



AT Commands Reference Guide

80000ST10025a Rev. 13 – 2012-03-20



Making machines talk.

APPLICABILITY TABLE

PRODUCT
GT863-PY
GT864-QUAD
GT864-PY
GM862-GPS
GC864-QUAD
GC864-QUAD V2
GC864-DUAL
GC864-DUAL V2
GC868-DUAL
GE863-GPS
GE863-SIM
GE863-PRO ³
GE864-QUAD
GE864-QUAD AUTOMOTIVE V2
GE864-QUAD ATEX
GE864-QUAD V2
GE864-DUAL V2
GE864-GPS
GE865-QUAD
GL865-DUAL
GL868-DUAL
GE910-QUAD

SW Versions
7.03.03 / 7.02.08
10.0x.xx5
02.0x.009
13.00.000



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1. Introduction

1.1. Scope

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

1.2. Audience

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

1.3. Contact Information, Support

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

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

Alternatively, use:

<http://www.telit.com/en/products/technical-support-center/contact.php>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

To register for product news and announcements or for product questions contact Telit Technical Support Center (TTSC).

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.4. Document Organization

This document contains the following chapters:

[Chapter 1: “Introduction”](#) provides a scope for this document, target audience, contact and support information, and text conventions.

[Chapter 2: “Overview”](#) about the aim of this document and implementation suggestions.

[Chapter 3: “AT Commands”](#) The core of this reference guide.



1.5. Text Conventions



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



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



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

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

1.6. Related Documents

- 3GPP TS 27.007 specification and rules
http://www.3gpp.org/ftp/Specs/archive/27_series/27.007/
- 3GPP TS 27.005 specification and rules
http://www.3gpp.org/ftp/Specs/archive/27_series/27.005/
- Hayes standard AT command set



2. Overview

2.1. About the document

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



NOTE:

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

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

AT#SMSMODE=1
AT#REGMODE=1



3. AT COMMANDS

The Telit wireless module family can be controlled via the serial interface using the standard AT commands¹. The Telit wireless module family is compliant with:

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

Moreover Telit wireless module family supports also Telit proprietary AT commands for special purposes.

The following is a description of how to use the AT commands with the Telit wireless module family.

3.1. Definitions

The following syntactical definitions apply:

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

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



3.2. AT Command Syntax

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

There are two types of extended command:

- **Parameter type commands.** This type of commands may be “set” (to store a value or values for later use), “read” (to determine the current value or values stored), or “tested” (to determine ranges of values supported). Each of them has a test command (trailing =?) to give information about the type of its subparameters; they also have a Read command (trailing ?) to check the current values of subparameters.
- **Action type commands.** This type of command may be “executed” or “tested”.
- “executed” to invoke a particular function of the equipment, which generally involves more than the simple storage of a value for later use
- “tested” to determine:

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

Note: issuing the Read command (trailing ?) causes the command to be executed.

(if the command #SELINT=2 has been issued, see §3.5.2.1.1)

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

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

Moreover:

- *(for #SELINT=0 or #SELINT=1 only)*
An enhanced test command (trailing =??) has been introduced to maintain backward compatibility for those commands whose subparameters changed the range of possible values from version to version.
- *(for #SELINT=2 only)*
The response to the Test Command (trailing =?) may be changed in the future by Telit to allow the description of new values/functionalities



- (*for #SELINT=2 only*)

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

3.2.1. String Type Parameters

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

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

When #SELINT=2 mode is selected, a string is always case sensitive.

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

3.2.2. Command Lines

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

The **command line prefix** consists of the characters "AT" or "at", or, to repeat the execution of the previous command line, the characters "A/" or "a/" or AT#/ or at#/.

The **termination character** may be selected by a user option (parameter S3), the default being <CR>.

The basic structures of the command line are:

- ATCMD1<CR> where AT is the command line prefix, CMD1 is the body of a **basic command** (nb: the name of the command never begins with the character "+") and <CR> is the command line terminator character
- ATCMD2=10<CR> where 10 is a subparameter



- **AT+CMD1;+CMD2=, ,10<CR>** These are two examples of **extended commands** (nb: the name of the command always begins with the character “+”²). They are delimited with semicolon. In the second command the subparameter is omitted.
- **+CMD1?<CR>** This is a Read command for checking current subparameter values
- **+CMD1=?<CR>** This is a test command for checking possible subparameter values

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

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

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

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

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

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



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.

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**



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)*



Numeric Format	Verbose Format
134	service option temporarily out of order (#34)*
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
Network survey errors:	
(only if command #SELINT=0 or #SELINT=1 has been issued - see §3.5.2.1.1):	
257	Network survey error (No Carrier)*
258	Network survey error (Busy)*
259	Network survey error (Wrong request)*
260	Network survey error (Aborted)*
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



Numeric Format	Verbose Format
557	cannot setup socket
558	cannot resolve DN
559	time-out in opening socket
560	cannot open socket
561	remote disconnected or time-out
562	connection failed
563	tx error
564	already listening
566	can not resume socket
567	wrong APN
568	wrong PDP
569	service not supported
570	QOS not accepted
571	NSAPI already used
572	LLC or SNDCP failure
573	network reject
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
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



Numeric Format	Verbose Format
834	SSL already connected
835	SSL already activated
836	SSL not activated
837	SSL certs and keys wrong or not stored
838	SSL error enc/dec data
839	SSL error during handshake
840	SSL disconnected
PING related errors (only if command #SELINT=2 has been issued - see §3.5.2.1.1):	
900	Generic undocumented error
901	Timeout
902	Destination unreachable
903	Can not resolve name
904	Context down

*(values in parentheses are GSM 04.08 cause codes)

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

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

Syntax: **+CMS ERROR: <err>**

Parameter: **<err>** - numeric error code.

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

Numeric Format	Meaning
0...127	GSM 04.11 Annex E-2 values
128...255	3GPP TS 23.040 sub clause 9.2.3.22 values
300	ME failure
301	SMS service of ME reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode parameter
305	invalid text mode parameter
310	SIM not inserted
311	SIM PIN required
312	PH-SIM PIN required
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index



Numeric Format	Meaning
322	memory full
330	SMSC address unknown
331	no network service
332	network time-out
500	unknown error

3.2.3. Information Responses And Result Codes

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

- information response to **+CMD1?**
<CR><LF>+CMD1:2,1,10<CR><LF>
- information response to **+CMD1=?**
<CR><LF>+CMD1(0-2),(0,1),(0-15)<CR><LF>
- final result code **<CR><LF>OK<CR><LF>**

Moreover there are other two types of result codes:

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

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

Result Codes	
Numeric form	Verbose form
0	OK
1	CONNECT or CONNECT <text> ³
2	RING
3	NO CARRIER
4	ERROR
5	CONNECT 1200 ⁴
6	NO DIALTONE
7	BUSY
8	NO ANSWER
10	CONNECT 2400 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



Result Codes	
11	CONNECT 4800 ⁴
12	CONNECT 9600 ⁴
15	CONNECT 14400 ⁴
23	CONNECT 1200/75 ⁴

3.2.4.

Command Response Time-Out

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

In the table below are listed only the commands whose interaction with the SIM or the network could lead to long response timings. When not otherwise specified, timing is referred to set command.

For phonebook and SMS writing and reading related commands, timing is referred to commands issued after phonebook sorting is completed.

For DTMF sending and dialling commands timing is referred to module registered on network (“AT+CREG?” answer is “+CREG: 0,1” or “+CREG: 0,5”).

For Python commands, timing is referred to commands issued with module in idle, flash memory not full and not fragmented, and after the first Python command. The first Python command to be issued causes a system initialization that could last a couple of minutes. Baud rate is fixed at 115200.

Command	Estimated maximum time to get response (Seconds)
+COPS	30 (test command)
+CLCK	25 (SS operation) 5 (FDN enabling/disabling)
+CLAC	5
+CPWD	15 (SS operation) 5 (PIN modification)
+CLIP	15 (read command)
+CLIR	15 (read command)
+CCFC	15
+CCWA	15
+CHLD	30
+CPIN	5
+CPBS	5 (FDN enabling/disabling) 5 (single reading)
+CPBR	15 (complete reading of a 250 records full phonebook)
+CPBF	10 (string present in a 250 records full phonebook) 5(string not present)



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Command	Estimated maximum time to get response (Seconds)
+CPBW	5
+CACM	5
+CAMM	5
+CPUC	5
+VTS	20 (transmission of full “1234567890*#ABCD” string with no delay between tones, default duration)
+CSCA	5 (read and set commands)
+CSAS	5
+CRES	5
+CMGS	60 after CTRL-Z for SMS not concatenated; 1 to get ‘>’ prompt
+CMSS	60 after CTRL-Z; 1 to get ‘>’ prompt
+CMGW	5 after CTRL-Z for SMS not concatenated; 1 to get ‘>’ prompt
+CMGD	5 (single SMS cancellation) 25 (cancellation of 50 SMS)
+CMGR	5
+CMGL	20 (full listing of 50 SMS)
+CGACT	150
+CGATT	10
D	30 (voice call) Timeout set with ATS7 (data call)
A	30 (voice call) Timeout set with ATS7 (data call)
H	30
+CHUP	5
+COPN	10
+CPOL	10 (set command; read command of 84 records)
+CRSM	5
+FRH	Timeout set with ATS7
+FTH	Timeout set with ATS7
+FRM	Timeout set with ATS7
+FTM	Timeout set with ATS7
+FRS	Timeout set with the command itself
+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
#STSRR	10
#CCID	5
#GPRS	150
#SKTD	140 (DNS resolution + timeout set with



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Command	Estimated maximum time to get response (Seconds)
	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 scan
#CSURVU	10 to start data output; 120 seconds to complete scan
#CSURVUC	10 to start data output; 120 seconds to complete



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

3.2.5. Command Issuing Timing

The chain Command -> Response shall always be respected and a new command must not be issued before the module has terminated all the sending of its response result code (whatever it may be).

This applies especially to applications that “sense” the **OK** text and therefore may send the next command before the complete code <CR><LF>**OK**<CR><LF> is sent by the module.

It is advisable anyway to wait for at least 20ms between the end of the reception of the response and the issue of the next AT command.

If the response codes are disabled and therefore the module does not report any response to the command, then at least the 20ms pause time shall be respected.

During command mode, due to hardware limitations, under severe CPU load the serial port can loose some characters if placed in autobauding at high speeds. Therefore if you encounter this problem fix the baud rate with +IPR command.

3.3. Storage

3.3.1. Factory Profile And User Profiles

The Telit wireless modules stores the values set by several commands in the internal non volatile memory (NVM), allowing to remember this setting even after power off. In the NVM these values are set either as **factory profile** or as **user profiles**: there are **two customizable**



user profiles and **one factory profile** in the NVM of the device: by default the device will start with user profile 0 equal to factory profile.

For backward compatibility each profile is divided into two sections, one **base section** which was historically the one that was saved and restored in early releases of code, and the **extended section** which includes all the remaining values.

The **&W** command is used to save the actual values of **both sections** of profiles into the NVM user profile.

Commands **&Y** and **&P** are both used to set the profile to be loaded at startup. **&Y** instructs the device to load at startup only the **base section**. **&P** instructs the device to load at startup the full profile: **base + extended sections**.

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

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

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

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

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

+FCLASS	+ILRR	+DR
+CSCS	+CR	+CRLP
+CRC	+CSNS	+CVHU
+CREG	+CLIP	+CLIR
+CCWA	+CUSD	+CAOC



+CSSN	+CIND	+CMER
+CPBS	+CMEE	+CGREG
+CGEREP	+CMGF	+CSDH
+CNMI	#QSS	#ACAL ⁵
#TEMPMON ⁶	#ACALEXT	#ECAM
#SMOV	#MWI	#NITZ
#SKIPESC	#E2ESC	#STIA
\$GPSNMUN	#CESTHLCK	#CFLO
+CSTF	+CSDF	+CTZU
+CAPD	+CCWE	+CSIL
+CTZR	#CFF	

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

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

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

#SELINT	+COPS ⁸	+CGCLASS
+CGDCONT	+CGQMIN	+CGQREQ
#REGMODE	#PLMNODE	#COPSMODE
#DIALMODE	#BND	#AUTOBND
#ENS	#SCFG	#JDR
#ENHSIM	#AUTOATT	#TXMONMODE
#TTY	#ICMP	#GSMCONT
#NWSCANTRM	#SMSMODE	#DNS
#TCPMAXDAT	#TCPREASS	#SWLEVEL
#CPASMODE	#FASTCCID	+CGSMS

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

⁸ It is partially stored in NVM; see command description.



#V24MODE	+CPLS	
----------	-------	--

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

+CSCA	+CSMP	+CSCB
-------	-------	-------

stored by +CSAS⁹ command and restored by +CRES⁹ command

#SLED		
-------	--	--

stored by #SLEDSAV¹⁰ command

#VAUX		
-------	--	--

stored by #VAUXSAV¹¹ command

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

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

#ESMTP	#EADDR	#EUSER
#EPASSW		

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

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

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

⁹ Both commands +CSAS (see §3.x.3.2.5) and +CRES (see §3.x.3.2.6) deal with non-volatile memory, intending for it either the NVM and the SIM storage.

¹⁰ Valid for #SELINT=2 only.

¹¹ Valid for #SELINT=2 only.



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
SW 7.03.xx3	GE864-QUAD, GC864-QUAD, GC864-DUAL, GM862-GPS, GE863-SIM, GE863-GPS, GE863-PRO ³
SW 10.00.xx5	GE865-QUAD, GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD V2, GE864-DUAL V2, GE864-QUAD AUTOMOTIVE V2, GE864-QUAD ATEX, GL865-DUAL, GL868-DUAL, GT863-PY, GT864-PY, GT864-QUAD, GE864-GPS
SW 2.0x.xx9	GC868-DUAL
SW 13.00.000	GE910-QUAD

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	SW 7.03.xx3	SW 10.00.xx5	SW 2.0x.xx9	SW 13.00.000	Function	Page
Command Line General Format – Command Line Prefixes						
AT	•	•	•	•	Starting A Command Line	45
A/	•	•	•	•	Last Comm Automatic Repetition Prefix	45
AT#	•	•	•	•	Repeat last command	45
#SELINT	•	•	•	•	Select Interface Style	48
Hayes AT Commands – Generic Modem Control						
&F	•	•	•	•	Set To Factory-Defined Configuration	49
Z	•	•	•	•	Soft Reset	49
+FCCLASS	•	•	•	•	Select Active Service Class	49
&Y	•	•	•	•	Designate A Default Reset Basic Profile	50
&P	•	•	•	•	Designate A Default Reset Full Profile	50
&W	•	•	•	•	Store Current Configuration	50
&Z	•	•	•	•	Store Telephone Number In The Module Internal Phonebook	51
&N	•	•	•	•	Display Internal Phonebook Stored Numbers	51
+GMI	•	•	•	•	Manufacturer Identification	51
+GMM	•	•	•	•	Model Identification	52
+GMR	•	•	•	•	Revision Identification	52
+GCAP	•	•	•	•	Capabilities List	52
+GSN	•	•	•	•	Serial Number	52
&V	•	•	•	•	Display Current Base Configuration And Profile	52
&V0	•	•	•	•	Display Current Configuration And Profile	53
&V1	•	•	•	•	S Registers Display	53
&V3	•	•	•	•	Extended S Registers Display	53
&V2	•	•	•	•	Display Last Connection Statistics	54
V	•	•	•	•	Single Line Connect Message	54



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COMMAND	SW 7.03.xx3	SW 10.00.xx5	SW 2.0x.xx9	SW 13.00.000	Function	Page
+GCI	Country Of Installation	54
%L	Line Signal Level	54
%Q	Line Quality	55
L	Speaker Loudness	55
M	Speaker Mode	55
+CMAR	Master Reset	55
Hayes AT Commands – DTE-Modem Interface Control						
E	Command Echo	56
Q	Quiet Result Codes	56
V	Response Format	57
X	Extended Result Codes	58
I	Identification Information	58
&C	Data Carrier Detect (DCD) Control	59
&D	Data Terminal Ready (DTR) Control	59
\Q	Standard Flow Control	60
&K	Flow Control	61
&S	Data Set Ready (DSR) Control	61
\R	Ring (RI) Control	62
+IPR	Fixed DTE Interface Rate	62
+IFC	DTE-Modem Local Flow Control	63
+ILRR	DTE-Modem Local Rate Reporting	64
+ICF	DTE-Modem Character Framing	65
Hayes AT Commands – Call Control						
D	Dial	66
T	Tone Dial	70
P	Pulse Dial	70
A	Answer	70
H	Disconnect	70
O	Return To On Line Mode	71
Hayes AT Commands – Modulation Control						
+MS	Modulation Selection	71
%E	Line Quality Monitor And Auto Retrain Or Fall-back/Fall-forward	72
Hayes AT Commands – Compression Control						
+DS	Data Compression	72
+DR	Data Compression Reporting	72
Hayes AT Commands – S Parameters						
S0	Number Of Rings To Auto Answer	73
S1	Ring Counter	74
S2	Escape Character	75
S3	Command Line Termination Character	75
S4	Response Formatting Character	76
S5	Command Line Editing Character	77
S7	Connection Completion Time-Out	78
S10	Carrier off with firm time	78
S12	Escape Prompt Delay	78
S25	Delay To DTR Off	80
S30	Disconnect Inactivity Timer	80
S38	Delay Before Forced Hang Up	81
3GPP TS 27.007 – General						
+CGMI	Request Manufacturer Identification	82
+CGMM	Request Model Identification	82
+CGMR	Request Revision Identification	83
+CGSN	Request Product SN Identification	83
+CSCS	Select TE Character Set	83
+CIMI	Request IMSI	84
+CMUX	Multiplexing Mode	85
+WS46	PCCA STD-101 Select Wireless Network	85



