 1..6 <txProt> - transmission protocol 0 - TCP 1 - UDP <rPort> - remote host port to contact 1..65535 <IPAddr> - address of the remote host, string type. This parameter can be either: <ul style="list-style-type: none"> - 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 when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote. <IPort> - UDP connections local port 1..65535 <connMode> - Connection mode 0 - online mode connection (default) 1 - command mode connection <p>Note: <closureType> parameter is valid for TCP connections only and has no effect (if used) for UDP connections.</p> <p>Note: <IPort> parameter is valid for UDP connections only and has no effect (if used) for TCP connections.</p> <p>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</p>



#SD - Socket Dial	SELINT 2
	<p>moment (unless the socket inactivity timer timeouts, see #SCFG) by using the #SO command with the corresponding <connId>.</p> <p>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.</p> <p>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 while in command mode issuing #SEND</p> <p>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.</p> <p>Note: <closureType> 255 takes effect on a command mode connection(<connMode> set to 1 or online mode connection suspended with +++) only if #SCFGEXT3 <closureTypeCmdModeEnabling> parameter has been previously enabled.</p>
AT#SD=?	Test command reports the range of values for all the parameters.
Example	<p><i>Open socket 1 in online mode</i></p> <pre>AT#SD=1,0,80,"www.google.com",0,0,0 CONNECT ...</pre> <p><i>Open socket 1 in command mode</i></p> <pre>AT#SD=1,0,80,"www.google.com",0,0,1 OK</pre>

3.5.7.6.10. Socket Restore - #SO

#SO - Socket Restore	SELINT 2
AT#SO=<connId>	<p>Execution command resumes the direct interface to a socket connection which has been suspended by the escape sequence.</p> <p>Parameter: <connId> - socket connection identifier 1..6</p>
AT#SO=?	Test command reports the range of values for <connId> parameter.



3.5.7.6.11. Socket Listen - #SL

#SL - Socket Listen	SELINT 2
<p>AT#SL=<connId>, <listenState>, <listenPort> >[,<closure type>]</p>	<p>This command opens/closes a socket listening for an incoming TCP connection on a specified port.</p> <p>Parameters: <connId> - socket connection identifier 1..6 <listenState> - 0 - closes socket listening 1 - starts socket listening <listenPort> - local listening port 1..65535 <closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p>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:</p> <p>+SRING : <connId></p> <p>Afterwards we can use #SA to accept the connection or #SH to refuse it.</p> <p>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.</p> <p>If the socket is closed by the network the following URC is received:</p> <p>#SL: ABORTED</p> <p>Note: when closing the listening socket <listenPort> is a don't care parameter</p>
<p>AT#SL?</p>	<p>Read command returns all the actual listening TCP sockets.</p>
<p>AT#SL=?</p>	<p>Test command returns the range of supported values for all the subparameters.</p>
<p>Example</p>	<p><i>Next command opens a socket listening for TCP on port 3500 without.</i></p> <p>AT#SL=1,1,3500 OK</p>



3.5.7.6.12. Socket Listen UDP - #SLUDP

#SLUDP - Socket Listen UDP	SELINT 2
<p>AT#SLUDP=<connId> , <listenState>, <listenPort></p>	<p>This command opens/closes a socket listening for an incoming UDP connection on a specified port.</p> <p>Parameters: <connId> - socket connection identifier 1..6 <listenState> - 0 - closes socket listening 1 - starts socket listening <listenPort> - local listening port 1..65535</p> <p>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:</p> <p>+SRING : <connId></p> <p>Afterwards we can use #SA to accept the connection or #SH to refuse it.</p> <p>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.</p> <p>If the socket is closed by the network the following URC is received:</p> <p>#SLUDP: ABORTED</p> <p>Note: when closing the listening socket <listenPort> is a don't care parameter</p>
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	<p><i>Next command opens a socket listening for UDP on port 3500.</i></p> <p>AT#SLUDP=1,1,3500 OK</p>



3.5.7.6.13. Socket Accept - #SA

#SA - Socket Accept	SELINT 2
AT#SA=<connId>[,<connMode>]	<p>Execution command accepts an incoming socket connection after an URC SRING: <connId></p> <p>Parameter: <connId> - socket connection identifier 1..6 <connMode> - Connection mode, as for command #SD. 0 - online mode connection (default) 1 - command mode connection</p> <p>Note: the SRING URC has to be a consequence of a #SL issue.</p> <p>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</p>
AT#SA=?	Test command reports the range of values for all the parameters.

3.5.7.6.14. Receive Data In Command Mode - #SRECV

#SRECV - Receive Data In Command Mode	SELINT 2
AT#SRECV=<connId>,<maxByte>[,<UDPInfo>]	<p>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.</p> <p>Parameters: <connId> - socket connection identifier 1..6 <maxByte> - max number of bytes to read 1..1500 <UDPInfo> 0 – UDP information disabled (default) 1 – UDP information enabled: data are read just until the end of the UDP datagram and the response carries information about the remote IP address and port and about the remaining bytes in the datagram. AT#SRECV=<connId>,<maxBytes>,1 #SRECV: <sourceIP>,<sourcePort><connId>,<recData>,<dataLeft> data</p> <p>Note: issuing #SRECV when there's no buffered data raises an error.</p> <p>Note: The <UDPInfo> parameter is not available in SW 13.00.xxx.</p>
AT#SRECV=?	Test command returns the range of supported values for parameters



#SRECV - Receive Data In Command Mode	SELINT 2
Example	<p>< connId >,< maxByte > and <UDPInfo></p> <p>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</p> <p><i>Read in text format the buffered data</i> AT#SRECV=1,15 #SRECV: 1,15 stringa di test</p> <p>OK</p> <p><i>Or:</i> <i>if the received datagram, received from <IPaddr and <IPport> is of 60 bytes</i> AT#SRECV=1,15,1 #SRECV: <IPaddr>,<IPport>,1,15,45 stringa di test</p> <p>OK</p> <p>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</p> <p><i>Read in hexadecimal format the buffered data</i> AT#SRECV=2,15 #SRECV: 2,15 737472696e67612064692074657374</p> <p>OK</p> <p><i>Or:</i> <i>if the received datagram, received from <IPaddr and <IPport> is of 60 bytes</i> AT#SRECV=2,15 #SRECV: <IPaddr>,<IPport>,2,15,45 737472696e67612064692074657374</p> <p>OK</p> <p>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</p>



3.5.7.6.15. Send Data In Command Mode - #SSEND

#SSEND - Send Data In Command Mode		SELINT 2
AT#SSEND= <connId>	<p>Execution command permits, while the module is in command mode, to send data through a connected socket.</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p>The device responds to the command with the prompt \hookrightarrow <greater_than><space> and waits for the data to send.</p> <p>To complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex).</p> <p>If data are successfully sent, then the response is OK. If data sending fails for some reason, an error code is reported</p> <p>Note: the maximum number of bytes to send is 1024 bytes for versions till 7.03.02/7.02.07 and from 10.0x.xx0 till 10.0x.xx2, 1500(TCP)/1472(UDP) bytes for versions starting from 10.0x.xx3 ; trying to send more data will cause the surplus to be discarded and lost.</p> <p>Note: it's possible to use #SSEND only if the connection was opened by #SD, else the ME is raising an error.</p> <p>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)</p>	
AT#SSEND=?	Test command returns the range of supported values for parameter <connId>	
Example	<p>Send data through socket number 2</p> <pre>AT#SSEND=2 >Test<CTRL-Z> OK</pre>	

3.5.7.6.16. Send data in Command Mode extended - #SENDEXT

#SENDEXT - Send Data In Command Mode extended		SELINT 2
AT#SENDEXT= <connId>, <bytestosend>	<p>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).</p> <p>Parameters: <connId> - socket connection identifier</p>	



#SSENDEXT - Send Data In Command Mode extended	SELINT 2
	<p>1..6 < bytestosend > - number of bytes to be sent Please refer to test command for range</p> <p>The device responds to the command with the prompt <greater_than><space> 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.</p> <p>Note: it's possible to use #SSENDEXT only if the connection was opened by #SD, else the ME is raising an error.</p> <p>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)</p>
AT#SSENDEXT=?	Test command returns the range of supported values for parameters < connId > and < bytestosend >
Example	<p>Open the socket in command mode: at#sd=1,0,<port>,"IP address",0,0,1 OK</p> <p>Give the command specifying total number of bytes as second parameter: at#ssendext=1,256 > ; // Terminal echo of bytes sent is displayed here OK</p> <p>All possible bytes(from 0x00 to 0xFF) are sent on the socket as generic bytes.</p>

3.5.7.6.17. IP Easy Authentication Type - #SGACTAUTH

#SGACTAUTH – Easy IP Authentication Type	SELINT 2
AT#SGACTAUTH= <type>	<p>Set command sets the authentication type for IP Easy This command has effect on the authentication mode used on AT#SGACT or AT#GPRS commands.</p> <p>Parameter <type> 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication</p>



#SGACTAUTH – Easy IP Authentication Type		SELINT 2
	<p>Note: the parameter is not saved in NVM</p> <p>Note: PAP Authentication is default when AT#SGACT contains username e/o password. No Authentication is default when AT#SGACT doesn't contains username and password.</p>	
AT#SGACTAUTH?	<p>Read command reports the current IP Easy authentication type, in the format:</p> <p>#SGACTAUTH: <type></p>	
AT#SGACTAUTH=?	<p>Test command returns the range of supported values for parameter <type>.</p>	

3.5.7.6.18. Context activation and configuration - #SGACTCFG

#SGACTCFG - Context Activation and Configuration		SELINT 2
AT#SGACTCFG= <cid>, <retry>, [,<delay > [,<urcmode >]]	<p>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).</p> <p>Parameters:</p> <p><cid> - PDP context identifier (see +CGDCONT command) 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><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)</p> <p><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</p> <p>< 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:</p> <p>#SGACT: <ip_address></p> <p>reporting the local IP address obtained from the network.</p>	



	<p>Note:</p> <p>If we receive delayed CTEXT 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.</p> <p>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).</p>
AT#SGACTCFGEXT?	<p>Read command reports the state of all the five contexts, in the format:</p> <pre>#SGACTCFGEXT: <cid1>,< abortAttemptEnable1 >,0,0,0<CR><LF> ... #SGACTCFGEXT: <cid5>,< abortAttemptEnable5 >,0,0,0<CR><LF></pre> <p>where: <cidn> - as <cid> before < abortAttemptEnable n> - as < abortAttemptEnable > before</p> <p>Note: values are automatically saved in NVM.</p>
AT#SGACTCFGEXT=?	Test command reports supported range of values for all parameters

3.5.7.6.20. PAD command features - #PADCMD

#PADCMD – PAD command features		SELINT 2
AT#PADCMD=<mode>	<p>This command sets features of the pending data flush to socket, opened with AT#SD command.</p> <p>Parameters: <mode>: Bit 1: 1 - enable forwarding; 0 – disable forwarding; Other bits reserved;</p> <p>Note: forwarding depends on character defined by AT#PADFWD</p>	
AT#PADCMD?	<p>Read command reports the currently selected <mode> in the format: #PADCMD: mode</p>	
AT#PADCMD=?	Test command reports the supported range of values for parameter <mode> .	

3.5.7.6.21. PAD forward character - #PADFWD

#PADFWD – PAD forward character		SELINT 2
AT#PADFWD=<char> [,<mode>]	<p>This command sets the char that immediately flushes pending data to socket, opened with AT#SD command.</p>	



	<p>Parameters:</p> <p><char>: a number, from 0 to 255, that specifies the ascii code of the char used to flush data</p> <p><mode>: flush mode, 0 – normal mode (default); 1 – reserved;</p> <p>Note: use AT#PADCMD to enable the socket char-flush activity.</p>
AT#PADFWD?	<p>Read command reports the currently selected <char> and <mode> in the format:</p> <p>#PADFWD: <char>,mode</p>
AT#PADFWD=?	<p>Test command reports the supported range of values for parameters <char> and <mode>.</p>

3.5.7.6.22. Base64 encoding/decoding of data sent/received on a socket - #BASE64

#BASE64 – Base64 encoding/decoding of data sent/received on a skt	SELINT 2
<p>AT#BASE64= <connId>,<enc>,<dec> [,<unused_B > [,<unused_C >]]</p>	<p>Set command enables base64 encoding and/or decoding of data sent/received to/from the socket in online or in command mode.</p> <p>Parameters:</p> <p><connId> - socket connection identifier 1..6</p> <p><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.</p> <p>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.</p> <p>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.</p> <p><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.</p>



	<p>(Same rule as for <enc> regarding line feeds in the received file that has to be decoded)</p> <p>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).</p> <p>Note: to use #BASE64 in command mode, if data to send exceed maximum value for #SENDEXT 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.</p> <p>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.</p> <p>Note: on version 10.0x.xx3 only <connId> 1 is available.</p> <p>Note: values are automatically saved in NVM.</p>
<p>AT# BASE64?</p>	<p>Read command returns the current <enc>/<dec> settings for all the six sockets, in the format:</p> <pre># BASE64:<connId1><enc1>,<dec1>,0,0<CR><LF> ... # BASE64:<connId6>,<enc6>,<dec6>,0,0<CR><LF></pre>
<p>AT# BASE64=?</p>	<p>Test command returns the range of supported values for all the subparameters.</p>
<p>Example</p>	<pre>AT#SKIPESC=1 OK AT#SD=<connId>,<txProt>,<rPort>,<IPaddr> CONNECT //Data sent without modifications(default) +++ (suspension) OK</pre>



	<pre> 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) </pre>
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3.5.7.6.23. Send UDP data to a specific remote host - #SSENDUDP

#SSENDUDP – send UDP data to a specific remote host	SELINT 2
<pre> AT#SSENDUDP=<connId> ,<remoteIP>,<remotePort> </pre>	<p>This command permits, while the module is in command mode, to send data over UDP to a specific remote host.</p> <p>UDP connection has to be previously completed with a first remote host through #SLUDP / #SA.</p> <p>Then, if we receive data from this or another host, we are able to send data to it.</p> <p>Like command #SSSEND, the device responds with '>' and waits for the data to send.</p> <p>Parameters:</p> <p><connId> - socket connection identifier 1..6</p> <p><remoteIP> - IP address of the remote host in dotted decimal notation, string type: "xxx.xxx.xxx.xxx"</p> <p><remotePort> - remote host port 1..65535</p>



	<p>Note: after SRING that indicates incoming UDP data and issuing #SRECV to receive data itself, through #SS is possible to check last remote host (IP/Port).</p> <p>Note: if successive resume of the socket to online mode is performed(#SO), connection with first remote host is restored as it was before.</p> <p>Note: the maximum number of bytes to send is 1472 bytes</p>
<p>AT#SENDUDP=?</p>	<p>Test command reports the supported range of values for parameters <connId>, <remoteIP> and <remotePort></p>
<p>Example</p>	<p><i>Starts listening on <LocPort>(previous setting of firewall through #FRWL has to be done)</i></p> <p>AT#SLUDP=1,1,<LocPort> OK</p> <p>SRING: 1 // UDP data from a remote host available</p> <p>AT#SA=1,1 OK</p> <p>SRING: 1</p> <p>AT#SI=1 #SI: 1,0,0,23,0 // 23 bytes to read</p> <p>OK</p> <p>AT#SRECV=1,23 #SRECV:1,23 message from first host</p> <p>OK</p> <p>AT#SS=1 #SS: 1,2,<LocIP>,<LocPort>,<RemIP1>,<RemPort1></p> <p>OK</p> <p>AT#SENDUDP=1,<RemIP1>,<RemPort1> >response to first host OK</p> <p>SRING: 1 // UDP data from a remote host available</p> <p>AT#SI=1</p>



	<pre>#SI: 1,22,23,24,0 // 24 bytes to read OK AT#SRECV=1,24 #SRECV:1,24 message from second host OK AT#SS=1 #SS: 1,2,<LocIP>,<LocPort>,<RemIP2>,<RemPort2> OK Remote host has changed, we want to send a reponse: AT#SSENDUDP=1,<RemIP2>,<RemPort2> >response to second host OK</pre>
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3.5.7.6.24. Send UDP data to a specific remote host extended - #SSENDUDPEXT

#SSENDUDPEXT – send UDP data to a specific remote host extended	SELINT 2
<pre>AT#SSENDUDPEXT =<connId>,<bytestosend>, ,<remoteIP>,<remotePort></pre>	<p>This command permits, while the module is in command mode, to send data over UDP to a specific remote host including all possible octets(from 0x00 to 0xFF)</p> <p>As indicated about #SSENDUDP: UDP socket has to be previously opened through #SLUDP / #SA, then we are able to send data to different remote hosts</p> <p>Like #SSENDEXT, the device responds with the prompt '>' and waits for the data to send, operation is automatically completed when <bytestosend> have been sent.</p> <p>Parameters: <connId> - socket connection identifier 1..6 <bytestosend> - number of bytes to be sent 1-1472 <remoteIP> - IP address of the remote host in dotted decimal notation, string type: "xxx.xxx.xxx.xxx" <remotePort> - remote host port 1..65535</p>



AT#SSENDUDPEXT=?	Test command reports the supported range of values for parameters <connId> , <bytestosend> , <remoteIP> and <remotePort>

3.5.7.6.25. Socket Type - #ST

#ST – Socket Type	SELINT 2
AT#ST [=<ConnId>]	<p>Set command reports the current type of the socket (TCP/UDP) and its direction (Dialer / Listener)</p> <p>Parameter: < ConnId > - socket connection identifier 1..6</p> <p>The response format is:</p> <p>#ST: <connId>,<type>,<direction></p> <p>where</p> <p>< connId > - socket connection identifier 1..6</p> <p>< type > - socket type 0 – No socket 1 – TCP socket 2 – UDP socket</p> <p>< direction > - direction of the socket 0 – No 1 – Dialer 2 – Listener</p> <p>Note: issuing #ST<CR> causes getting information about type of all the sockets; the response format is:</p> <p>#ST: <connId1>,<type1>,<direction1> <CR><LF> ... #ST: <connId6>,< type 6>,< direction 6></p>
AT#ST=?	Test command reports the range for parameter <connId>.
Example	<p>single socket:</p> <p>AT#ST=3 #ST: 3,2,1</p> <p>Socket 3 is an UDP dialer.</p>



#ST – Socket Type	SELINT 2
	<p>All sockets:</p> <p>AT#ST #ST: 1,0,0 #ST: 2,0,0 #ST: 3,2,1 #ST: 4,2,2 #ST: 5,1,1 #ST: 6,1,2</p> <p>Socket 1 is closed. Socket 2 is closed. Socket 3 is an UDP dialer Socket 4 is an UDP listener Socket 5 is a TCP dialer Socket 6 is a TCP listener</p>

3.5.7.6.26. Detect the cause of a socket disconnection - #SLASTCLOSURE

#SLASTCLOSURE – Detect the cause of a socket disconnection	SELINT 2
<p>AT#SLASTCLOSURE[= {<connId>}]</p>	<p>Execution command reports socket disconnection cause</p> <p>Parameters: <connId> - socket connection identifier 1..6</p> <p>The response format is:</p> <p>#SLASTCLOSURE: <connId>,<cause></p> <p>where: <connId> - socket connection identifier, as before</p> <p><cause> - socket disconnection cause:</p> <p>0 – not available(socket has not yet been closed)</p> <p>1.- remote host TCP connection close due to FIN/END: normal remote disconnection decided by the remote application</p> <p>2 -.remote host TCP connection close due to RST, all others cases in which the socket is aborted without indication from peer (for instance because peer doesn't send ack after maximum number of retransmissions/peer is no more alive).</p> <p>All these cases include all the "FATAL" errors after recv or send on the</p>



	<p>TCP socket(named as different from EWOULDBLOCK)</p> <p>3.- socket inactivity timeout</p> <p>4.- network deactivation(PDP context deactivation from network)</p> <p>Note: issuing #SLASTCLOSURE<CR> causes getting socket disconnection reason for all the sockets</p> <p>Note: any time socket is re-opened, last disconnection cause is reset. Command report 0(not available).</p> <p>Note: user closure cause(#SH) is not considered and if a user closure is performed after remote disconnection, remote disconnection cause remains saved and is not overwritten.</p> <p>Note: if more consecutive closure causes are received, the original disconnection cause is saved. (For instance: if a TCP FIN is received from remote and later a TCP RST because we continue to send data, FIN cause is saved and not overwritten)</p> <p>Note: also in case of <closureType>(#SD) set to 255, if the socket has not yet been closed by user after the escape sequence, #SLASTCLOSURE indicates remote disconnection cause if it has been received.</p> <p>Note: in case of UDP, cause 2 indicates abnormal(local) disconnection. Cause 3 and 4 are still possible. (Cause 1 is obviously never possible)</p>
<p>AT#SLASTCLOSURE=?</p>	<p>Test command reports the supported range for parameter <connId></p>

3.5.7.6.27. Open a connection, send data and close connection - #SENDLINE

<p>#SENDLINE – Open a connection,send data,close connection SELINT 2</p>	
<p>AT#SENDLINE=<data></p>	<p>This command permits to open a TCP/UDP connection, send specified data and close the TCP/UDP connection. The remote host/port of the connection have to be previously specified with #IPCONSUMECFG command.</p> <p>Parameters: <data> - text to send, shall be enclosed between double quotes.</p>



	<p>Note: maximum allowed amount of data is 380 octets</p> <p>Note: in case of UDP obviously only local opening/closure is done, datagram is sent with <data> contained in the payload.</p>
AT#SSENDLINE=?	Test command reports the supported range of values for parameters
Example	<pre>at+cgdcont=1,"IP","APN" OK at#ipconsumecfg=1,0,"remoteHost",remotePort OK // Socket with <connId> 1 will be used by #ssendline; // TCP will be the transmission protocol; // connection will be opened with "remoteHost"/remotePort at#sgact=1,1 #SGACT: xxx.xxx.xxx.xxx OK at#ssendline="test sample" // TCP connection with "remoteHost"/remotePort is opened , // data between double quotes are sent, // then TCP connection is closed OK</pre>

3.5.7.6.28. #SGACT and #SSENDLINE configuration - #IPCONSUMEFCG

#IPCONSUMEFCG – #SGACT/#SSENDLINE configuration	SELINT 2
AT#IPCONSUMEFCG= [<connId> [,<txProt> [,<remoteHost> [,<remotePort> [,<authIMEI/ICCIDena> [,<unused_A> [,<unused_B> [,<unused_C>]]]]]]]	<p>This command configures #SGACT authentication and #SSENDLINE connection parameters.</p> <p>Parameters:</p> <p>Following settings take effect on successive #SSENDLINE command:</p> <p><connId>: - socket connection identifier 1(default)..6 Note: verify <connId> is currently available(i.e: not already connected) by multisocket commands(#SD,#SL,..) before entering successive #SSENDLINE command</p> <p><txProt> - transmission protocol</p>



	<p>0 – TCP(default) 1 – UDP</p> <p><remoteHost> - address of the remote host, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query. <p>Default “”</p> <p><remotePort> - remote host port to contact 1..65535 Default 1024</p> <p>Following setting takes effect on successive #SGACT command:</p> <p><authIMEI/ICCIDena> - enables PDP context activation (#SGACT) authentication(user/pwd) with ICCID/IMEI</p> <p>0 – disable #SGACT authentication with IMEI/ICCID as user/pwd(default) 1 – enable #SGACT authentication with with IMEI/ICCID as user/pwd Note: <authIMEI/ICCIDena> setting takes effect when successive #SGACT not indicating <userId> and <pwd> will be used</p> <p>Note: the values set by command are directly stored in NVM and doesn't depend on the specific CMUX instance.</p>
<p>AT#IPCONSUMECFG?</p>	<p>Read command reports the currently configuration parameters in the format:</p> <p>#IPCONSUMECFG: <connId>,<txProt>,<remoteHost>,<remotePort>,<authIMEI/ICCIDena>,<0>,<0>,<0> <CR><LF></p>
<p>AT#IPCONSUMECFG=?</p>	<p>Test command reports the supported range of values for all the parameters</p>

3.5.7.7. FTP AT Commands

3.5.7.7.1. FTP Time-Out - #FTPTO

#FTPTO - FTP Time-Out		SELINT 0 / 1
<p>AT#FTPTO[=<tout>]</p>	<p>Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel.</p>	



#FTPTO - FTP Time-Out		SELINT 0 / 1
	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.	
	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>	

3.5.7.7.2. 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> 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>]]	<p>Execution command opens an FTP connection toward the FTP server.</p> <p>Parameters:</p> <p><server:port> - string type, address and port of FTP server (factory default port 21).</p> <p><username> - string type, authentication user identification string for FTP.</p> <p><password> - string type, authentication password for FTP.</p> <p><mode></p> <p>0 - active mode (factory default)</p> <p>1 - passive mode</p> <p>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</p>	
AT#FTPOPEN=?	Test command returns the OK result code.	

3.5.7.7.3. 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.	

3.5.7.7.4. FTP Put - #FTPPUT

#FTPPUT - FTP Put		SELINT 0 / 1
AT#FTPPUT=<filename>	<p>Execution command, issued during an FTP connection, opens a data connection and starts sending <filename> file to the FTP server.</p> <p>If the data connection succeeds, a CONNECT indication is sent, afterward a NO CARRIER indication is sent when the socket is closed.</p> <p>Parameter:</p> <p><filename> - string type, name of the file (maximum length 200 characters)</p> <p>Note: use the escape sequence +++ to close the data connection.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p>	
AT#FTPPUT=?	Test command returns the OK result code.	