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¹² Not available on GE863-PRO³

¹³ Not available on GM862-GPS, GL865-DUAL, GL868-DUAL

¹⁴ Command available only on GE864-QUAD and GC864-QUAD, GL865-DUAL and GL868-DUAL

¹⁵ Not available on GL865-DUAL, GL868-DUAL

¹⁶ Not available on GE865-QUAD, GE864-DUAL V2, GE864-QUAD AUTOMOTIVE V2, GL865-DUAL, GL868-DUAL, GC864-DUAL V2, GE864-QUAD ATEX



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¹⁷ Not available for GC864-DUAL, GC864-DUAL V2, GE864-DUAL V2, GL865-DUAL, GL868-DUAL and GC868-DUAL



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¹⁸ Not available on GE865-QUAD, GL865-DUAL, GL868-DUAL

¹⁹ GM862-GPS excluded

²⁰ GE864-QUAD AUTOMOTIVE V2, GE864-GPS e GL865-QUAD only



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#SMTPCL	-	.	.	.	send mail with attachment	454
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#CSURVC	Network Survey (Numeric Format)	462
#CSURVU	Network Survey Of User Defined Channels	467
#CSURVUC	Network Survey Of User Defined Channels (Numeric Format)	469
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#STGI	•	•	•	•	SIM Toolkit Get Information	480
#STSRR	•	•	•	•	SIM Toolkit Send Response	487
#STTA	-	•	•	•	SIM Toolkit Terminal Attach	488
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#RSCRIPT	• ²²	•		-	Read Script	497
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\$GPSWK	•	•	Wake Up GPS From Power Saving Mode	514
\$GPSSAV	•	•	Save GPS Parameters Configuration	514
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\$GPSCMODE ²⁴	•	-	GPS Controller Disabled at Start-up With Charger Inserted	515

²¹ Python is a registered trademark of the Python Software Foundation.

²² Not available on GE863-PRO³

²³ GE864-GPS Excluded

²⁴ Available for the GPS products with the following Order-Num.: 3990250689 and 3990250690



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)
GM862-GPS	•	•	•(default)
GE863-SIM	•	•(default)	•
GE863-GPS	•	•	•(default)
GE863-PRO ³			•(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 and GC864-DUAL V2			•(default)
GE864-DUAL V2			•(default)
GE865-QUAD			•(default)
GL865-DUAL			•(default)
GL868-DUAL			•(default)



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Product	#SELINT=0	#SELINT=1	#SELINT=2
GC868-DUAL	.	.	•(default)
GE910-QUAD	.	.	•(default)



3.5.2.1.1. Select Interface Style - #SELINT

#SELINT - Select Interface Style		SELINT 0 / 1
AT#SELINT[=<v>]	<p>Set command sets the AT command interface style depending on parameter <v>.</p> <p>Parameter:</p> <p><v> - AT command interface style</p> <ul style="list-style-type: none"> 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 products²⁵ <p>Note: If parameter is omitted then the behaviour of Set command is the same as read command.</p>	
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>]	<p>Set command sets the AT command interface style depending on parameter <v>.</p> <p>Parameter:</p> <p><v> - AT command interface style</p> <ul style="list-style-type: none"> 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 products¹² 	
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.



3.5.3. Hayes Compliant AT Commands

3.5.3.1. Generic Modem Control

3.5.3.1.1. Set To Factory-Defined Configuration - &F

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

3.5.3.1.2. Soft Reset - Z

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

3.5.3.1.3. Select Active Service Class - +FCLASS

+FCLASS - Select Active Service Class		SELINT 0 / 1 / 2
AT+FCLASS=<n>	Set command sets the wireless module in specified connection mode (data, fax, voice), hence all the calls done afterwards will be data or voice. Parameter: <n> 0 - data 1 - fax class 1 8 - voice	



+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:</p> <p><n></p> <p>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:</p> <p><n></p> <p>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>	

3.5.3.1.6. Store Current Configuration - &W

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



&W - Store Current Configuration	SELINT 0 / 1 / 2
	0..1 - profile Note: if parameter is omitted, the command has the same behaviour of AT&W0 .

3.5.3.1.7. Store Telephone Number - &Z

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

3.5.3.1.8. Display Stored Numbers - &N

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

3.5.3.1.9. Manufacturer Identification - +GMI

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



3.5.3.1.10. Model Identification - +GMM

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

3.5.3.1.11. Revision Identification - +GMR

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

3.5.3.1.12. Capabilities List - +GCAP

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

3.5.3.1.13. Serial Number - +GSN

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

3.5.3.1.14. Display Configuration And Profile - &V

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



3.5.3.1.15. Display Configuration And Profile - &V0

&V0 - Display Current Configuration And Profile		SELINT 0 / 1 / 2
AT&V0	<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> <table style="margin-left: 40px;"> <tr> <td>REG</td> <td>DEC</td> <td>HEX</td> </tr> <tr> <td><reg0></td> <td><dec></td> <td><hex></td> </tr> <tr> <td><reg1></td> <td><dec></td> <td><hex></td> </tr> <tr> <td>...</td> <td></td> <td></td> </tr> </table> <p>where</p> <p><regn> - S register number</p> <ul style="list-style-type: none"> 000..005 007 012 025 038 <p><dec> - current value in decimal notation</p> <p><hex> - current value in hexadecimal notation</p>	REG	DEC	HEX	<reg0>	<dec>	<hex>	<reg1>	<dec>	<hex>	...			
REG	DEC	HEX												
<reg0>	<dec>	<hex>												
<reg1>	<dec>	<hex>												
...														

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> <table style="margin-left: 40px;"> <tr> <td>REG</td> <td>DEC</td> <td>HEX</td> </tr> <tr> <td><reg0></td> <td><dec></td> <td><hex></td> </tr> <tr> <td><reg1></td> <td><dec></td> <td><hex></td> </tr> <tr> <td>...</td> <td></td> <td></td> </tr> </table> <p>where</p> <p><regn> - S register number</p> <ul style="list-style-type: none"> 000..005 007 	REG	DEC	HEX	<reg0>	<dec>	<hex>	<reg1>	<dec>	<hex>	...			
REG	DEC	HEX												
<reg0>	<dec>	<hex>												
<reg1>	<dec>	<hex>												
...														



&V3 - Extended S Registers Display		SELINT 0 / 1 / 2
	012 025 030 038 <dec> - current value in decimal notation <hex> - current value in hexadecimal notation	

3.5.3.1.18. Display Last Connection Statistics - &V2

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

3.5.3.1.19. Single Line Connect Message - |V

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

3.5.3.1.20. Country Of Installation - +GCI

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

3.5.3.1.21. Line Signal Level - %L

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



3.5.3.1.22. Line Quality - %Q

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

3.5.3.1.23. Speaker Loudness - L

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

3.5.3.1.24. Speaker Mode - M

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

3.5.3.1.25. Master Reset - +CMAR

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

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



	<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:</p> <p><n></p> <p>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>	
Reference	Note: if parameter is omitted, the command has the same behaviour of ATE0	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:</p> <p><n></p> <p>0 - enables result codes (factory default) 1 - every result code is replaced with a <CR> 2 - disables result codes</p>	
Example	<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> <p>After issuing ATQ1</p> <p>AT+CGACT=? +CGACT: (0-1) a <cr> ends the response</p>	



Q - Quiet Result Codes	SELINT 0 / 1
	After issuing ATQ2 AT+CGACT=? +CGACT: (0-1) nothing is appended to the response
Reference	V25ter
Q - Quiet Result Codes	SELINT 2
ATQ[<n>]	<p>Set command enables or disables the result codes.</p> <p>Parameter:</p> <p><n></p> <p>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 ATQ1 or ATQ2</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:</p> <p><n></p> <p>0 - limited headers and trailers and numeric format of result codes</p> <table border="1" style="margin-left: 20px;"> <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
	information responses	<CR><LF> <text><CR><LF>
	result codes	<CR><LF> <verbose code><CR><LF>
Note: the <text> portion of information responses is not affected by this setting.		
Note: if parameter is omitted, the command has the same behaviour of ATV0		
Reference	V25ter	

3.5.3.2.4. Extended Result Codes - X

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

3.5.3.2.5. Identification Information - I

I - Identification Information		SELINT 0 / 1 / 2
ATI[<n>]	Execution command returns one or more lines of information text followed by a result code. Parameter: <n> 0 - numerical identifier 1 - module checksum 2 - checksum check result 3 - manufacturer 4 - product name 5 - DOB version	



I - Identification Information		SELINT 0 / 1 / 2
	Note: this is one of the commands whose output differs depending on the last #SELINT setting.	
Reference	Note: if parameter is omitted, the command has the same behaviour of ATIO V25ter	

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

&C - Data Carrier Detect (DCD) Control		SELINT 0 / 1 / 2
AT&C[<n>]	<p>Set command controls the RS232 DCD output behaviour.</p> <p>Parameter: <n></p> <ul style="list-style-type: none"> 0 - DCD remains high always. 1 - DCD follows the Carrier detect status: if carrier is detected DCD is high, otherwise DCD is low. (factory default) 2 - DCD off while disconnecting <p>Note: if parameter is omitted, the command has the same behaviour of AT&C0</p>	

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

&D - Data Terminal Ready (DTR) Control		SELINT 0 / 1
AT&D[<n>]	<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) 1 - when the MODULE is connected, the High to Low transition of DTR pin sets the device in command mode, the current connection is NOT closed 2 - when the MODULE is connected, the High to Low transition of DTR pin sets the device in command mode and the current connection is closed 3 - device ignores DTR transitions 4 - C108/1 operation is disabled 5 - C108/1 operation is enabled; same behaviour as for <n>=2 <p>Note: if a connection has been set up issuing either #SKTD or #SKTOP, then AT&D1 has the same effect as AT&D2.</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 as AT&D0</p>	V25ter



&D - Data Terminal Ready (DTR) Control		SELINT 2
AT&D[<n>]	<p>Set command controls the Module behaviour to the RS232 DTR transitions.</p> <p>Parameter: <n></p> <p>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</p> <p>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</p> <p>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</p> <p>3 - device ignores DTR transitions; if +CVHU current setting is different from 2 then issuing AT&D3 is equivalent to AT&D5</p> <p>4 - C108/1 operation is disabled; if +CVHU current setting is different from 2 then issuing AT&D4 is equivalent to AT&D5</p> <p>5 - C108/1 operation is enabled; same behaviour as for <n>=2</p>	
	<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
AT\Q[<n>]	<p>Set command controls the RS232 flow control behaviour.</p> <p>Parameter: <n></p> <p>0 - no flow control</p> <p>1 - software bi-directional with filtering (XON/XOFF)</p> <p>2 - hardware mono-directional flow control (only CTS active)</p> <p>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**



\Q - Standard Flow Control		SELINT 0 / 1 / 2
		Note: Hardware flow control (AT\Q3) is not active in command mode.
		Note: \Q's settings are functionally a subset of &K's ones.
Reference	V25ter	

3.5.3.2.9. Flow Control - &K

&K - Flow Control		SELINT 0 / 1 / 2
AT&K[<n>]	<p>Set command controls the RS232 flow control behaviour.</p> <p>Parameter:</p> <p><n></p> <ul style="list-style-type: none"> 0 - no flow control 1 - hardware mono-directional flow control (only CTS active) 2 - software mono-directional flow control (XON/XOFF) 3 - hardware bi-directional flow control (both RTS/CTS active) (factory default) 4 - software bi-directional with filtering (XON/XOFF) 5 - pass through: software bi-directional without filtering (XON/XOFF) 6 - both hardware bi-directional flow control (both RTS/CTS active) and software bi-directional flow control (XON/XOFF) with filtering <p>Note: if parameter is omitted, the command has the same behaviour as AT&K0</p> <p>Note: &K has no Read Command. To verify the current setting of &K, simply check the settings of the active profile issuing AT&V.</p> <p>Note: Hardware flow control (AT&K3) is not active in command mode.</p>	

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

&S - Data Set Ready (DSR) Control		SELINT 0 / 1 / 2
AT&S[<n>]	<p>Set command controls the RS232 DSR pin behaviour.</p> <p>Parameter:</p> <p><n></p> <ul style="list-style-type: none"> 0 - always High 1 - follows the GSM traffic channel indication. 2 - High when connected 3 - High when device is ready to receive commands (factory default). <p>Note: if option 1 is selected then DSR is tied High when the device receives from the network the GSM traffic channel indication.</p> <p>Note: in power saving mode the DSR pin is always tied Low.</p>	



&S - Data Set Ready (DSR) Control	SELINT 0 / 1 / 2
	<p>Note: if parameter is omitted, the command has the same behaviour of AT&S0</p> <p>Note: If Selint=2 is selected, and option 1 and 2 are active, DSR will not tied High in case of GSM voice connection</p>

3.5.3.2.11. Ring (RI) Control - \R

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

3.5.3.2.12. Fixed DTE Interface Rate - +IPR

+IPR - Fixed DTE Interface Rate	SELINT 0 / 1
AT+IPR=<rate> Set command specifies the DTE speed at which the device accepts commands during command mode operations; it may be used to fix the DTE-DCE interface speed. Parameter: <rate> 0 ..300 1200 2400 4800 9600 19200 38400 57600 115200 If <rate> is set to 0, then automatic speed detection is enabled and also character format (see +ICF) is set to auto-detect. (default) If <rate> is specified and not 0, DTE-DCE speed is fixed at that speed, hence no speed auto-detection (autobauding) is enabled.	SELINT 0 / 1



+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></p> <p>0 (not supported for 13.00.000) ..300 1200 2400 4800 9600 19200 38400 57600 115200</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=?	Test command returns the list of supported autodetectable <rate> values and the list of fixed-only <rate> values in the format: +IPR:(list of supported autodetectable <rate> values), (list of fixed-only <rate> values)	
Reference	V25ter	

3.5.3.2.13. DTE-Modem Local Flow Control - +IFC

+IFC - DTE-Modem Local Flow Control		SELINT 0 / 1 / 2
AT+IFC=<by_te>, <by_ta>	Set command selects the flow control behaviour of the serial port in both directions: from DTE to modem (<by_ta> option) and from modem to DTE (<by_te>)	

Parameters:
<by_te> - flow control option for the data received by **DTE**



+IFC - DTE-Modem Local Flow Control		SELINT 0 / 1 / 2
	<p>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?		Read command returns active flow control settings.
		<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=?		Test command returns all supported values of the parameters <by_te> and <by_ta> .
Reference	V25ter	

3.5.3.2.14. DTE-Modem Local Rate Reporting - +ILRR

+ILRR - DTE-Modem Local Rate Reporting		SELINT 0 / 1 / 2
AT+ILRR=<n>	Set command controls whether or not the +ILRR: <rate> information text is transmitted from the modem (module) to the DTE . Parameter: <n>	0 - local port speed rate reporting disabled (factory default) 1 - local port speed rate reporting enabled
		<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?		Read command returns active setting of <n> .
AT+ILRR=?		Test command returns all supported values of the parameter <n>
Reference	V25ter	



3.5.3.2.15. DTE-Modem Character Framing - +ICF

+ICF - DTE-Modem Character Framing		SELINT 0 / 1 / 2
AT+ICF=<format>[,<parity>]	<p>Set command defines the asynchronous character framing to be used when autobauding is disabled.</p> <p>Parameters:</p> <p><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.</p> <ul style="list-style-type: none"> 0 - autodetection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 5 - 7 Data, 1 Parity, 1 Stop <p><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.</p> <ul style="list-style-type: none"> 0 - Odd 1 - Even 	
AT+ICF?	Read command returns current settings for subparameters < format > and < parity >. If current setting of subparameter < format > is neither 2 nor 5, the current setting of subparameter < parity > will always represented as 0.	
AT+ICF=?	Test command returns the ranges of values for the parameters < format > and < parity >	
Reference	V25ter	
Example	<p><i>Auto detect</i> AT+ICF = 0 OK</p> <p><i>8N2</i> AT+ICF = 1 OK</p> <p><i>8O1</i> AT+ICF = 2,0 OK</p> <p><i>8E1</i> AT+ICF = 2,1 OK</p> <p><i>8NI</i> AT+ICF = 3 OK</p> <p><i>7O1</i> AT+ICF = 5,0 OK</p> <p><i>7E1</i></p>	



+ICF - DTE-Modem Character Framing	SELINT 0 / 1 / 2
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 LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list</p>



D - Dial	SELINT 0 / 1
	<p>RC - ME received calls list</p> <p><n> - entry location; it should be in the range of locations available in the memory used.</p>
ATD><n>[;]	<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:</p> <p><n> - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.</p>
ATDL	<p>Issues a call to the last number dialed.</p>
ATDS=<nr>[;]	<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:</p> <p><nr> - internal phonebook position to be called (See either &N and &Z)</p>
ATD<number>I[;] ATD<number>i[;]	<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>
ATD<number>G[;] ATD<number>g[;]	<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>
ATD*<gprs_sc>[*<addr>][*[<L2P>][*<cid>]]]#	<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:</p> <p><gprs_sc> - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS</p> <p><addr> - string that identifies the called party in the address space applicable to the PDP.</p> <p><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:</p> <p>1 - PPP</p> <p><cid> - a digit which specifies a particular PDP context definition (see +CGDCONT command).</p>
Example	<p>To dial a number in SIM phonebook entry 6:</p> <p>ATD>SM6</p> <p>OK</p>



D – Dial	SELINT 0 / 1
	<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.