#FTPPUT - FTP Put	SELINT 2
<p>AT#FTPPUT= [[<filename>], [<connMode>]]</p>	<p>Execution command, issued during an FTP connection, opens a data connection and starts sending <filename> file to the FTP server.</p> <p>If the data connection succeeds, a CONNECT indication is sent. afterward a NO CARRIER indication is sent when the socket is closed.</p> <p>Note: if we set <connMode> to 1, the data connection is opened and we remain in command mode and we see the result code OK (instead of CONNECT)</p> <p>Parameters: <filename> - string type, name of the file (maximum length 200 characters)</p> <p><connMode> 0 - online mode 1 – command mode</p> <p>Note: use the escape sequence +++ to close the data connection.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>Note: The <connMode> parameter is not available in SW 13.00.xxx.</p>
<p>AT#FTPPUT=?</p>	<p>Test command reports the supported range of values for parameters <filename> and <connMode></p>

3.5.7.7.5. FTP Get - #FTPGET

#FTPGET - FTP Get	SELINT 0 / 1
<p>AT#FTPGET= <filename></p>	<p>Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server.</p> <p>If the data connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.</p> <p>The file is received on the serial port.</p> <p>Parameter: <filename> - file name, string type.</p> <p>Note: The command causes an ERROR result code to be returned in case no FTP connection has been opened yet.</p> <p>Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.</p>



#FTPGET - FTP Get	SELINT 2
AT#FTPGET= [<filename>]	<p>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.</p> <p>Parameter: <filename> - file name, string type.</p> <p>Note: The command causes an ERROR result code to be returned in case no FTP connection has been opened yet.</p> <p>Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.</p>
AT#FTPGET=?	Test command returns the OK result code.

3.5.7.7.6. FTP GET in command mode - #FTPGETPKT

#FTPGETPKT - FTP Get in command mode	SELINT 2
AT#FTPGETPKT= <filename> [,<viewMode>]	<p>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.</p> <p>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 #FTPGETPKT command</p> <p>Parameters: <filename> - file name, string type (maximum length: 200 characters). <viewMode> - permits to choose view mode; numeric parameter: 0 – text format (default) 1 – hexadecimal format</p> <p>Note: The command causes an ERROR result code to be returned in case no FTP connection has been opened yet.</p> <p>Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.</p>
AT#FTPGETPKT?	<p>Read command reports current download state for <filename> with <viewMode> chosen, in the format:</p> <p>#FTPGETPKT: <remotefile>,<viewMode>,<eof></p> <p>where <eof> is a numeric parameter:</p>



#FTPGETPKT - FTP Get in command mode		SELINT 2
	0 = file currently being transferred 1 = complete file has been transferred to FTP client	
AT#FTPGETPKT=?	Test command returns the OK result code.	

3.5.7.7.7. FTP Type - #FTPTYPE

#FTPTYPE - FTP Type		SELINT 0 / 1
AT#FTPTYPE[= <type>]	<p>Set command, issued during an FTP connection, sets the file transfer type.</p> <p>Parameter: <type> - file transfer type: 0 - binary 1 - ascii</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>Note: If the parameter is omitted then the behaviour of Set command is the same of Read command.</p>	
#FTPTYPE?	<p>Read command returns the current file transfer type, in the format:</p> <p>#FTPTYPE: <type></p>	
#FTPTYPE=?	<p>Test command returns the range of available values for parameter <type>:</p> <p>#FTPTYPE: (0,1)</p>	

#FTPTYPE - FTP Type		SELINT 2
AT#FTPTYPE= [<type>]	<p>Set command, issued during an FTP connection, sets the file transfer type.</p> <p>Parameter: <type> - file transfer type: 0 - binary 1 - ascii</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p>	
#FTPTYPE?	<p>Read command returns the current file transfer type, in the format:</p> <p>#FTPTYPE: <type></p>	
#FTPTYPE=?	<p>Test command returns the range of available values for parameter <type>:</p> <p>#FTPTYPE: (0,1)</p>	



3.5.7.7.8. 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.	

3.5.7.7.9. FTP Delete - #FTPDELE

#FTPDELE - FTP Delete		SELINT 0 / 1
AT#FTPDELE= <filename>	<p>Execution command, issued during an FTP connection, deletes a file from the remote working directory.</p> <p>Parameter: <filename> - string type, it's the name of the file to delete.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>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)</p>	

#FTPDELE - FTP Delete		SELINT 2
AT#FTPDELE= [<filename>]	<p>Execution command, issued during an FTP connection, deletes a file from the remote working directory.</p> <p>Parameter: <filename> - string type, it's the name of the file to delete.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>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)</p>	
AT#FTPDELE=?	Test command returns the OK result code.	



3.5.7.7.10. 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.	
AT#FTPPWD=?	Test command returns the OK result code.	

3.5.7.7.11. 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.	



3.5.7.7.12. FTP List - #FTPLIST

#FTPLIST - FTP List	SELINT 0 / 1
AT#FTPLIST[= <name>]	<p>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.</p> <p>Parameter: <name> - string type, it's the name of the directory or file.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>Note: issuing AT#FTPLIST<CR> opens a data connection and starts getting from the server the list of contents of the working directory.</p>

#FTPLIST - FTP List	SELINT 2
AT#FTPLIST[= [<name>]]	<p>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.</p> <p>Parameter: <name> - string type, it's the name of the directory or file.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>Note: issuing AT#FTPLIST<CR> opens a data connection and starts getting from the server the list of contents of the working directory.</p>
AT#FTPLIST=?	<p>Test command returns the OK result code.</p>

3.5.7.7.13. Get file size - #FTPFSIZE

#FTPFSIZE – Get file size from FTP server	SELINT 2
AT#FTPFSIZE= <filename>	<p>Execution command, issued during an FTP connection, permits to get file size of <filename> file.</p> <p>Note: FTPTYPE=0 command has to be issued before FTPFSIZE command, to set file transfer type to binary mode.</p>
AT# FTPFSIZE=?	<p>Test command returns the OK result code.</p>



3.5.7.7.14. FTP Append - #FTPAPP

#FTPAPP - FTP Append	SELINT 2
<p>AT#FTPAPP= [[<filename>], <connMode>]</p>	<p>Execution command, issued during an FTP connection, opens a data connection and append data to existing <filename> file.</p> <p>If the data connection succeeds, a CONNECT indication is sent, afterward a NO CARRIER indication is sent when the socket is closed.</p> <p>Note: if we set <connMode> to 1, the data connection is opened and we remain in command mode and we see the result code OK (instead of CONNECT)</p> <p>Parameter: <filename> - string type, name of the file.</p> <p><connMode> 0 - online mode 1 – command mode</p> <p>Note: use the escape sequence +++ to close the data connection.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p> <p>Note: The <connMode> parameter is not available in SW 13.00.xxx.</p>
<p>AT#FTPAPP=?</p>	<p>Test command reports the supported range of values for parameters <filename> and <connMode></p>

3.5.7.7.15. send data on a FTP data port while the module is in command mode - #FTPAPPEXT

#FTPAPPEXT – send data on a FTP data port while the module is in command mode	SELINT 2
<p>AT#FTPAPPEXT= <bytestosend>[,< eof >]</p>	<p>This command permits to send data on a FTP data port while the module is in command mode.</p> <p>FTP data port has to be previously opened through #FTPPUT (or #FTPAPP) with <connMode> parameter set to command mode connection.</p> <p>Parameters: < bytestosend > - number of bytes to be sent 1..1500</p> <p><eof> - data port closure 0 – normal sending of data chunk 1 – close data port after sending data chunk</p>



	<p>The device responds to the command with the prompt <code><greater_than><space></code> and waits for the data to send. When <bytestosend> bytes have been sent, operation is automatically completed.</p> <p>If (all or part of the) data are successfully sent, then the response is:</p> <p>#FTPAPPEXT: <sentbytes></p> <p>OK</p> <p>Where <sentbytes> are the number of sent bytes.</p> <p>Note: <sentbytes> could be less than <bytestosend></p> <p>If data sending fails for some reason, an error code is reported.</p>
<p>AT#FTPAPPEXT=?</p>	<p>Test command reports the supported range of values for parameters <bytestosend> and <eof></p>
<p>Example</p>	<pre> AT#FTPOPEN="IP",username,password OK AT#FTPPUT=<filename>,1 -> the new param 1 means that we open the connection in command mode OK // Here data socket will stay opened, but interface will be //available(command mode) AT#FTPAPPEXT=Size > ... write here the binary data. As soon Size byte are written, data are sent and OK is returned #FTPAPPEXT: <SentBytes> OK // Last #FTPAPPEXT will close the data socket, because // second(optional) parameter has this meaning: </pre>



	<p><i>AT#FTPAPPEXT=Size,1</i> <i>> ...write here the binary data. As soon Size byte are written, data are sent and OK is returned</i> <i>#FTPAPPEXT: <SentBytes></i> <i>OK</i></p> <p><i>// If the user has to reopen the data port to send another (or append to the same) file, he can restart with the FTPPUT(or FTPAPP.)</i> <i>//Then FTPAPPEXT,... to send the data chunks on the //reopened data port.</i></p> <p><i>// Note: if while sending the chunks the data port is closed from remote, user will be aware of it because #FTPAPPEXT // will indicate ERROR and cause (available if previously //issued the command AT+CMEE=2) will indicate that //socket has been closed.</i> <i>// Also in this case obviously, data port will have to be //reopened with FTPPUT and so on...(same sequence)</i></p>
--	--

3.5.7.7.16. Set restart position - # FTPREST

#FTPREST – Set restart position for FTP GET		SELINT 2
<p>AT#FTPREST= <restartposition></p>	<p>Set command sets the restart position for successive FTPGET (or FTPGETPKT) command.</p> <p>It permits to restart a previously interrupted FTP download from the selected position in byte.</p> <p>Parameter: <restartposition> position in byte of restarting for successive FTPGET (or FTPGETPKT)</p> <p>Note: It's necessary to issue FTPTYPE=0 before successive FTPGET (or FTPGETPKT command) to set binary file transfer type.</p> <p>Note: Setting <restartposition> has effect on successive FTP download. After successive successfully initiated FTPGET(or FTPGETPKT) command <restartposition> is automatically reset.</p> <p>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.</p>	



#FTPREST – Set restart position for FTP GET		SELINT 2
AT# FTPREST?	Read command returns the current <restartposition> #FTPREST: <restartposition>	
AT# FTPREST=?	Test command returns the OK result code.	

3.5.7.7.17. Receive Data In Command Mode - #FTPRECV

#FTPRECV – Receive Data In Command Mode		SELINT 2
AT#FTPRECV= <blocksize>	<p>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.</p> <p>This number is limited to the current number of bytes of the remote file which have been transferred from the FTP server.</p> <p>Parameters: < blocksize > - max number of bytes to read 1..3000</p> <p>Note: it's necessary to have previously opened FTP data port and started download and buffering of remote file through #FTPGETPKT command</p> <p>Note: issuing #FTPRECV when there's no FTP data port opened raises an error.</p> <p>Note: data port will stay opened if socket is temporary waiting to receive data(FTPRECV returns 0 and FTPGETPKT gives a EOF 0 indication).</p>	
AT# FTPRECV?	<p>Read command reports the number of bytes currently received from FTP server, in the format:</p> <p>#FTPRECV: <available></p>	



#FTP_RECV – Receive Data In Command Mode		SELINT 2
AT# FTP_RECV=?	Test command returns the range of supported values for <blocksize> parameter.	
Example	<pre> AT#FTP_RECV? #FTP_RECV: 3000 OK Read required part of the buffered data: AT#FTP_RECV=400 #FTP_RECV: 400 Text row number 1 * 11111111111111111111111111111111 * Text row number 2 * 22222222222222222222222222222222 * Text row number 3 * 33333333333333333333333333333333 * Text row number 4 * 44444444444444444444444444444444 * Text row number 5 * 55555555555555555555555555555555 * Text row number 6 * 66666666666666666666666666666666 * Text row number 7 * 77777777777777777777777777777777 * Text row number 8 * 88888888888888888888888888888888 OK AT#FTP_RECV =200 #FTP_RECV: 200 88888 * Text row number 9 * 99999999999999999999999999999999 * Text row number 10 * AAAAAAAAAAAAAAAAAAAAAAAAAAAAAA * Text row number 12 * BBBBBBBBBBBBBBBBBBBBBBBBBBBBBB * Text row number 13 * CCCCCCCCCCCCCCCCCC OK Note: to check when you have received complete file it's possible to use AT#FTP_GETPKT read command: AT#FTP_GETPKT? #FTP_GETPKT: sample.txt,0,1 OK (you will get <eof> set to 1) </pre>	



3.5.7.7.18. FTP configuration - #FTPCFG

#FTPCFG – ftp configuration	SELINT 2
<p>AT#FTPCFG=<tout>,<IPPIgnoring>[,<FTPSEn>[,<FTPSendSize>]]</p>	<p><tout> - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100)</p> <p>Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel.</p> <p>Note: The parameter is not saved in NVM.</p> <p><IPPIgnoring> 0: No IP Private ignoring. During a FTP passive mode connection client uses the IP address received from server, even if it is a private IPV4 address. 1: IP Private ignoring enabled. During a FTP passive mode connection if the server sends a private IPV4 address the client doesn't consider this and connects with server using the IP address used in AT#FTPOPEN.</p> <p>Note: obviously during a FTP active mode connection, parameter doesn't take effect because it has no meaning.</p> <p>[,<FTPSEn>] 0 – Disable FTPS security: all FTP commands will perform plain FTP connections. 1 – Enable FTPS security: from now on any FTP session opened through FTP commands will be compliant to FTPS protocol, providing authentication and encrypted communication.</p> <p><FTPSendSize> - send size to be used by the TCP/IP stack for data sending. It takes effect on send size when FTP upload in online mode is running.</p> <p>Send is not called until <FTPSendSize> bytes are reached, unless internal transmission timer(5 sec) expires.</p> <p>0 – select automatically default value(300).. 1 – 1500 – send size in bytes.</p> <p>Note: in order to maintain retrocompatibility, read command (AT#FTPCFG?) doesn't show this parameter until it is set.</p> <p>Once it is set, read command includes it in the response no matter if later it is included or not in set command.</p> <p>Note: in FTPS mode, FTP commands response time is generally bigger than in normal FTP mode. This latency is mainly due to the SSL handshake that has to be done at the opening of the FTP session</p>



	<p>(#FTPOPEN) and whenever a data exchange is required (#FTPPUT, #FTPGET etcetera).</p> <p>Note: FTP security cannot be enabled if an SSL socket has been activated by means of #SSLD or #SSLFASTD. Moreover, trying to dial an SSL socket when <enable>=1 raises an error.</p> <p>Note: any <enable> change is forbidden during an open FTP connection (with or without security). Furthermore, SSL configuration settings are forbidden during FTPS connections</p>
AT#FTPCFG?	Read command reports the currently selected parameters in the format: #FTPCFG: <tout>,<IPPignoring>,<FTPSEn>
AT+FTPCFG=?	Test command reports the supported range of values for parameter(s) <tout>,<IPPignoring> and <FTPSEn>

3.5.7.8. Enhanced IP Easy Extension AT Commands

3.5.7.8.1. Authentication User ID - #USERID

#USERID - Authentication User ID		SELINT 0 / 1
AT#USERID [=<user>]	<p>Set command sets the user identification string to be used during the authentication step.</p> <p>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 "").</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command.</p>	
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	<pre>AT#USERID="myName" OK AT#USERID? #USERID: "myName" OK</pre>	



#PASSW - Authentication Password		SELINT 2
Example	AT#PASSW="myPassword" OK	

3.5.7.8.3. Packet Size - #PKTSZ

#PKTSZ - Packet Size		SELINT 0 / 1
AT#PKTSZ[= [<size>]]	<p>Set command sets the default packet size to be used by the TCP/UDP/IP stack for data sending.</p> <p>Parameter: <size> - packet size in bytes 0 - automatically chosen by the device 1..512 - packet size in bytes (factory default is 300)</p> <p>Note: issuing AT#PKTSZ<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#PKTSZ=<CR> is the same as issuing the command AT#PKTSZ=0<CR>.</p>	
AT#PKTSZ?	<p>Read command reports the current packet size value.</p> <p>Note: after issuing command AT#PKTSZ=0, the Read command reports the value automatically chosen by the device.</p>	
AT#PKTSZ=?	Test command returns the allowed values for the parameter <size>.	
Example	<p>AT#PKTSZ=100 OK AT#PKTSZ? #PKTSZ: 100</p> <p>OK AT#PKTSZ=0 OK AT#PKTSZ? #PKTSZ: 300 ->value automatically chosen by device</p> <p>OK</p>	

#PKTSZ - Packet Size		SELINT 2
AT#PKTSZ= [<size>]	<p>Set command sets the default packet size to be used by the TCP/UDP/IP stack for data sending.</p> <p>Parameter: <size> - packet size in bytes 0 - automatically chosen by the device 1..1500 - packet size in bytes (factory default is 300)</p> <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>	
AT#PKTSZ?	Read command reports the current packet size value.	



#PKTSZ - Packet Size		SELINT 2
	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	

3.5.7.8.4. 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 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	



#SKTTO - Socket Inactivity Time-Out		SELINT 0 / 1
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). 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	

3.5.7.8.6. 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: <ul style="list-style-type: none"> - 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> 	



#SKTSET - Socket Definition	SELINT 0 / 1
	<p>(factory default is the empty string "")</p> <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p><local port> - local host port to be used on UDP socket 0..65535 - port number</p> <p>Note: <closure type> parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Note: <local port> parameter is valid only for UDP socket type, for TCP sockets shall be left unused.</p> <p>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.</p> <p>Note: the DNS Query to be successful requests that:</p> <ul style="list-style-type: none"> - 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. <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p>
AT#SKTSET?	<p>Read command reports the socket parameters values, in the format:</p> <p>AT#SKTSET: <socket type>,<remote port>,<remote addr>,<closure type>,<local port></p>
AT#SKTSET=?	<p>Test command returns the allowed values for the parameters.</p>
Example	<p>AT#SKTSET=0,1024,"123.255.020.001" OK AT#SKTSET=0,1024,"www.telit.net" OK</p>
Note	<p>Issuing command #QDNS will overwrite <remote addr> setting.</p>

#SKTSET - Socket Definition	SELINT 2
<p>AT#SKTSET= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]</p>	<p>Set command sets the socket parameters values.</p> <p>Parameters:</p> <p><socket type> - socket protocol type 0 - TCP (factory default) 1 - UDP</p> <p><remote port> - remote host port to be opened 0..65535 - port number (factory default is 3333)</p> <p><remote addr> - address of the remote host, string type. This parameter can be either:</p>



#SKTSET - Socket Definition	SELINT 2
	<ul style="list-style-type: none"> - 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 "") <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p><local port> - local host port to be used on UDP socket 0..65535 - port number</p> <p>Note: <closure type> parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Note: <local port> parameter is valid only for UDP socket type, for TCP sockets shall be left unused.</p> <p>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.</p> <p>Note: the DNS Query to be successful requests that:</p> <ul style="list-style-type: none"> - 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. <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>
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.

3.5.7.8.7. 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.



#SKTOP - Socket Open		SELINT 0 / 1
	If the connection succeeds a CONNECT indication is sent, otherwise a NO 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	<p>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.</p> <p>If the connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.</p> <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>	
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.	

3.5.7.8.8. Query DNS - #QDNS

#QDNS - Query DNS		SELINT 0 / 1
AT#QDNS= <host name>	<p>Execution command executes a DNS query to solve the host name into an IP address.</p> <p>Parameter: <host name> - host name, string type.</p> <p>If the DNS query is successful then the IP address will be reported in the result code, as follows:</p> <p>#QDNS: <host name>,<IP address></p> <p>where <host name> - string type <IP address> - string type, in the format “xxx.xxx.xxx.xxx”</p> <p>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.</p>	



#QDNS - Query DNS		SELINT 0 / 1
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>]	<p>Execution command executes a DNS query to solve the host name into an IP address.</p> <p>Parameter: <host name> - host name, string type.</p> <p>If the DNS query is successful then the IP address will be reported in the result code, as follows:</p> <p>#QDNS: <host name>,<IP address></p> <p>where <host name> - string type <IP address> - string type, in the format “xxx.xxx.xxx.xxx”</p> <p>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.</p>	
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 .	
Note	This command is available only on the first virtual port of CMUX and works on the PDP context 1 and on the first ConnId (see AT#SCFG)	

3.5.7.8.9. DNS Response Caching - #CACHEDNS

#CACHEDNS – DNS Response Caching		SELINT 2
AT#CACHEDNS= [<mode>]	<p>Set command enables caching a mapping of domain names to IP addresses, as does a resolver library.</p> <p>Parameter: <mode> 0 - caching disabled; it cleans the cache too 1 - caching enabled</p> <p>Note: the validity period of each cached entry (i.e. how long a DNS response</p>	



# CACHEDNS – DNS Response Caching	SELINT 2
	<p>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.</p> <p>Note: If the cache is full (8 elements) and a new IP address is resolved, an element is deleted from the cache: the one that has not been used for the longest time.</p> <p>Note: it is recommended to clean the cache, if command +CCLK has been issued while the DNS Response Caching was enabled.</p>
AT#CACHEDNS?	<p>Read command reports whether the DNS Response Caching is currently enabled or not, in the format:</p> <p>#CACHEDNS: <mode></p>
AT#CACHEDNS=?	<p>Test command returns the currently cached mapping along with the range of available values for parameter <mode>, in the format:</p> <p>#CACHEDNS: [<hostnI>,<IPaddrI>,[...,<hostnn>,<IPaddrn>,,]](0,1)</p> <p>where: <hostnn> - hostname, string type <IPaddrn> - IP address, string type, in the format “xxx.xxx.xxx.xxx”</p>

3.5.7.8.10. Manual DNS Selection - #DNS

# DNS – Manual DNS Selection	SELINT 2
AT#DNS=<cid>,<primary>,<secondary>	<p>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</p> <p>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 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”).</p> <p>Note: if <primary> is “0.0.0.0” and <secondary> is not “0.0.0.0”, then issuing AT#DNS=... raises an error.</p> <p>Note: if <primary> is “0.0.0.0” we’re using the primary DNS server come from</p>



#DNS – Manual DNS Selection	SELINT 2
	<p>the network as consequence of a context activation.</p> <p>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.</p> <p>Note: the context identified by <cid> has to be previously defined, elsewhere issuing AT#DNS=... raises an error.</p> <p>Note: the context identified by <cid> has to be not activated yet, elsewhere issuing AT#DNS=... raises an error.</p>
AT#DNS?	<p>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:</p> <pre>[#DNS: <cid>,<primary>,<secondary>[<CR><LF> #DNS: <cid>,<primary>,<secondary>]]</pre>
AT#DNS=?	<p>Test command reports the supported range of values for the <cid> parameter, only, in the format:</p> <pre>#DNS: (0-5),,</pre>

3.5.7.8.11. DNS from Network - #NWDNS

#NWDNS – DNS from Network	SELINT 2
AT#NWDNS= [<cid>[,<cid> [,...]]]	<p>Execution command returns either the primary and secondary DNS addresses for the GSM context (if specified) and/or a list of primary and secondary DNS addresses for the specified PDP context identifiers</p> <p>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).</p> <p>Note: if no <cid> is specified, the DNS addresses for all defined contexts are returned.</p> <p>Note: issuing the command with more than 6 parameters raises an error.</p> <p>Note: the command returns only one row of information for every specified <cid>, even if the same <cid> is present more than once.</p> <p>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</p>



#NWDNS – DNS from Network	SELINT 2
	<p>defined yet. Response format is:</p> <pre>#NWDNS: <cid>,<PDNSaddress>,<SDNSaddress>[<CR><LF>] #NWDNS: <cid>,<PDNSaddress>,<SDNSaddress> [...]]</pre> <p>where: <cid> - context identifier, as before <PDNSaddress>,<SDNSaddress> - primary and secondary DNS addresses set through AT#DNS command. If not set, they are the primary and secondary DNS addresses assigned during the PDP(or GSM) context activation.</p>
AT#NWDNS=?	Test command returns a list of defined <cid>s.

3.5.7.8.12. Socket TCP Connection Time-Out - #SKTCT

#SKTCT - Socket TCP Connection Time-Out	SELINT 0 / 1
AT#SKTCT[= <tout>]	<p>Set command sets the TCP connection time-out for the first CONNECT answer from the TCP peer to be received.</p> <p>Parameter: <tout> - TCP first CONNECT answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600).</p> <p>Note: this time-out applies only to the time that the TCP stack waits for the CONNECT answer to its connection request.</p> <p>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.</p> <p>Note: if parameter is omitted then the behaviour of Set command is the same as Read command.</p>
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter <tout>.
Example	<pre>AT#SKTCT=600 OK socket first connection answer time-out has been set to 60 s.</pre>

#SKTCT - Socket TCP Connection Time-Out	SELINT 2
AT#SKTCT= [<tout>]	<p>Set command sets the TCP connection time-out for the first CONNECT answer from the TCP peer to be received.</p> <p>Parameter: <tout> - TCP first CONNECT answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600).</p>



#SKTCT - Socket TCP Connection Time-Out		SELINT 2
	<p>Note: this time-out applies only to the time that the TCP stack waits for the CONNECT answer to its connection request.</p> <p>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.</p> <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>	
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 <i>socket first connection answer time-out has been set to 60 s.</i>	

3.5.7.8.13. 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: <ul style="list-style-type: none"> - 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 <i>socket parameters have been saved in NVM</i>	
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: <ul style="list-style-type: none"> - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) 	



#SKTSAV - Socket Parameters Save		SELINT 2
	<ul style="list-style-type: none"> - Remote Port - Remote Address - TCP Connection Time-Out <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>	
AT#SKTSAV=?	Test command returns the OK result code.	
Example	AT#SKTSAV OK <i>socket parameters have been saved in NVM</i>	
Note	If some parameters have not been previously specified then a default value will be stored.	

3.5.7.8.14. 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: <ul style="list-style-type: none"> - 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 <i>socket parameters have been reset</i>	

#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: <ul style="list-style-type: none"> - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type - Remote Port - Remote Address 	



#GPRS - GPRS Context Activation		SELINT 0 / 1
	OK AT#GPRS=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 <i>Now GPRS Context has been activated and our IP is 129.137.1.1</i> AT#GPRS=0 OK <i>Now GPRS context has been deactivated, IP is lost.</i>	
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>]	<p>Execution command deactivates/activates the PDP context #1, eventually proceeding with the authentication with the parameters given with #PASSW and #USERID.</p> <p>Parameter: <mode> - PDP context activation mode 0 - PDP context #1 deactivation request 1 - PDP context #1 activation request</p> <p>In the case that the PDP context #1 has been activated, the result code OK is preceded by the intermediate result code:</p> <p>+IP: <ip_address_obtained></p> <p>reporting the local IP address obtained from the network.</p> <p>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.</p> <p>Note: if the PDP context #1 has been activated issuing AT#GPRS=1, then</p> <ul style="list-style-type: none"> • if you request to deactivate the PDP context #1 issuing AT#EMAILACT=0 an ERROR is raised and nothing happens • 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 	



#GPRS - GPRS Context Activation	SELINT 2
	<p>AT#GPRS=1 OK AT#GPRS=0 OK AT#GPRS=1 OK</p> <p><i>(Analogous considerations if you want to request the activation of PDP context #1 issuing AT#EMAILACT=1, see #EMAILACT)</i></p> <p>Note: this command is not allowed if GSM context has been activated (see AT#SGACT=0,1).</p>
AT#GPRS?	<p>Read command reports the current status of the PDP context #1, in the format:</p> <p>#GPRS: <status></p> <p>where: <status> 0 - PDP context #1 deactivated 1 - PDP context #1 activated 2 - PDP context #1 activation pending.</p>
AT#GPRS=?	<p>Test command returns the allowed values for parameter <mode>.</p>
Example	<p>AT#GPRS=1 +IP: 129.137.1.1 OK <i>Now PDP Context #1 has been activated and our IP is 129.137.1.1</i></p> <p>AT#GPRS=0 OK <i>Now PDP Context #1 has been deactivated, IP is lost.</i></p>
Note	<p>It is strongly recommended to use the same command (e.g. #GPRS) to activate the context, deactivate it and interrogate about its status.</p>

3.5.7.8.16. Socket Dial - #SKTD

#SKTD - Socket Dial	SELINT 0 / 1
<p>AT#SKTD [=<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]</p>	<p>Set command opens the socket towards the peer specified in the parameters.</p> <p>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:</p>



#SKTD - Socket Dial	SELINT 0 / 1
	<ul style="list-style-type: none"> - 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 "") <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p><local port> - local host port to be used on UDP socket 0..65535 - port number</p> <p>Note: <closure type> parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Note: <local port> parameter is valid only for UDP socket type, for TCP sockets shall be left unused.</p> <p>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.</p> <p>Note: the command to be successful requests that:</p> <ul style="list-style-type: none"> - 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 <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p>
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	<pre>AT#SKTD=0,1024,"123.255.020.001",255 CONNECT AT#SKTD=1,1024,"123.255.020.001",,1025 CONNECT <i>In this way my local port 1025 is opened to the remote port 1024</i> AT#SKTD=0,1024,"www.telit.net", 255 CONNECT</pre>
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
<p>AT#SKTD= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]</p>	<p>Set command opens the socket towards the peer specified in the parameters.</p> <p>Parameters:</p> <p><socket type> - socket protocol type 0 - TCP (factory default) 1 - UDP</p> <p><remote port> - remote host port to be opened 1..65535 - port number</p> <p><remote addr> - address of the remote host, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - 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 "") <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p><local port> - local host port to be used on UDP socket 0..65535 - port number</p> <p>Note: <closure type> parameter is valid only for TCP socket type, for UDP sockets shall be left unused.</p> <p>Note: <local port> parameter is valid only for UDP socket type, for TCP sockets shall be left unused.</p> <p>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.</p> <p>Note: the command to be successful requests that:</p> <ul style="list-style-type: none"> - 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 <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>
<p>AT#SKTD?</p>	<p>Read command reports the socket dial parameters values, in the format:</p> <p>AT#SKTD: <socket type>,<remote port>,<remote addr>,<closure type>,<local port></p>
<p>AT#SKTD=?</p>	<p>Test command returns the allowed values for the parameters.</p>
<p>Example</p>	<p>AT#SKTD=0,1024,"123.255.020.001",255 CONNECT</p>



#SKTD - Socket Dial	SELINT 2
	<p>AT#SKTD=1,1024,"123.255.020.001",,1025 CONNECT <i>In this way my local port 1025 is opened to the remote port 1024</i></p> <p>AT#SKTD=0,1024,"www.telit.net",255 CONNECT</p>
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.

3.5.7.8.17. Socket Listen - #SKTL

#SKTL - Socket Listen	SELINT 0 / 1
<p>AT#SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]</p>	<p>Execution command opens/closes the socket listening for connection requests.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <mode> - socket mode <ul style="list-style-type: none"> 0 - closes socket listening 1 - starts socket listening <socket type> - socket protocol type <ul style="list-style-type: none"> 0 - TCP <input port> - local host input port to be listened <ul style="list-style-type: none"> 0..65535 - port number <closure type> - socket closure behaviour for TCP when remote host has closed <ul style="list-style-type: none"> 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote. <p>Command returns the OK result code if successful.</p> <p>Note: the command to be successful requests that:</p> <ul style="list-style-type: none"> - 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 <p>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:</p> <p style="text-align: center;">+CONN FROM: <remote addr></p> <p>Where:</p> <p><remote addr> - host address of the remote machine that contacted the device.</p> <p>When the connection is established the CONNECT indication is given and the modem goes into data transfer mode.</p>



#SKTL - Socket Listen	SELINT 0 / 1
	<p>On connection close or when context is closed with #GPRS=0 the socket is closed and no listen is anymore active.</p> <p>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:</p> <p style="text-align: center;">#SKTL: ABORTED</p> <p>Note: if all parameters are omitted the command returns the current socket listening status and the last settings of parameters <input port> and <closure type>, in the format:</p> <p>#SKTL: <status>,<input port>,<closure type> where <status> - socket listening status 0 - socket not listening 1 - socket listening</p>
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	<p><i>Activate GPRS</i> AT#GPRS=1 +IP: ###.###.###.###</p> <p>OK <i>Start listening</i> AT#SKTL=1,0,1024 OK or AT#SKTL=1,0,1024,255 OK</p> <p><i>Receive connection requests</i> +CONN FROM: 192.164.2.1 CONNECT</p> <p><i>exchange data with the remote host</i></p> <p><i>send escape sequence</i> +++ NO CARRIER <i>Now listen is not anymore active</i></p> <p><i>to stop listening</i> AT#SKTL=0,0,1024, 255 OK</p>
Note	The main difference between this command and the #SKTD is that #SKTL does



#SKTL - Socket Listen	SELINT 0 / 1
	<p>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.</p> <p>The improving command @SKTL has been defined.</p>

#SKTL - Socket Listen	SELINT 2
<p>AT#SKTL =[<mode>, <socket type>, <input port>, [<closure type>]]</p>	<p>Execution command opens/closes the socket listening for connection requests.</p> <p>Parameters:</p> <p><mode> - socket mode 0 - closes socket listening 1 - starts socket listening</p> <p><socket type> - socket protocol type 0 -TCP (default) 1- UDP</p> <p><input port> - local host input port to be listened 1..65535 - port number</p> <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p>Command returns the OK result code if successful.</p> <p>Note: the command to be successful requests that:</p> <ul style="list-style-type: none"> - 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 <p>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:</p> <p>+CONN FROM: <remote addr></p> <p>Where: <remote addr> - host address of the remote machine that contacted the device.</p> <p>When the connection is established the CONNECT indication is given and the modem goes into data transfer mode.</p> <p>On connection close or when context is closed with #GPRS=0 the socket is closed and no listen is anymore active.</p>



#SKTL - Socket Listen	SELINT 2
	<p>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:</p> <p>#SKTL: ABORTED</p> <p>Note: when closing the listening socket <input port> is a don't care parameter</p>
<p>AT#SKTL?</p>	<p>Read command returns the current socket listening status and the last settings of parameters <input port> and <closure type>, in the format:</p> <p>#SKTL: <status>,<socket type>, <input port>,<closure type></p> <p>Where</p> <p><status> - socket listening status 0 - socket not listening 1 - socket listening</p>
<p>AT#SKTL=?</p>	<p>Test command returns the allowed values for parameters <mode>, <socket type>, <input port> and <closure type>.</p>
<p>Example</p>	<p><i>Activate GPRS</i> AT#GPRS=1 +IP: ###.###.###.###</p> <p>OK</p> <p><i>Start TCP listening</i> AT#SKTL=1,0,1024 OK</p> <p>or</p> <p>AT#SKTL=1,0,1024,255 OK</p> <p><i>Receive TCP connection requests</i> +CONN FROM: 192.164.2.1 CONNECT</p> <p><i>exchange data with the remote host</i></p> <p><i>send escape sequence</i> +++ NO CARRIER <i>Now listen is not anymore active</i></p> <p><i>to stop listening</i> AT#SKTL=0,0,1024, 255 OK</p>
<p>Note</p>	<p>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, 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.</p>



3.5.7.8.18. Socket Listen Improved - @SKTL

@SKTL - Socket Listen Improved	SELINT 0 / 1
<p>AT@SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]</p>	<p>Execution command opens/closes the socket listening for connection requests.</p> <p>Parameters:</p> <p><mode> - socket mode 0 - closes socket listening 1 - starts socket listening</p> <p><socket type> - socket protocol type 0 - TCP</p> <p><input port> - local host input port to be listened 0..65535 - port number</p> <p><closure type> - socket closure behaviour for TCP when remote host has closed 0 - local host closes immediately (default) 255 - local host closes after an escape sequence (+++) or immediately in case of an abortive disconnect from remote.</p> <p>Command returns the OK result code if successful.</p> <p>Note: the command to be successful requests that:</p> <ul style="list-style-type: none"> - 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 <p>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:</p> <p>+CONN FROM: <remote addr></p> <p>Where: <remote addr> - host address of the remote machine that contacted the device.</p> <p>When the connection is established the CONNECT indication is given and the modem goes into data transfer mode.</p> <p>On connection close or when context is closed with #GPRS=0 the socket is closed and no listen is anymore active.</p> <p>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:</p> <p>@SKTL: ABORTED</p> <p>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</p>



@SKTL - Socket Listen Improved		SELINT 0 / 1
	<p><closure type>, in the format:</p> <p>@SKTL: <status>,<socket type>,<input port>,<closure type></p> <p>Where</p> <p><status> - socket listening status</p> <p>0 - socket not listening</p> <p>1 - socket listening</p>	
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	<p><i>Activate GPRS</i></p> <pre>AT#GPRS=1 +IP: ###.###.###.###</pre> <p>OK</p> <p><i>Start listening</i></p> <pre>AT@SKTL=1,0,1024 OK or AT@SKTL=1,0,1024,255 OK</pre> <p><i>Receive connection requests</i></p> <pre>+CONN FROM: 192.164.2.1 CONNECT</pre> <p><i>exchange data with the remote host</i></p> <p><i>send escape sequence</i></p> <pre>+++ NO CARRIER Now listen is not anymore active</pre> <p><i>to stop listening</i></p> <pre>AT@SKTL=0,0,1024, 255 OK</pre>	
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.	

3.5.7.8.19. 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.	



#E2SLRI - Socket Listen Ring Indicator		SELINT 0 / 1 / 2
	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>.	

3.5.7.8.20. Firewall Setup - #FRWL

#FRWL - Firewall Setup		SELINT 0 / 1
AT#FRWL[= <action>, <ip_addr>, <net_mask>]	<p>Execution command controls the internal firewall settings.</p> <p>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</p> <p>Command returns OK result code if successful.</p> <p>Note: the firewall applies for incoming (listening) connections only.</p> <p>Firewall general policy is DROP, therefore all packets that are not included into an ACCEPT chain rule will be silently discarded.</p> <p>When a packet comes from the IP address incoming_IP, the firewall chain rules will be scanned for matching with the following criteria:</p> <p>incoming_IP & <net_mask> = <ip_addr> & <net_mask></p> <p>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.</p> <p>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></p>	



#FRWL - Firewall Setup		SELINT 0 / 1
	#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	<p><i>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</i></p> <p><i>We need to add the following chain to the firewall:</i> AT#FRWL=1,"197.158.1.1","255.255.0.0" OK</p>	
Note	<p>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.</p> <p>Rules are not saved in NVM, at startup the rules list will be empty.</p>	

#FRWL - Firewall Setup		SELINT 2
AT#FRWL= [<action>, <ip_address>, <net mask>]	<p>Execution command controls the internal firewall settings.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <action> - command action <ul style="list-style-type: none"> 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 <p>Command returns OK result code if successful.</p> <p>Note: the firewall applies for incoming (listening) connections only.</p> <p>Firewall general policy is DROP, therefore all packets that are not included into an ACCEPT chain rule will be silently discarded.</p> <p>When a packet comes from the IP address incoming_IP, the firewall chain rules will be scanned for matching with the following criteria:</p> <p>incoming_IP & <net_mask> = <ip_addr> & <net_mask></p>	



#FRWL - Firewall Setup	SELINT 2
	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	<i>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</i> <i>We need to add the following chain to the firewall:</i> 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.

3.5.7.8.21. Firewall Setup for IPV6 addresses - #FRWLIPV6

#FRWLIPV6 - Firewall Setup for IPV6 addresses	SELINT 2
AT#FRWLIPV6= [<action>, <ip_address>, <net mask>]	Execution command controls the internal firewall settings for IPV6 addresses. 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. xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx or in the format yyyy:yyyy:yyyy:yyyy:yyyy: yyyy:yyyy:yyyy <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. xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx.xxx



	<p>or in the format yyyy:yyyy:yyyy:yyyy:yyyy: yyyy:yyyy:yyyy</p> <p>Command returns OK result code if successful.</p> <p>Note: the firewall applies for incoming (listening) connections only.</p> <p>Firewall general policy is DROP, therefore all packets that are not included into an ACCEPT chain rule will be silently discarded.</p> <p>When a packet comes from the IP address incoming_IP, the firewall chain rules will be scanned for matching with the following criteria:</p> <p>incoming_IP & <net_mask> = <ip_addr> & <net_mask></p> <p>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.</p>
<p>AT#FRWLIPV6?</p>	<p>Read command reports the list of all ACCEPT chain rules registered in the Firewall settings in the format:</p> <p>#FRWLIPV6: <ip_addr>,<net_mask> #FRWLIPV6: <ip_addr>,<net_mask> OK</p>
<p>AT#FRWLIPV6=?</p>	<p>Test command returns the allowed values for parameter <action>.</p>

3.5.7.8.22. GPRS Data Volume - #GDATAVOL

#GDATAVOL - GPRS Data Volume	SELINT 2
<p>AT#GDATAVOL= [<mode>]</p>	<p>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.</p> <p>Parameter: <mode></p> <p>0 - it resets the GPRS data counter for the all the available PDP contexts (1-5) and GSM data counter for GSM context 0</p> <p>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:</p> <p>#GDATAVOL: <cidn>,<totn>,<sentn>,<receivedn>[<CR><LF> #GDATAVOL: <cidm>,<totm>,<sentm>,<receivedm>[...]]</p>



#GDATAVOL - GPRS Data Volume	SELINT 2
	<p>where:</p> <p><cidn> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><totn> - number of bytes either received or transmitted in the last GPRS (or GSM) session for <cidn> PDP context;</p> <p><sentn> - number of bytes transmitted in the last GPRS (or GSM) session for <cidn> PDP context;</p> <p><receivedn> - number of bytes received in the last GPRS (or GSM) session for <cidn> PDP context;</p> <p>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:</p> <p>#GDATAVOL: <cidn>,<totn>,<sentn>,<receivedn>[<CR><LF> #GDATAVOL: <cidm>,<totm>,<sentm>,<receivedm>[...]]</p> <p>where:</p> <p><cidn> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><totn> - number of bytes either received or transmitted, in every GPRS (or GSM) session since last reset, for <cidn> PDP context;</p> <p><sentn> - number of bytes transmitted, in every GPRS (or GSM) session since last reset, for <cidn> PDP context;</p> <p><receivedn> - number of bytes received, in every GPRS (or GSM) session since last reset, for <cidn> PDP context;</p> <p>Note: last GPRS and GSM session counters are not saved in NVM so they are loosen at power off.</p> <p>Note: total GPRS and GSM session counters are saved on NVM.</p>
AT#GDATAVOL=?	Test command returns the range of supported values for parameter <mode>.

3.5.7.8.23. ICMP Ping Support - #ICMP

#ICMP - ICMP Ping Support	SELINT 2
AT#ICMP=<mode>	<p>Set command enables/disables the ICMP Ping support.</p> <p>Parameter:</p> <p><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)</p>



#ICMP - ICMP Ping Support		SELINT 2
	2 - enable free ICMP Ping support; the module is sending a proper 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.	

3.5.7.8.24. 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>	

3.5.7.8.25. 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 1 - enable TCP reassembly feature (default)	
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>.	



3.5.7.8.26. PING request - #PING

#PING – Send PING request	SELINT 2
<p>AT#PING= <IPaddr>[,<retryNum>[,<len>[,<timeout>[,<tll>]]]]</p>	<p>This command is used to send Ping Echo Request messages and to receive the corresponding Echo Reply.</p> <p>Parameters:</p> <p><IPaddr> - address of the remote host, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query <p><retryNum> - the number of Ping Echo Request to send 1-64 (default 4)</p> <p><len> - the length of Ping Echo Request message 32-1460 (default 32)</p> <p><timeout> - the timeout, in 100 ms units, waiting a single Echo Reply 1-600 (default 50)</p> <p><tll> - time to live 1-255 (default 128)</p> <p>Once the single Echo Reply message is received a string like that is displayed:</p> <p>#PING: <replyId>,<Ip Address>,<replyTime>,<tll></p> <p>Where:</p> <p><replyId> - Echo Reply number</p> <p><Ip Address> - IP address of the remote host</p> <p><replyTime> - time, in 100 ms units, required to receive the response</p> <p><tll> - time to live of the Echo Reply message</p> <p>Note1: when the Echo Request timeout expires (no reply received on time) the response will contain <replyTime> set to 600 and <tll> set to 255</p> <p>Note2: To receive the corresponding Echo Reply is not required to enable separately AT#ICMP</p> <p>Note3: Before send PING Request the GPRS context must have been activated by AT#SGACT=1,1</p>
<p>AT#PING=?</p>	<p>Test command reports the supported range of values for the #PING command parameters.</p>
<p>Example</p>	<pre>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</pre>



3.5.7.9.5. E-mail Sending With GPRS Context Activation - #SEMAIL

#SEMAIL - E-mail Sending With GPRS Context Activation		SELINT 0 / 1
AT#SEMAIL=<da>, <subj>	<p>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.</p> <p>Parameters: <da> - destination address, string type (maximum length 100 characters). <subj> - subject of the message, string type (maximum length 100 characters).</p> <p>The device responds to the command with the prompt '>' and awaits for the message body text.</p> <p>To complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex).</p> <p>If e-mail message is successfully sent, then the response is OK. If message sending fails for some reason, an error code is reported.</p> <p>Note: if the length of one of the string type parameters exceeds the maximum length, then the string is truncated.</p> <p>Note: Care must be taken to ensure that during the command execution, no other commands are issued.</p> <p>To avoid malfunctions is suggested to wait for the OK or ERROR / +CMS ERROR:<err> response before issuing further commands.</p> <p>Note: maximum length for message body is 1024 bytes, trying to send more data will cause the surplus to be discarded and lost.</p>	
Example	<pre>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.</pre>	
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>]	<p>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.</p>	



#EMAILACT - E-mail GPRS Context Ativation	SELINT 0 / 1
	<p>1 - GPRS context activation request</p> <p>Note: issuing AT#EMAILACT<CR> reports the current status of the GPRS context for the e-mail, in the format:</p> <p>#EMAILACT: <status></p> <p>where: <status> 0 - GPRS context deactivated 1 - GPRS context activated</p> <p>Note: issuing AT#EMAILACT=<CR> is the same as issuing the command AT#EMAILACT=0<CR>.</p> <p>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</p> <pre>AT#EMAILACT=1 OK AT#EMAILACT=0 OK AT#EMAILACT=1 OK</pre>
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	<pre>AT#EMAILACT=1 OK Now GPRS Context has been activated</pre> <pre>AT#EMAILACT=0 OK Now GPRS context has been deactivated.</pre>
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>]	<p>Execution command deactivates/activates the PDP context #1, eventually proceeding with the authentication with the parameters given with #PASSW and #USERID.</p> <p>Parameter: <mode> - PDP context activation mode 0 - GPRS context deactivation request</p>



#EMAILACT - E-mail GPRS Context Ativation	SELINT 2
	<p>1 - GPRS context activation request</p> <p>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.</p> <p>Note: if the PDP context #1 has been activated issuing AT#EMAILACT=1, then</p> <ul style="list-style-type: none"> • 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 <pre>AT#EMAILACT=1 OK AT#EMAILACT=0 OK AT#EMAILACT=1 OK</pre> <p><i>(Analogous considerations if you want to request the activation of PDP context #1 issuing AT#GPRS=1, see #GPRS)</i></p> <p>Note: this command is not allowed if GSM context is active (see AT#SGACT=0,1).</p>
<p>AT#EMAILACT?</p>	<p>Read command reports the current status of the GPRS context for the e-mail, in the format:</p> <p>#EMAILACT: <status></p> <p>where:</p> <p><status></p> <p>0 - GPRS context deactivated</p> <p>1 - GPRS context activated</p>
<p>AT#EMAILACT=?</p>	<p>Test command returns the allowed values for parameter <mode>.</p>
<p>Example</p>	<pre>AT#EMAILACT=1 OK Now GPRS Context has been activated</pre> <pre>AT#EMAILACT=0 OK Now GPRS context has been deactivated.</pre>
<p>Note</p>	<p>It is strongly recommended to use the same command (e.g. #EMAILACT) to activate the context, deactivate it and interrogate about its status.</p>



3.5.7.9.8. E-mail Parameters Save - #ESAV

#ESAV - E-mail Parameters Save		SELINT 0 / 1
AT#ESAV	<p>Execution command stores the e-mail parameters in the NVM of the device.</p> <p>The e-mail parameters to store are:</p> <ul style="list-style-type: none"> - 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	<p>Execution command stores the e-mail parameters in the NVM of the device.</p> <p>The e-mail parameters to store are:</p> <ul style="list-style-type: none"> - 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.	

3.5.7.9.9. E-mail Parameters Reset - #ERST

#ERST - E-mail Parameters Reset		SELINT 0 / 1
AT#ERST	<p>Execution command resets the e-mail parameters to the “factory default” configuration and stores them in the NVM of the device.</p> <p>The e-mail parameters to reset are:</p> <ul style="list-style-type: none"> - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server 	

#ERST - E-mail Parameters Reset		SELINT 2
AT#ERST	<p>Execution command resets the e-mail parameters to the “factory default” configuration and stores them in the NVM of the device.</p> <p>The e-mail parameters to reset are:</p> <ul style="list-style-type: none"> - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server 	
AT#ERST=?	Test command returns the OK result code.	



3.5.7.9.10. 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.	