D – Dial	SELINT 2
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 +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 LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list</p>



D - Dial	SELINT 2
	MB - mailbox numbers stored on SIM, if this service is provided by the SIM (see #MBN). <n> - entry location; it should be in the range of locations available in the memory used.
ATD><n>[;]	Issues a call to phone number in entry location <n> of the active phonebook memory storage (see +CPBS). If “;” is present a voice call is performed. Parameter: <n> - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.
ATDL	Issues a call to the last number dialed.
ATDS=<nr>[;]	Issues a call to the number stored in the MODULE internal phonebook position number <nr>. If “;” is present a voice call is performed. Parameter: <nr> - internal phonebook position to be called (See commands &N and &Z)
ATD<number>I[;] ATD<number>i[;]	Issues a call overwriting the CLIR supplementary service subscription default value for this call If “;” is present a voice call is performed. I - invocation, restrict CLI presentation i - suppression, allow CLI presentation
ATD<number>G[;] ATD<number>g[;]	Issues a call checking the CUG supplementary service information for the current call. Refer to +CCUG command. If “;” is present a voice call is performed.
ATD*<gprs_sc>[*<addr>][*[<L2P>][*<cid>]]]#	This command is specific of GPRS functionality and causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN. Parameters: <gprs_sc> - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS <addr> - string that identifies the called party in the address space applicable to the PDP. <L2P> - a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: 1 - PPP <cid> - a digit which specifies a particular PDP context definition (see +CGDCONT command).
Example	<i>To dial a number in SIM phonebook entry 6:</i> ATD>SM6 OK



D - Dial	SELINT 2
	<i>To have a voice call to the 6-th entry of active phonebook: ATD>6; OK</i>
	<i>To call the entry with alphanumeric field “Name”: ATD>”Name”; OK</i>
Reference	V25ter.

3.5.3.3.2. Tone Dial - T

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

3.5.3.3.3. Pulse Dial - P

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

3.5.3.3.4. Answer - A

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

3.5.3.3.5. Disconnect - H

H - Disconnect	SELINT 0 / 1 / 2
ATH	Execution command is used to close the current conversation (voice, data or fax). Note: this command can be issued only in command mode; when a data conversation is active the device is in on-line mode (commands are not sensed and characters are sent to the other party), hence escape sequence (see register S2) is



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>]]]	<p>Set command has no effect is included only for backward compatibility with landline modems.</p> <p>Parameters:</p> <p><carrier> - a string which specifies the preferred modem carrier to use in originating or answering a connection</p> <ul style="list-style-type: none"> V21 V22 V22B V23C V32 V34 <p><automode> - it enables/disables automatic modulation negotiation.</p> <ul style="list-style-type: none"> 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;
1 - data compression reporting enabled upon connection.



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

3.5.3.6. S Parameters

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

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

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

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

Example:

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

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

Reference	V25ter and RC56D/RC336D
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3.5.3.6.1. Number Of Rings To Auto Answer - S0

S0 - Number Of Rings To Auto Answer	SELINT 0 / 1
ATS0[=<n>]	Set command sets the number of rings required before device automatically



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

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

3.5.3.6.2. Ring Counter - S1

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

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



3.5.3.6.3. Escape Character - S2

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

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

3.5.3.6.4. Command Line Termination Character - S3

S3 - Command Line Termination Character		SELINT 0 / 1
ATS3[=<char>]	Set command sets the value of the character either recognized by the device as command line terminator and generated by the device as part of the header, trailer, and terminator for result codes and information text, along with S4 parameter. Parameter: <char> - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII CR) Note: the “previous” value of S3 is used to determine the command line termination character for entering the command line containing the S3 setting command. However the result code issued shall use the “new” value of S3 (as set during the	



S3 - Command Line Termination Character		SELINT 0 / 1
	processing of the command line).	
ATS3?	Read command returns the current value of S3 parameter.	
ATS3=?	Test command returns the range for <char> without command echo and parenthesis.	
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s	
Reference	V25ter	

S3 - Command Line Termination Character		SELINT 2
ATS3[=<char>]	<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 .	
	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>]	<p>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.</p> <p>Parameter: <char> - response formatting character (decimal ASCII) 0..127 - factory default value is 10 (ASCII LF)</p> <p>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.</p>	
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>]	Set command sets the amount of time, in seconds, that the device shall allow between either answering a call (automatically or by A command) or completion of signalling of call addressing information to network (dialling), and establishment of a connection with the remote device.	
	Parameter: <tout> - number of seconds 1..255 - factory default value is 60	
ATS7?	Read command returns the current value of S7 parameter .	
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s	
Reference	V25ter	

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>]	Set command sets: 1) the minimum period, before receipt of the first character of the three escape character sequence, during which no other character has to be detected in	



S12 - Escape Prompt Delay	SELINT 0 / 1
	<p>order to accept it as valid first character;</p> <ol style="list-style-type: none"> 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.
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 20..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?	Read command returns the current value of S12 parameter .
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s



3.5.3.6.10. Delay To DTR Off - S25

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

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

3.5.3.6.11. Disconnect Inactivity Timer - S30

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



S30 - Disconnect Inactivity Timer		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	

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

3.5.3.6.12. Delay Before Forced Hang Up - S38

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

S38 -Delay Before Forced Hang Up		SELINT 2
ATS38[=<delay>]	Set command sets the delay, in seconds, between the device's receipt of H command (or ON-to-OFF transition of DTR) and the disconnect operation. Parameter: <delay> - acknowledge timer in units of seconds	



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

3.5.4. 3GPP TS 27.007 AT Commands

3.5.4.1. General

3.5.4.1.1. Request Manufacturer Identification - +CGMI

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

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

3.5.4.1.2. Request Model Identification - +CGMM

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

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



3.5.4.1.3. Request Revision Identification - +CGMR

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

+CGMR - Request Revision Identification		SELINT 2
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>]	<p>Set command sets the current character set used by the device.</p> <p>Parameter:</p> <ul style="list-style-type: none"> <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) <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p>	
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>.	



+CSCS - Select TE Character Set		SELINT 0 / 1
	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) “IRA” - international reference alphabet (ITU-T T.50) “8859-1” - ISO 8859 Latin 1 character set “PCCP437” - PC character set Code Page 437 “UCS2” - 16-bit universal multiple-octet coded character set (ISO/IEC10646)	
AT+CSCS?	Read command returns the current value of the active character set.	
AT+CSCS=?	Test command returns the supported values for parameter <chset>.	
Reference	3GPP TS 27.007	

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

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

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



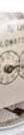
3.5.4.1.7. Multiplexing Mode - +CMUX

+CMUX - Multiplexing Mode		SELINT 2
AT+CMUX= <mode> [,<subset>]	<p>Set command is used to enable/disable the 3GPP TS 27.010 multiplexing protocol control channel.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <mode> multiplexer transparency mechanism 0 - basic option; it is currently the only supported value. <p><subset></p> <ul style="list-style-type: none"> 0 - UIH frames used only; it is currently the only supported value. <p>Note: after entering the Multiplexed Mode an inactive timer of five seconds starts. If no CMUX control channel is established before this inactivity timer expires the engine returns to AT Command Mode</p> <p>Note: all the CMUX protocol parameter are fixed as defined in GSM07.10 and cannot be changed.</p> <p>Note: the maximum frame size is fixed: N1=128</p>	
AT+CMUX?	Read command returns the current value of < mode > and < subset > parameters, in the format: +CMUX: <mode>,<subset>	
AT+CMUX=?	Test command returns the range of supported values for parameters < mode > and < subset >.	
Reference	3GPP TS 27.007, 3GPP TS 27.010	

3.5.4.1.8. Select Wireless Network - +WS46

+WS46 - PCCA STD-101 Select Wireless Network		SELINT 2
AT+WS46=[<n>]	<p>Set command selects the cellular network (Wireless Data Service, WDS) to operate with the TA (WDS-Side Stack Selection).</p> <p>Parameter:</p> <ul style="list-style-type: none"> <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>]]	<p>The set command is used to select the preferred MT power class for each GSM frequency band supported.</p> <p><class>: numeric parameter which indicates the power class preference to be used; its possible values are:</p> <ul style="list-style-type: none"> 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; <p><band>: numeric parameter which indicates the band to apply the power class setting; its possible values are:</p> <ul style="list-style-type: none"> 0 - GSM900 and GSM850; 1 - DCS1800; 2 - PCS1900; <p>Using this command is possible to reduce the Nominal Maximum output power according to the following tables:</p> <p>GSM900 and GSM850</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Power class</th><th style="text-align: center;">Nominal Maximum output power</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">4 (default)</td><td style="text-align: center;">2 W (33 dBm)</td></tr> <tr> <td style="text-align: center;">5</td><td style="text-align: center;">0,8 W (29 dBm)</td></tr> </tbody> </table> <p>DCS1800</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Power class</th><th style="text-align: center;">Nominal Maximum output power</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">1 (default)</td><td style="text-align: center;">1 W (30 dBm)</td></tr> <tr> <td style="text-align: center;">2</td><td style="text-align: center;">0,25 W (24 dBm)</td></tr> </tbody> </table> <p>PCS1900</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Power class</th><th style="text-align: center;">Nominal Maximum output power</th></tr> </thead> <tbody> <tr> <td style="text-align: center;">1 (default)</td><td style="text-align: center;">1 W (30 dBm)</td></tr> <tr> <td style="text-align: center;">2</td><td style="text-align: center;">0,25 W (24 dBm)</td></tr> </tbody> </table> <p>Note: it is advisable to use this command for reducing power consumption when the received signal strength is high (about -70 dBm) and the module is working in static conditions.</p> <p>Note: if <class> is given but <band> is left out, the power class setting is applied to GSM900 and GSM850 bands.</p>	Power class	Nominal Maximum output power	4 (default)	2 W (33 dBm)	5	0,8 W (29 dBm)	Power class	Nominal Maximum output power	1 (default)	1 W (30 dBm)	2	0,25 W (24 dBm)	Power class	Nominal Maximum output power	1 (default)	1 W (30 dBm)	2	0,25 W (24 dBm)
Power class	Nominal Maximum output power																		
4 (default)	2 W (33 dBm)																		
5	0,8 W (29 dBm)																		
Power class	Nominal Maximum output power																		
1 (default)	1 W (30 dBm)																		
2	0,25 W (24 dBm)																		
Power class	Nominal Maximum output power																		
1 (default)	1 W (30 dBm)																		
2	0,25 W (24 dBm)																		



	Note: the setting is saved in NVM (and available on following reboot).
AT+CPWC?	The read command returns the currently output power class and default output power class for each supported frequency band in the format: +CPWC: <curr_class1>,<def_class1>,<band1>[,<curr_class2>,<def_class2>,<band2>[...]] Note: <band1> parameter and its associated power class parameters refer to the currently used frequency band.
AT+CPWC=?	Test command returns supported bands and their power classes in the format: +CPWC: list of supported (<band> , (list of <class>s)) pairs
Reference	3GPP TS 27.007 and GSM 05.05

3.5.4.2. Call Control

3.5.4.2.1. Hang Up Call - +CHUP

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

3.5.4.2.2. Select Bearer Service Type - +CBST

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



+CBST - Select Bearer Service Type		SELINT 0 / 1
	<p>71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing)</p> <p><name> - bearer service name 0 - data circuit asynchronous (factory default)</p> <p><ce> - connection element 0 - transparent 1 - non transparent (default)</p> <p>Note: the settings AT+CBST=0,0,0 AT+CBST=14,0,0 AT+CBST=75,0,0 are not supported.</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p> <p>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</p>	
AT+CBST?	Read command returns current value of the parameters <speed>, <name> and <ce>	
AT+CBST=?	Test command returns the supported range of values for the parameters.	
Reference	3GPP TS 27.007	

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



+CBST - Select Bearer Service Type		SELINT 2
	<p>70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing)</p> <p><name> - bearer service name 0 - data circuit asynchronous (factory default)</p> <p><ce> - connection element 0 - transparent 1 - non transparent (default)</p> <p>Note: the settings AT+CBST=0,0,0 AT+CBST=14,0,0 AT+CBST=75,0,0 are not supported.</p> <p>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</p>	
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>]]]]]	<p>Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls are originated</p> <p>Parameters:</p> <p><iws> - IWF window Dimension 1..61 - factory default value is 61</p> <p><mws> - MS window Dimension 1..61 - default value is 61</p> <p><T1> - acknowledge timer (10 ms units). 39..255 - default value is 78</p> <p><N2> - retransmission attempts 1..255 - default value is 6</p> <p><ver> - protocol version 0</p>	
AT+CRLP?	Read command returns the current value of the RLP protocol parameters.	



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

3.5.4.2.5. Extended Error Report - +CEER

+CEER - Extended Error Report		SELINT 0 / 1
AT+CEER	Execution command returns one or more lines of information text <report> offering the TA user an extended error report, in the format:	

+CEER: <report>



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

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

3.5.4.2.6. Cellular Result Codes - +CRC

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



+CRC - Cellular Result Codes		SELINT 0 / 1
	instead of the normal RING . where <type> - call type: DATA FAX - facsimile (TS 62) VOICE - normal voice (TS 11)	
AT+CRC?	Read command returns current value of the parameter <mode> .	
AT+CRC=?	Test command returns supported values of the parameter <mode> .	
Reference	3GPP TS 27.007	

+CRC - Cellular Result Codes		SELINT 2
AT+CRC= [<mode>]	Set command controls whether or not the extended format of incoming call indication is used. Parameter: <mode> 0 - disables extended format reporting (factory default) 1 - enables extended format reporting: When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING . where <type> - call type: ASYNC - asynchronous transparent data SYNC - synchronous transparent data REL ASYNC - asynchronous non-transparent data REL SYNC - synchronous non-transparent data FAX - facsimile (TS 62) VOICE - normal voice (TS 11)	
AT+CRC?	Read command returns current value of the parameter <mode> .	
AT+CRC=?	Test command returns supported values of the parameter <mode> .	
Reference	3GPP TS 27.007	

3.5.4.2.7. Single Numbering Scheme - +CSNS

+CSNS - Single Numbering Scheme		SELINT 0 / 1 / 2
AT+CSNS= [<mode>]	Set command selects the bearer to be used when no bearer capability information is provided within a mobile terminated call. The command has to be set before the call	



+CSNS - Single Numbering Scheme		SELINT 0 / 1 / 2
	<p>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	

3.5.4.2.8. Voice Hang Up Control - +CVHU

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

+CVHU - Voice Hang Up Control		SELINT 2
AT+CVHU=[<mode>]	<p>Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not.</p> <p>Parameter: <mode> 0 - "Drop DTR" ignored but OK result code given. ATH disconnects.</p>	



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

3.5.4.3. Network Service Handling

3.5.4.3.1. Subscriber Number - +CNUM

+CNUM - Subscriber Number		SELINT 0 / 1
AT+CNUM	Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format: +CNUM: <number>,<type> where <number> - string containing the phone number in the format <type> <type> - type of number: 129 - national numbering scheme 145 - international numbering scheme (contains the character "+").	
Reference	3GPP TS 27.007	

+CNUM - Subscriber Number		SELINT 2
AT+CNUM	<p>If the ENS functionality has not been previously enabled (see #ENS)</p> <p>Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format: +CNUM: <alpha>,<number>,<type></p> <p>If the ENS functionality has been previously enabled (see #ENS)</p> <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>	



+CNUM - Subscriber Number		SELINT 2
		<p>where:</p> <p><alpha> - alphanumeric string associated to <number>; used character set should be the one selected with +CSCS.</p> <p><number> - string containing the phone number in the format <type></p> <p><type> - type of number:</p> <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+").
AT+CNUM=?		Test command returns the OK result code
Reference		3GPP TS 27.007

3.5.4.3.2. Read Operator Names - +COPN

+COPN - Read Operator Names		SELINT 0 / 1
AT+COPN	Execution command returns the list of operator names from the ME in the format:	
<pre>+COPN: <numeric1>,<alpha1>[<CR><LF><CR><LF> +COPN: <numeric2>,<alpha2>[...]]</pre> <p>where:</p> <p><numericn> - string type, operator in numeric format (see +COPS)</p> <p><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	Execution command returns the list of operator names from the ME in the format:	
<pre>+COPN: <numeric1>,<alpha1>[<CR><LF> +COPN: <numeric2>,<alpha2>[...]]</pre> <p>where:</p> <p><numericn> - string type, operator in numeric format (see +COPS)</p> <p><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> 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?	Read command reports the <mode> and <stat> parameter values in the format: +CREG: <mode>,<stat>[,<Lac>,<Ci>] Note: <Lac> and <Ci> are reported only if <mode>=2 and the mobile is registered on some network cell.	
AT+CREG=?	Test command returns the range of supported <mode>	
Example	AT OK at+creg? +CREG: 0,2	



+CREG - Network Registration Report		SELINT 0 / 1
	OK (the MODULE is in network searching state) at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,1 OK <i>(the MODULE is registered)</i> 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:</p> <p><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>+CREG: <stat></p> <p>where</p> <p><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 	



+CREG - Network Registration Report		SELINT 2
	<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>	
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=?	Test command returns the range of supported <mode>	
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 OK at+creg? +CREG: 0,1 OK (the MODULE is registered) at+creg? +CREG: 0,1 OK</pre>	
Reference	3GPP TS 27.007	
Note	<p>There are situations in which the presentation of the URC controlled by +CREG is slightly different from ETSI specifications: e.g. it is possible to have an excessive presentation of the URC +CREG: 4. We identified this behaviour and decided to maintain it as default for backward compatibility issues. It is indeed possible to avoid it simply issuing AT#REGMODE=1 (see #REGMODE): this puts the Operation Mode of Registration Status Commands in 'Enhanced Registration'</p>	



+CREG - Network Registration Report	SELINT 2
'Operation Mode' which is more formal.	