3.5.7.9.11. Send mail with attachment - #SMTPCL

#SMTPCL – send mail with attachment		SELINT 2
AT#SMTPCL= <da>,<subj>,<att> [,<filename>,<encod>]	<p>This command permits to send an email with different types of attachments if GPRS context has already been activated (#SGACT,#EMAILACT or #GPRS).</p> <p>After sending message body text (as with #EMAILD), the command switch to online mode if attachment has to be sent. While in online mode data received on the serial port are transmitted on the SMTP socket as MIME attachment. The escape sequence has to be sent to close the SMTP connection.</p> <p>Encoding of data received on the serial port is performed if required (binary data), before transmission on the SMTP socket.</p> <p>Parameters: <da> - destination address, string type. (maximum length 100 characters) <subj> - subject of the message, string type. (maximum length 100 characters) <att> - attached file flag 0 – no attachment 1 – attach a txt file 2 – attach a binary file(jpg,bin,pdf,...)</p> <p><filename> - attached file name (maximum length 50 characters) <encod> -Content-Transfer-Encoding used for attachment 0 – “7bit” means data all represented as short lines of US-ASCII data 1 – “base64” designed to represent arbitrary sequences of octets in a form that need not be humanly readable</p>	



	<p>Note: if no attachment (<att> 0) has to be sent, the behavior is the same as with #EMAILD. OK after CTRL-Z is returned(if connection was successful), the switch to online mode is not performed.</p> <p>Note: If a txt file (<att>=1) is attached, only <encod>0(“7bit”) is possible. If a binary file (<att>=2) is attached, only <encod>1(“base64”) is possible.</p> <p>Note: if <att>=0 and <filename> is present and not empty, the attachment won’t be considered</p> <p>Note: if <att> 1 or 2 and <filename> is not present, command will return an ERROR</p> <p>Note: default SMTP port (25) is used</p>
<p>AT#SMTPCL=?</p>	<p>Test command reports the supported range of values for parameters <da>,<subj>,<att>[,<filename>,<encod>]</p>
<p>Examples</p>	<pre>at#smtpcl="me@myaddress.com","test1",1,"sample.txt",0 >message body...this is the text of the mail message... Send CTRL-Z CONNECT ...data received on the serial port are sent as attachment.... Send escape sequence to close the SMTP connection +++ NO CARRIER at#smtpcl="me@myaddress.com","test2",2,"image.jpg",1 >message body...this is the text of the mail message... Send CTRL-Z CONNECT ...data received on the serial port are base64-encoded and sent as attachment.... Send escape sequence to close the SMTP connection +++ NO CARRIER</pre>



3.5.7.9.12. calculate and update date and time - #NTP

#NTP – calculate and update date and time	SELINT 2
<p>AT#NTP= <NTPaddr>, <NTPPort>, <update_module_clock>, <timeout></p>	<p>This command permits to calculate and update date and time through NTP protocol(RFC2030), sending a request to a NTP server.</p> <p>Parameters:</p> <p><NTPaddr> - address of the NTP server, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query <p><NTPPort> - NTP server port to contact 1..65535</p> <p><update_module_clock> 0 - no update module clock 1 – update module clock</p> <p><timeout> - waiting timeout for server response in seconds 1..10</p>
<p>AT#NTP=?</p>	<p>Test command reports the supported range of values for parameters <NTPaddr>,<NTPPort>,<update_module_clock>, and <timeout></p>
<p>Example</p>	<pre>at#ntp="ntp1.inrim.it",123,1,2 #NTP: 12/01/27,14:42:38 OK at+cclk? +CCLK: "12/01/27,14:42:39+00" OK</pre>



#CSURV - Network Survey	SELINT 0 / 1
	<p>..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.</p> <p><numArfcn> - number of valid channels in the Cell Channel Description <arfcn> - arfcn of a valid channel in the Cell Channel Description (<i>n</i> 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:</p> <ol style="list-style-type: none"> 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. <p><ban> - arfcn of a valid channel in the BA list (<i>n</i> is in the range 1..<numChannels>); the output of this information for non-serving cells depends on last #CSURVEXT setting:</p> <ol style="list-style-type: none"> 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. <p><i>(The following informations will be printed only if GPRS is supported in the cell)</i></p> <p><pbch> - packet broadcast control channel 0 - pbch not activated on the cell 1 - pbch 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</p>



#CSURV - Network Survey	SELINT 0 / 1
	<p><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</p> <p style="text-align: center;">(For non BCCH-Carrier)</p> <p>arfcn: <arfcn> rxLev: <rxLev></p> <p>where: <arfcn> - RF channel <rxLev> - reception level (in dBm)</p> <p>Lastly, the #CSURV output ends in two ways, depending on the last #CSURVF setting:</p> <p style="text-align: center;">if #CSURVF=0 or #CSURVF=1</p> <p>The output ends with the string:</p> <p>Network survey ended</p> <p style="text-align: center;">if #CSURVF=2</p> <p>the output ends with the string:</p> <p>Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)</p> <p>where <NoARFCN> - number of scanned frequencies <NoBCCH> - number of found BCCh</p>
AT#CSURV?	Read command has the same behaviour as Execution command with parameters omitted.
AT*CSURV?	
Example	<p>AT#CSURV</p> <p>Network survey started...</p> <p>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</p> <p>arfcn: 14 rxLev: 8</p> <p>Network survey ended</p>



#CSURV - Network Survey		SELINT 0 / 1
	OK	
Note	The command is executed within max. 2 minutes.	

#CSURV - Network Survey		SELINT 2
AT#CSURV[= [<s>,<e>]] AT*CSURV[= [<s>,<e>]] <i>(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)</i>	<p>Execution command allows to perform a quick survey through band channels, starting from channel <s> to channel <e>. Issuing AT#CSURV<CR>, a full band scan is performed.</p> <p>Parameters: <s> - starting channel <e> - ending channel</p> <p>After issuing the command the device responds with the string:</p> <p>Network survey started...</p> <p>and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format:</p> <p style="text-align: center;">(For BCCH-Carrier)</p> <p>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>]] [pbccch: <pbccch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]] mstxpwr: <mstxpwr> rxaccmin: <rxaccmin> croffset: <crossover> penaltyt: <penaltyt> t3212: <t3212> CRH: <CRH></p> <p><CR><LF><CR><LF><CR><LF></p> <p>where:</p> <p><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 at the most a 2-digits octal number <rxLev> - decimal number; it is the reception 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 ..CELL_SUITABLE - C0 is a suitable cell.</p>	



#CSURV - Network Survey	SELINT 2
	<p>CELL_LOW_PRIORITY - the cell is low priority based on the received system information.</p> <p>CELL_FORBIDDEN - the cell is forbidden.</p> <p>CELL_BARRED - the cell is barred based on the received system information.</p> <p>CELL_LOW_LEVEL - the cell <rxLev> is low.</p> <p>CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available...etc.</p> <p><numArfcn> - decimal number; it is the number of valid channels in the Cell Channel Description</p> <p><arfcn> - decimal number; it is the arfcn of a valid channel in the Cell Channel Description (<i>n</i> is in the range 1..<numArfcn>)</p> <p><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:</p> <ol style="list-style-type: none"> 2. if #CSURVEXT=0 this information is displayed only for serving cell 3. if #CSURVEXT=1, 2 or 3 this information is displayed also for every valid scanned BCCH carrier. <p><ban> - decimal number; it is the arfcn of a valid channel in the BA list (<i>n</i> is in the range 1..<numChannels>); the output of this information for non-serving cells depends on last #CSURVEXT setting:</p> <ol style="list-style-type: none"> 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. <p><i>(The following informations will be printed only if GPRS is supported in the cell)</i></p> <p><pbcc> - packet broadcast control channel</p> <p>0 - pbcc not activated on the cell</p> <p>1 - pbcc activated on the cell</p> <p><nom> - network operation mode</p> <p>1</p> <p>2</p> <p>3</p> <p><rac> - routing area code</p> <p>0..255 -</p> <p><spgc> - SPLIT_PG_CYCLE support</p> <p>..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell</p> <p>..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell</p> <p><pat> - priority access threshold</p> <p>0 -</p> <p>3..6 -</p> <p><nco> - network control order</p> <p>0..2 -</p> <p><t3168> - timer 3168</p> <p><t3192> - timer 3192</p> <p><drxmax> - discontinuous reception max time (in seconds)</p>



#CSURV - Network Survey	SELINT 2
	<p><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</p> <p><i>(The following informations will be printed only for #CSURVEXT=3 setting)</i></p> <p><mstxpwr> - decimal TX power level <rxaccmin> - decimal RX level access min, range 0 - 63 <croffset> - decimal Cell Reselection Offset, range 0 - 63 <penaltyt> - decimal Penalty Time, range 0 - 31 <t3212> - decimal T3212 Periodic Location Update Timer <CRH> - decimal Cell Reselection Offset (For non BCCH-Carrier) arfcn: <arfcn> rxLev: <rxLev></p> <p>where: <arfcn> - decimal number; it is the RF channel <rxLev> - decimal number; it is the reception level (in dBm)</p> <p>Lastly, the #CSURV output ends in two ways, depending on the last #CSURVF setting:</p> <p style="text-align: center;">if #CSURVF=0 or #CSURVF=1</p> <p>The output ends with the string:</p> <p>Network survey ended</p> <p style="text-align: center;">if #CSURVF=2</p> <p>the output ends with the string:</p> <p>Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)</p> <p>where <NoARFCN> - number of scanned frequencies <NoBCCH> - number of found BCCh</p>
Example	<p>AT#CSURV</p> <p>Network survey started...</p> <p>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 mstxpwr: 5 rxaccmin: 4 croffset: 4 penaltyt: 6 t3212: 2 CRH: 7</p>



#CSURV - Network Survey	SELINT 2
	arfcn: 14 rxLev: 8 Network survey ended OK
Note	The command is executed within max. 2 minute.

3.5.7.10.2. Network Survey - #CSURVC

#CSURVC - Network Survey (Numeric Format)	SELINT 0 / 1
AT#CSURVC [=<s>,<e>] AT*CSURVC [=<s>,<e>] <i>(both syntax are possible)</i>	<p>Execution command allows to perform a quick survey through band channels, starting from channel <s> to channel <e>. If parameters are omitted, a full band scan is performed.</p> <p>Parameters: <s> - starting channel <e> - ending channel</p> <p>After issuing the command the device responds with the string:</p> <p>Network survey started...</p> <p>and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format:</p> <p style="text-align: center;">(For BCCH-Carrier)</p> <p><arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,<cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]] [,<numChannels>[,<ba1> ..[<ba32>]]],<pbch> [,<nom>,<rac>,<spgc>,<pat>,<nco>,<t3168>,<t3192>,<drxmax>,<ctrlAck>,<bsCVmax>,<alpha>,<pcMeasCh>]] <CR><LF><CR><LF><CR><LF></p> <p>where:</p> <ul style="list-style-type: none"> <arfcn> - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) <bsic> - base station identification code <rxLev> - reception 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 <p>..0 - C0 is a suitable cell (CELL_SUITABLE).</p>



#CSURVC - Network Survey (Numeric Format)		SELINT 0 / 1
	<p><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</p> <p style="text-align: center;">(For non BCCH-Carrier)</p> <p><arfcn>,<rxLev></p> <p>where: <arfcn> - RF channel <rxLev> - reception level (in dBm)</p> <p>The output ends with the string:</p> <p>Network survey ended</p>	
AT#CSURVC?	Read command has the same behaviour as the Execution command with parameters omitted	
AT*CSURVC?		
Example	<p>AT#CSURVC</p> <p>Network survey started...</p> <p>48,24,-52,0,00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82</p> <p>14,8</p> <p>Network survey ended</p> <p>OK</p>	
Note	<p>The command is executed within max. 2 minute.</p> <p>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.</p>	

#CSURVC - Network Survey (Numeric Format)		SELINT 2
<p>AT#CSURVC[= <s>,<e>]]</p> <p>AT*CSURVC[= [=<s>,<e>]]</p> <p><i>(both syntax are possible; the second syntax is maintained)</i></p>	<p>Execution command allows to perform a quick survey through band channels, starting from channel <s> to channel <e>. Issuing AT#CSURVC<CR>, a full band scan is performed.</p> <p>Parameters: <s> - starting channel <e> - ending channel</p> <p>After issuing the command the device responds with the string:</p>	



#CSURVC - Network Survey (Numeric Format)	SELINT 2
	<p>2. if #CSURVEXT=1, 2 or 3 this information is displayed also for every valid scanned BCCH carrier.</p> <p><ban> - decimal number; it is the arfcn of a valid channel in the BA list (<i>n</i> is in the range 1..<numChannels>); the output of this information for non-serving cells depends on last #CSURVEXT setting:</p> <ol style="list-style-type: none"> if #CSURVEXT=0 this information is displayed only for serving cell if #CSURVEXT=1, 2 or 3 this information is displayed also for every valid scanned BCCH carrier. <p><i>(The following informations will be printed only if GPRS is supported in the cell)</i></p> <p><pbcc> - packet broadcast control channel 0 - pbcc not activated on the cell 1 - pbcc activated on the cell</p> <p><nom> - network operation mode 1 2 3</p> <p><rac> - routing area code 0..255 -</p> <p><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</p> <p><pat> - priority access threshold 0 - 3..6 -</p> <p><nco> - network control order 0..2 -</p> <p><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</p> <p><i>(The following informations will be printed only for #CSURVEXT=3 setting)</i></p> <p><mstxpwr> - decimal TX power level <rxaccmin> - decimal RX level access min, range 0 - 63 <croffset> - decimal Cell Reselection Offset, range 0 - 63 <penaltyt> - decimal Penalty Time, range 0 - 31 <t3212> - decimal T3212 Periodic Location Update Timer</p>



#CSURVC - Network Survey (Numeric Format)	SELINT 2
	<p><CRH> - decimal Cell Reselection Offset</p> <p style="text-align: center;">(For non BCCH-Carrier)</p> <p><arfcn>,<rxLev></p> <p>where: <arfcn> - decimal number; it is the RF channel <rxLev> - decimal number; it is the reception level (in dBm)</p> <p>The last information from #CSURVC depends on the last #CSURVF setting:</p> <p style="text-align: center;">#CSURVF=0 or #CSURVF=1</p> <p>The output ends with the string: Network survey ended</p> <p style="text-align: center;">#CSURVF=2</p> <p>the output ends with the string: Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>) where <NoARFCN> - number of scanned frequencies <NoBCCH> - number of found BCCh</p>
Example	<p>AT#CSURVC</p> <p>Network survey started...</p> <p>48,24,-52,0,00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82,5,4,4,6,,2,7</p> <p>14,8</p> <p>Network survey ended</p> <p>OK</p>
Note	<p>The command is executed within max. 2 minute.</p> <p>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.</p>

3.5.7.10.3. Network Survey - #CSURVU

#CSURVU - Network Survey Of User Defined Channels	SELINT 0 / 1
<p>AT#CSURVU=[<ch1>[,<ch2>[,... [,<chn>]]]]</p> <p>AT*CSURVU=[</p>	<p>Execution command allows to perform a quick survey through the given channels.</p> <p>The result format is like command #CSURV.</p> <p>Parameters:</p>



#CSURVU - Network Survey Of User Defined Channels		SELINT 0 / 1
<p><ch1>[,<ch2>[,... [,<chn>]]]] <i>(both syntax are possible)</i></p>	<p><chn> - channel number (arfcn)</p> <p>Note: issuing AT#CSURVU=<CR> is the same as issuing the command AT#CSURVU=0<CR>.</p>	
<p>Example</p>	<p>AT#CSURVU=59,110</p> <p>Network survey started...</p> <p>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</p> <p>arfcn: 110 rxLev: -107</p> <p>Network survey ended</p> <p>OK</p>	
<p>Note</p>	<p>The command is executed within max. 2 minute.</p>	

#CSURVU - Network Survey Of User Defined Channels		SELINT 2
<p>AT#CSURVU=[<ch1>[,<ch2>[,... [,<chn>]]]]</p> <p>AT*CSURVU=[<ch1>[,<ch2>[,... [,<chn>]]]] <i>(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)</i></p>	<p>Execution command allows to perform a quick survey through the given channels.</p> <p>The result format is like command #CSURV.</p> <p>Parameters: <chn> - channel number (arfcn)</p> <p>Note: the maximum number of channels is 20.</p>	
<p>Example</p>	<p>AT#CSURVU=59,110</p> <p>Network survey started...</p> <p>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</p> <p>arfcn: 110 rxLev: -107</p> <p>Network survey ended</p> <p>OK</p>	
<p>Note</p>	<p>The command is executed within max. 2 minute.</p>	



3.5.7.10.4. Network Survey - #CSURVUC

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	SELINT 0 / 1
<p>AT#CSURVUC=[<ch1>[,<ch2>[,... [,<chn>]]]]</p> <p>AT*CSURVUC=[<ch1>[,<ch2>[,... [,<chn>]]]] <i>(both syntax are possible)</i></p>	<p>Execution command allows to perform a quick survey through the given channels.</p> <p>The result format is like command #CSURVC.</p> <p>Parameters: <chn> - channel number (arfcn)</p> <p>Note: issuing AT#CSURVUC=<CR> is the same as issuing the command AT#CSURVUC=0<CR>.</p>
<p>Example</p>	<p>AT#CSURVUC=59,110</p> <p>Network survey started...</p> <p>59,16,-76,0.00,546,1,54717,21093,0,2,36 59</p> <p>110,-107</p> <p>Network survey ended</p> <p>OK</p>
<p>Note</p>	<p>The command is executed within max. 2 minute.</p> <p>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.</p>

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	SELINT 2
<p>AT#CSURVUC=[<ch1>[,<ch2>[,... [,<chn>]]]]</p> <p>AT*CSURVUC=[<ch1>[,<ch2>[,... [,<chn>]]]] <i>(both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)</i></p>	<p>Execution command allows to perform a quick survey through the given channels.</p> <p>The result format is like command #CSURVC.</p> <p>Parameters: <chn> - channel number (arfcn)</p> <p>Note: the maximum number of channels is 20.</p>
<p>Example</p>	<p>AT#CSURVUC=59,110</p> <p>Network survey started...</p> <p>59,16,-76,0.00,546,1,54717,21093,0,2,36 59,5,4,4,6,,2,7</p>



#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)		SELINT 2
	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.	

3.5.7.10.5. 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. 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)	



#CSURVF - Network Survey Format		SELINT 0 / 1
	<p><format> - numbers format</p> <ul style="list-style-type: none"> 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text <p>Note: issuing AT#CSURVF<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#CSURVF=<CR> is the same as issuing the command AT#CSURVF=0<CR>.</p>	
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>]	<p>Set command controls the format of the numbers output by all the Easy Scan®</p> <p>Parameter:</p> <p><format> - numbers format</p> <ul style="list-style-type: none"> 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> .	

3.5.7.10.8. <CR><LF> Removing On Easy Scan® Commands Family - #CSURVNLF

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family		SELINT 0 / 1
AT#CSURVNLF [=<value>]	<p>Set command enables/disables the automatic <CR><LF> removing from each information text line.</p> <p>Parameter:</p> <p><value></p> <ul style="list-style-type: none"> 0 - disables <CR><LF> removing; they'll be present in the information text (factory default) 1 - remove <CR><LF> from information text <p>Note: if parameter is omitted the behaviour of Set command is the same as Read command.</p>	
AT#CSURVNLF?	Read command reports whether automatic <CR><LF> removing is currently enabled or not, in the format:	
	<value>	



#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family		SELINT 0 / 1
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 information 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>.	

3.5.7.10.9. Extended Network Survey - #CSURVEXT

#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>.	



#CSURVPC - PLMN Network Survey (Numeric Format)		SELINT 2
	Parameter: <plmn> - the desired PLMN in numeric format	
AT#CSURVPC=?	Test command returns OK	

3.5.7.11. SIM Toolkit AT Commands

3.5.7.11.1. SIM Toolkit Interface Activation - #STIA

#STIA - SIM Toolkit Interface Activation		SELINT 2
AT#STIA= [<mode> [,<timeout>]]	<p>Set command is used to activate the SAT sending of unsolicited indications when a proactive command is received from SIM.</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - disable SAT (default for all products, except GE865-QUAD, GE864-DUAL V2, GL865-DUAL, GL868-DUAL, GL865-QUAD, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL V3, GE910-QUAD, GE910-QUAD V3 and GE910-GNSS) 1 - enable SAT without unsolicited indication #STN (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL, GL868-DUAL, GL865-QUAD, GL865-DUAL V3, GL865-QUAD V3, GL868-DUAL V3, GE910-QUAD, GE910-QUAD V3 and GE910-GNSS) 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 <p><timeout> - time-out for user responses</p> <ul style="list-style-type: none"> 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: 	



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<p>#STN: <cmdTerminateValue></p> <p>where: <cmdTerminateValue> is defined as <cmdType> + terminate offset; the terminate offset equals 100.</p> <p>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:</p> <ul style="list-style-type: none"> 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> 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: <i>if <cmdType>=1 (REFRESH)</i> 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 <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In this case neither #STGI nor #STSR commands are required:</p> <ul style="list-style-type: none"> AT#STGI is accepted anyway. AT#STSR=<cmdType>,0 will answer OK but do nothing. </div> <p style="text-align: center;"><i>if <cmdType>=17 (SEND SS)</i> <i>if <cmdType>=19 (SEND SHORT MESSAGE)</i> <i>if <cmdType>=20 (SEND DTMF)</i> <i>if <mdType>=32 (PLAY TONE)</i></p> <p>an unsolicited notification will be sent if allowed by SIM (see GSM 11.14):</p>



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<p>#STN: <cmdType>[,<text>]</p> <p>where: <text> - (optional) text to be displayed to user</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In these cases neither #STGI nor #STSR commands are required:</p> <ul style="list-style-type: none"> • AT#STGI is accepted anyway. • AT#STSR=<cmdType>,0 will answer OK but do nothing. </div> <p>In case of SEND SHORT MESSAGE (<cmdType>=19) command if sending to network fails an unsolicited notification will be sent</p> <p>#STN: 119</p> <p style="text-align: center;"><i>if <cmdType>=33 (DISPLAY TEXT)</i></p> <p>an unsolicited notification will be sent if allowed by SIM (see GSM 11.14):</p> <p>#STN: <cmdType>[,<cmdDetails>[,<text>]</p> <p>where: <cmdDetails> - unsigned Integer used as a bit field. 0..255 - used as a bit field:</p> <ul style="list-style-type: none"> bit 1: <ul style="list-style-type: none"> 0 - normal priority 1 - high priority bits 2 to 7: reserved for future use bit 8: <ul style="list-style-type: none"> 0 - clear message after a delay 1 - wait for user to clear message <p><text> - (optional) text to be displayed to user</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In this case:</p> <ol style="list-style-type: none"> 1. if <cmdDetails>/bit8 is 0 neither #STGI nor #STSR commands are required: <ul style="list-style-type: none"> • 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 </div> <p style="text-align: center;"><i>if <cmdType>=40 (SET UP IDLE MODE TEXT)</i></p> <p>an unsolicited notification will be sent:</p> <p>#STN: <cmdType>[,<text>]</p>



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<p>where: <text> - (optional)text to be displayed to user</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In these cases neither #STGI nor #STSR commands are required:</p> <ul style="list-style-type: none"> • AT#STGI is accepted anyway. • AT#STSR=<cmdType>,0 will answer OK but do nothing. </div> <p style="text-align: center;"><i>if <cmdType>=18 (SEND USSD)</i></p> <p>an unsolicited notification will be sent to the user:</p> <p>#STN: <cmdType>[,<text>]</p> <p>where: <text> - optional text string sent by SIM</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>In this case:</p> <ul style="list-style-type: none"> • 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. </div> <p style="text-align: center;"><i>if <cmdType>=5 (SET UP EVENT LIST)</i></p> <p>an unsolicited notification will be sent:</p> <p>#STN: <cmdType>[,<event list mask>]</p> <p>where: <event list mask> - (optional)hexadecimal number representing the list of events to monitor (see GSM 11.14)</p> <ul style="list-style-type: none"> - '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) <p>The hexadecimal number is actually a bit mask, where each bit, when set,</p>



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<p>It is possible to restart the SAT session from the main menu again with the command AT#STGI=37.</p> <p>Note: The settings are saved on user profile and available on following reboot. SIM Toolkit activation/deactivation is only performed at power on.</p> <p>Note: from version 10.0x.xx4 the set command returns ERROR when USIM is enabled (AT#ENASIM? returns 1).</p>
AT#STIA?	<p>Read command can be used to get information about the SAT interface in the format:</p> <p>#STIA: <state>,<mode>,<timeout>,<SatProfile></p> <p>where:</p> <ul style="list-style-type: none"> <state> - the device is in one of the following state: <ul style="list-style-type: none"> 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. <p>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.</p>
AT#STIA=?	<p>Test command returns the range of available values for the parameters <mode> and <timeout>.</p>
Note	<p>Just one instance at a time, the one which first issued AT#STIA=n (with <i>n</i> different from zero), is allowed to issue SAT commands, and this is valid till the same instance issues AT#STIA=0. After power cycle another instance can enable SAT.</p>
Note	<p>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).</p>



3.5.7.11.2. SIM Toolkit Get Information - #STGI

#STGI - SIM Toolkit Get Information	SELINT 2
<p>AT#STGI= [<cmdType>]</p>	<p>#STGI set command is used to request the parameters of a proactive command from the ME.</p> <p>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</p> <ul style="list-style-type: none"> 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 <p>Requested command parameters are sent using an #STGI indication:</p> <p>#STGI: <parameters></p> <p>where <parameters> depends upon the ongoing proactive command as follows:</p> <p style="text-align: center;"><i>if <cmdType>=1 (REFRESH)</i></p> <p>#STGI: <cmdType>,<refresh type> where: <refresh type></p> <ul style="list-style-type: none"> 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 <p style="text-align: center;"><i>if <cmdType>=5 (SET UP EVENT LIST)</i></p> <p>#STGI: <cmdType>,<event list mask></p>



#STGI - SIM Toolkit Get Information	SELINT 2
<p>where: <text> - text to be displayed to user</p> <p style="text-align: center;"><i>if <cmdType>=33 (DISPLAY TEXT)</i></p> <p>#STGI: <cmdType>,<cmdDetails>[,<text>]</p> <p>where: <cmdDetails> - unsigned Integer used as a bit field. 0..255 - used as a bit field:</p> <p>bit 1: 0 - normal priority 1 - high priority</p> <p>bits 2 to 7: reserved for future use</p> <p>bit 8: 0 - clear message after a delay 1 - wait for user to clear message</p> <p><text> - text to be displayed to user</p> <p style="text-align: center;"><i>if <cmdType>=34 (GET INKEY)</i></p> <p>#STGI: <cmdType>,<commandDetails>,<text></p> <p>where: <commandDetails> - unsigned Integer used as a bit field. 0..255 - used as a bit field:</p> <p>bit 1: 0 - Digits only (0-9, *, # and +) 1 - Alphabet set;</p> <p>bit 2: 0 - SMS default alphabet (GSM character set) 1 - UCS2 alphabet</p> <p>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</p> <p>bits 4 to 7: 0</p> <p>bit 8: 0 - No help information available 1 - Help information available</p> <p><text> - String as prompt for text.</p>	



#STGI - SIM Toolkit Get Information	SELINT 2
<p style="text-align: center;"><i>if <cmdType>=35 (GET INPUT)</i></p> <p>#STGI: <cmdType>,<commandDetails>,<text>,<responseMin>,<responseMax>[,<defaultText>]</p> <p>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 - 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</p> <p style="text-align: center;"><i>if <cmdType>=36 (SELECT ITEM)</i></p> <p>The first line of output is:</p> <p>#STGI: <cmdType>,<commandDetails>,<numOfItems>[,<titleText>] <CR><LF></p> <p>One line follows for every item, repeated for <numOfItems>:</p> <p>#STGI: <cmdType>,<itemId>,<itemText>[,<nextActionId>]</p>	



#STGI - SIM Toolkit Get Information	SELINT 2
	<p>where:</p> <p><commandDetails> - unsigned Integer used as a bitfield 0..255 - used as a bit field:</p> <p>bit 1: 0 - Presentation type is not specified 1 - Presentation type is specified in bit 2</p> <p>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'</p> <p>bit 3: 0 - No selection preference 1 - Selection using soft key preferred</p> <p>bits 4 to 7: 0</p> <p>bit 8: 0 - No help information available 1 - Help information available</p> <p><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.</p> <p style="text-align: center;"><i>if <cmdType>=37 (SET UP MENU)</i></p> <p>The first line of output is:</p> <p>#STGI: <cmdType>,<commandDetails>,<numOfItems>,<titleText> <CR><LF></p> <p>One line follows for every item, repeated for <numOfItems>:</p> <p>#STGI: <cmdType>,<itemId>,<itemText>[,<nextActionId>]</p> <p>where:</p> <p><commandDetails> - unsigned Integer used as a bitfield 0..255 - used as a bit field:</p> <p>bit 1: 0 - no selection preference 1 - selection using soft key preferred</p> <p>bit 2 to 7:</p>



#STSR - SIM Toolkit Send Response		SELINT 2
	available.	
AT#STSR?	<p>The read command can be used to request the currently ongoing proactive command and the SAT state in the format</p> <p>#STSRI: <state>,<cmdType> where: <state> - SAT interface state (see #STIA) <cmdType> - ongoing proactive command</p> <p>An error message will be returned if there is no pending command.</p>	
AT#STSR=?	Test command returns the range for the parameters <state> and <cmdType>.	

3.5.7.11.4. SIM Toolkit terminal Attach - #STTA

#STTA – SIM Toolkit Terminal Attach		SELINT 2
AT#STTA=<state>	<p>This command attaches/detaches the SIM Toolkit application to the AT instance reserved for this use.</p> <p>Parameters: <state>: attached state 0 – SIM Toolkit detaches 1 – SIM Toolkit attaches</p> <p>If SIM Toolkit application has been already attached/detached the command does nothing and returns OK.</p>	
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	<p>The AT instance reserved for the SIM Toolkit application is the #3.</p> <p>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.</p>	



3.5.7.12. Jammed Detect & Report AT Commands

3.5.7.12.1. Jammed Detect & Report - #JDR

#JDR - Jammed Detect & Report	SELINT 0 / 1
<p>AT#JDR[= [<mode> [,<MNPL>, <DCMN>]]]</p>	<p>Set command allows to control the Jammed Detect & Report feature.</p> <p>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.</p> <p>Parameters:</p> <p><mode> - behaviour mode of the Jammed Detect & Report</p> <ul style="list-style-type: none"> 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: <p>#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. <ul style="list-style-type: none"> 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: <p>#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. <ul style="list-style-type: none"> 5 - enables the Jammed Detect; the MODULE will make both the actions as for <mode>=1 and <mode>=4. <p><MNPL> - Maximum Noise Power Level 0..127 (factory default is 70)</p> <p><DCMN> - Disturbed Channel Minimum Number 0..254 (factory default is 5)</p> </p></p>



#JDR - Jammed Detect & Report		SELINT 0 / 1
	<p>Note: issuing AT#JDR<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#JDR=<CR> is the same as issuing the command AT#JDR=0<CR>.</p>	
AT#JDR?	<p>Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format:</p> <p>#JDR: <mode>,<MNPL>,<DCMN></p>	
AT#JDR=?	<p>Test command reports the supported range of values for the parameters <mode>, <MNPL> and <DCMN></p>	
Example	<pre>AT#JDR=2 OK ...jammer enters in the range... #JDR: JAMMED ...jammer exits the range... #JDR: OPERATIVE</pre>	
Note	<p>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.</p>	

#JDR - Jammed Detect & Report		SELINT 2
AT#JDR= [<mode> [,<MNPL> <DCMN>]]	<p>Set command allows to control the Jammed Detect & Report feature.</p> <p>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.</p> <p>Parameters:</p> <p><mode> - behaviour mode of the Jammed Detect & Report</p> <p>0 - disables Jammed Detect & Report (factory default)</p> <p>1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR</p> <p> GPIO2/JDR Low - Normal Operating Condition</p> <p> GPIO2/JDR High - Jammed Condition.</p> <p>2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format:</p> <p>#JDR: <status></p> <p>where:</p> <p><status></p> <p>JAMMED - Jammed condition detected</p> <p>OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred.</p> <p>3 - enables the Jammed Detect; the MODULE will make both the actions as for <mode>=1 and <mode>=2.</p>	



#JDR - Jammed Detect & Report	SELINT 2
	<p>4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format:</p> <p>#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.</p> <p>5 - enables the Jammed Detect; the MODULE will make both the actions as for <mode>=1 and <mode>=4.</p> <p>6 - enables the Jammed Detect (this value is available only for 10.00.xxx release); the Jammed condition is reported in the format:</p> <p>#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</p> <p><MNPL> - Maximum Noise Power Level 0..127 (factory default is 70) <DCMN> - Disturbed Channel Minimum Number 0..254 (factory default is 5)</p>
AT#JDR?	<p>Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format:</p> <p>#JDR: <mode>,<MNPL>,<DCMN></p>
AT#JDR=?	<p>Test command reports the supported range of values for the parameters <mode>,<MNPL> and <DCMN></p>
Example	<pre>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</pre>



#JDR - Jammed Detect & Report		SELINT 2
	#JDR: UNKNOWN // default state before 1st PLMN searching OK	
Note	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.	

3.5.7.12.2. Jammed detect and report enhanced - #JDRENH

#JDRENH – Enhanced Jamming Detection and Reporting		SELINT 2
AT#JDRENH[=<type>[,<mode>[,<Param1>[,<Param2>[,<Timer>]]]]	Set command allows to control the Enhanced Jamming Detection & Reporting feature, that can be considered an extension of AT#JDR.	
	Parameters: <type> - Jamming Reporting Type	
	0 - Disable the feature (factory default).	
	1 - Enable the JDRE; jamming condition is reported on pin GPIO2/JDR. GPIO/JDR Low – Normal Operating Condition. GPIO/JDR High – Jammed Condition.	
	2 - Enable the JDRE; jamming condition is reported with a single unsolicited result code on serial port, in the format: #JDRENH: <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 - Enable the JDRE; the MODULE will execute both actions as for <type>=1 and <type>=2.	
	4 - Enable the JDRE; jamming condition is reported with an unsolicited code every 3s on serial port, in format: #JDRENH: <status> Where: <status> JAMMED – Jammed condition detected OPERATIVE – Normal Operating condition restored. This code will be shown only after a jammed condition has occurred.	



	<p>5 - Enable the JDRE; the MODULE will execute both actions as for <type>=1 and <type>=4.</p> <p><mode> - This parameter sets the method to be used to detect the jamming condition</p> <p>1 - Method 1 – Counter of Disturbed Channels for band 2 - Method 2 – Sudden variation of the signal strength</p> <p><Param1> - The meaning of this parameter depends by the selected <mode>.</p> <p>When <mode>=1, <Param1> is used to set the minimum number of Disturbed Channels, for Band, to be considered to measure the jamming condition. Range 1-50, default value 10. When <mode>=2, <Param1> is used to set the value of the minimum variation of received signal strength of the channel, in negative dBm, to be considered to measure the jamming condition. Range 1-20, default value 5.</p> <p><Param2> - The meaning of this parameter depends by the selected <mode>.</p> <p>When <mode>=1, <Param2> is used to set the maximum noise level, in negative dBm, to do not consider the bad channel decoding like a jamming condition. Range 35 – 127, default value 110. When <mode>=2, <Param2> is used to set the minimum number of Disturbed Channels to be considered to measure the jamming condition situation. Range 1 - 20, default value 5.</p> <p><Time> - This parameter sets, for both methods, the Jamming Reporting timer. The timer <Time> starts when the jamming condition is detected; when the timer expires, if the jamming condition is still true, the jamming is notified. 1 – 254 (default 10) 255 - jamming is notified, if required, only at the end of the scan of all the powerful channels</p>
<p>AT#JDRENH?</p>	<p>Read command reports the current parameter settings for #JDRENH in the format:</p> <p>#JDRENH: <type>,<mode>,<Param1>,<Param2>,<Time></p>
<p>AT#JDRENH=?</p>	<p>Test command reports the supported range of values for parameters <type>,<mode>,<Param1>,<Param2>,<Time></p>



3.5.7.13. Easy Script® Extension - Python²⁸ Interpreter, AT Commands

3.5.7.13.1. Write Script - #WSCRIPT

#WSCRIPT - Write Script	SELINT 0 / 1
<p>AT#WSCRIPT= <script_name>, <size> [,<hidden>]</p>	<p>Execution command causes the MODULE to store a file in the Easy Script® related NVM, naming it <script_name></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>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</p> </div> <p>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.</p> <p>The device shall prompt a three character sequence <greater_than><greater_than><greater_than> (IRA 62, 62, 62) after command line is terminated with <CR>; after that a file can be entered from TE, sized <size> bytes.</p> <p>The operations completes when all the bytes are received.</p> <p>If writing ends successfully, the response is OK; otherwise an error code is reported.</p> <p>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.</p> <p>Note: when sending the script be sure that the line terminator is <CR><LF> and that your terminal program does not change it.</p> <p>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.</p>
<p>AT#WSCRIPT=?</p>	<p>Test command returns OK result code.</p>
<p>Example</p>	<p>AT#WSCRIPT="First.py",54,0 >>> <i>here receive the prompt: depending on your editor settings it's possible that</i></p>

²⁸ PYTHON is a registered trademark of the Python Software Foundation.



#WSCRIPT - Write Script		SELINT 0 / 1
	<p><i>the prompt overrides the above line; then type or send the script, sized 54 bytes</i></p> <p>OK</p> <p>Script has been stored.</p>	
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
<p>AT#WSCRIPT= [<script_name>, <size>, [,<hidden>]]</p>	<p>Execution command causes the MODULE to store a file in the Easy Script® related NVM, naming it <script_name></p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>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</p> </div> <p>Parameters:</p> <p><script_name> - name of the file in NVM, string type (max 16 chars, case sensitive).</p> <p><size> - file size in bytes</p> <p><hidden> - file hidden attribute</p> <p>0 - file content is readable with #RSCRIPT (default).</p> <p>1 - file content is hidden, #RSCRIPT command will report empty file.</p> <p>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.</p> <p>The operations completes when all the bytes are received.</p> <p>If writing ends successfully, the response is OK; otherwise an error code is reported.</p> <p>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.</p> <p>Note: when sending the script be sure that the line terminator is <CR><LF> and that your terminal program does not change it.</p> <p>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.</p>	



#WSCRIPT - Write Script		SELINT 2
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 <i>Textual script has been stored</i>	
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.	

3.5.7.13.2. Select Active Script - #ESCRIP

#ESCRIP - Select Active Script		SELINT 0 / 1
AT#ESCRIP[= [<script_name>]]	Set command selects either <ol style="list-style-type: none"> 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 the name of the pre-compiled executable file that will be executed at startup according to last #STARTMODESCR setting. <p>We call this file (either textual or pre-compiled) the current script.</p> <p>Parameter: <script_name> - file name, string type (max 16 chars, case sensitive).</p> <p>Note: all textual script files must have .py extension; all pre-compiled executable files must have .pyo extension.</p> <p>Note: <script_name> must match to the name of a file written by #WSCRIPT in order to have it run.</p> <p>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.</p> <p>Note: issuing AT#ESCRIP<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#ESCRIP=<CR> is the same as issuing the command AT#ESCRIP=""<CR>.</p>	
AT#ESCRIP?	Read command reports as a quoted string the file name of the current script .	
AT#ESCRIP=?	Test command returns OK result code.	

#ESCRIP - Select Active Script		SELINT 2
AT#ESCRIP= [<script_name>]	Set command selects either <ol style="list-style-type: none"> the name of the textual script file that will be compiled and executed by the Easy Script® compiler at startup according to last #STARTMODESCR 	



#ESCRIP - Select Active Script	SELINT 2
	<p>setting, or</p> <p>d) the name of the pre-compiled executable file that will be executed at startup according to last #STARTMODESCR setting.</p> <p>We call this file (either textual or pre-compiled) the current script.</p> <p>Parameter: <script_name> - file name, string type (max 16 chars, case sensitive).</p> <p>Note: all textual script files must have .py extension; all pre-compiled executable files must have .pyo extension.</p> <p>Note: <script_name> must match to the name of a file written by #WSCRIPT in order to have it run.</p> <p>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.</p>
AT#ESCRIP?	Read command reports as a quoted string the file name of the current script .
AT#ESCRIP=?	Test command returns OK result code.

3.5.7.13.3. Script Execution Start Mode - #STARTMODESCR

#STARTMODESCR - Script Execution Start Mode	SELINT 0 / 1
<p>AT#STARTMODESCR[= <script_start_mode> [,<script_start_to>]]</p>	<p>Set command sets the current script (see #ESCRIP) execution start mode.</p> <p>Parameter: <script_start_mode> - currente script execution start mode</p> <p>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).</p> <p>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.</p> <p>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.</p> <p><script_start_to> - current script start time-out; 10..60 - time interval in seconds; this parameter is used only if parameter</p>



#STARTMODESCR - Script Execution Start Mode	SELINT 0 / 1
	<p><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).</p> <p>Note: issuing AT#STARTMODESCR<CR> is the same as issuing the Read command.</p>
AT#STARTMODESCR?	<p>Read command reports the current script start mode and the current script start time-out, in the format:</p> <p>#STARTMODESCR= <script_start_mode>,<script_start_timeout></p>
AT#STARTMODESCR=?	<p>Test command returns the range of available values for parameters <script_start_mode> and <script_start_timeout>, in the format:</p> <p>#STARTMODESCR: (0-2),(10-60)</p> <p>In versions 13.00.xxx: #STARTMODESCR: (0-1),(10-60)</p>

#STARTMODESCR - Script Execution Start Mode	SELINT 2
<p>AT#STARTMODESCR= <script_start_mode> [,<script_start_to>]</p>	<p>Set command sets the current script (see #ESCRIP) execution start mode.</p> <p>Parameter:</p> <p><script_start_mode> - currente script execution start mode</p> <p>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).</p> <p>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.</p> <p>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. Not available in versions 13.00.xxx.</p> <p><script_start_to> - current script start time-out;</p> <p>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</p>



#STARTMODESCR - Script Execution Start Mode		SELINT 2
	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)	

3.5.7.13.4. Execute Active Script - #EXECSCR

#EXECSCR - Execute Active Script		SELINT 0 / 1
AT#EXECSCR	Execution command causes the current script (see #ESCRIP) 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 #ESCRIP) 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.	

3.5.7.13.5. Read Script - #RSCRIPT

#RSCRIPT - Read Script		SELINT 0 / 1
AT#RSCRIPT=<script_name>	<p>Execution command reports the content of file <script_name>.</p> <p>Parameter: <script_name> - file name, string type (max 16 chars, case sensitive).</p> <p>The device shall prompt a three character sequence <less_than><less_than><less_than> (IRA 60, 60, 60) followed by the file content.</p> <p>Note: if the file <script_name> was saved with the hidden attribute, then an empty file is reported with the OK result code.</p>	



#RSCRIPT - Read Script		SELINT 0 / 1
	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 " <i>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</i> <<<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 " <i>hereafter receive the prompt; then the script is displayed, immediately after the prompt</i> <<<import MDM MDM.send('AT\r',10) Ans=MDM.receive(20) OK	

3.5.7.13.6. 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_namen> <sizeen>]]	



#LCSCRIPT - List Script Names with CRC16 info	SELINT 2
	<p><CR><LF>#LCSCRIPT: free bytes: <free_NVM></p> <p>where: <script-namen> - file name, quoted string type (max 16 chars, case sensitive) <size> - size of script in bytes <crcn> - CRC16 poly ($x^{16}+x^{12}+x^5+1$) of script in hex format <free_NVM> - size of available NVM memory in bytes</p> <p>Note: CRC16 is calculated using the standard reversed CRC16-CCITT $x^{16}+x^{12}+x^5+1$ polynomial (0x1021 representation reversed) with initial value FFFF.</p> <p>Note: if one file currently stored in NVM is in use than CRC16 cannot be calculated and execution command does not report <crcn> for that file. This is always true if command is executed by a Python script because at least the file pointed by #ESCRIP is in use.</p>
<p>AT#LCSCRIPT=<script_name></p>	<p>Execution command reports size and CRC16 information of file <script_name> in the format:</p> <p>[#LCSCRIPT: <script_name>,<size>[,<crc>]]</p> <p>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</p> <p>Parameter: <script_name> - file name, string type (max 16 chars, case sensitive).</p> <p>Note: CRC16 is calculated using the standard reversed CRC16-CCITT $x^{16}+x^{12}+x^5+1$ polynomial (0x1021 representation reversed) with initial value FFFF.</p> <p>Note: if file <script_name> is in use than CRC16 cannot be calculated and execution command does not report <crc>.</p> <p>Note: if file <script_name> is not in the list of files stored in NVM execution command exits with error message.</p>
<p>AT#LCSCRIPT=?</p>	<p>Test command returns OK result code.</p>
<p>Example</p>	<p>AT#LCSCRIPT #LCSCRIPT: "First.py",51,8FD6 #LCSCRIPT: "Second.py",178,A034 #LCSCRIPT: "Third.py",120,7C48 #LCSCRIPT: free bytes: 20000</p> <p>OK</p>



#LCSCRIPT - List Script Names with CRC16 info		SELINT 2
	<p>AT#LCSCRIPT="Second.py" #LCSCRIPT: "Second.py",178,A034</p> <p>OK</p> <p>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</p> <p>OK</p>	

3.5.7.13.8. Delete Script - #DSCRIPT

#DSCRIPT - Delete Script		SELINT 0 / 1
AT#DSCRIPT= <script_name>	<p>Execution command deletes a file from Easy Script® related NVM memory.</p> <p>Parameter:</p> <p><script_name> - name of the file to delete, string type (max 16 chars, case sensitive)</p> <p>Note: if the file <script_name> is not present an error code is reported.</p>	
AT#DSCRIPT=?	Test command returns OK result code.	
Example	AT#DSCRIPT="Third.py" OK	

#DSCRIPT - Delete Script		SELINT 2
AT#DSCRIPT= [<script_name>]	<p>Execution command deletes a file from Easy Script® related NVM memory.</p> <p>Parameter:</p> <p><script_name> - name of the file to delete, string type (max 16 chars, case sensitive)</p> <p>Note: if the file <script_name> is not present an error code is reported.</p>	
AT#DSCRIPT=?	Test command returns OK result code.	
Example	AT#DSCRIPT="Third.py" OK	



3.5.7.13.9. Reboot - #REBOOT

#REBOOT - Reboot		SELINT 0 / 1
AT#REBOOT	<p>Execution command reboots immediately the unit.</p> <p>It can be used to reboot the system after a remote update of the script in order to have the new one running.</p> <p>Note: if AT#REBOOT follows an AT command that stores some parameters in NVM, it is recommended to insert a delay of at least 5 seconds before to issue AT#REBOOT, to permit the complete NVM storing</p>	
AT#REBOOT?	Read command has the same behaviour of Execution command.	
AT#REBOOT=?	Test command returns OK result code.	
Example	<pre>AT#REBOOT OK ... Module Reboots ...</pre>	

#REBOOT - Reboot		SELINT 2
AT#REBOOT	<p>Execution command reboots immediately the unit.</p> <p>It can be used to reboot the system after a remote update of the script in order to have the new one running.</p> <p>Note: if AT#REBOOT follows an AT command that stores some parameters in NVM, it is recommended to insert a delay of at least 5 seconds before to issue AT#REBOOT, to permit the complete NVM storing</p> <p>Note: AT#REBOOT is an obsolete AT command; please refer to AT#ENHRST to perform a module reboot</p>	
AT#REBOOT=?	Test command returns OK result code.	
Example	<pre>AT#REBOOT OK ... Module Reboots ...</pre>	

3.5.7.13.10. CMUX Interface Enable - #CMUXSCR

#CMUXSCR - CMUX Interface Enable		SELINT 2
AT#CMUXSCR= <enable>,[<rate>]	<p>Set command enables/disables the 3GPP TS 27.010 multiplexing protocol control channel (see +CMUX) at startup before the current script (see #ESCRIP) execution and specifies the DTE speed at which the device sends and receives CMUX frames (used to fix the DTE-DCE interface speed).</p> <p>Parameters:</p>	



3.5.7.14.4. Send a MMS Message - #MMSSEND

#MMSSEND – Send a MMS Message	SELINT 2
<p>AT#MMSSEND=<subject>,<attached file>,<recipients>[,<subscriber list>]</p>	<p>This command sends an MMS.</p> <p>Parameters:</p> <p><subject> - string indicating MMS subject, with maximum input size of 41 characters</p> <p><attached file> - string indicating the name of the image file to be attached to MMS. The maximum allowed name size is 32 characters</p> <p><recipients> - string type indicating the destination addresses for outgoing MMS (phone numbers, separated by ",". There can be up to 20 subscriber numbers. Each subscriber number can be no more than 15 characters)</p> <p><subscriber list> - integer indicating whether to use or not the subscriber list created with #MMSTO</p> <p>0 – do not use subscriber list (see #MMSTO), use <recipients> (default)</p> <p>1 – use subscriber list (see #MMSTO) ; <recipients> is ignored</p> <p>The device responds to the command with the prompt '>' and waits for the message text.</p> <p>To complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex).</p> <p>If MMS message is successfully sent, then the response is OK. If delivery report has been requested, a MMS Delivery Report must be sent from the MMS Proxy-Relay to the originator MMS Client. Upon receiving of such report, an unsolicited code will be sent:</p> <p>#MMSSEND: <msgID></p> <p>where <msgID> is the reference that was originally assigned to the MMS by the MMS Proxy-Relay and included in the corresponding M-Send.conf. The ID enables an MMS Client to match delivery reports with previously sent or forwarded MMS's.</p> <p>If message sending fails for some reason, an error code is reported.</p> <p>Note: prior to send the MMS, the PDP context <cid> (see #MMSSET command) must be defined and activated using +CGDCONT and #SGACT commands.</p> <p>Note: only .jpg or .gif images can be sent as attachment.</p>



AT#MMSEND=?	Test command tests for command existence.
Example	<pre>at+cgdcont=1,"IP","mms.tim.it","0.0.0.0",0,0 OK at#sgact=1,1 #SGACT: 10.214.84.15 OK</pre>

3.5.7.14.5. Add MMS attachment - #MMSATTD

#MMSATTD – Add MMS Attachment	SELINT 2
<p>AT#MMSATTD=<file name>,<size></p>	<p>This command causes the MODULE to store a file in the NVM, naming it <file name>. The file is then attached to a MMS message by #MMSEND.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>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</p> </div> <p>Parameters: <file name> - string indicating MMS attached file name with extension, with maximum name size of 16 characters (including extension; case sensitive). <size> - size of the attached file, in bytes. The maximum allowed size length is 300K.</p> <p>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.</p> <p>The operations completes when all the bytes are received.</p> <p>If writing ends successfully, the response is OK; otherwise an error code is reported.</p> <p>Note: the file name should be passed between quotes; typically it has .jpg extension; file names are case sensitive. Only .jpg or .gif images can be stored to be sent as attachment.</p> <p>Note: when sending the script be sure that the line terminator is</p>



3.5.7.14.13. Delete image file - #MMSDIMG

#MMSDIMG - Delete Image file		SELINT 2
AT#MMSDIMG= [<img_name>]	Set command deletes a file from NVM memory. Parameter: <img_name> - name of the file to delete, string type (max 16 chars, case sensitive) Note: if the file <img_name> is not present an error code is reported.	
AT#MMSDIMG =?	Test command returns OK result code.	