3.5.4.3.4. Operator Selection - +COPS

+COPS - Operator Selection	SELINT 0 / 1
<p>AT+COPS[= [<mode> ,<format> ,<oper>]]]</p> <p>The behaviour of +COPS command depends on the last #COPSMODE setting.</p> <p style="text-align: center;">(#COPSMODE=0)</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - automatic choice (the parameter <oper> will be ignored) (factory default) 1 - manual choice unlocked (network is kept as long as available, then it can be changed with some other suited networks to guarantee the service) 2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1, 4 or 5 is issued 3 - set only <format> parameter (the parameter <oper> will be ignored) 4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered 5 - manual choice locked (network is kept fixed, if the chosen network is not available, then the mobile has no service) <p><format></p> <ul style="list-style-type: none"> 0 - alphanumeric long form (max length 16 digits) 1 - alphanumeric short form 2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)] <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> <ul style="list-style-type: none"> 0 - automatic choice (the parameter <oper> will be ignored) (default) 1 - manual choice (<oper> field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1 or 4 is issued 3 - set only <format> parameter (the parameter <oper> will be ignored) 4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered 	<p>SELINT 0 / 1</p>



+COPS - Operator Selection		SELINT 0 / 1
	<p><format> 0 - alphanumeric long form (max length 16 digits) 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> <p>Note: issuing AT+COPS<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+COPS=<CR> is the same as issuing the command AT+COPS=0<CR>.</p>	
AT+COPS?	<p>Read command returns current value of <mode>, <format> and <oper> in format <format>; if no operator is selected, <format> and <oper> are omitted</p> <p>+COPS: <mode>[,<format>,<oper>]</p>	
AT+COPS=?	<p>Test command returns a list of quadruplets, each representing an operator present in the network.</p> <p>The behaviour of Test command depends on the last #COPSMODE setting.</p> <p style="text-align: center;">(#COPSMODE=0)</p> <p>The command outputs as many rows as the number of quadruplets, each of them in the format:</p> <p>+COPS: (<stat> ,<oper (in <format>=0)>,"",<oper (in <format>=2)>)</p> <p>where</p> <p><stat> - operator availability</p> <ul style="list-style-type: none"> 0 - unknown 1 - available 2 - current 3 - forbidden <p style="text-align: center;">(#COPSMODE=1)</p> <p>The quadruplets in the list are separated by commas:</p>	



+COPS - Operator Selection		SELINT 0 / 1
	<p>+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,,<oper (in <format>=2)>)s][,(list of supported <mode>s), (list of supported<format>s)]</p> <p>where</p> <p><stat> - operator availability</p> <ul style="list-style-type: none"> 0 - unknown 1 - available 2 - current 3 - forbidden <p>Note: since with this command a network scan is done, this command may require some seconds before the output is given.</p> <p>Note: The value of parameter <oper> (in <format>=0) is the same as the former GM862 family products.</p>	
Reference	3GPP TS 27.007	

+COPS - Operator Selection		SELINT 2
AT+COPS= [<mode> [,<format> [,<oper>]]]	<p>Set command forces an attempt to select and register the GSM network operator.</p> <p><mode> parameter defines whether the operator selection is done automatically or it is forced by this command to operator <oper>.</p> <p>The operator <oper> shall be given in format <format>.</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - automatic choice (the parameter <oper> will be ignored) (factory default) 1 - manual choice (<oper> field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1 or 4 is issued 3 - set only <format> parameter (the parameter <oper> will be ignored) 4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered <p><format></p> <ul style="list-style-type: none"> 0 - alphanumeric long form (max length 16 digits) 2 - Numeric 5 or 6 digits [country code (3) + network code (2 or 3)] <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, 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>	
AT+COPS?	Read command returns current value of <mode>, <format> and <oper> in format	



+COPS - Operator Selection		SELINT 2
<format>; if no operator is selected, <format> and <oper> are omitted		
+COPS: <mode>[, <format>, <oper>]		
AT+COPS=?		<p>Test command returns a list of quadruplets, each representing an operator present in the network. The quadruplets in the list are separated by commas:</p> <p>+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,,<oper (in <format>=2)>)s][,(list of supported <mode>s), (list of supported<format>s)]</p> <p>where <stat> - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden</p> <p>Note: since with this command a network scan is done, this command may require some seconds before the output is given.</p>
Reference		3GPP TS 27.007

3.5.4.3.5. Facility Lock/Unlock - +CLCK

+CLCK - Facility Lock/Unlock		SELINT 0 / 1
AT+CLCK= <fac>,<mode> $[,<\text{passwd}>]$ $[,<\text{class}>]$	<p>Execution command is used to lock or unlock a ME o 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"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for <mode>=0) "AG" - All outGoing barring services (applicable only for <mode>=0) "AC" - All inComing barring services (applicable only for <mode>=0) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "PN" - network Personalisation "PU" - network subset Personalisation <p><mode> - defines the operation to be done on the facility</p> <p>0 - unlock facility</p>	



+CLCK - Facility Lock/Unlock		SELINT 0 / 1
	<p>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>	
Note: when <mode>=2 and command successful, it returns:		
+CLCK: <status>		
where		
<status> - current status of the facility		
0 - not active 1 - active		
AT+CLCK=?	Test command reports all the facility supported by the device.	
Reference	3GPP TS 27.007	
Note	The improving command @CLCK has been defined.	

+CLCK - Facility Lock/Unlock		SELINT 2
AT+CLCK= <fac>,<mode> [,<passwd> [,<class>]]	<p>Execution command is used to lock or unlock a ME o a network facility.</p> <p>Parameters:</p> <p><fac> - facility</p> <p>"PS" - PH-SIM (lock PPhone to SIM card) MT asks password when other than current SIM card inserted; MT may remember certain amount of previously used cards thus not requiring password when they are inserted</p> <p>"PF" - lock Phone to the very First inserted SIM card (MT asks password when other than the first SIM card is inserted)</p> <p>"SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued)</p> <p>"AO"- BAOC (Barr All Outgoing Calls)</p> <p>"OI"- BOIC (Barr Outgoing International Calls)</p> <p>"OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country)</p> <p>"AI" - BAIC (Barr All Incoming Calls)</p> <p>"IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country)</p> <p>"AB" - All Barring services (applicable only for <mode>=0)</p>	



+CLCK - Facility Lock/Unlock		SELINT 2
	<p>"AG" - All outGoing barring services (applicable only for <mode>=0) "AC" - All inComing barring services (applicable only for <mode>=0) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "PN" - network Personalisation "PU" - network subset Personalisation "PP" - service Provider Personalization "PC" - Corporate Personalization "MC" – Multi Country Lock²⁶ <mode> - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status <passwd> - shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD <class> - sum of integers each representing a class of information (default is 7) 1 - voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access</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</pre>	

²⁶ Only available on software version 10.00.00x



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"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for <mode>=0) "AG" - All outGoing barring services (applicable only for <mode>=0) "AC" - All inComing barring services (applicable only for <mode>=0) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "PN" - network Personalisation "PU" - network subset Personalisation <p><mode> - defines the operation to be done on the facility</p> <ul style="list-style-type: none"> 0 - unlock facility 1 - lock facility 2 - query status <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 	



@CLCK - Facility Improved Lock/Unlock		SELINT 0 / 1
	<classn> - class of information of the facility	
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</pre> <p>OK</p>	

3.5.4.3.7. Change Facility Password - +CPWD

+CPWD - Change Facility Password		SELINT 0 / 1
AT+CPWD=<fac>,<oldpwd>,<newpwd>	Execution command changes the password for the facility lock function defined by command Facility Lock +CLCK .	
	<p>Parameters:</p> <p><fac> - facility “SC” - SIM (PIN request) “AB” - All barring services “P2” - SIM PIN2</p> <p><oldpwd> - string type, it shall be the same as password specified for the facility from the ME user interface or with command +CPWD.</p> <p><newpwd> - string type, it is the new password</p> <p>Note: parameter <oldpwd> is the old password while <newpwd> is the new one.</p>	
AT+CPWD=?	Test command returns a list of pairs (<fac>,<pwdlength>) which presents the available facilities and the maximum length of their password (<pwdlength>)	
Example	at+cpwd=? +CPWD: ("SC",8),("AB",4),("P2",4) OK	
Reference	3GPP TS 27.007	

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



+CPWD - Change Facility Password		SELINT 2
	<p>“PS”- SIM VO</p> <p><oldpwd> - string type, it shall be the same as password specified for the facility from the ME user interface or with command +CPWD.</p> <p><newpwd> - string type, it is the new password</p> <p>Note: parameter <oldpwd> is the old password while <newpwd> is the new one.</p>	
AT+CPWD=?	Test command returns a list of pairs (<fac>,<pwdlength>) which presents the available facilities and the maximum length of their password (<pwdlength>)	
Example	at+cpwd=? +CPWD: ("SC",8),("AB",4),("P2",8),("PS",8) OK	
Reference	3GPP TS 27.007	

3.5.4.3.8. Calling Line Identification Presentation - +CLIP

+CLIP - Calling Line Identification Presentation		SELINT 0 / 1
AT+CLIP[=<n>]	<p>Set command enables/disables the presentation of the CLI (Calling Line Identity) at the TE. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call.</p> <p>Parameters:</p> <p><n></p> <p>0 - disables CLI indication (factory default) 1 - enables CLI indication</p> <p>If enabled the device reports after each RING the response:</p> <p>+CLIP: <number>,<type>,”,128,<alpha>,<CLI_validity></p> <p>where:</p> <p><number> - string type phone number of format specified by <type></p> <p><type> - type of address octet in integer format</p> <p>128 - both the type of number and the numbering plan are unknown 129 - unknown type of number and ISDN/Telephony numbering plan 145 - international type of number and ISDN/Telephony numbering plan (contains the character "+")</p> <p><alpha> - string type; alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE character set +CSCS.</p> <p><CLI_validity></p> <p>0 - CLI valid 1 - CLI has been withheld by the originator.</p>	



+CLIP - Calling Line Identification Presentation		SELINT 0 / 1
	<p>2 - CLI is not available due to interworking problems or limitation or originating network.</p> <p>Note: in the +CLIP: response they are currently not reported either the subaddress information (it's always "" after the 2nd comma) and the subaddress type information (it's always 128 after the 3rd comma)</p> <p>Note: issuing AT+CLIP<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CLIP=<CR> is the same as issuing the command AT+CLIP=0<CR>.</p>	
AT+CLIP?	<p>Read command returns the presentation status of the CLI in the format:</p> <p>+CLIP: <n>,<m></p> <p>where:</p> <p><n></p> <p>0 - CLI presentation disabled 1 - CLI presentation enabled</p> <p><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)</p> <p>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.</p>	
AT+CLIP=?	Test command returns the supported values of the 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.	

+CLIP - Calling Line Identification Presentation		SELINT 2
AT+CLIP=[<n>]	<p>Set command enables/disables the presentation of the CLI (Calling Line Identity) at the TE. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call.</p> <p>Parameters:</p> <p><n></p> <p>0 - disables CLI indication (factory default) 1 - enables CLI indication</p> <p>If enabled the device reports after each RING the response:</p>	



+CLIP - Calling Line Identification Presentation		SELINT 2
	<p>+CLIP: <number>,<type>, "",128,<alpha>,<CLI_validity></p> <p>where:</p> <p><number> - string type phone number of format specified by <type></p> <p><type> - type of address octet in integer format</p> <ul style="list-style-type: none"> 128 - both the type of number and the numbering plan are unknown 129 - unknown type of number and ISDN/Telephony numbering plan 145 - international type of number and ISDN/Telephony numbering plan (contains the character "+") <p><alpha> - string type; alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE character set +CSCS.</p> <p><CLI_validity></p> <ul style="list-style-type: none"> 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to interworking problems or limitation or originating network. 	
		<p>Note: in the +CLIP: response they are currently not reported either the subaddress information (it's always "" after the 2nd comma) and the subaddress type information (it's always 128 after the 3rd comma)</p>
AT+CLIP?	Read command returns the presentation status of the CLI in the format:	
	<p>+CLIP: <n>,<m></p> <p>where:</p> <p><n></p> <ul style="list-style-type: none"> 0 - CLI presentation disabled 1 - CLI presentation enabled <p><m> - status of the CLIP service on the GSM network</p> <ul style="list-style-type: none"> 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) 	
		<p>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.</p>
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	



+CLIR - Calling Line Identification Restriction		SELINT 0 / 1
	<p>as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command.</p> <p>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) <p>Note: issuing AT+CLIR<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CLIR=<CR> is the same as issuing the command AT+CLIR=0<CR>.</p>	
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.	

+CLIR - Calling Line Identification Restriction		SELINT 2
AT+CLIR=[<n>]	Set command overrides the CLIR subscription when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command. This command refers to CLIR-service (GSM 02.81) that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call.	