3.5.7.15. HTTP client AT Command Set

3.5.7.15.1. Configure HTTP parameters - #HTTPCFG

#HTTPCFG – configure HTTP parameters		SELINT 2
AT#HTTPCFG=<prof_id>[,<server_address>[,<server_port>[,<auth_type>[,<username>[,<password>[,<ssl_enabled>[,<timeout> [,<cid>]]]]]]]]	<p>This command sets the parameters needed to the HTTP connection</p> <p>Parameters:</p> <p><prof_id> - Numeric parameter indicating the profile identifier. Range: 0-2</p> <p><server_address> - String parameter indicating the IP address of the HTTP server. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query <p>Default: “” for first and second profile; “m2mlocate.telit.com” for third profile.</p> <p><server_port> - Numeric parameter indicating the TCP remote port of the HTTP server to connect to. Default: 80 for first and second profile; 9978 for third profile. Range 1..65535.</p> <p><auth_type> - Numeric parameter indicating the HTTP authentication type.</p> <ul style="list-style-type: none"> 0 – no authentication (default) 1 – basic authentication <p><username> - String parameter indicating authentication user identification string for HTTP.</p> <p><password> - String parameter indicating authentication password for HTTP.</p>	



	<p><ssl_enabled> - Numeric parameter indicating if the SSL encryption is enabled. 0 – SSL encryption disabled (default) 1 – SSL encryption enabled (not yet implemented and not available for setting)</p> <p><timeout>: Numeric parameter indicating the time interval in seconds to wait for receiving data from HTTP server. Range: (1- 65535). Default: 120.</p> <p><cid> - Numeric parameter indicating the PDP Context Identifier. Range: (1-5). Default: 1</p> <p>Note: a special form of the Set command, #HTTPCFG=<prof_id>, causes the values for profile number <prof_id> to reset to default values.</p> <p>Note: if the SSL encryption is enabled, the <cid> parameter has to be set to 1.</p> <p>Note: only one profile can use the SSL encryption.</p> <p>Note: values are automatically saved in NVM.</p>
<p>AT#HTTPCFG?</p>	<p>Read command returns the current settings for each defined profile in the format:</p> <p>#HTTPCFG: <prof_id>,<server_address>,<server_port>,<auth_type>,<username>,<password>,<ssl_enabled>,<timeout>,<cid><CR><LF>[<CR><LF>#HTTPCFG: <prof_id>,<server_address>,<server_port>,<auth_type>,<username>,<password>,<ssl_enabled>,<timeout>,<cid>]<CR><LF>[...]</p>
<p>AT#HTTPCFG=?</p>	<p>Test command returns the supported range of parameters <prof_id>, <server_port>, <auth_type>, <ssl_enabled>, <timeout> and <cid> and the maximum length of <server_address>, <username> and <password> parameters in the format:</p> <p># HTTPCFG: (list of supported <prof_id>s),<s_length>,(list of supported <server_port>s), (list of supported <auth_type>s),<u_length>,<p_length>,(list of supported <ssl_enabled>s),(list of supported <timeout>s),(list of supported <cid>s)</p> <p>where: <s_length> - integer type value indicating the maximum length of parameter <server_address>. <u_length> - integer type value indicating the maximum length of</p>



	parameter <username> . <p_length> - integer type value indicating the maximum length of parameter <password>
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3.5.7.15.2. Send HTTP GET, HEAD or DELETE request - #HTTPQRY

#HTTPQRY – send HTTP GET, HEAD or DELETE request	SELINT 2
<p>AT#HTTPQRY=<prof_id>,<command>,<resource>[,<extra_header_line>]</p>	<p>Execution command performs a GET, HEAD or DELETE request to HTTP server.</p> <p>Parameters:</p> <p><prof_id> - Numeric parameter indicating the profile identifier. Range: 0-2</p> <p><command>: Numeric parameter indicating the command requested to HTTP server: 0 – GET 1 – HEAD 2 – DELETE</p> <p><resource>: String parameter indicating the HTTP resource (uri), object of the request</p> <p><extra_header_line>: String parameter indicating optional HTTP header line If sending ends successfully, the response is OK; otherwise an error code is reported. Note: the HTTP request header sent with #HTTPQRY always contains the “Connection: close” line, and it can not be removed. When the HTTP server answer is received, then the following URC is put on the serial port:</p> <p>#HTTTPRING: <prof_id>,<http_status_code>,<content_type>,<data_size></p> <p>Where: <prof_id> is defined as above <http_status_code> is the numeric status code, as received from the server (see RFC 2616)</p> <p><content_type> is a string reporting the “Content-Type” header line, as received from the server (see RFC 2616)</p> <p><data_size> is the byte amount of data received from the server. If the server doesn't report the "Content-Length:" header line, the parameter value is 0.</p>



	<p>Note: if there are no data from server or the server doesn't answer within the time interval specified in <timeout> parameter of #HTTPCFG command, then the URC #HTTTPRING <http_status_code> parameter has value 0.</p> <p>Note: the time required to receive the #HTTTPRING unsolicited can be greater than the one specified in <timeout> parameter of #HTTPCFG command because it also includes the time needed to send the HTTP request to the server.</p>
<p>AT#HTTPQRY =?</p>	<p>Test command reports the supported range of values for the parameters <prof_id> and <command> and the maximum length of <resource> parameter in the format:</p> <p>#HTTPQRY: (list of supported <prof_id>s),(list of supported <command>s),<r_length>,<m_length> where:</p> <p><r_length> - integer type value indicating the maximum length of parameter <resource>. <m_length> - integer type value indicating the maximum length of parameter <extra_header_line>.</p>

3.5.7.15.3. Send HTTP POST or PUT request - #HTTTPSND

<p>#HTTTPSND – send HTTP POST or PUT request</p>	<p>SELINT 2</p>
<p>AT#HTTTPSND=<prof_id>,<command>,<resource>[,<extra_header_line>]</p>	<p>Execution command performs a POST or PUT request to HTTP server and starts sending data to the server.</p> <p>The device shall prompt a three character sequence <greater_than><greater_than><greater_than> (IRA 62, 62, 62) after command line is terminated with <CR>; after that the data can be entered from TE, sized <data_len> bytes.</p> <p>Parameters:</p> <p><prof_id> - Numeric parameter indicating the profile identifier. Range: 0-2</p> <p><command>: Numeric parameter indicating the command requested to HTTP server: 0 – POST 1 – PUT</p> <p><resource>: String parameter indicating the HTTP resource (uri), object of the request</p>



<p>AT#HTTPSND=?</p>	<p>Test command returns the supported range of parameters <prof_id>, <command> and <data_len> and the maximum length of <resource>, <post_param> and <extra_header_line> parameters in the format:</p> <p># HTTPSND: (list of supported <prof_id>s),(list of supported <command>s), <r_length>, (list of supported <data_len>s),<p_length>,<m_length></p> <p>where: <r_length> - integer type value indicating the maximum length of parameter <resource>. <p_length> - integer type value indicating the maximum length of parameter <post_param>. <m_length> - integer type value indicating the maximum length of parameter <extra_header_line></p>
<p>Example</p>	<p><i>Post 100 byte without "Content-type" header</i> AT#HTTPSND=0,0,"/"/",100 >>> <i>Post 100 byte with "application/x-www-form-urlencoded"</i> AT#HTTPSND=0,0,"/"/",100,0 >>> <i>Post 100 byte with "multipart/form-data" and extension</i> AT#HTTPSND=0,0,"/"/",100,"3:boundary=----FormBoundary" >>></p>

3.5.7.15.4. Receive HTTP server data - #HTTTPRCV

<p>AT#HTTTPRCV=<prof_id></p>	<p>#HTTTPRCV – receive HTTP server data SELINT 2</p> <p>Execution command permits the user to read data from HTTP server in response to a previous HTTP module request. The module is notified of these data by the #HTTTPRING URC.</p> <p>The device shall prompt a three character sequence <less_than><less_than><less_than> (IRA 60, 60, 60) followed by the data.</p> <p>If reading ends successfully, the response is OK; otherwise an error code is reported.</p> <p>Parameters: <prof_id> - Numeric parameter indicating the profile identifier. Range: 0-2</p> <p>Note: If the data are not present or the #HTTTPRING <http_status_code></p>
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	parameter has value 0, an error code is reported.
AT#HTTPCRVC=?	Test command reports the supported range of values for <prof_id> parameter in the format: # HTTPRCV: (list of supported <prof_id>s)

3.5.7.16. RSA AT Commands Set

3.5.7.16.1. Load the security data - #RSASECDATA

#RSASECDATA – Load the security data	SELINT 2
AT#RSASECDATA=<Action>[,<Size>]	<p>Execution command allows to store, delete and read security data RSA key into NVM. Parameters:</p> <p><Action> - Action to do. 0 – Delete data from NVM. 1 – Store data into NVM. 2 – Get MD5 digest of data into NVM</p> <p><Size> - Size of security data to be stored 1..2047</p> <p>If the <Action> parameter is 1 (store data into NVM) the device responds to the command with the prompt ‘>’ and waits for the data to store. To complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex). If data are successfully stored, then the response is OK; if it fails for some reason, an error code is reported.</p> <p>Note: Secured data has to be in PEM format Note: private keys with password ARE NOT supported. Note: It supports standard PKCS #1 and PKCS #8</p> <p>Note: <size> parameter is mandatory if the <write> action is issued, but it has to be omitted for <delete> or <read> actions are issued.</p>
AT#RSASECDATA?	<p>Read command return the present of security data in NVM</p> <p>#RSASECDATA: <PrivKeyIsSet></p> <p><PrivKeyIsSet> is 1 if related data are stored into NVM otherwise 0.</p>
AT#RSASECDATA=?	<p>Test command returns the range of supported values for all the parameters:</p> <p>#RSASECDATA: (0-2),(1-2047)</p>



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3.5.7.16.2. Encrypt data - #RSAENCRYPT

#RSAENCRYPT – Encrypt data	SELINT 2
<p>AT#RSAENCRYPT=<KeyType>,<bytestoencrypt>[,<unsolicited>]</p>	<p>Execution command encrypts data with RSA algorithm and use for padding PKCS1 standard</p> <p>Parameters:</p> <p><KeyType> - Select the key type (Public or Private) 0 – Public Key 1 – Private Key</p> <p><bytestoencrypt> - number of bytes to be sent</p> <p>The device responds to the command with the prompt '>' <greater_than><space> and waits for the data to send. When < bytestoencrypt > 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</p> <p><unsolicited> - show URC when RSA has finished the encryption (If omitted is hidden)</p> <p>0: Hide 1: Show</p> <p>Note: The URC has this form:</p> <p>#RSAENCRYPT: <size_key_rsa></p> <p>where <size_key_rsa> is the size in bytes of the key used with the RSA algorithm</p> <p>The URC indicates that the calculation is finished and the buffer can be read</p> <p>Note: the maximum value of <bytestoencrypt> is:</p> <p><size_key_rsa> - 11</p>



	(where 11 is the padding length in bytes used in PKCS#1)
AT#RSAENCRYPT=?	<p>Test command returns the range of supported values for parameters <KeyType> , <bytestoencrypt> , <unsolicited></p> <p>Note: if RSA key isn't loaded into NVM or there is an error in the key the command returns:</p> <p>#RSAENCRYPT: (0,1),(0),(0,1)</p>

3.5.7.16.3. Decrypt data - #RSADECRYPT

#RSADECRYPT – Decrypt data	SELINT 2
AT#RSADECRYPT=<KeyType>,<bytestodecrypt>[,<unsolicited>]	<p>Execution command decrypts data with RSA algorithm</p> <p>Parameters: <KeyType> - Select the key type (Public or Private) 0 – Public Key 1 – Private Key</p> <p><bytestodecrypt> - number of bytes to be sent</p> <p>The device responds to the command with the prompt '>' <greater_than><space> and waits for the data to send. When <bytestodecrypt> bytes have been sent, operation is automatically completed.</p> <p>If data are successfully sent, then the response is OK. If data sending fails for some reason, an error code is reported</p> <p><unsolicited> - show URC when RSA has finished the encryption (If omitted is hidden)</p> <p>0: Hide 1: Show</p> <p>Note: the URC has this form:</p> <p>#RSADECRYPT: <size_key_rsa></p> <p>where</p>



	<p><size_key_rsa> is the size in bytes of the key used with the RSA algorithm</p> <p>The URC indicates that the calculation is finished and the buffer can be read</p> <p>Note: the value of <bytestodecrypt> is the size in bytes of the key RSA</p>
AT#RSADECRYPT=?	<p>Test command returns the range of supported values for parameters <KeyType> , <bytestodecrypt> , <unsolicited></p> <p>Note: if RSA key isn't loaded into NVM or there is an error in the key the command returns:</p> <p>#RSADECRYPT: (0,1),(0),(0,1)</p>

3.5.7.16.4. Result of RSA calculation - #RSAGETRESULT

#RSAGETRESULT– Result of RSA calculation		SELINT 2
AT#RSAGETRESULT	<p>Execution command reads calculated data, result of RSA encrypt or decrypt.</p> <p>Note: If the RSA algorithm is idle or working mode, then the command returns ERROR</p>	
AT# RSAGETRESULT?	<p>Read command returns the state of RSA encrypt or decrypt previously given</p> <p>#RSAGETRESULT: <ResultRSA></p> <p>Where <ResultRSA> can assume the following values:</p> <ul style="list-style-type: none"> 0: Idle or working mode < 0: Error > 0: RSA encrypt/decrypt finished (return size of key used in bytes) 	
AT# RSAGETRESULT=?	Test command returns OK result code	



	<p>GPS chip Internal LNA Gain Mode is Low and GPS_EXT_LNA_EN signal is High</p> <p>Note: the current setting is stored through \$GPSSAV</p>
AT\$GPSAT?	<p>Read command returns the current value of <type> in the format:</p> <p>\$GPSAT: <type></p>
AT\$GPSAT=?	<p>Test command reports the range of supported values for parameter <type></p>
Example	<p>AT\$GPSAT=1 OK</p>
Note	<p>The command is available in “controlled mode” only</p> <p>This command is currently available for SIRF-based GPS modules (JF2 and JN3) only, i.e. whenever is AT\$GPSD=2.</p> <p>This command must be issued only when the GPS receiver is operating in Full Power Mode (see \$GPPSP), otherwise it might have no effect</p> <p>Since the AT\$GPSAT command performs a hardware reconfiguration of the GPS receiver, the issuing of two consecutive AT\$GPSAT commands should be avoided, otherwise the reconfiguration might fail: an ERROR is returned in the latter case</p> <p>If the <type> parameter has been set to 1, the External GPS Antenna LNA is directly driven by the GPS receiver according to its current power mode (i.e. the External GPS Antenna LNA is turned off whenever the GPS receiver is in power saving mode)</p> <p>Please refer to the HW User Guide for the compatible GPS antennas and their usage</p>

3.5.7.17.6. Unsolicited NMEA Data Configuration - \$GPSNMUN

\$GPSNMUN - Unsolicited NMEA Data Configuration	SELINT 2
<p>AT\$GPSNMUN= <enable> [,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >]</p>	<p>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</p> <p>Parameters: <enable> 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated with the following unsolicited response syntax:</p>



\$GPRST - Restore To Default GPS Parameters		SELINT 2
AT\$GPRST	Execution command resets the GPS parameters to “Factory Default” configuration and stores them in the NVM of the device.	
AT\$GPRST=?	Test command returns the OK result code	
Example	AT\$GPRST OK	
Note	The module must be restarted to use the new configuration	

3.5.7.17.13. Get SGEE File for SiRFInstantFix™ - \$FTPGETIFIX

\$FTPGETIFIX – Get SGEE File for SiRFInstantFix™		SELINT 2
AT\$FTPGETIFIX= <filename>, <filesize>	<p>Execution command, issued during an FTP connection, opens a data connection, downloads a SGEE file from the FTP server and injects it into SiRF StarIV.</p> <p>Parameters: <filename> - file name, string type <filesize> - SGEE file size in bytes</p> <p>Note: whenever an FTP connection has not been opened yet, an ERROR result code is returned</p> <p>Note: whenever an error happens during the SGEE file injection stage, an ERROR result code is returned In this case the possible <err> values reported by +CME ERROR (numeric format followed by verbose format) may be:</p> <ul style="list-style-type: none"> 920 SGEE update initialization stage failed 921 SGEE file is not newer than the last stored one 922 SGEE update generic error <p>Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.</p>	
AT\$FTPGETIFIX=?	Test command returns the OK result code	
Example	AT\$FTPGETIFIX="packedDifference.f2p3enc.ee",30970 OK AT\$FTPGETIFIX="packedDifference.f2p1enc.ee",10742 +CME ERROR: SGEE file is not newer than the last stored one	
Note	The Command is available in “Controlled Mode” only	



3.5.7.17.14. Get SGEE File for SiRFInstantFix™ - \$HTTPGETIFIX

\$HTTPGETIFIX – Get SGEE File for SiRFInstantFix™		SELINT 2
<p>AT\$HTTPGETIFIX= < prof_id >, <filesize></p>	<p>Execution command, issued during an HTTP connection, downloads a SGEE file from the HTTP server and injects it into the SiRF StarIV, after a HTTP query using a specific Profile Id, GET option, SGEE file name has been sent.</p> <p>Parameters: < prof_id > - Numeric parameter indicating the profile identifier. Range: 0-2 <filesize> - SGEE file size in bytes</p> <p>Note: whenever an HTTP configuration has not been done yet, an ERROR result code is returned</p> <p>Note: whenever an error happens during the SGEE file injection stage, an ERROR result code is returned In this case the possible <err> values reported by +CME ERROR (numeric format followed by verbose format) may be:</p> <p style="margin-left: 40px;">920 SGEE update initialization stage failed 921 SGEE file is not newer than the last stored one 922 SGEE update generic error</p>	
AT\$HTTPGETIFIX=?	Test command returns the OK result code	
Example	<p>AT\$HTTPGETIFIX=0,30970 OK</p> <p>AT\$HTTPGETIFIX=0,10742 +CME ERROR: SGEE file is not newer than the last stored one</p>	
Note	The Command is available in “Controlled Mode” only	

3.5.7.17.15. GPIO Configuration for GPS control - \$GPSGPIO

\$GPSGPIO – GPIO Configuration for GPS control		SELINT 2
<p>AT\$GPSGPIO= <on_off>, <system_on>, <boot>, <reset></p>	<p>Execution command sets the GPIO pins to be used to drive JF2 (SE868), JN3 (SL868) and SL869 GNSS modules.</p> <p>Parameters: <on_off> - GPIO pin number to be used to drive the JF2/JN3/SL869’s ON-OFF signal (default = 4 for SW release 10.00.xxx and 16.00.xxx, 1 for SW release 13.00.xxx) <system_on> - GPIO pin number to be used to drive the JF2’s SYSTEM-ON signal (default = 5 for SW release</p>	



	<p>10.00.xxx and 16.00.xxx, 2 for SW release 13.00.xxx)</p> <p><boot> - GPIO pin number to be used to drive the JF2-Flash/JN3-Flash/SL869's BOOT signal (default = 6 for SW release 10.00.xxx and 16.00.xxx, 3 for SW release 13.00.xxx)</p> <p><reset> - GPIO pin number to be used to drive the JF2-Flash/JN3-Flash's RESET signal (default = 7 for SW release 10.00.xxx and 16.00.xxx, 4 for SW release 13.00.xxx)</p> <p>Note: the GPIO configuration specified through this command must be coherent with the specific GNSS module that has to be used, i.e. the configuration specified through the AT\$GPSD command. Therefore the GPIOs corresponding to unnecessary signals (e.g. <system_on>, <boot> and <reset> for a JN3-ROM) should be set to zero: this allows to reserve and use the minimum number of GPIOs.</p> <p>Note: See the Hardware User Guide to check the number of available GPIO pins.</p> <p>Note: the GPIO configuration correctness and functionality (i.e. possible conflicts with the GPIO configuration applied through AT#GPIO) are under the customer's sole responsibility.</p> <p>Note: the current GPIO configuration can be stored through AT\$GPSSAV</p>
<p>AT\$GPSGPIO?</p>	<p>Read command reports the currently selected configuration in the format:</p> <p>\$GPSGPIO: <on_off>,<system_on>,<boot>,<reset></p>
<p>AT\$GPSGPIO=?</p>	<p>Test command returns the OK result code</p>
<p>Example</p>	<p>- For a JF2-Flash (AT\$GPSD=2,0):</p> <p>AT\$GPSGPIO=4,5,6,7 OK</p> <p>AT\$GPSGPIO? \$GPSGPIO: 4,5,6,7</p> <p>OK</p> <p>- For a JF2-ROM (AT\$GPSD=2,1):</p> <p>AT\$GPSGPIO=4,5,0,0 OK</p> <p>OR</p> <p>AT\$GPSGPIO=4,5,6,7 OK</p>



	<p>AT\$GPSGPIO? \$GPSGPIO: 4,5,0,0</p> <p>OK</p> <p>- For a JF3-ROM (AT\$GPSD=3,1):</p> <p>AT\$GPSGPIO=4,0,0,0 OK</p> <p>OR</p> <p>AT\$GPSGPIO=4,5,6,7 OK</p> <p>AT\$GPSGPIO? \$GPSGPIO: 4,0,0,0</p> <p>OK</p>
Note	The Command is available in “Controlled Mode” only

3.5.7.17.16. GPS SiRFInstantFix™ - \$GPSIFIX

\$GPSIFIX – GPS SiRFInstantFix™	SELINT 2
<p>AT\$GPSIFIX= <enable>[, <cgee>, <sgee>[, <update>]]</p>	<p>Set command enables/disables SiRFInstantFix™ feature available on SiRF StarIV based modules.</p> <p>Parameters:</p> <p><enable> - SiRFInstantFix Usage 0 – Disable (default) 1 – Enable</p> <p><cgee> - Client Generated Extended Ephemeris (CGEE) 0 – Disable 1 – Enable (default)</p> <p><sgee> - Server Generated Extended Ephemeris (SGEE) 0 – Disable (default) 1 – Enable</p> <p><update> - SGEE File Update Mode 0 – Upon Aiding Data Requests coming from GPS chip 1..168 – Update rate in hours (168 is the max update rate in case of 7-days SGEE files usage)</p> <p>Note: SiRFInstantFix parameters are stored in NVM, along with all current GPS parameters, if OK is returned (same as AT\$GPSSAV)</p>



	<p>Note: if <enable>=0, the rest of parameters must be omitted otherwise ERROR is returned</p> <p>Note: if <enable>=1 and the rest of parameters is omitted, the default configuration, or a previous stored one, is used</p> <p>Note: if <sgee>=1, the <update> parameter must be set otherwise ERROR is returned</p> <p>Note: if <sgee>=1 the following URC is used to warn, according to the <update> value, that the SGEE file has to be updated:</p> <p><i>\$\$SIFIXEV: SGEE File Update Requested</i></p> <p>Note: If <sgee>=0, the <update> parameter must be omitted otherwise ERROR is returned</p> <p>Note: SiRFInstantFix default configuration may be restored by issuing the AT\$GPSRST command</p>
AT\$GPSIFIX?	<p>Read command reports the currently selected SiRFInstantFix configuration in the format:</p> <p>\$GPSIFIX: <enable>[,<cgee>,<sgee>[,<update>]]</p>
AT\$GPSIFIX=?	<p>Test command reports the supported range of values for parameters <enable>, <cgee>, <sgee>, <update></p>
Example	<p>AT\$GPSIFIX=0 OK</p> <p>AT\$GPSIFIX=1,1,0 OK</p>
Note	The Command is available in “Controlled Mode” only

3.5.7.17.17. Set the GPS serial port speed - \$GPSSERSPEED

\$GPSSERSPEED – Set the GPS serial port speed		SELINT 2
AT\$GPSSERSPEED= <speed>	<p>Execution command set the GPS serial port communication speed.</p> <p>Parameters: <speed> - 4800(default) 9600</p> <p>Note: This command can be used with SIRF-based GPS modules only, such as JF2 and JN3 (AT\$GPSD=2, AT\$GPSD=2,1, AT\$GPSD=2,2, AT\$GPSD=3, AT\$GPSD=3,1 or AT\$GPSD=3,2).</p> <p>Note: the current setting is stored through \$GPSSAV.</p> <p>Note: The module must be restarted to use the new configuration</p>	