Parameter:



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

3.5.4.3.10. Call Forwarding Number And Conditions - +CCFC

+CCFC - Call Forwarding Number And Condition		SELINT 0 / 1 / 2
<p>AT+CCFC= <reason>, <cmd>[,<number>[,<type>[,<class>[,,<time>]]]]</p>	<p>Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.</p> <p>Parameters:</p> <p><reason></p> <p>0 - unconditional 1 - mobile busy 2 - no reply 3 - not reachable 4 - all calls (not with query command) 5 - all conditional calls (not with query command)</p> <p><cmd></p> <p>0 - disable 1 - enable 2 - query status 3 - registration 4 - erasure</p> <p><number> - string type phone number of forwarding address in format specified by <type> parameter</p> <p><type> - type of address octet in integer format :</p>	



+CCFC - Call Forwarding Number And Condition		SELINT 0 / 1 / 2
	<p>129 - national numbering scheme 145 - international numbering scheme (contains the character "+")</p> <p><class> - sum of integers each representing a class of information which the command refers to; default 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><time> - time in <i>seconds</i> to wait before call is forwarded; it is valid only when <reason> "no reply" is enabled (<cmd>=1) or queried (<cmd>=2) 1..30 - automatically rounded to a multiple of 5 seconds (default is 20)</p> <p>Note: when <cmd>=2 and command successful, it returns:</p> <pre>+CCFC: <status>,<class1>[,<number>,<type>[,,<time>]][<CR><LF> +CCFC: <status>,<class2>[,<number>,<type>[,,<time>]][...]]</pre> <p>where: <status> - current status of the network service 0 - not active 1 - active <classn> - same as <class> <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>]]]]	Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported.	Parameters: <n> - enables/disables the presentation of an unsolicited result code: 0 - disable



+CCWA - Call Waiting	SELINT 0 / 1
	<p>1 - enable <cmd> - enables/disables or queries the service at network level: 0 - disable 1 - enable 2 - query status <class> - is a sum of integers each representing a class of information which the command refers to; default is 7 (voice + data + fax) 1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access</p> <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: 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>



+CCWA - Call Waiting	SELINT 0 / 1
	<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=[<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> <ul style="list-style-type: none"> <n> - enables/disables the presentation of an unsolicited result code: <ul style="list-style-type: none"> 0 - disable 1 - enable <cmd> - enables/disables or queries the service at network level: <ul style="list-style-type: none"> 0 - disable 1 - enable 2 - query status <class> - is a sum of integers each representing a class of information which the command refers to; default is 7 (voice + data + fax) <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>



+CCWA - Call Waiting	SELINT 2
	<p>+CCWA: <status>,<class1>[<CR><LF> +CCWA: <status>,<class2>[...]]</p> <p>where <status> represents the status of the service: 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>] 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>
AT+CCWA?	Read command reports the current value of the parameter <n>.
AT+CCWA=?	Test command reports the supported values for the parameter <n>.
Reference	3GPP TS 27.007

3.5.4.3.12. Call Holding Services - +CHLD

+CHLD - Call Holding Services	SELINT 0 / 1
	

+CHLD - Call Holding Services		SELINT 0 / 1
AT+CHLD=<n>	<p>Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection.</p> <p>Parameter:</p> <p><n></p> <ul style="list-style-type: none"> 0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. 1 - releases all active calls (if any exist), and accepts the other (held or waiting) call 1X - releases a specific active call X 2 - places all active calls (if any exist) on hold and accepts the other (held or waiting) call. 2X - places all active calls on hold except call X with which communication shall be supported 3 - adds an held call to the conversation <p>Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number.</p> <p>Note: where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation.</p>	
AT+CHLD=?	<p>Test command returns the list of supported <n>s.</p> <p>+CHLD: (0,1,2,3)</p> <p>Note: consider what has been written about the Set command relating the actions on a specific call (X).</p>	
Reference	3GPP TS 27.007	
Note	ONLY for VOICE calls	

+CHLD - Call Holding Services		SELINT 2
AT+CHLD=[<n>]	<p>Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection.</p> <p>Parameter:</p> <p><n></p> <ul style="list-style-type: none"> 0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. (only from version D) 1 - releases all active calls (if any exist), and accepts the other (held or waiting) call 	



+CHLD - Call Holding Services		SELINT 2
	<p>1X - releases a specific active call X 2 - places all active calls (if any exist) on hold and accepts the other (held or waiting) call. 2X - places all active calls on hold except call X with which communication shall be supported (only from version D). 3 - adds an held call to the conversation 4 - connects the two calls and disconnects the subscriber from both calls (Explicit Call Transfer (ECT))</p> <p>Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number.</p> <p>Note: where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation.</p>	
AT+CHLD=?	Test command returns the list of supported <n>s.	
	+CHLD: (0,1,1X,2,2X,3,4)	
Reference	3GPP TS 27.007	
Note	ONLY for VOICE calls	

3.5.4.3.13. Unstructured Supplementary Service Data - +CUSD

+CUSD - Unstructured Supplementary Service Data		SELINT 0 / 1
AT+CUSD[= [<n>[,<str> [,<dcs>]]]]	<p>Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]).</p> <p>Parameters:</p> <ul style="list-style-type: none"> <n> - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the DTA 1 - enable the result code presentation in the DTA <p><str> - USSD-string (when <str> parameter is not given, network is not interrogated)</p> <ul style="list-style-type: none"> - If <dcs> indicates that GSM338 default alphabet is used ME/TA converts GSM alphabet into current TE character set (see +CSCS) - If <dcs> indicates that 8-bit data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65). <p><dcs> - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0).</p>	



+CUSD - Unstructured Supplementary Service Data		SELINT 0 / 1
	<p>Note: the unsolicited result code enabled by parameter <n> is in the format:</p> <p>+CUSD: <m>[,<str>,<des>] to the TE</p> <p>where:</p> <p><m>:</p> <ul style="list-style-type: none"> 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out <p>Note: in case of successful mobile initiated operation, DTA waits the USSD response from the network and sends it to the DTE before the final result code. This will block the AT command interface for the period of the operation.</p> <p>Note: issuing AT+CUSD<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CUSD=<CR> is the same as issuing the command AT+CUSD=0<CR>.</p>	
AT+CUSD?	Read command reports the current value of the parameter <n>	
AT+CUSD=?	Test command reports the supported values for the parameter <n>	
Reference	3GPP TS 27.007	
Note	Only mobile initiated operations are supported	

+CUSD - Unstructured Supplementary Service Data		SELINT 2
AT+CUSD=[<n>[,<str>[,<dcs>]]]	<p>Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]).</p> <p>Parameters:</p> <p><n> - is used to disable/enable the presentation of an unsolicited result code.</p> <ul style="list-style-type: none"> 0 - disable the result code presentation in the DTA 1 - enable the result code presentation in the DTA 2 - cancel an ongoing USSD session (not applicable to read command response) <p><str> - USSD-string (when <str> parameter is not given, network is not interrogated)</p> <ul style="list-style-type: none"> - If <dcs> indicates that GSM338 default alphabet is used ME/TA converts GSM alphabet into current TE character set (see +CSCS). - If <dcs> indicates that 8-bit data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet 	



+CUSD - Unstructured Supplementary Service Data		SELINT 2
	<p>with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65).</p> <p><des> - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0).</p> <p>Note: the unsolicited result code enabled by parameter <n> is in the format:</p> <p>+CUSD: <m>[,<str>,<des>] to the TE</p> <p>where:</p> <p><m>:</p> <ul style="list-style-type: none"> 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out 	
AT+CUSD?	Read command reports the current value of the parameter <n>	
AT+CUSD=?	Test command reports the supported values for the parameter <n>	
Reference	3GPP TS 27.007	
Note	Only mobile initiated operations are supported	



3.5.4.3.14. Advice Of Charge - +CAOC

+CAOC - Advice Of Charge		SELINT 0 / 1
AT+CAOC[= <mode>]]	Set command refers to the Advice of Charge supplementary services that enable subscriber to get information about the cost of calls; the command also includes the possibility to enable an unsolicited event reporting of the Current Call Meter (CCM) information.	
<p>Parameter: <mode></p> <p>0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting</p>		
<p>Note: the unsolicited result code enabled by parameter <mode> is in the format:</p> <p>+CCCM: <ccm></p>		
<p>where: <ccm> - current call meter in home units, string type: three bytes of the CCM value in hexadecimal format (e.g. “00001E” indicates decimal value 30)</p>		
<p>Note: the unsolicited result code +CCCM is sent when the CCM value changes, but not more than every 10 seconds.</p>		
<p>Note: issuing AT+CAOC<CR> is the same as issuing the Read command.</p>		
<p>Note: issuing AT+CAOC=<CR> is the same as issuing the command AT+CAOC=0<CR>.</p>		
AT+CAOC?	Read command reports the value of parameter <mode> in the format:	
<p>+CAOC: <mode></p>		
AT+CAOC=?	Test command reports the supported values for <mode> parameter.	
<p>Note: the representation format doesn't match the v.25ter §5.7.3 “Information text formats for test commands”. The output is:</p> <p>+CAOC: 0, 1, 2</p>		
Reference	3GPP TS 27.007	
Note	<p>+CAOC command returns an estimate of the cost of the current call only, produced by the MS and based on the information provided by either AoCI or AOCC supplementary services; it is not stored in the SIM.</p>	

+CAOC - Advice Of Charge		SELINT 2
AT+CAOC=<mode>	Set command refers to the Advice of Charge supplementary services that enable subscriber to get information about the cost of calls; the command also includes the possibility to enable an unsolicited event reporting of the Current Call Meter (CCM) information.	



+CAOC - Advice Of Charge		SELINT 2
	<p>Parameter: <mode> 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting</p> <p>Note: the unsolicited result code enabled by parameter <mode> is in the format:</p> <p>+CCCM: <ccm></p> <p>where: <ccm> - current call meter in home units, string type: three bytes of the CCM value in hexadecimal format (e.g. “00001E” indicates decimal value 30)</p> <p>Note: the unsolicited result code +CCCM is sent when the CCM value changes, but not more than every 10 seconds.</p>	
AT+CAOC?	Read command reports the value of parameter <mode> in the format:	
	+CAOC: <mode>	
AT+CAOC=?	Test command reports the supported values for <mode> parameter.	
Reference	3GPP TS 27.007	
Note	+CAOC command returns an estimate of the cost of the current call only, produced by the MS and based on the information provided by either AoCI or AOCC supplementary services; it is not stored in the SIM.	

3.5.4.3.15. List Current Calls - +CLCC

+CLCC - List Current Calls		SELINT 0 / 1
AT+CLCC	<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> [<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,<mpty>,<number>,<type>[...]]]</p> <p>where: <idn> - call identification number</p> <p><dir> - call direction 0 - mobile originated call 1 - mobile terminated call</p> <p><stat> - state of the call 0 - active</p>	



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



+CLCC - List Current Calls		SELINT 2
	<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> <type> - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <alpha> - string type; alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with +CSCS.</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>	
AT+CLCC=?	Test command returns the OK result code	
Reference	3GPP TS 27.007	

3.5.4.3.16. SS Notification - +CSSN

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



+CSSN - SS Notification		SELINT 0 / 1
	<p>2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred</p> <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></p> <p>is sent to TE, where:</p> <p><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) <p>Note: issuing AT+CSSN<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CSSN=<CR> is the same as issuing the command AT+CSSN=0<CR>.</p>	
AT+CSSN?	Read command reports the current value of the parameters.	
AT+CSSN=?	Test command reports the supported range of values for parameters <n> , <m> .	
Reference	3GPP TS 27.007	

+CSSN - SS Notification		SELINT 2
AT+CSSN=[<n>[,<m>]]	<p>It refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from TA to TE.</p> <p>Parameters:</p> <p><n> - sets the +CSSI result code presentation status 0 - disable 1 - enable</p> <p><m> - sets the +CSSU result code presentation status 0 - disable 1 - enable</p> <p>When <n>=1 and a supplementary service notification is received after a mobile originated call setup, an unsolicited code:</p> <p>+CSSI: <code1></p> <p>is sent to TE before any other MO call setup result codes, where:</p> <p><code1>:</p> <ul style="list-style-type: none"> 0 - unconditional call forwarding is active 1 - some of the conditional call forwardings are active 	



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

3.5.4.3.17. Closed User Group - +CCUG

+CCUG - Closed User Group Supplementary Service Control		SELINT 0 / 1
AT+CCUG[= [<n>[,<index> [,<info>]]]]	Set command allows control of the Closed User Group supplementary service [GSM 02.85]. Parameters: <n> 0 - disable CUG temporary mode (factory default). 1 - enable CUG temporary mode: it enables to control the CUG information on the air interface as a default adjustment for all following outgoing calls. <index> 0..9 - CUG index 10 - no index (preferential CUG taken from subscriber data) (default) <info> 0 - no information (default) 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG 3 - suppress OA and preferential CUG	
Note: issuing AT+CCUG<CR> is the same as issuing the Read command. Note: issuing AT+CCUG=<CR> is the same as issuing the command AT+CCUG=0<CR> .		



+CCUG - Closed User Group Supplementary Service Control		SELINT 0 / 1
AT+CCUG?	Read command reports the current value of the parameters	
AT+CCUG=?	Test command reports the supported range of values for the parameters <n>, <index>, <info>	
Reference	3GPP TS 27.007	

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

3.5.4.3.18. Preferred Operator List - +CPOL

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



+CPOL - Preferred Operator List	SELINT 2
Reference	3GPP TS 27.007

3.5.4.3.19. Selection of preferred PLMN list - +CPLS

+CPLS - Selection of preferred PLMN list	SELINT 2
AT+CPLS=<list>	<p>The execution command is used to select a list of preferred PLMNs in the SIM/USIM.</p> <p>Parameters:</p> <p><list>:</p> <ul style="list-style-type: none"> 0 - User controlled PLMN selector with Access Technology EFPLMNwAcT, if not found in the SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC) 1 - Operator controlled PLMN selector with Access Technology EFOPLMNwAcT 2 - HPLMN selector with Access Technology EFHPLMNwAcT <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific CMUX instance.</p>
AT+CPLS?	Read command returns the selected PLMN selector <list> from the SIM/USIM.
AT+CPLS=?	Test command returns the whole index range supported <list>s by the SIM/USIM.

3.5.4.3.20. Call deflection - +CTFR

+CTFR - Call deflection	SELINT 2
AT+CTFR=<number>[,<type>]	<p>Set command is used to request a service that causes an incoming alerting call to be forwarded to a specified number. This is based on the GSM/UMTS supplementary service CD (Call Deflection; refer 3GPP TS 22.072).</p> <p>Parameters:</p> <p><number>: string type phone number of format specified by <type></p> <p><type>: type of address octet in integer format; default 145 when dialling string includes international access code character "+", otherwise 129</p> <p>Note: Call Deflection is only applicable to an incoming voice call</p>
AT+CTFR=?	Test command tests for command existence



3.5.4.4. Mobile Equipment Control

3.5.4.4.1. Phone Activity Status - +CPAS

+CPAS - Phone Activity Status		SELINT 0 / 1
AT+CPAS	<p>Execution command reports the device status in the form:</p> <p>+CPAS: <pas></p> <p>Where:</p> <p><pas> - phone activity status</p> <ul style="list-style-type: none"> 0 - ready (device allows commands from TA/TE) 1 - unavailable (device does not allow commands from TA/TE) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from TA/TE, but the ringer is active) 4 - call in progress (device is ready for commands from TA/TE, but a call is in progress) 	
AT+CPAS?	Read command has the same effect as Execution command.	
AT+CPAS=?	<p>Test command reports the supported range of values for <pas>.</p> <p>Note: although +CPAS is an execution command, ETSI 07.07 requires the Test command to be defined.</p>	
Reference	3GPP TS 27.007	

+CPAS - Phone Activity Status		SELINT 2
AT+CPAS	<p>Execution command reports the device status in the form:</p> <p>+CPAS: <pas></p> <p>Where:</p> <p><pas> - phone activity status</p> <ul style="list-style-type: none"> 0 - ready (device allows commands from TA/TE) 1 - unavailable (device does not allow commands from TA/TE) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from TA/TE, but the ringer is active) 4 - call in progress (device is ready for commands from TA/TE, but a call is in progress) 	
AT+CPAS=?	<p>Test command reports the supported range of values for <pas>.</p> <p>Note: although +CPAS is an execution command, ETSI 07.07 requires the Test command to be defined.</p>	
Example	<pre>ATD03282131321; OK AT+CPAS +CPAS: 4</pre> <p style="text-align: right;"><i>the called phone has answered to your call</i></p> <pre>OK ATH</pre>	



+CPAS - Phone Activity Status	SELINT 2
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>	<p>Set command selects the level of functionality in the ME.</p> <p>Parameter:</p> <p><fun> - is the power saving function mode</p> <p>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.</p> <p>1 - mobile full functionality with power saving disabled (factory default)</p> <p>2 - disable TX</p> <p>4 - disable either TX and RX</p> <p>5 - mobile full functionality with power saving enabled</p> <p>Note: issuing AT+CFUN=4 actually causes the module to perform either a network deregistration and a SIM deactivation.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Until the DTR line is ON, the module will not return back in the power saving condition.</p> <p>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</p>
AT+CFUN?	Read command reports the current level of functionality.
AT+CFUN=?	<p>Test command returns the list of supported values for <fun></p> <p>For compatibility with previous versions, Test command returns</p>



+CFUN - Set Phone Functionality		SELINT 0 / 1
	+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>]]	<p>Set command selects the level of functionality in the ME.</p> <p>Parameters:</p> <p><fun> - is the power saving function mode</p> <p>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.</p> <p>1 - mobile full functionality with power saving disabled (factory default)</p> <p>2 - disable TX</p> <p>4 - disable both TX and RX</p> <p>5 - mobile full functionality with power saving enabled</p> <p>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.</p> <p>ME exits SLEEP mode only, if AT+CFUN=1 is entered</p> <p>9 – just as 0 but with different wake-up events (see SW User Guide)</p> <p><rst> - reset flag</p> <p>0 - do not reset the ME before setting it to <fun> functionality level</p> <p>1 – reset the device. The device is fully functional after the reset. This value is available only for <fun> = 1 and for 10.00.xxx release</p> <p>Note: issuing AT+CFUN=4[,0] actually causes the module to perform either a network deregistration and a SIM deactivation.</p> <p>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.</p> <p>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.</p> <p>During the power saving condition, before sending any AT command on the serial line, the DTR must be set to ON (0V) to exit from power saving and it must be</p>	



+CFUN - Set Phone Functionality		SELINT 2
	<p>waited for the CTS (RS232) line to go in ON status. Until the DTR line is ON, the module will not return back in the power saving condition.</p> <p>Note: the power saving function does not affect the network behaviour of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call comes during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code</p>	
AT+CFUN?	Read command reports the current setting of <fun>.	
AT+CFUN=?	Test command returns the list of supported values for <fun> and <rst>.	
Reference	3GPP TS 27.007	

3.5.4.4.3. Enter PIN - +CPIN

+CPIN - Enter PIN		SELINT 0 / 1
AT+CPIN[=<pin> [,<newpin>]]	<p>Set command sends to the device a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.).</p> <p>If the PIN required is SIM PUK or SIM PUK2, the <newpin> is required. This second pin, <newpin>, will replace the old pin in the SIM.</p> <p>The command may be used to change the SIM PIN by sending it with both parameters <pin> and <newpin> when PIN request is pending; if no PIN request is pending the command will return an error code and to change the PIN the command +CPWD must be used instead.</p> <p>Parameters:</p> <p><pin> - string type value <newpin> - string type value.</p> <p>To check the status of the PIN request use the command AT+CPIN?</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p>	
AT+CPIN?	<p>Read command reports the PIN/PUK/PUK2 request status of the device in the form:</p> <p>+CPIN:<code></p> <p>where:</p> <p><code> - PIN/PUK/PUK2 request status code</p> <p>READY - ME is not pending for any password</p> <p>SIM PIN - ME is waiting SIM PIN to be given</p> <p>SIM PUK - ME is waiting SIM PUK to be given</p> <p>PH-SIM PIN - ME is waiting phone-to-SIM card password to be given</p> <p>PH-FSIM PIN - ME is waiting phone-to-very first SIM card password to be given</p> <p>PH-FSIM PUK - ME is waiting phone-to-very first SIM card unblocking password to be given</p>	



+CPIN - Enter PIN	SELINT 0 / 1																																								
	<p>SIM PIN2 - ME is waiting SIM PIN2 to be given; this <code> is returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17)</p> <p>SIM PUK2 - ME is waiting SIM PUK2 to be given; this <code> is returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18)</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>PH-MCL PIN – ME is waiting Multi Country Lock 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 either the AT+CLK=SC,<mode>, <pin> command or the AT@CLK=SC,<mode>, <pin> command.</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" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>A</td><td>#GPIO</td><td>#CSURVB</td><td>+CPIN</td></tr> <tr> <td>D</td><td>#ADC</td><td>#CSURVBC</td><td>+CSQ</td></tr> <tr> <td>H</td><td>#DAC</td><td>#CSURVF</td><td>+CCLK</td></tr> <tr> <td>O</td><td>#VAUX</td><td>#CSURVNLF</td><td>+CALA</td></tr> <tr> <td>E</td><td>#CBC</td><td>#CSURVEXT</td><td>+CRSM</td></tr> <tr> <td>I</td><td>#AUTOATT</td><td>#JDR</td><td>+CALM</td></tr> <tr> <td>L</td><td>#MONI</td><td>#WSCRIPT</td><td>+CRSL</td></tr> <tr> <td>M</td><td>#SERVINFO</td><td>#ESCRIPT</td><td>+CLVL</td></tr> <tr> <td>P</td><td>#COPSMODE</td><td>#RSCRIPT</td><td>+CMUT</td></tr> <tr> <td>Q</td><td>#QSS</td><td>#LSCRIPT</td><td>+CMEE</td></tr> </tbody> </table>	A	#GPIO	#CSURVB	+CPIN	D	#ADC	#CSURVBC	+CSQ	H	#DAC	#CSURVF	+CCLK	O	#VAUX	#CSURVNLF	+CALA	E	#CBC	#CSURVEXT	+CRSM	I	#AUTOATT	#JDR	+CALM	L	#MONI	#WSCRIPT	+CRSL	M	#SERVINFO	#ESCRIPT	+CLVL	P	#COPSMODE	#RSCRIPT	+CMUT	Q	#QSS	#LSCRIPT	+CMEE
A	#GPIO	#CSURVB	+CPIN																																						
D	#ADC	#CSURVBC	+CSQ																																						
H	#DAC	#CSURVF	+CCLK																																						
O	#VAUX	#CSURVNLF	+CALA																																						
E	#CBC	#CSURVEXT	+CRSM																																						
I	#AUTOATT	#JDR	+CALM																																						
L	#MONI	#WSCRIPT	+CRSL																																						
M	#SERVINFO	#ESCRIPT	+CLVL																																						
P	#COPSMODE	#RSCRIPT	+CMUT																																						
Q	#QSS	#LSCRIPT	+CMEE																																						



+CPIN - Enter PIN				SELINT 0 / 1
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	\$GPSAV	
#CGMI	#EUSER	+GSN	\$GPSAI	
#CGMM	#EPASSW	+CHUP	\$GPSAP	
#CGMR	#SEMAIL	+CRLP	\$GPSS	
#CGSN	#EMAILD	+CR	\$GPSNMUN	
#CAP	#ESAV	+CRC	\$GPSACP	
#SRS	#ERST	+CSNS	\$GPSWK	
#SRP	#EMAILMSG	+CREG	\$GPSSAV	
#STM	#CSURV	+COPS	\$GPUSRST	
#PCT	#CSURVC	+CLIP	\$GPSCON	
#SHDN	#CSURVU	+CPAS	\$GPSPRG	
#WAKE	#CSURVUC	+CFUN		
#QTEMP				

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

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

Reference 3GPP TS 27.007



+CPIN - Enter PIN	SELINT 2
AT+CPIN=<pin> [,<newpin>]	<p>Set command sends to the device a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.).</p> <p>If the PIN required is SIM PUK or SIM PUK2, the <newpin> is required. This second pin, <newpin> will replace the old pin in the SIM.</p> <p>The command may be used to change the SIM PIN by sending it with both parameters <pin> and <newpin> when PIN request is pending; if no PIN request is pending the command will return an error code and to change the PIN the command +CPWD must be used instead.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <pin> - string type value <newpin> - string type value. <p>To check the status of the PIN request use the command AT+CPIN?</p> <p>Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.</p>
AT+CPIN?	<p>Read command reports the PIN/PUK/PUK2 request status of the device in the form:</p> <p>+CPIN: <code></p> <p>where:</p> <ul style="list-style-type: none"> <code> - PIN/PUK/PUK2 request status code READY - ME is not pending for any password SIM PIN - ME is waiting SIM PIN to be given SIM PUK - ME is waiting SIM PUK to be given PH-SIM PIN - ME is waiting phone-to-SIM card password to be given PH-FSIM PIN - ME is waiting phone-to-very first SIM card password to be given PH-FSIM PUK - ME is waiting phone-to-very first SIM card unblocking password to be given SIM PIN2 - ME is waiting SIM PIN2 to be given; this <code> is returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17) SIM PUK2 - ME is waiting SIM PUK2 to be given; this <code> is returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18) PH-NET PIN - ME is waiting network personalization password to be given PH-NET PUK - ME is waiting network personalization unblocking password to be given PH-NETSUB PIN - ME is waiting network subset personalization password to be given PH-NETSUB PUK - ME is waiting network subset personalization unblocking password to be given PH-SP PIN - ME is waiting service provider personalization password to be given PH-SP PUK - ME is waiting service provider personalization unblocking password to be given PH-CORP PIN - ME is waiting corporate personalization password to be given



+CPIN - Enter PIN		SELINT 2																																																																																																																
	PH-CORP PUK - ME is waiting corporate personalization unblocking password to be given																																																																																																																	
	<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+CLK=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	What follows is a list of the commands which are accepted when ME is pending SIM PIN or SIM PUK																																																																																																																	
	<table border="1"> <tbody> <tr><td>A</td><td>#DAC</td><td>#CSURVNLF</td><td>+CPIN</td></tr> <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>#ESCRPT</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> <tr><td>&D</td><td>#BND</td><td>#V24CFG</td><td>+CSDH</td></tr> <tr><td>&F</td><td>#AUTOBND</td><td>#V24</td><td>+CNMI</td></tr> <tr><td>&K</td><td>#RTCSTAT</td><td>+FCLASS</td><td>+FMI</td></tr> <tr><td>&N</td><td>#USERID</td><td>+GCAP</td><td>+FMM</td></tr> <tr><td>&P</td><td>#PASSW</td><td>+GCI</td><td>+FMR</td></tr> <tr><td>&S</td><td>#PKTSZ</td><td>+IPR</td><td>+FTS</td></tr> <tr><td>&V</td><td>#DSTO</td><td>+IFC</td><td>+FRS</td></tr> <tr><td>&W</td><td>#SKTTO</td><td>+ILRR</td><td>+FTM</td></tr> <tr><td>&Y</td><td>#SKTSET</td><td>+ICF</td><td>+FRM</td></tr> <tr><td>&Z</td><td>#SKTOP</td><td>+MS</td><td>+FTH</td></tr> <tr><td>%E</td><td>#SKTCT</td><td>+DS</td><td>+FRH</td></tr> <tr><td>%L</td><td>#SKTSAV</td><td>+DR</td><td>+FLO</td></tr> </tbody> </table>		A	#DAC	#CSURVNLF	+CPIN	D	#VAUX	#CSURVEXT	+CSQ	H	#VAUXSAV	#JDR	+CIND	O	#CBC	#WSCRIPT	+CMER	E	#AUTOATT	#ESCRPT	+CCLK	I	#MONI	#RSCRIPT	+CALA	L	#SERVINFO	#LSCRIPT	+CALD	M	#QSS	#DSCRIPT	+CRSM	P	#DIALMODE	#REBOOT	+CALM	Q	#ACAL	#CMUXSCR	+CRSL	S	#ACALEXT	#STARTMODESCR	+CLVL	T	#CODEC	#EXECSCR	+CMUT	V	#SHFEC	#RSEN	+CLAC	X	#HFMICG	#CCID	+CMEE	Z	#HSMICG		+CGREG	&C	#SHFSD	#PLMNMODE	+CBC	&D	#BND	#V24CFG	+CSDH	&F	#AUTOBND	#V24	+CNMI	&K	#RTCSTAT	+FCLASS	+FMI	&N	#USERID	+GCAP	+FMM	&P	#PASSW	+GCI	+FMR	&S	#PKTSZ	+IPR	+FTS	&V	#DSTO	+IFC	+FRS	&W	#SKTTO	+ILRR	+FTM	&Y	#SKTSET	+ICF	+FRM	&Z	#SKTOP	+MS	+FTH	%E	#SKTCT	+DS	+FRH	%L	#SKTSAV	+DR	+FLO
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%L	#SKTSAV	+DR	+FLO																																																																																																															



+CPIN - Enter PIN				SELINT 2
	%Q	#SKTRST	+CGMI	+FPR
	\Q	#SPKMUT	+CGMM	+FDD
	\R	#ESMTP	+CGMR	\$GPSP
	\V	#EADDR	+GMI	\$GPSPS
	#SELINT	#EUSER	+GMM	\$GPSR
	#CGMI	#EPASSW	+GMR	\$GPSD
	#CGMM	#SEMAIL	+CGSN	\$GPSSW
	#CGMR	#EMAILD	+GSN	\$GPSAT
	#CGSN	#ESAV	+CMUX	\$GPSAV
	#CAP	#ERST	+CHUP	\$GPSAI
	#SRS	#EMAILMSG	+CRLP	\$GPSAP
	#SRP	#CSURV	+CR	\$GPSS
	#STM	#CSURVC	+CRC	\$GPSNMUN
	#PCT	#CSURVU	+CSNS	\$GPSACP
	#SHDN	#CSURVUC	+CREG	\$GPSWK
	#WAKE	#CSURVB	+COPS	\$GPSSAV
	#QTEMP	#CSURVBC	+CLIP	\$GPSRST
	#GPIO	#CSURVF	+CPAS	\$GPSCON
	#ADC		+CFUN	\$GPSPRG

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

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

Reference 3GPP TS 27.007

3.5.4.4.4. Signal Quality - +CSQ

+CSQ - Signal Quality		SELINT 0 / 1
AT+CSQ	Execution command reports received signal quality indicators in the form: +CSQ: <rssl>,<ber> where <rssl> - received signal strength indication 0 - (-113) dBm or less 1 - (-111) dBm 2..30 - (-109)dBm..(-53)dBm / 2 dBm per step 31 - (-51)dBm or greater 99 - not known or not detectable <ber> - bit error rate (in percent) 0 - less than 0.2%	



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



+CSQ - Signal Quality		SELINT 0 / 1
Note: although +CSQ is an execution command without parameters, ETSI 07.07 requires the Test command to be defined.		
Reference		3GPP TS 27.007

3.5.4.4.5. Indicator Control - +CIND

+CIND - Indicator Control		SELINT 0/1/2
AT+CIND= [<state> [,<state>[,...]]]	<p>Set command is used to control the registration state of ME indicators, in order to automatically send the +CIEV URC, whenever the value of the associated indicator changes. The supported indicators (<descr>) and their order appear from test command AT+CIND=?</p> <p>Parameter: <state> - registration state</p> <p>0 - the indicator is deregistered; there's no unsolicited result code (+CIEV URC) automatically sent by the ME to the application, whenever the value of the associated indicator changes; the value can be directly queried with +CIND?</p> <p>1 - the indicator is registered: an unsolicited result code (+CIEV URC) is automatically sent by the ME to the application, whenever the value of the associated indicator changes; it is still possible to query the value through +CIND? (default)</p>	
		Note: When the ME is switched on all of the indicators are in registered mode.
AT+CIND?	<p>Read command returns the current value of ME indicators, in the format:</p> <p>+CIND: <ind>[,<ind>[,...]]</p> <p>Note: the order of the values <ind>s is the same as that in which the associated indicators appear from test command AT+CIND=?</p>	
AT+CIND=?	<p>Test command returns pairs, where string value <descr> is a description (max. 16 chars) of the indicator and compound value is the supported values for the indicator, in the format:</p> <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> <ul style="list-style-type: none"> “battchg” - battery charge level <ind> - battery charge level indicator range 0..5 99 - not measurable “signal” - signal quality <ind> - signal quality indicator range 0..7 99 - not measurable “service” - service availability <ind> - service availability indicator range 0 - not registered to any network 	



+CIND - Indicator Control		SELINT 0/1/2
	<p>1 - registered “sounder” - sounder activity <ind> - sounder activity indicator range 0 - there's no any sound activity 1 - there's some sound activity “message” - message received <ind> - message received indicator range 0 - there is no unread short message at memory location “SM” 1 - unread short message at memory location “SM” “call” - call in progress <ind> - call in progress indicator range 0 - there's no calls in progress 1 - at least a call has been established “roam” - roaming <ind> - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network “smsfull” - a short message memory storage in the MT has become full (1), or memory locations are available (0) <ind> - short message memory storage indicator range 0 - memory locations are available 1 - a short message memory storage in the MT has become full. “rss” - received signal (field) strength <ind> - received signal strength level indicator range 0 - signal strength \leq (-112) dBm 1..4 - signal strength in (-97) dBm..(-66) dBm (15 dBm steps) 5 - signal strength \geq (-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 <i>Next command causes all the indicators to be de-registered</i> 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</p>	
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> <ul style="list-style-type: none"> <mode> - controls the processing of unsolicited result codes <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. <keyp> - keypad event reporting <ul style="list-style-type: none"> 0 - no keypad event reporting <disp> - display event reporting <ul style="list-style-type: none"> 0 - no display event reporting <ind> - indicator event reporting <ul style="list-style-type: none"> 0 - no indicator event reporting 2 - indicator event reporting <bfr> - TA buffer clearing <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>	
AT+CMER?	Read command returns the current setting of parameters, in the format: +CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>	
AT+CMER=?	Test command returns the range of supported values for parameters <mode>, <keyp>, <disp>, <ind>, <bfr>, in the format: +CMER: (list of supported <mode>s),(list of supported <keyp>s), (list of supported <disp>s),(list of supported <ind>s),(list of supported <bfr>s)	
Reference	3GPP TS 27.007	



3.5.4.4.7. Select Phonebook Memory Storage - +CPBS

+CPBS - Select Phonebook Memory Storage		SELINT 0 / 1
AT+CPBS[= <storage>]	<p>Set command selects phonebook memory storage <storage>, which will be used by other phonebook commands.</p> <p>Parameter: <storage> "SM" - SIM phonebook "FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM) "LD" - SIM last-dialling-phonebook (+CPBF is not applicable for this storage) "MC" - device missed (unanswered received) calls list (+CPBF is not applicable for this storage) "RC" - ME received calls list (+CPBF is not applicable for this storage)</p> <p>Note: If parameter is omitted then Set command has the same behaviour as Read command.</p>	
AT+CPBS?	<p>Read command returns the actual values of the parameter <storage>, the number of occupied records <used> and the maximum index number <total>, in the format:</p> <p>+CPBS: <storage>,<used>,<total></p> <p>Note: For <storage>="MC": if there are more than one missed calls from the same number the read command will return only the last call</p>	
AT+CPBS=?	<p>Test command returns the supported range of values for the parameters <storage>.</p> <p>Note: the presentation format of the Test command output is the set of available values for <storage>, each of them enclosed in parenthesis:</p> <p>+CPBS: ("SM"),("FD"),("LD"),("MC"),("RC")</p>	
Reference	3GPP TS 27.007	