\$EPATCH – Enable Patch		SELINT 2
	<ul style="list-style-type: none"> - “Patch Manager: Error opening Patch File” - “Patch Manager: Error processing Patch File” - “Patch Manager: Error on Start Request” - “Patch Manager: Error on Load Request” - “Patch Manager: Error on Exit Request” <p>Note: This command can be used with SIRF ROM-based GPS modules only (AT\$GPSD=2,1, AT\$GPSD=2,2, AT\$GPSD=3,1 or AT\$GPSD=3,2).</p> <p>Note: The patch file must have a “.pd2” extension.</p> <p>Note: A previously applied patch can be removed from the GPS Patch RAM by issuing a factory reset or by powering the GPS module down and removing the VBatt.</p> <p>Note: If the <patch_file_name> is omitted, the automatic patch application, at the next startup of the GSM module, is disabled.</p> <p>Note: The configuration specified through AT\$EPATCH can be saved by means of the AT\$GPSSAV command.</p> <p>Note: “AT\$EPATCH” command returns ERROR.</p>	
AT\$EPATCH?	Read command display the patch in use in the format: \$EPATCH: <patch_file_name>	
AT\$EPATCH=?	Test command returns the OK result code	
Example	<pre>AT\$EPATCH = "GSD4E_4.1.2.pd2" OK Patch Manager: Patched. -The SiRF GPS module has been patched</pre>	

3.5.7.17.20. List Available Patch - \$LPATCH

\$LPATCH – List Available Patch		SELINT 2
AT\$LPATCH	<p>Execution command displays the available SiRF software patch saved onto the module’s flash memory.</p> <p>Note: This command can be used with SIRF ROM-based GPS modules only (AT\$GPSD=2,1, AT\$GPSD=2,2, AT\$GPSD=3,1 or AT\$GPSD=3,2).</p> <p>Note: The patch file must have a “.pd2” extension.</p>	



\$LPATCH – List Available Patch		SELINT 2
AT\$LPATCH=?	Test command returns the OK result code	
Example	<pre>AT\$LPATCH \$LPATCH: "GSD4E_4.1.2.pd2",5472 OK</pre>	

3.5.7.17.21. Write Patch on flash - \$WPATCH

\$WPATCH – Write Patch on flash		SELINT 2
AT\$WPATCH= <patch_file_name>,<size> >	<p>Execution command allows storing a SiRF software patch onto the module's flash memory.</p> <p>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</p> <p>Parameters: <patch_file_name> - name of the file in NVM, string type (max 16 chars, case sensitive). <size> - file size in bytes</p> <p>The device shall prompt a three character sequence <greater_than><greater_than><greater_than> (IRA 62, 62, 62) then the command line is terminated with a <CR>; after that a file can be sent from TE, sized <size> bytes.</p> <p>The operations completes when all the bytes are received.</p> <p>If writing ends successfully, the response is OK; otherwise an error code is reported.</p> <p>Note: This command can be used with SIRF ROM-based GPS modules only (AT\$GPSD=2,1, AT\$GPSD=2,2, AT\$GPSD=3,1 or AT\$GPSD=3,2).</p> <p>Note: The patch file must have a ".pd2" extension.</p>	
AT\$WPATCH=?	Test command returns the OK result code	
Example	<pre>AT\$WPATCH = "GSD4E_4.1.2.pd2",5472 >>> here receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then type or send the patch, sized 54 bytes OK Patch has been stored.</pre>	
\$WPATCH – Write Patch on flash		SELINT 2



3.5.7.18. SAP AT Commands Set

3.5.7.18.1. Remote SIM Enable - #RSEN

#RSEN – Remote SIM Enable	SELINT 2
<p>AT#RSEN=<mode> [,<sapformat> [,<role> [,<muxch> [,<beacon> [,<scriptmode>]]]]]</p>	<p>Set command is used to enable/disable the Remote SIM feature. The command returns ERROR if requested on a non multiplexed interface</p> <p>Parameter:</p> <p><mode> 0 - disable 1 - enable</p> <p><sapformat> 1 - binary SAP (default)</p> <p><role> 0 - remote SIM Client (default)</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <ul style="list-style-type: none"> If the ME doesn't support the Easy Script Extension® or <scriptmode> is omitted or <scriptmode> is 0 </div> <p><muxch> - MUX Channel Number; mandatory if <mode>=1 1..3</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>If the ME support the Easy Script Extension® and <scriptmode> is 1</p> </div> <p><muxch> - MDM interface number in scripts; mandatory if <mode>=1 1 - MDM interface 2 - MDM2 interface</p> <p><beacon> - retransmission timer of SAP Connection Request 0 - only one transmission (default) 1..100 - timer interval in seconds.</p> <p><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>)</p> <p>Note: enabling the Remote SIM feature when the SIM is already inserted causes the module to:</p> <ul style="list-style-type: none"> de-register from the actual network de-initialize the current SIM. <p>Note: issuing the command on a not multiplexed interface (see +CMUX) cause an ERROR to be raised in all the situations except when:</p>



#RSEN – Remote SIM Enable	SELINT 2
	<ul style="list-style-type: none"> the ME supports the Easy Script Extension® and <scriptmode> is 1 <p>Note: if the Remote SIM feature has been activated the SAP connection status is signalled with the following URC:</p> <p>#RSEN: <conn> where <conn> - connection status 0 - disconnected 1 - connected</p>
AT#RSEN?	<p>Read command returns the SAP connection status in the format:</p> <p>#RSEN: <conn> where <conn> - connection status, as before</p>
AT#RSEN=?	<p>Test command reports the range of values for all the parameters.</p>

3.5.7.19. 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.

3.5.7.20. Audio Commands

These are not the only audio commands available. See par. 3.5.4.4.

3.5.7.20.1. Audio Basic configuration

3.5.7.20.1.1. Change Audio Path - #CAP

#CAP - Change Audio Path	SELINT 0 / 1
AT#CAP[=[<n>]]	<p>Set command switches the active audio path depending on parameter <n></p> <p>Parameter: <n> - audio path 0 - audio path follows the AXE input (factory default):</p> <ul style="list-style-type: none"> if AXE is low, handsfree is enabled;



#HSMICG - Handset Microphone Gain		SELINT 0 / 1
	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: <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> .	

3.5.7.20.1.7. 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) <i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
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> .	

3.5.7.20.1.8. Handset Receiver Gain - #HSRECG

#HSRECG - Handset Receiver Gain		SELINT 2
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#SHFSD - Set Headset Sidetone		SELINT 2
	#SHFSD: <mode>	
AT#SHFSD=?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.20.1.10. 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) <i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
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>.	

3.5.7.20.1.11. 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. <i>Note: this command mutes/activates both speaker audio paths, internal speaker and external speaker.</i>	
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.	

3.5.7.20.1.12. Open Audio Loop - #OAP

#OAP - Open Audio Loop		SELINT 2
AT#OAP=[<mode>]	Set command sets Open Audio Path.	



	<p>Parameter: 0 - disables Open Audio Path (default) 1 - enables Open Audio Path</p> <p>Note: the audio Loop will be activated on line select by the AXE pin or #CAP command.</p>
AT#OAP?	<p>Read command reports whether the Open Audio Path is currently enabled or not, in the format:</p> <p>#OAP: <mode></p>
AT#OAP=?	<p>Test command returns the supported range of values of parameter <mode>.</p>
Note	<p>The audio loop will be established between microphone and speaker using sidetone scaling value.</p>

3.5.7.20.1.13.

Setting two frequency modes for buzzer - #BUZZERMODE

#BUZZERMODE – Sets two frequency modes for buzzer		SELINT 2
AT#BUZZERMODE =<mode>	<p>Set two Buzzer Frequency Modes, slow and fast.</p> <p>Parameters: <mode> 0 – fast frequency (factory default) 1 – frequency halved</p>	
AT#BUZZERMODE ?	<p>Read command reports last setting, in the format:</p> <p>#BUZZERMODE:<mode></p>	
AT#BUZZERMODE =?	<p>Test command reports the range of supported values for parameter: <mode></p>	



3.5.7.20.2. Tones configuration

3.5.7.20.2.1. Signaling Tones Mode - #STM

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

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



3.5.7.20.2.2. Tone Playback - #TONE

#TONE - Tone Playback	SELINT 2
AT#TONE=<tone> [,<duration>]	<p>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.</p> <p>Parameters:</p> <p><tone> - ASCII characters, range is ((0-9),#,*,(A-D),(G-L),Y,Z);</p> <ul style="list-style-type: none"> - (0-9), #,*,(A-D): DTMF tone - (G-L): User Defined Tones - Y: free tone - Z: busy tone <p><duration> - Duration of current tone in 1/10 of Sec. 1..300 - tenth of seconds (default is 30)</p>
AT#TONE=?	<p>Test command returns the supported range of values for parameters <tone> and <duration>.</p>
Note:	<p>See AT#UDTSET command to set user defined tones</p>

3.5.7.20.2.3. Extended tone generation - #TONEEXT

#TONEEXT – Extended tone generation	SELINT 2
AT# TONEEXT= <toneId>,<act>	<p>Execution command allows the reproduction of DTMF tones, standard free tone, standard busy tone and a set of user defined tones for a infinite time, or stop the running tone</p> <p>Parameters:</p> <p>< toneId > - ASCII characters in the set (0-9), #,*,(A-D),(G-L),Y,Z ;</p> <ul style="list-style-type: none"> - (0-9), #,*,(A-D) : DTMF tone - (G-L) : User Defined Tones²⁹. - y : free tone - z: busy tone <p>< act > - Action to be performed.</p> <ul style="list-style-type: none"> - 0: Stop the <toneId> if running. - 1: Start the <toneId>.
AT#TONEEXT=?	<p>Test command returns the range of supported values for parameter <toneId>,<act>.</p>

²⁹ See also AT#UDTSET, AT#UDTRST and AT#UDTSAV command description following in this document.



#TSVOL – Tone Classes Volume	SELINT 2
	<p>#TSVOL:32,0 #TSVOL:64,1,5 #TSVOL:128,0</p> <p>OK</p>
<p>Note:</p>	<p>GSM Tones: BusyToneId CongestionToneId RadioPathToneId CallWaitingToneId</p> <p>Ringer Tone: RingingToneMOId RingingToneMTId AutoRedialConnToneId</p> <p>Alarm Tones: AlarmToneId BatteryLowToneId SMSToneId MMSToneId PowerOnToneId PowerOffToneId NoUnitsLeftToneId</p> <p>Signaling Tones: classzeroToneId NetworkIndToneId NoServiceToneId SignallingErrToneId AutoRedialToneId ErrorToneId CallDroppedToneId</p> <p>DTMF Tones Local ADTMF</p> <p>SIM Toolkit Tones SIMTDialToneId SIMTBusyToneId SIMTCongestionToneId SIMTRadioPathToneId SIMTCallDroppedToneId SIMTErrorToneId SIMTCallWaitingToneId SIMTRingingToneMTId</p> <p>User Defined Tones: Tone defined with AT#UDTSET</p> <p>Dial tones: DialToneId</p>



3.5.7.20.2.5. 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: 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.	

3.5.7.20.2.6. 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	



#PSAV - Audio Profile Configuration Save		SELINT 2
	<ul style="list-style-type: none"> - 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 OK <i>Current audio profile is saved in NVM</i>	

3.5.7.20.3.3. 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: <ul style="list-style-type: none"> - microphone line gain - 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 <i>Current audio profile is reset</i>	

3.5.7.20.4. Audio filters

3.5.7.20.4.1. Cascaded filters - #BIQUADIN

#BIQUADIN - Uplink Path Biquad Filters		SELINT 2
AT# BIQUADIN= <a _{F0} > [,<a _{F1} >	Set command allows to configure the parameters of the two cascaded digital biquad filters $H_{First}(z) \cdot H_{Second}(z)$ in Uplink path (sending). It is	



	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#BIQUADINEX?	Read command returns the parameters for the active profile in the format: #BIQUADINEX: <a _{F0} >,<a _{F1} >,<a _{F2} >,<b _{F1} >,<b _{F2} >,<a _{S0} >,<a _{S1} >,<a _{S2} >,<b _{S1} >,<b _{S2} > Note: It is not allowed if active audio profile is 0; in this case an ERROR is returned.
AT#BIQUADINEX=?	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} >

3.5.7.20.4.4. Extended Downlink Biquad Filters - #BIQUADOUTEX

#BIQUADOUTEX – Extended Downlink Biquad Filters	SELINT 2
AT#BIQUADOUTEX= <a _{F0} > [,<a _{F1} > [,<a _{F2} > [,<b _{F1} > [,<b _{F2} > [,<a _{S0} > [,<a _{S1} > [,<a _{S2} > [,<b _{S1} > [,<b _{S2} >]]]]]]]]]]	<p>Set command allows to configure the parameters of the two extended digital biquad filters $H_{First}(z) \cdot H_{Second}(z)$ in Downlink path (receiving). It is not allowed if active audio profile is 0.</p> <p>Parameters: <a_{F_n}>,<b_{F_n}>,<a_{S_n}>,<b_{S_n}> - they all are specific parameters for the calculation of digital biquad filters as follows:</p> $H_F(z) = \frac{a_{F0} + 2 \cdot a_{F1} \cdot z^{-1} + a_{F2} \cdot z^{-2}}{1 + 2 \cdot b_{F1} \cdot z^{-1} + b_{F2} \cdot z^{-2}}$ $H_S(z) = \frac{a_{S0} + 2 \cdot a_{S1} \cdot z^{-1} + a_{S2} \cdot z^{-2}}{1 + 2 \cdot b_{S1} \cdot z^{-1} + b_{S2} \cdot z^{-2}}$ <p>-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)</p> <p>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.</p>
AT#BIQUADOUTEX?	Read command returns the parameters for the active profile in the format:



3.5.7.20.5.2. Handsfree Configuration - #HFCFG

#HFCFG – Handsfree Configuration	SELINT 2
<p>AT#HFCFG= <agc_rxtx_en>, <agc_rxtx>,<hf_gain></p>	<p>Set command configures AGC threshold for Double Talk detection and digital gain in Uplink.</p> <p>Parameters:</p> <p><agc_rxtx_en> 0 – disables different threshold for AGC 1 – enables different threshold for AGC</p> <p>< agc_rxtx >: -960..960 - parameter that specifies the threshold for AGC</p> <p>< hf_gain >: 0 – disables +18dB of gain in Uplink path 1 – enables +18dB of gain in Uplink path</p> <p>Note: the digital gain in Uplink path should be enabled only reducing by the same amount the other analog/digital gains to avoid saturation.</p> <p>Note: It is not allowed if active audio profile is 0; in this case an ERROR is returned.</p>
<p>AT#HFCFG?</p>	<p>Read command reports the currently selected parameters in the format:</p> <p>#HFCFG: <agc_rxtx_en>,<agc_rxtx>,<hf_gain></p> <p>Note: if active audio profile is 0, then an ERROR is returned. If active audio profile is different from 0, then the default value for all the parameters is 0.</p>
<p>AT#HFCFG=?</p>	<p>Test command returns the supported range of values for all the parameters.</p>

3.5.7.20.5.3. TX Noise Injector configuration - #TXCNI

#TXCNI – TX Noise Injector configuration	SELINT 2
<p>AT#TXCNI =<support> <gain>,<floor></p>	<p>Set command enables and configures comfort noise injector embedded.</p> <p>Parameters:</p> <p><support> 0 - disable TXCNI functionality 1 - enable TXCNI functionality</p> <p><gain> 0..32767 – gain value of noise injected</p>



	<p><floor> 0..32767 – floor value of noise injected</p> <p>Note: It is not allowed if active audio profile is 0; in this case an ERROR is returned.</p>
AT#TXCNI?	<p>Read command reports the currently selected parameters in the format: #TXCNI: <support>,<gain>,<floor></p> <p>Note: if active audio profile is 0, then an ERROR is returned. If active audio profile is different from 0, then the default value for all the parameters is 0.</p>
AT#TXCNI=?	Test command returns the supported range of values for all the parameters.
Notes:	This command is available only for GE864-QUAD Automotive

3.5.7.20.5.4. Handsfree Echo Canceller - #SHFEC

#SHFEC - Handsfree Echo Canceller		SELINT 0 / 1
AT#SHFEC=[<mode>]	<p>Set command enables/disables the echo canceller function on audio handsfree output.</p> <p>Parameter: <mode> 0 - disables echo canceller for handsfree mode (factory default) 1 - enables echo canceller for handsfree mode</p> <p>Note: This setting returns to default after power off.</p> <p>Note: issuing AT#SHFEC<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#SHFEC=<CR> is the same as issuing the command AT#SHFEC=0<CR>.</p>	
AT#SHFEC?	<p>Read command reports whether the echo canceller function on audio handsfree output is currently enabled or not, in the format:</p> <p>#SHFEC: <mode></p>	
AT#SHFEC=?	Test command returns the supported range of values of parameter <mode> .	

#SHFEC - Handsfree Echo Canceller		SELINT 2
AT#SHFEC=[<mode>]	<p>Set command enables/disables the echo canceller function on audio handsfree output.</p> <p>Parameter: <mode></p>	



#SHFEC - Handsfree Echo Canceller		SELINT 2
	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>.	

3.5.7.20.5.5. 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 <i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
AT#SHSEC?	Read command reports whether the echo canceller function on audio handset output is currently enabled or not, in the format: #SHSEC: <mode>	
AT#SHSEC =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.20.5.6. Echo Reducer Configuration - #ECHOCFG

#ECHOCFG – Echo Reducer Configuration		SELINT 2
AT#ECHOCFG=<par_1> [,<par_2>[,...,<par_N>]]	Set command writes values in echo reducer parameters. It is not allowed if active audio profile is 0. The module responds to the set command with the prompt '>' and waits for the data to send. Parameters: <par_1> 0 – configure all parameters, module awaits 39 values 1,2,...,39 – configure single parameters, module awaits 1 value <par_i> with i = {2;N} 1,2,...,39 – configure every parameter specified	



	<p>After '>' to complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex).</p> <p>Data shall be written in Hexadecimal Form with 4 digits for every <par_i> value provided by set command.</p> <p>If data are successfully sent, then the response is OK. If data sending fails for some reason, an error code is reported.</p> <p>Note: because of common AT interface, <par_8> to <par_13>, <par_18> to <par_23> and <par_35> to <par_39> are readable but not modifiable. Any change gives a positive answer but doesn't have effect.</p>
AT#ECHOCFG?	<p>Read command reports the currently set parameters in the format:</p> <p>#ECHOCFG: <par_1><par2>...<parN></p> <p><par_i>: Full set of registers values dumped in hexadecimal form, 39 words (156 characters).</p> <p>It is not allowed if active audio profile is 0.</p>
AT#ECHOCFG=?	<p>Test command reports supported range of values for all parameters in the format:</p> <p>#ECHOCFG: <i>, (<low_i>-<high_i>)</p> <p>Where</p> <p><i>: Parameter index</p> <p><low_i>: Lower limit of <par_i></p> <p><high_i>: High limit of <par_i></p>

3.5.7.20.5.7. Handsfree Automatic Gain Control - #SHFAGC

#SHFAGC - Handsfree Automatic Gain Control		SELINT 2
AT# SHFAGC = <mode>	<p>Set command enables/disables the automatic gain control function on audio handsfree input.</p> <p>Parameter: <mode></p>	



#SHFNR - Handsfree Noise Reduction		SELINT 2
	#SHFNR: <mode>	
AT#SHFNR =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.20.5.10. 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 <i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
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>.	

3.5.7.20.6. Embedded DTMF decoder

3.5.7.20.6.1. Embedded DTMF decoder enabling - #DTMF

#DTMF – Embedded DTMF decoder enabling		SELINT 2
AT#DTMF=<mode>	Set command enables/disables the embedded DTMF decoder. Parameters: <mode>: 0 – disable DTMF decoder (default) 1 – enables DTMF decoder 2 – enables DTMF decoder without URC notify 3 – enables Enhanced DTMF decoder Note: This functionality has to be enabled only with AT#CPUMODE=1 (valid for 10.00.xxx and 16.00.yyy SW releases). Note: if <mode>=1, the receiving of a DTMF tone is pointed out with an unsolicited message through AT interface in the following format: #DTMF EV: x with x as the DTMF digit	



	<p>Note: the duration of a tone should be not less than 50ms.</p> <p>Note: the value set by command is not saved and a software or hardware reset restores the default value. The value can be stored in NVM using profiles.</p> <p>Note: When DTMF decoder is enabled, PCM playing and recording are automatically disabled (AT#SPCM will return error).</p>
AT#DTMF?	<p>Read command reports the currently selected <mode> in the format:</p> <p>#DTMF: <mode></p>
AT#DTMF=?	<p>Test command reports supported range of values for all parameters.</p>

3.5.7.20.6.2. Embedded DTMF decoder configuration - #DTMFCFG

DTMFCFG – Embedded DTMF decoder configuration	SELINT 2
<p>AT#DTMFCFG=<scaling> ,<threshold_1>,<threshold_2></p>	<p>Set command allows configuration of the embedded DTMF decoder.</p> <p>Parameters:</p> <p><scaling>: 3..11 – this is the scaling applied to the pcm samples in order to manage arithmetic operations. The default value is 7.</p> <p><threshold_1>: 1000..20000 – this is the numeric threshold used to detect DTMF tones. The default value is 2500.</p> <p><threshold_2>: 1000..20000 – this is the numeric threshold used to start DTMF decoding. The default value is 1500.</p> <p>Note: The default values were chosen after a fine tuning, so every change should be done very carefully to avoid wrong decoding.</p> <p>Note: the values set by command are not saved and a software or hardware reset restores the default value.</p> <p>Note: Default values are referred to standard DTMF decoder (AT#DTMF=1)</p>
AT#DTMFCFG?	<p>Read command reports the currently selected <scaling>,<threshold> in the format:</p>



3.5.7.20.7.2.

Digital voiceband interface extension - #DVIEXT

#DVIEXT - Digital Voiceband Interface Extension	SELINT 0,1,2
<p>AT#DVIEXT=<config>[,<samplerate>,<samplewidth>,<audiomode>,<edge>]</p>	<p>Set command configures the Digital Voiceband Interface.</p> <p>Parameters:</p> <p><config> 0 – Burst Mode (factory default) 1 – Normal Mode NOTE: if Config is 0 no other parameters are allowed; otherwise the other parameters are mandatory</p> <p><samplerate> 0 – audio scheduler sample rate 8KHz (factory default) 1 - reserved</p> <p><samplewidth> 0 – 16 bits per sample 1 – reserved 2 – reserved 3 – 24 bits per sample 4 – 32 bits per sample</p> <p><audiomode> 0 – Mono Mode, available only for SW version 13.00.xxx 1 – Dual Mono (available only in Normal Mode) 2 – reserved</p> <p><edge> 0 – data bit is transmitted on falling edge of clock and sampled on rising edge of clock (factory default) 1 – data bit is transmitted on rising edge of clock and sampled on falling edge of clock NOTE: in burst mode <edge> parameter doesn't have effect, and DVI has the same behaviour as <edge> = 1 NOTE: this parameter is saved in NVM issuing AT&W command</p>
<p>AT#DVIEXT?</p>	<p>Read command reports last setting, in the format:</p> <p>#DVICFG:<config>,<samplerate>,<samplewidth>,<audiomode>,<edge></p>
<p>AT#DVIEXT=?</p>	<p>Test command reports the range of supported values for parameters: <config>,<samplerate>,<samplewidth>,<audiomode>,<edge></p>
<p>Example</p>	



3.5.7.20.8. Miscellaneous commands

3.5.7.20.8.1. PCM Play and Receive - #SPCM

#SPCM - PCM Play And Receive	SELINT 2												
<p>AT#SPCM=<mode>, <dir></p>	<p>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.</p> <p>Parameters:</p> <p><mode>: action to be execute;</p> <p>1 - reproduce PCM stream from serial to selected path. 2 - send speech from selected path to serial.</p> <p><dir>: Select the audio path.</p> <p>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 (not supported in 13.00.xxx SW release)</p> <p>Note: Execution command switches module in online mode, with flow control set by &Kx. Module moves back to command mode either afer entering the escape sequence +++ or as a consequence of a DTR transition.</p> <p>Note: PCM stream format must be 8 bit, 8KHz sampling, Mono.</p> <p>The following table summarizes the status of audio path during a speech call for different configurations and with sidetone disabled:</p> <table border="1"> <thead> <tr> <th></th> <th>mode = 1</th> <th>mode = 2</th> </tr> </thead> <tbody> <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> </tbody> </table> <p>Sidetone is active during a voice call (HF path default configuration).</p> <p>Note: When DTMF decoder is enabled, PCM playing and recording are automatically disabled (AT#SPCM will return error).</p>		mode = 1	mode = 2	dir = 0	Uplink off / Downlink on PCM stream on speaker	Uplink off / Downlink off PCM stream from microphone	dir = 1	Uplink on / Downlink off PCM stream on Uplink	Uplink off / Downlink off PCM stream from Downlink	dir = 2	Uplink on / Downlink on PCM stream on both speaker and Uplink	Uplink off / Downlink off PCM stream from both microphone and Downlink
	mode = 1	mode = 2											
dir = 0	Uplink off / Downlink on PCM stream on speaker	Uplink off / Downlink off PCM stream from microphone											
dir = 1	Uplink on / Downlink off PCM stream on Uplink	Uplink off / Downlink off PCM stream from Downlink											
dir = 2	Uplink on / Downlink on PCM stream on both speaker and Uplink	Uplink off / Downlink off PCM stream from both microphone and Downlink											
<p>AT#SPCM=?</p>	<p>Test command returns the supported range of values for parameters <mode> and <dir>.</p>												



Example	<pre>AT#SAMR=1,0 CONNECT +++ NO CARRIER</pre> <p>Note: after the CONNECT, audio stream in AMR format has to be sent to serial port</p>
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3.5.7.20.8.3. SAMR Configuration - #SAMRCFG

#SAMRCFG – SAMR Configuration	SELINT 2
<p>AT#SAMRCFG=<frame_type>[,<play_att>[,<rec_att>[,<mute_ul>[,<mute_dl>]]]]</p>	<p>Set command configures the parameters related to the AT#SAMR command, that allows to play audio streams in the AMR file format.</p> <p>Parameters:</p> <p><frame_type> 0 - AMR 4.75 (factory default) 1 - AMR 5.15 2 - AMR 5.95 3 - AMR 6.70 4 - AMR 7.40 5 - AMR 7.95 6 - AMR 10.2 7 - AMR 12.2</p> <p><play_att> 0 - 0dB attenuation (factory default) 1..30 - 1dB/step attenuation</p> <p><rec_att> 0 - 0dB attenuation (factory default) 1..30 - 1dB/step attenuation</p> <p><mute_ul> 0 – uplink muting off (factory default) 1 – uplink muting on</p> <p><mute_dl> 0 – downlink muting off (factory default) 1 – downlink muting on</p>
<p>AT#SAMRCFG?</p>	<p>Read command reports the currently set parameters in the format:</p> <p>#SAMRCFG:<frame_type>,<play_att>,<rec_att>,<mute_ul>,<mute_dl></p>



AT#SAMRCFG=?	Test command returns the supported range of values for parameters <frame_type> , <play_att> , <rec_att> , <mute_ul> and <mute_dl> .
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3.5.7.20.8.4. TeleType Writer - #TTY

#TTY - TeleType Writer	SELINT 2
AT#TTY=<support>	Set command enables/disables the TTY functionality. Parameter: <support> 0 - disable TTY functionality (factory default) 1 - enable TTY functionality
AT#TTY?	Read command returns whether the TTY functionality is currently enabled or not, in the format: #TTY: <support>
AT#TTY=?	Test command reports the supported range of values for parameter <support> .