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



+CPBS - Select Phonebook Memory Storage		SELINT 2
+CPBS: <storage>,<used>,<total>		
	<p>Note: For <storage>="MC": if there are more than one missed calls from the same number the read command will return only the last call</p>	
AT+CPBS=?	Test command returns the supported range of values for the parameters <storage>.	
Reference	3GPP TS 27.007	

3.5.4.4.8. Read Phonebook Entries - +CPBR

+CPBR - Read Phonebook Entries		SELINT 0 / 1
AT+CPBR=	<p>Execution command returns phonebook entries in location number range <index1>..<index2> from the current phonebook memory storage selected with +CPBS. If <index2> is omitted, only location <index1> is returned.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <index1> - integer type value in the range of location numbers of phonebook memory <index2> - integer type value in the range of location numbers of phonebook memory <p>The response format is:</p> <p>+CPBR: <index>,<number>,<type>,<text></p> <p>where:</p> <ul style="list-style-type: none"> <index> - the current position number of the PB index (to see the range of values use +CPBR=?) <number> - string type phone number in format <type> <type> - type of phone number octet in integer format <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <text> - the alphanumeric text associated to the number; used character set should be the one selected with command +CSCS. <p>Note: if "MC" is the current selected phonebook memory storage, all the missed calls coming from the same number will be saved as one missed call and +CPBR will show just one line of information.</p> <p>Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an ME error, +CME ERROR: <err> is returned.</p>	
AT+CPBR=?	Test command returns the supported range of values of the parameters in the form:	



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

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



+CPBR - Read Phonebook Entries		SELINT 2
	<p>where:</p> <p><minIndex> - the minimum <index> number, integer type <maxIndex> - the maximum <index> number, integer type <nlength> - maximum <number> field length, integer type <tlength> - maximum <name> field length, integer type</p> <p>Note: the value of <nlength> could vary, depending on whether or not the ENS functionality has been previously enabled (see #ENS), in the following situations:</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 3. if “MB” memory storage has been selected (see +CPBS) and the SIM supports the Extension6 service 	
Note	Remember to select the PB storage with +CPBS command before issuing PB commands.	
Reference	3GPP TS 27.007	

3.5.4.4.9. Find Phonebook Entries - +CPBF

+CPBF - Find Phonebook Entries		SELINT 0 / 1
AT+CPBF= <findtext>	Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) which alphanumeric field start with string <findtext>.	
	<p>Parameter:</p> <p><findtext> - string type, it is NOT case sensitive; used character set should be the one selected with command +CSCS.</p> <p>The command returns a report in the form:</p> <pre>+CPBF: <index1>,<number>,<type>,<text>[[...]<CR><LF> +CPBF: <indexn>,<number>,<type>,<text>]</pre> <p>where <indexn>, <number>, <type>, and <text> have the same meaning as in the command +CPBR report.</p> <p>Note: +CPBF is not applicable if the current selected storage (see +CPBS) is either “MC”, either “RC” or “LD”.</p> <p>Note: if no PB records satisfy the search criteria then an ERROR message is reported.</p>	
AT+CPBF=?	<p>Test command reports the maximum lengths of <number> and <text> fields.</p> <pre>+CPBF: [<max_number_length>],[<max_text_length>]</pre>	
Note	Remember to select the PB storage with +CPBS command before issuing PB	



+CPBF - Find Phonebook Entries	SELINT 0 / 1
Reference	commands. 3GPP TS 27.007

+CPBF - Find Phonebook Entries	SELINT 2
AT+CPBF= <findtext>	<p>Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) which alphanumeric field start with string <findtext>.</p> <p>Parameter: <findtext> - string type; used character set should be the one selected with command +CSCS.</p> <p>The command returns a report in the form:</p> <pre>[+CPBF: <index1>,<number>,<type>,<text>[<CR><LF> +CPBF: <index2>,<number>,<type>,<text>[...]]]</pre> <p>where: <indexn> - the location number of the phonebook entry <number> - string type phone number of format <type> <type> - type of phone number octet in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <text> - the alphanumeric text associated to the number; used character set should be the one selected with command +CSCS.</p> <p>Note: +CPBF is not applicable if the current selected storage (see +CPBS) is either "MC", either "RC" or "LD".</p> <p>Note: if <findtext>="" the command returns all the phonebook records.</p> <p>Note: if no PB records satisfy the search criteria then an ERROR message is reported.</p>
AT+CPBF=?	<p>Test command reports the maximum lengths of <number> and <text> fields, in the format:</p> <pre>+CPBF: [<nlength>],[<tlength>]</pre> <p>where: <nlength> - maximum length of field <number>, integer type <tlength> - maximum length of field <text>, integer type</p> <p>Note: the value of <nlength> could vary, depending on whether or not the ENS functionality has been previously enabled (see #ENS), in the following situations:</p> <ol style="list-style-type: none"> 1. if "SM" memory storage has been selected (see +CPBS) and the SIM supports the Extension1 service



+CPBF - Find Phonebook Entries		SELINT 2
	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 	
Note	Remember to select the PB storage with +CPBS command before issuing PB commands.	
Reference	3GPP TS 27.007	

3.5.4.4.10. Write Phonebook Entry - +CPBW

+CPBW - Write Phonebook Entry		SELINT 0 / 1
AT+CPBW= [<index>] [,<number> [,<type> [,<text>]]]	<p>Execution command stores at the position <index> a phonebook record defined by <number>, <type> and <text> parameters</p> <p>Parameters:</p> <ul style="list-style-type: none"> <index> - record position <number> - string type, phone number in the format <type> <type> - the type of number <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <text> - the text associated to the number, string type; used character set should be the one selected with command +CSCS. <p>Note: If record number <index> already exists, it will be overwritten.</p> <p>Note: if only <index> is given, the record number <index> is deleted.</p> <p>Note: if <index> is omitted or <index>=0, the number <number> is stored in the first free phonebook location. (example at+cpbw=0,2,129,"Testo" and at+cpbw=,2,129,"Testo")</p> <p>Note: omission of all the subparameters causes an ERROR result code.</p>	
AT+CPBW=?	<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> <ul style="list-style-type: none"> <nlength> - integer type value indicating the maximum length of field <number> <tlength> - integer type value indicating the maximum length of field <text> 	
Reference	3GPP TS 27.007	
Note	Remember to select the PB storage with +CPBS command before issuing PB	



+CPBW - Write Phonebook Entry	SELINT 0 / 1
	commands.

+CPBW - Write Phonebook Entry	SELINT 2
AT+CPBW= [<index>] [,<number> [,<type> [,<text>]]]	<p>Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS.</p> <p>Parameters:</p> <p><index> - integer type, value in the range of location numbers of the currently selected phonebook memory storage (see +CPBS).</p> <p><number> - string type, phone number in the format <type></p> <p><type> - the type of number</p> <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <p><text> - the text associated to the number, string type; used character set should be the one selected with command +CSCS.</p> <p>Note: If record number <index> already exists, it will be overwritten.</p> <p>Note: if either <number>, <type> and <text> are omitted, the phonebook entry in location <index> is deleted.</p> <p>Note: if <index> is omitted or <index>=0, the number <number> is stored in the first free phonebook location. (examples at+cpbw=0,"+390404192701",129,"Text" and at+cpbw=,+390404192701",129,"Text")</p> <p>Note: if either "LD", "MC" or "RC" memory storage has been selected (see +CPBS) it is possible just to delete the phonebook entry in location <index>, therefore parameters <number>, <type> and <text> must be omitted.</p>
AT+CPBW=?	<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: 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



+CPBW - Write Phonebook Entry		SELINT 2
	<p>supports the Extension2 service</p> <p>1. if "MB" memory storage has been selected (see +CPBS) and the SIM supports the Extension6 service</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" 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)</p> <p>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> <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=?	<p>Test command returns the OK result code.</p>	
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 returned by +CCLK? only if the #NITZ URC ‘extended’ format has been enabled (see #NITZ).</p>	
AT+CCLK=?	<p>Test command returns the OK result code.</p>	
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	

3.5.4.12. Alarm Management - +CALA

+CALA - Alarm Management		SELINT 0 / 1
AT+CALA[=<time>[,<n>[,<type>[,<text>[,<recurr>[,<silent>]]]]]]	<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>	



+CALA - Alarm Management	SELINT 0 / 1
<p>Parameters:</p> <p><time> - current alarm time as quoted string “” - (empty string) deletes the current alarm and resets all the +CALA parameters to the “factory default” configuration "hh:mm:ss±zz" - format to be used only when issuing +CALA with parameter <recurr> too. "yy/MM/dd,hh:mm:ss±zz" - generic format: it's the same as defined for +CCLK (see)</p> <p><n> - index of the alarm 0 - The only value supported is 0.</p> <p><type> - alarm behaviour type 0 - reserved for other equipment use. 1 - the MODULE simply wakes up fully operative as if the ON/OFF button had been pressed. If the device is already ON at the alarm time, then it does nothing (default). 2 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE issues an unsolicited code every 3s:</p> <p style="margin-left: 40px;">+CALA: <text></p> <p>where <text> is the +CALA optional parameter previously set.</p> <p>The device keeps on sending the unsolicited code every 3s until a #WAKE or #SHDN command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the #WAKE command within 90 seconds then it shuts down.</p> <p>3 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE starts playing the alarm tone on the selected path for the ringer (see #SRP) The device keeps on playing the alarm tone until a #WAKE or #SHDN command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down.</p> <p>4 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE brings the pin GPIO6 high, provided its <direction> has been set to alarm output, and keeps it in this state until a #WAKE or #SHDN command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down.</p> <p>5 - the MODULE will make both the actions as for <type>=2 and <type>=3. 6 - the MODULE will make both the actions as for <type>=2 and <type>=4. 7 - the MODULE will make both the actions as for <type>=3 and <type>=4.</p> <p><text> - unsolicited alarm code text string. It has meaning only if <type> is equal to 2 or 5 or 6. <recurr> - string type value indicating day of week for the alarm in one of the</p>	



+CALA - Alarm Management		SELINT 0 / 1
	<p>following formats:</p> <p>“<1..7>[,<1..7>[,...]]” - it sets a recurrent alarm for one or more days in the week; the digits 1 to 7 corresponds to the days in the week (Monday is 1).</p> <p>“0” - it sets a recurrent alarm for all days in the week.</p> <p><silent> - integer type indicating if the alarm is silent or not.</p> <p>0 - the alarm will not be silent;</p> <p>1 - the alarm will be silent.</p> <p>During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p> <p>Note: If the parameter is omitted the behavior of Set command is the same as Read command.</p>	
AT+CALA?	<p>Read command returns the list of current active alarm settings in the ME, in the format:</p> <p>[+CALA: <time>,<n>,<type>,[<text>],<recurr>,<silent>]</p> <p>Note: if no alarm is present a <CR><LF> is issued.</p>	
AT+CALA=?	<p>Test command returns the list of supported index values (currently just 0), alarm types and maximum length of the text to be displayed, in the format:</p> <p>+CALA: (list of supported <n>s),(list of supported <type>s),<tlength></p> <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
AT+CALA= <time>[,<n>[,<type> [,<text>[,<recurr> [,<silent>]]]]]	<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> <ul style="list-style-type: none"> <time> - current alarm time as quoted string “” - (empty string) deletes the current alarm and resets all the +CALA parameters to the “factory default” configuration “hh:mm:ss±zz” - format to be used only when issuing +CALA with parameter <recurr> too. “yy/MM/dd,hh:mm:ss±zz” - generic format: it’s the same as defined for +CCLK (see) <n> - index of the alarm 0 - The only value supported is 0. <type> - alarm behaviour type 0 - reserved for other equipment use. 1 - the MODULE simply wakes up fully operative as if the ON/OFF button had been pressed. If the device is already ON at the alarm time, then it does nothing (default). 2 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE issues an unsolicited code every 3s: <p style="text-align: center;">+CALA: <text></p> <p>where <text> is the +CALA optional parameter previously set.</p> <p>The device keeps on sending the unsolicited code every 3s until a #WAKE or #SHDN command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down.</p> <ul style="list-style-type: none"> 3 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE starts playing the alarm tone on the selected path for the ringer (see command #SRP) The device keeps on playing the alarm tone until a #WAKE or #SHDN command is received or a 90 s time-out occurs. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s then it shuts down. 4 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE brings the pin GPIO6 high, provided its <direction> has been set to alarm output, and keeps it in this state until a #WAKE or #SHDN command is received or a 90 seconds timer expires. If the device is in "alarm mode" and it does not receive the



+CALA - Alarm Management	SELINT 2
	<p>#WAKE command within 90s then it shuts down.</p> <p>5 - the MODULE will make both the actions as for type=2 and <type>=3. 6 - the MODULE will make both the actions as for type=2 and <type>=4. 7 - the MODULE will make both the actions as for type=3 and <type>=4. 8 - the MODULE wakes up in "alarm mode" if at the alarm time it was off, otherwise it remains fully operative. In both cases the MODULE sets High the RI output pin. The RI output pin remains High until next #WAKE issue or until a 90s timer expires. If the device is in "alarm mode" and it does not receive the #WAKE command within 90s. After that it shuts down.</p> <p><text> - unsolicited alarm code text string. It has meaning only if <type> is equal to 2 or 5 or 6.</p> <p><recurr> - string type value indicating day of week for the alarm in one of the following formats: “<1..7>[,<1..7>[,...]]” - it sets a recurrent alarm for one or more days in the week; the digits 1 to 7 corresponds to the days in the week (Monday is 1). “0” - it sets a recurrent alarm for all days in the week.</p> <p><silent> - integer type indicating if the alarm is silent or not. 0 - the alarm will not be silent; 1 - the alarm will be silent.</p> <p>During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p> <p>Note: it is mandatory to set at least once the RTC (issuing +CCLK) before it is possible to issue +CALA with <type>=8</p>
AT+CALA?	Read command returns the list of current active alarm settings in the ME, in the format: [+CALA: <time>,<n>,<type>,[<text>],<recurr>,<silent>]
AT+CALA=?	Test command returns the list of supported index values (currently just 0), alarm types, maximum length of the text to be displayed, maximum length of <recurr> and supported <silent>s, in the format: +CALA: (list of supported <n>s),(list of supported <type>s),<tlength>,<rlength>,(list of supported <silent>s)
Example	AT+CALA="02/09/07,23:30:00+00" OK
Reference	ETSI 07.07, ETSI 27.007



3.5.4.4.13. Postpone alarm - +CAPD

+CAPD – postpone or dismiss an alarm		SELINT 2
AT+CAPD=[<sec>]	Set command postpones or dismisses a currently active alarm.	
	<p>Parameters:</p> <p><sec>: integer type value indicating the number of seconds to postpone the alarm (maximum 60 seconds). If <sec> is set to 0 (default), the alarm is dismissed.</p>	
AT+CAPD=?	Test command reports the supported range of values for parameter <sec>	

3.5.4.4.14. Setting date format - +CSDF

+CSDF – setting date format		SELINT 2
AT+CSDF=[<mode>[,<auxmode>]]	<p>This command sets the date format of the date information presented to the user, which is specified by use of the <mode> parameter. The <mode> affects the date format on the phone display and doesn't affect the date format of the AT command serial interface, so it not used.</p> <p>The command also sets the date format of the TE-TA interface, which is specified by use of the <auxmode> parameter (i.e., the <auxmode> affects the <time> of AT+CCLK and AT+CALA). If the parameters are omitted then this sets the default value of <mode>.</p> <p>Parameters:</p> <p><mode>:</p> <ul style="list-style-type: none"> 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><auxmode>:</p> <ul style="list-style-type: none"> 1 yy/MM/dd (default) 2 yyyy/MM/dd <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>]	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 is not actually used. Parameters: <mode>: 1 HH:MM (24 hour clock; default) 2 HH:MM a.m./p.m.	
AT+CSTF?	Read command reports the currently selected <mode> in the format: +CSTF: <mode>	
AT+CSTF=?	Test command reports the supported range of values for parameter <mode>	

3.5.4.4.16. Time Zone reporting - +CTZR

+CTZR – Time Zone reporting		SELINT 2
AT+CTZR=<onoff>	This command enables and disables the time zone change event reporting. If the reporting is enabled the MT returns the unsolicited result code +CTZV: <tz> whenever the time zone is changed. Parameters: <onoff>: 0 Disable time zone change event reporting (default) 1 Enable time zone change event reporting	
AT+CTZR?	Read command reports the currently selected <onoff> in the format: +CTZR: <onoff>	



AT+CTZR=?	Test command reports the supported range of values for parameter <onoff>
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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:</p> <p><onoff>:</p> <p>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
AT+CRSM= <command> [,<fileid> [,<P1>,<P2>,<P3> [,<data>]]]	<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</p> <ul style="list-style-type: none"> 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS 	



+CRSM - Restricted SIM Access	SELINT 0 / 1 / 2
	<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>
AT+CRSM=?	Test command returns the OK result code
Reference	3GPP TS 27.007, GSM 11.11

3.5.4.4.19. Alert Sound Mode - +CALM

+CALM - Alert Sound Mode	SELINT 0 / 1
AT+CALM[=<mode>]	<p>Set command is used to select the general alert sound mode of the device.</p> <p>Parameter:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - normal mode 1 - silent mode; no sound will be generated by the device, except for alarm sound 2 - stealth mode; no sound will be generated by the device <p>Note: if silent mode is selected then incoming calls will not produce alerting sounds but only the unsolicited messages RING or +CRING.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p>



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

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

3.5.4.4.20. Ringer Sound Level - +CRSL

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



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

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

+CRSL - Ringer Sound Level		SELINT 2
AT+CRSL=<level>	Set command is used to select the incoming call ringer sound level of the device.	