AT+CECALL?	Read command returns the type of eCall that is currently in progress in the format: +CECALL: [<type of eCall>]
AT+CECALL=?	Test command reports the supported range of values for parameter <type of eCall> .

3.5.7.22. SSL Commands

3.5.7.22.1. Configure general parameters of a SSL socket - #SSLCFG

#SSLCFG – Configure general parameters of a SSL socket	SELINT 2
AT#SSLCFG=<SSId>,<cid>,<pktSz>,<maxTo>,<defTo>,<txTo>[,<UNUSED_1>[,<UNUSED_2>[,<UNUSED_3>[,<UNUSED_4>]]]]	<p>This command allows configuring SSL connection parameters.</p> <p>Parameters:</p> <p><SSId> - Secure Socket Identifier 1 - Until now SSL block manages only one socket</p> <p><cid> - PDP Context Identifier. 1 - Until now only context one is supported.</p> <p><pktSz> - packet size to be used by the SSL/TCP/IP stack for data sending. 0 - select automatically default value (300). 1..1500 - packet size in bytes.</p> <p><maxTo> - exchange timeout (or socket inactivity timeout); in online mode, 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.)</p> <p><defTo> - Timeout that will be used by default whenever the corresponding parameter of each command is not set. 10...5000 - Timeout in tenth of seconds (default 100).</p> <p><txTo> - data sending timeout; in online mode 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).</p> <p>Note: if secure socket is not enabled using #SSLEN only test requests can be made. Read command can be issued if at least a <SSId> is enabled.</p> <p>Note: these values are automatically saved in NVM.</p>



AT#SSLCFG?	Read command reports the currently selected parameters in the format: #SSLCFG: <SSId1>,<cid>,<pktSz>,<maxTo>,<defTo><txTo>,0,0,0,0
AT#SSLCFG =?	Test command returns the range of supported values for all the parameters. #SSLCFG: (1),(1),(0-1500),(0-65535),(10-5000),(0-255),(0),(0),(0),(0)

3.5.7.22.2. Opening a socket SSL to a remote server - #SSLD

#SSLD – Opens a socket SSL to a remote server	SELINT 2
AT#SSLD=<SSId>,<rPort>,<IPAddress>,<ClosureType>[,<connMode>[,<Timeout>]]	<p>Execution command opens a remote connection via socket secured through SSL. Both command and online modes can be used. In the first case ‘OK’ is printed on success, and data exchange can be performed by means of #SSLSEND and #SSLRCV commands. In online mode ‘CONNECT’ message is printed, and data can be sent/received directly to/by the serial port. Communication can be suspended by issuing the escape sequence (by default +++) and restored with #SSLO command.</p> <p>Parameters:</p> <p><SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket</p> <p><rPort> - Remote TCP port to contact 1..65535</p> <p><IPAddress> - address of the remote host, string type. This parameter can be either:</p> <ul style="list-style-type: none"> - any valid IP address in the format: “xxx.xxx.xxx.xxx” - any host name to be solved with a DNS query <p><ClosureType> - how to close SSL socket 0 – SSL session id and keys are free then AT#SSLFASTD can’t be used to recover the last SSL session [default]. 1 – SSL session id and keys are saved and a new connection can be made without a complete handshake using AT#SSLFASTD.</p> <p><connMode> - connection mode 0 – online mode connection. 1 – command mode connection (factory default).</p> <p><Timeout> - time-out in 100 ms units. It represents the maximum allowed TCP inter-packet delay. It means that, when more data is expected during the handshake, the module awaits <Timeout> * 100 msecs for the next</p>



	<p>packet. If no more data can be read, the module gives up the handshake and raises an ERROR response.</p> <p>Note: IT'S NOT the total handshake timeout or, in other words, it's not the absolute maximum time between the #SSLD issue and the CONNECT/OK/ERROR response. Though by changing this parameter you can limit the handshake duration (for example in case of congested network or busy server), there's no way to be sure to get the command response within a certain amount of time, because it depends on the TCP connection time, the handshake time and the computation time (which depends on the authentication mode and on the size of keys and certificates).</p> <p>10..5000 - hundreds of ms (factory default is 100)</p> <p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: if timeout is not set for SSL connection the default timeout value, set by AT#SSLCFG, is used.</p> <p>Note: in online mode the socket is closed after an inactivity period (configurable with #SSLCFG, with a default value of 90 seconds), and the 'NO CARRIER' message is printed.</p> <p>Note: in online mode data are transmitted as soon as the data packet size is reached or as after a transmission timeout. Both these parameters are configurable by using #SSLCFG.</p> <p>Note: Before opening a SSL connection the GPRS context must have been activated by AT#SGACT=x,1.</p> <p>Note: Before opening a SSL connection, make sure to have stored the needed secure data (Certificate, CA certificate, private key), using AT#SSLSECDATA, for the security level set through AT#SSLSECCFG.</p>
<p>AT#SSLD=?</p>	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLD: (1),(1-65535),(0,1),(0,1),(10-5000)</p>



3.5.7.22.3. Enabling a SSL socket - #SSLEN

#SSLEN – Enable a SSL socket	SELINT 2
<p>AT#SSLEN=<SSId>,<Enable></p>	<p>This command enables a socket secured by SSL</p> <p>Parameters: <SSId> - Secure Socket Identifier 1 – Until now SSL block manages only one socket</p> <p><Enable> 0 – deactivate secure socket [default] 1 – activate secure socket</p> <p>Note: if secure socket is not enabled only test requests can be made for every SSL command except #SSLS (SSL status) which can be issued also if the socket is disabled. Read commands can be issued if at least a <SSId> is enabled.</p> <p>Note: these values are automatically saved in NVM.</p> <p>Note: an error is raised if #SSLEN=X,1 is issued when the socket ‘X’ is already enabled and if #SSLEN=X,0 is issued when the socket ‘X’ is already disabled.</p> <p>Note: a SSL socket cannot be disabled by issuing #SSLEN=1 if it is connected.</p>
<p>AT#SSLEN?</p>	<p>Read command reports the currently enable status of secure socket in the format:</p> <p>#SSLEN: <SSId>,<Enable><CR><LF> <CR><LF> OK</p>
<p>AT#SSLEN=?</p>	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLEN: (1),(0,1)</p>



3.5.7.22.4. Fast redial of a SSL socket - #SSLFASTD

#SSLFASTD – Fast redial of a SSL socket	SELINT 2
<p>AT#SSLFASTD=<SSId>[,<connMode>[,<Timeout>]]</p>	<p>This command allows to restart the last SSL connection without a complete handshake. In this way the dial is performed faster and with a lower amount of tCP payload.</p> <p>Parameters:</p> <p><SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket.</p> <p><connMode> - connection mode 0 – online mode connection. 1 – command mode connection (factory default).</p> <p>< Timeout > - time-out in 100 ms units. It represents the TCP inter-packet delay. Note: it DOES NOT represent the total handshake timeout. 10..5000 - hundreds of ms (factory default is 100).</p> <p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: if timeout is not set for SSL connection the default timeout value, set by AT#SSLCFG, is used.</p> <p>Note: Before opening a SSL connection the GPRS context must have been activated by AT#SGACT=X,1.</p> <p>Note: if an error occurs during reconnection, the socket can not be reconnected and then a new connection has to be done.</p> <p>Note: if the remote server cleans SessionID cache before reconnection the full handshake will be made.</p>
<p>AT#SSLFASTD=?</p>	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLFASTD: (1),(0,1),(10-5000)</p>



3.5.7.22.5. Closing a SSL socket - #SSLH

#SSLH – Close a SSL socket	SELINT 2
<p>AT#SSLH=<SSId>[,<ClosureType>]</p>	<p>This command allows closing the SSL connection.</p> <p>Parameters: <SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket.</p> <p>< ClosureType >: how to close SSL socket 0 – SSL session id and keys are free then AT#SSLFASTD can not be used to recover the last SSL session. 1 – SSL session id and keys are saved and a new connection can be made without a complete handshake using AT#SSLFASTD.</p> <p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: in client side if < ClosureType > is not set the value set into AT#SSLD is used.</p>
<p>AT#SSLH=?</p>	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLH: (1),(0,1)</p>

3.5.7.22.6. Restoring a SSL socket after a +++ - #SSLO

#SSLO – Restore a SSL socket after a +++	SELINT 2
<p>AT#SSLO=<SSId></p>	<p>This command allows to restore a SSL connection (online mode) suspended by an escape sequence (+++). After the connection restore, the CONNECT message is printed.</p> <p>Please note that this is possible even if the connection has been started in command mode (#SSLD with <connMode> parameter set to 1).</p> <p>Parameters: <SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket.</p> <p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: Before opening a SSL connection the GPRS context must have been activated by AT#SGACT=X,1.</p> <p>Note: if an error occur during reconnection the socket can not be reconnected then a new connection has to be done.</p>



AT#SSLO=?	Test command returns the range of supported values for all the parameters: #SSLO: (1)
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3.5.7.22.7. Reading data from a SSL socket - #SSLRCV

#SSLRCV – Read data from a SSL socket	SELINT 2
AT#SSLRCV=<SSId>,<MaxNumByte>[,<TimeOut>]	<p>This command allows receiving data from a secure socket.</p> <p>Parameters:</p> <p><SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket.</p> <p><MaxNumByte> - max number of bytes to read 1..1000</p> <p>< Timeout > - time-out in 100 ms units 10..5000 - hundreds of ms (factory default is 100)</p> <p>If no data are received the device responds: #SSLRCV: 0<CR><LF> TIMEOUT<CR><LF> <CR><LF> OK</p> <p>If the remote host closes the connection the device responds: #SSLRCV: 0<CR><LF> DISCONNECTED<CR><LF> <CR><LF> OK</p> <p>If data are received the device responds: #SSLRCV: NumByteRead<CR><LF> ...(Data read)... <CR><LF> <CR><LF> OK</p> <p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: if timeout is not set for SSL connection the default timeout value, set through AT#SSLCFG, is used.</p> <p>Note: before receiving data from the SSL connection it has to be</p>



	established using AT#SSLD .
AT#SSLRECV=?	Test command returns the range of supported values for all the parameters: #SSLRECV: (1),(1-1000),(10-5000)

3.5.7.22.8. Reporting the status of a SSL socket - #SSLS

#SSLS – Report the status of a SSL socket		SELINT 2
AT#SSLS=<SSId>	<p>This command reports the status of secure sockets.</p> <p>Parameters: <SSId> - Secure Socket Identifier 1 - Until now SSL block manages only one socket</p> <p>If secure socket is connected the device responds to the command:</p> <p>#SSLS: <SSId>,2,<CipherSuite></p> <p>otherwise:</p> <p>#SSLS: <SSId>,<ConnectionStatus></p> <p><ConnectionStatus> available values are: 0 – Socket Disabled 1 – Connection closed 2 – Connection open</p> <p>Note: this command can be issued even if the <SSId> is not enabled.</p>	
AT#SSLS=?	<p>Test command returns the range of supported values for all the parameters.</p> <p>#SSLS: (1)</p>	

3.5.7.22.9. Configuring security parameters of a SSL socket - #SSLSECCFG

#SSLSECCFG – Configure security parameters of a SSL socket		SELINT 2
AT#SSLSECCFG= <SSId>, <CipherSuite>, <auth_mode>	<p>This command allows configuring SSL connection parameters.</p> <p>Parameters: <SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket</p>	



	<p><CipherSuite> 0 - Chiper Suite is chosen by remote Server [default] 1 - TLS_RSA_WITH_RC4_128_MD5 2 - TLS_RSA_WITH_RC4_128_SHA 3 - TLS_RSA_WITH_AES_256_CBC_SHA</p> <p><auth_mode> 0 - SSL verify none [default] 1 - Manage server authentication 2 - Manage server and client authentication if requested by the remote server</p> <p>Note: if SSL verify none is set no security data are needed(Client certificate, Server CAcertificate and Client private key).</p> <p>Note: if only server authentication is managed then Server CAcertificate has to be stored through AT#SSLSECDATA.</p> <p>Note: if server and client authentication are managed then client certificate and private key, and server CAcertificate have to be stored through AT#SSLSECDATA. Please note that private keys with password are not supported,</p> <p>Note: only “rsa_sign” certificates are supported by the Telit Module in client authentication. The remote server must support this certificate type, otherwise the handshacke will fail.</p> <p>Note: if secure socket is not enabled using #SSLEN only test requests can be made. Read command can be issued if at least a <SSId> is enabled.</p> <p>Note: these values are automatically saved in NVM.</p>
AT#SSLSECCFG?	<p>Read command reports the currently selected parameters in the format:</p> <p>#SSLSECCFG: <SSId1>,<CipherSuite>,<auth_mode></p>
AT#SSLSECCFG =?	<p>Test command returns the range of supported values for all the parameters.</p>

3.5.7.22.10. Managing the security data - #SSLSECDATA

#SSLSECDATA – Manage the security data		SELINT 2
AT#SSLSECDATA =<SSId>,<Action>, <DataType>[,<Size>]	<p>This command allows to store, delete and read security data (Certificate, CAcertificate, private key) into NVM.</p> <p>Parameters:</p>	



	<p><SSId> - Secure Socket Identifier 1 - Until now SSL block manages only one socket.</p> <p><Action> - Action to do. 0 – Delete data from NVM. 1 – Store data into NVM. 2 – Read data from NVM .</p> <p><DataType> 0 – Certificate. 1 – CA certificate. 2 – RSA Private key.</p> <p><Size> - Size of security data to be stored 1..2047</p> <p>If the <Action> parameter is 1 (store data into NVM) the device responds to the command with the prompt '>' and waits for the data to store. To complete the operation send Ctrl-Z char (0x1A hex); to exit without writing the message send ESC char (0x1B hex). If data are successfully stored, then the response is OK; if it fails for some reason, an error code is reported.</p> <p>If the <Action> parameter is 2 (read data from NVM), data specified by <DataType> parameter is shown in the following format: #SSLSECDATA: <connId>,<DataType> <DATA></p> <p>OK</p> <p>If <DataType> data has not been stored (or it has been deleted) the response has the following format: #SSLSECDATA: <connId>,<DataType> No data stored</p> <p>OK</p> <p>Note: Secured data has to be in PEM format.</p> <p>Note: private keys with password ARE NOT supported.</p> <p>Note: only “rsa_sign” certificates are supported by the Telit Module in client</p>
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	<p>authentication. The remote server must support this certificate type, otherwise the handshake will fail.</p> <p>Note: <size> parameter is mandatory if the <write> action is issued, but it has to be omitted for <delete> or <read> actions are issued.</p> <p>Note: if secure socket is not enabled using AT#SLEN only test requests can be made.</p> <p>Note: If socket is connected an error code is reported.</p>
AT#SSLSECDATA?	<p>Read command reports what security data are stored in the format:</p> <p>#SSLSECDATA: <SSId 1>,<CertIsSet>,<CAcertIsSet>,<PrivKeyIsSet></p> <p><CertIsSet>, <CAcertIsSet>, <PrivKeyIsSet> are 1 if related data are stored into NVM otherwise 0.</p>
AT#SSLSECDATA =?	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLSECDATA: (1),(0-2),(0-2),(1-2047)</p>

3.5.7.22.11. Sending data through a SSL socket - #SSLSEND

#SSLSEND – Send data through a SSL socket		SELINT 2
AT#SSLSEND=<SSId>[, < Timeout >]	<p>This command allows sending data through a secure socket.</p> <p>Parameters:</p> <p><SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket.</p> <p>< Timeout > - socket send timeout, in 100 ms units. 10..5000 - hundreds of ms (factory default is 100)</p> <p>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 writing the message send ESC char (0x1B hex).</p> <p>If data are successfully sent, then the response is OK. If data sending fails for some reason, an error code is reported</p> <p>Note: the maximum number of bytes to send is 1023; trying to send more data will cause the surplus to be discarded and lost.</p>	



	<p>Note: if secure socket is not enabled using AT#SSLEN only test requests can be made.</p> <p>Note: if timeout is not set for SSL connection the default timeout value, set by AT#SSLCFG, is used.</p> <p>Note: Before sending data through the SSL connection it has to be established using AT#SSLD.</p>
AT#SSLSEND=?	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLSEND: (1),(10-5000)</p>

3.5.7.22.12. Sending data through a secure socket in Command Mode extended - #SSLSENDEXT

#SSLSENDEXT – Send data through a secure socket in Command Mode extended **SELINT 2**

AT#SSLSENDEXT=<SSId>,<bytestosend>[,<Timeout>]

This command allows sending data through a secure socket.

Parameters:

<SSId> - Secure Socket Identifier

1 - Until now SSL block manage only one socket.

<bytestosend> - number of bytes to be sent

Please refer to test command for range

<Timeout> - time-out in 100 ms units

10..5000 - hundreds of ms (factory default is 100)

The device responds to the command with the prompt '>'

<greater_than><space> 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: if secure socket is not enabled using **AT#SSLEN** only test requests can be made.

Note: if timeout is not set for SSL connection the default timeout value, set by **AT#SSLCFG**, is used.

Note: Before sending data through the SSL connection it has to be established using **AT#SSLD**.

Note: all special characters are sent like a generic byte.



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 Frequency
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	<i>either Mobile Terminated or Mobile Terminal</i>



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



ISSUE #6	2009-08-03	SW 7.03.01 / 7.02.06 SW 10.0.1	<ul style="list-style-type: none"> - 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, #TCPATRUNAATH, #TCPATRUND, #TCPATRUNCLOSE, #TCPATRUNCMDSEQ, #TCPATCONSER, #ATRUNDELAY, #ENAEVMONI, #ENAEVMONICFG, #FASTCCID, #FTPAPP, #FTPFSIZE, #FTPGET, #FTPGETPKT, #FTPPUT, #FTPFCV, #FTPFCV, #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, #SEND, #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	<ul style="list-style-type: none"> - New commands added for SW 7.03.02 / 7.02.07: #SCFGEXT2, #CMGLCONCINDEX, #CODECINFO, #GSMCONTCFG, #SNUM, #SENDEXT, +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, #MSCCLASS, #SEMAIL, #SPCM, #SWLEVEL, #TONEEXT, #UDTSET, +CMER, #E2ESC, #SLUDP, #SIMATR
ISSUE#8	2010-07-26	SW 7.03.02 /	<ul style="list-style-type: none"> - Updated commands: #SCFGEXT2, S38, #SEMAIL, #EMAILD,



		SW 13.00.002	#ENS, #FTPAPP, #FTPPUT, , #I2CRD, #I2CWR, #SCFGEXT, #SERVINFO, #SMSMODE, #SRECV, #SEND, #SENDUDP, #SSLD, #TXCNI, \$GPSACP, #GPSAT, \$GPSCON, \$GPSD, \$GPSNMUN, \$GPSP, \$GPS, \$GPSR, \$GPSRST, \$GPSSAV, \$GPSSW, \$GPSWK, +CGDCONT, +CMUX, +CSMP, +CSQ, #SD, #SL, #SKTSET, #SKTD, #SKTL, @SKTL, +FMI, +FMM, +FMR, +FTS, +FRS, +FTM, +FRM, +FTH, +FRH, +FLO, +FPR, +FDD, +CBST, +CRLP, #TTY
ISSUE # 15	2012-10-18	SW 7.03.03 / 7.02.08 SW 10.0.6 SW 13.00.002	<ul style="list-style-type: none"> - Edited par 3.2.2.1 ME Error Result Code - +CME ERROR: <err> - Edited par 3.3.1 Factory Profile And User Profiles - Edited par 3.4 Command Availability Table - Updated: #FTPAPP, #FTPPUT, #SCFGEXT, #SGACTAUTH, #SLED, #SRECV, +IPR, #STIA
ISSUE # 16	2013-02-07	SW 7.03.03 / 7.02.08 SW 10.0.xx7 16.00.xx2 SW 13.00.xx3	<ul style="list-style-type: none"> - Added GL865-DUAL V3, GL868-DUAL V3 in the availability table - Edited par 3.2.4 and 3.3.1 - Edited par 3.4 Command Availability Table - New: #CONSUME, #CSURVTA, #RFSTS, #HTTP*, #FRWLIPV6, #MMS*, #SSLSENDEXT, #ECHOFCG, #CMUXMODE, #PORTCFG - Updated: #DTMF, #LCSCRIPT, #NWDNS, #SCFGEXT2, #SLASTCLOSURE, #SPCM, #STARTMODESCR, #WAKE, \$FTPGETFIX, \$GPSACP, \$GPSAT, \$GPSCON, \$GPSD, \$GPSGPIO, \$GPSFIX, \$GPSNMUN, \$GPSP, \$GPS, \$GPSR, \$GPSRST, \$GPSSAV, \$GPSSW, \$GPSWK, #CSURV*, +CFUN, +CMUX, +IPR, #ENASIM, #SNUM, #SMTPCL, #FTPCFG, #JDRENH, #SGACT, #EVMONI, #SSLD, #SSLSECCFG
ISSUE # 17	2013-05-24	SW 10.0.xx7 16.00.xx2 SW 13.00.xx4	<ul style="list-style-type: none"> - Added GE910-GNSS in the availability table, deleted GM862 and GE863 families - Edited par 3.2, 3.2.4, 3.5.3.6 - Updated: #DNS, #FTPCFG, #GPIO, #MONI, #SCFGEXT2, #SPN, #WAKE, +CMUX, #MMSSNH, \$FTPGETIFIX, \$GPSACP, \$GPSAT, \$GPSCON, \$GPSD, \$GPSGPIO, \$GPSIFIX, \$GPSNMUN, \$GPSP, \$GPS, \$GPSR, \$GPSRST, \$GPSSAV, \$GPSSW, \$GPSWK, - New: \$HTTPGETIFIX, \$GPSSERSPEED, \$DPATCH, \$EPATCH, \$LPATCH, \$WPATCH
ISSUE # 18	2013-09-23	SW 10.0.xx8 16.00.xx3 SW 13.00.xx5	<ul style="list-style-type: none"> - Added GE910-QUAD V3 and GL865-QUAD V3 in the availability table - Edited par 3.4, 3.5.2.1 - Updated: #AUTOATT, #CPUMODE, #CSURVTA, #ENAEVMONICFG, #ENASIM, #FTPCFG, #SCFGEXT2, #SD, #SGACT, #SNUM, #SSLSECCFG, #SMSATRUNCFG, #TCPATRUNCFG, \$DPATCH, \$EPATCH, \$FTPGETIFIX, \$GPSACP, \$GPSAT, \$GPSCON, \$GPSD, \$GPSGPIO, \$GPSIFIX,



			<p>\$GPSNMUN, \$GPSP, \$GPSPS, \$GPSSERSPEED, \$GPSSW, \$GPSWK, \$HTTPGETIFIX, \$LPATCH, \$WPATCH, +CCLK, #CCLK, +CNUM, +CPBF, +CPBR, +CPBW, +CSCS, +CMGL, +CMGR, +CMGS, +CMGW, +CUSD, +PACSP, #DVI, #DVIEXT, #ECHO CFG, #LCSCRIPT, #PING, #HTTPSND, #HTTPQRY, #TCPREASS, #BND</p> <p>- New: #FILEPWD, #FPLMN, #IPCONSUME CFG, #NCIH, #SCFGEXT3, #SSENDLINE, #RSASECDATA, #RSAENCRYPT, #RSADECRYPT, #RSAGETRESULT, #SAMR, #SAMRCFG, #GPIO, #PORTCFG</p>
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