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

3.5.4.4.21. Loudspeaker Volume Level - +CLVL

+CLVL - Loudspeaker Volume Level		SELINT 0 / 1
AT+CLVL[=<level>]	Set command is used to select the volume of the internal loudspeaker audio output of the device. Parameter: <level> - loudspeaker volume 0..max - the value of max can be read by issuing the Test command AT+CLVL=? Note: If the parameter is omitted the behavior of Set command is the same as Read command.	
AT+CLVL?	Read command reports the current <level> setting of the loudspeaker volume in the format: +CLVL: <level>	
AT+CLVL=?	Test command reports <level> supported values range in the format: +CLVL: (0-max)	
Reference	3GPP TS 27.007	

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



+CLVL - Loudspeaker Volume Level		SELINT 2
	+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 voice call. Parameter: <n> 0 - mute off, microphone active (factory default) 1 - mute on, microphone muted. Note: this command mutes/activates both microphone audio paths, internal mic and external mic.	
AT+CMUT?	Read command reports whether the muting of the microphone audio line during a voice call is enabled or not, in the format: +CMUT: <n>	



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

3.5.4.4.24. Accumulated Call Meter - +CACM

+CACM - Accumulated Call Meter		SELINT 0 / 1
AT+CACM[=<pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter stored in SIM (ACM): it contains the total number of home units for both the current and preceding calls. Parameter: <pwd> - to access this command PIN2 is required; if PIN2 has been already input once after startup, it is required no more Note: If the parameter is omitted the behavior of Set command is the same as Read command.	
AT+CACM?	Read command reports the current value of the SIM ACM in the format: +CACM: <acm> where: <acm> - accumulated call meter in home units, string type: three bytes of the ACM value in hexadecimal format (e.g. “00001E” indicates decimal value 30)	



+CACM - Accumulated Call Meter		SELINT 0 / 1
	Note: the value <acm> is in units whose price and currency are defined with command +CPUC	
AT+CACM=?	Test command returns the OK result code	
Reference	3GPP TS 27.007	

+CACM - Accumulated Call Meter		SELINT 2
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; if PIN2 has been already input once after startup, it is required no more</p>	
AT+CACM?	<p>Read command reports the current value of the SIM ACM in the format:</p> <p>+CACM: <acm></p> <p>where: <acm> - accumulated call meter in home units, string type: three bytes of the ACM value in hexadecimal format (e.g. “00001E” indicates decimal value 30)</p> <p>Note: the value <acm> is in home units; price per unit and currency are defined with command +CPUC</p>	
AT+CACM=?	Test command returns the OK result code	
Reference	3GPP TS 27.007	

3.5.4.4.25. Accumulated Call Meter Maximum - +CAMM

+CAMM - Accumulated Call Meter Maximum		SELINT 0 / 1
AT+CAMM[= <acmmax> [,<pwd>]]	<p>Set command sets the Advice of Charge related Accumulated Call Meter Maximum Value stored in SIM (ACMmax). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches <acmmax> value further calls are prohibited.</p> <p>Parameter: <acmmax> - ACMmax value, integer type: it is the maximum number of home units allowed to be consumed by the subscriber. <pwd> - PIN2; if PIN2 has been already input once after startup, it is required no more</p> <p>Note: <acmmax>=0 value disables the feature.</p> <p>Note: if the parameters are omitted the behavior of Set command is the same as Read command.</p>	
AT+CAMM?	Read command reports the ACMmax value stored in SIM in the format:	



+CAMM - Accumulated Call Meter Maximum	SELINT 0 / 1
	<p>+CAMM : <acmm></p> <p>where:</p> <p><acmm> - ACMmax value in home units, string type: ACMmax value in decimal format.</p>
Reference	3GPP TS 27.007

+CAMM - Accumulated Call Meter Maximum	SELINT 2
AT+CAMM= [<acmm> [,<pwd>]]	<p>Set command sets the Advice of Charge related Accumulated Call Meter Maximum Value stored in SIM (ACMmax). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches <acmm> value further calls are prohibited.</p> <p>Parameter:</p> <p><acmm> - ACMmax value, integer type: it is the maximum number of home units allowed to be consumed by the subscriber.</p> <p><pwd> - PIN2; if PIN2 has been already input once after startup, it is required no more</p> <p>Note: <acmm> = 0 value disables the feature.</p>
AT+CMM?	<p>Read command reports the ACMmax value stored in SIM in the format:</p> <p>+CAMM : <acmm></p> <p>where:</p> <p><acmm> - ACMmax value in home units, string type: three bytes of the ACMmax value in hexadecimal format (e.g. “00001E” indicates decimal value 30)</p>
AT+CMM=?	Test command returns the OK result code
Reference	3GPP TS 27.007

3.5.4.4.26. Price per Unit and Currency Table - +CPUC

+CPUC - Price Per Unit And Currency Table	SELINT 0 / 1
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 +CMM) 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</p>



+CPUC - Price Per Unit And Currency Table		SELINT 0 / 1
		no more
Note: if the parameters are omitted the behavior of Set command is the same as Read command.		
AT+CPUC?	Read command reports the current values of <currency> and <ppu> parameters in the format: +CPUC : <currency>,<ppu>	
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?	Read command reports the current values of <currency> and <ppu> parameters in the format: +CPUC : <currency>,<ppu>	
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:</p> <p><mode>:</p> <p>0 Disable the call meter warning event (default)</p>	



	1 Enable the call meter warning event Note: the set command will respond with an error if the Accumulated Call Meter service is not active in SIM
AT+CCWE?	Read command reports the currently selected <mode> in the format: +CCWE: <mode>
AT+CCWE=?	Test command reports the supported range of values for parameter <mode>

3.5.4.4.28. Available AT Commands - +CLAC

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

3.5.4.4.29. Delete Alarm - +CALD

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



3.5.4.4.30. Read ICCID - +CCID

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

3.5.4.4.31. Generic SIM access - +CSIM

+CSIM – Generic SIM access		SELINT 0 / 1 / 2
AT+CSIM=<lock>	<p>Between two successive +CSIM command the SIM-ME interface must be locked to avoid commands can modify wrong SIM file. The locking and unlocking of the SIM-ME interface must be done explicitly respectively at the beginning and at the end of the +CSIM commands sequence.</p> <p>Parameters:</p> <p><lock>=1 locking of the interface <lock>=0 unlocking of the interface</p> <p>In case that TE application does not use the unlock command in a certain timeout value, ME releases the locking.</p>	
AT+CSIM=<length>, <command>	<p>The ME shall send the <command> as it is to the SIM. As response to the command, ME sends back the actual SIM <response> to the TA as it is.</p> <p>Parameters:</p> <p><length>: number of the characters that are sent to TE in <command> or <response> (two times the actual length of the command or response)</p> <p><command>: command passed on by the ME to the SIM in the format as described in GSM 11.11 (hexadecimal character format)</p> <p>The response of the command is in the format: +CSIM: <length>,<response></p> <p>where:</p> <p><response> : response to the command passed on by the SIM to the ME in the format as described in GSM 11.11 (hexadecimal character format).</p> <p>Error case: +CME ERROR: <err> possible <err> values (numeric format followed by verbose format):</p> <p>3 operation not allowed (<i>operation mode is not allowed by the ME, wrong interface lock/unlock status</i>)</p>	



+CSIM – Generic SIM access		SELINT 0 / 1 / 2
	4 operation not supported (<i>wrong format or parameters of the command</i>) 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>STATUS AT+CSIM=10,"A0F2000002" +CSIM: 8,"00009000"</p> <p>OK</p> <p>STATUS AT+CSIM=10,A0F2000016 +CSIM:48,"000002A87F20020000000000099300220800838A838A9000"</p> <p>OK</p> <p>SELECT EF 6F07 AT+CSIM=14,A0A40000026F07 +CSIM: 4,"9F0F"</p> <p>OK</p> <p>GET RESPONSE AT+CSIM=10,A0C000000F +CSIM: 34,"000000096F0704001A001A010200009000"</p> <p>OK</p> <p>SELECT EF 6F30 AT+CSIM=14,A0A40000026F30 +CSIM: 4,"9F0F"</p> <p>OK</p> <p>READ BINARY AT+CSIM=10,A0B00000FC +CSIM:508,"FFFFFFFFFF1300831300901300541300301300651300381300801301801 3000113110913013009813007713005913004313008113009513014013002313 0016330420130041FFFFFFFFFFFF21436542F41922F28822F201FFFFFFFFFFFF FF FF FFFFFF </p>	



+CSIM – Generic SIM access		SELINT 0 / 1 / 2
	<pre>FF FF FF FFFFFFFFFFFF9000"</pre> <p>OK</p> <p><i>Unlock SIM interface</i> AT+CSIM=0 OK</p>	
Note	<p>For the following instructions (value of the second byte):</p> <p>A4 : SELECT 10 : TERMINAL PROFILE C2 : ENVELOPE 14 : TERMINAL RESPONSE A2 : SEEK</p> <p>the value of the fifth byte of <command> must be equal to the number of bytes which follow (data starting from 6th byte) and this must be equal to <length>/2 – 5 otherwise the command is not send to the SIM and CME_ERROR=4 is returned.</p>	
Note	<p>After the locking of the SIM-ME interface (AT+CSIM=1) the SIM will be accessible only by AT+CSIM commands (#QSS: 0). The GSM and GPRS services will be automatically deregistered to avoid the TE commands alter the GSM application. They will be automatically reconditioned after the unlocking of the SIM-ME interface. After the unlocking of the SIM-ME interface if PIN is required it will be necessary to enter it another time.</p>	

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>]	<p>Set command enables/disables the report of result code:</p> <p>+CME ERROR: <err></p> <p>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.</p> <p>Parameter: <n> - enable flag</p>	



+CMEE - Report Mobile Equipment Error		SELINT 0 / 1
	<p>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</p> <p>Note: issuing AT+CMEE<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CMEE=<CR> is the same as issuing the command AT+CMEE=0<CR>.</p>	
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 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>]	<p>Set command enables/disables the report of result code: +CME ERROR: <err> as an indication of an error relating to the +Cxxx commands issued.</p> <p>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.</p> <p>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 </p>	
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 - #CMEE MODE

#CMEE MODE – Set CMEE mode	SELINT 2
AT#CMEE MODE=<mode>	<p>This command allows to extend the set of error codes reported by CMEE to the GPRS related error codes.</p> <p>Parameters:</p> <p><mode>:</p> <p>0 – disable support of GPRS related error codes by AT+CMEE (default) 1 – enable support of GPRS related error codes by AT+CMEE</p> <p>This parameter is stored in the user profile</p>
AT#CMEE MODE?	Read command reports the currently selected < mode > in the format: #CMEE MODE: <mode>
AT#CMEE MODE =?	Test command reports the supported range of values for parameter < mode >

3.5.4.6. Voice Control

3.5.4.6.1. DTMF Tones Transmission - +VTS

+VTS - DTMF Tones Transmission	SELINT 0 / 1
AT+VTS= <dtmfstring> [,duration]	<p>Execution command allows the transmission of DTMF tones.</p> <p>Parameters:</p> <p><dtmfstring> - string of <dtmf>s, i.e. ASCII characters in the set (0-9), #,*,(A-D); it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through +VTD command.</p> <p><duration> - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character</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>For compatibility with previous versions, Test command returns +VTS: 0,0,0</p> <p>An enhanced version of Test command has been defined: AT+VTS=??, that provides the correct range of values for <DTMF>.</p>



+VTS - DTMF Tones Transmission		SELINT 0 / 1
AT+VTS=??	Test command provides the list of supported <dtmf>s and the list of supported <duration>s in the format: (list of supported <dtmf>s)[,(list of supported <duration>s)]	
Reference	3GPP TS 27.007 and TIA IS-101	

+VTS - DTMF Tones Transmission		SELINT 2
AT+VTS= <dtmfstring> [,duration]	<p>Execution command allows the transmission of DTMF tones.</p> <p>Parameters:</p> <p><dtmfstring> - string of <dtmf>s, i.e. ASCII characters in the set (0-9), #,*,(A-D),P; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through +VTD command.</p> <p><duration> - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character</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=?	Test command provides the list of supported <dtmf>s and the list of supported <duration>s in the format: (list of supported <dtmf>s)[,(list of supported <duration>s)]	
Reference	3GPP TS 27.007 and TIA IS-101	



3.5.4.6.2. Tone Duration - +VTD

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

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



3.5.4.7. Commands For GPRS

3.5.4.7.1. GPRS Mobile Station Class - +CGCLASS

+CGCLASS - GPRS Mobile Station Class		SELINT 0 / 1
AT+CGCLASS [=<class>]	<p>Set command sets the GPRS class according to <class> parameter.</p> <p>Parameter:</p> <ul style="list-style-type: none"> <class> - GPRS class “B” - GSM/GPRS (factory default) “CG” - class C in GPRS only mode (GPRS only) “CC” - class C in circuit switched only mode (GSM only) <p>Note: the setting is saved in NVM (and available on following reboot).</p> <p>Note: if parameter <class> is omitted, then the behaviour of Set command is the same as Read command.</p>	
AT+CGCLASS?	Read command returns the current value of the GPRS class in the format: +CGLASS: <class>	
AT+CGCLASS=?	Test command reports the range for the parameter <class>	

+CGCLASS - GPRS mobile station class		SELINT 2
AT+CGCLASS= [<class>]	<p>Set command sets the GPRS class according to <class> parameter.</p> <p>Parameter:</p> <ul style="list-style-type: none"> <class> - GPRS class “B” - GSM/GPRS (factory default) “CG” - class C in GPRS only mode (GPRS only) “CC” - class C in circuit switched only mode (GSM only) <p>Note: the setting is saved in NVM (and available on following reboot).</p>	
AT+CGCLASS?	Read command returns the current value of the GPRS class in the format: +CGLASS: <class>	
AT+CGCLASS=?	Test command reports the range for the parameter <class>	



3.5.4.7.2. GPRS Attach Or Detach - +CGATT

+CGATT - GPRS Attach Or Detach		SELINT 0 / 1
AT+CGATT[= <state>]	Execution command is used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter <state>. Parameter: <state> - state of GPRS attachment 0 - detached 1 - attached Note: If the parameter is omitted the behavior of Execution command is the same as Read command.	
AT+CGATT?	Read command returns the current GPRS service state.	
AT+CGATT=?	Test command requests information on the supported GPRS service states.	
Example	AT+CGATT? +CGATT: 0 OK AT+CGATT=? +CGATT: (0,1) OK AT+CGATT=1 OK	SELINT 2
Reference	3GPP TS 27.007	
AT+CGATT=[<state>]		SELINT 2
AT+CGATT[= <state>]	Execution command is used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter <state>. Parameter: <state> - state of GPRS attachment 0 - detached 1 - attached	
AT+CGATT?	Read command returns the current GPRS service state.	
AT+CGATT=?	Test command requests information on the supported GPRS service states.	
Example	AT+CGATT? +CGATT: 0 OK AT+CGATT=? +CGATT: (0,1) OK AT+CGATT=1 OK	
Reference	3GPP TS 27.007	

3.5.4.7.3. GPRS Event Reporting - +CGEREP



+CGEREP - GPRS Event Reporting		SELINT 2
AT+CGEREP= [<mode>[,<bfr>]]	<p>Set command enables or disables sending of unsolicited result codes +CGEV: XXX (see below) from TA to TE in the case of certain events occurring in the TA or the network.</p> <p>Parameters:</p> <p><mode> - controls the processing of URCs specified with this command</p> <ul style="list-style-type: none"> 0 - Buffer unsolicited result codes in the TA. If TA result code buffer is full, the oldest one can be discarded. No codes are forwarded to the TE. 1 - Discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE. 2 - Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when TA-TE link becomes available; otherwise forward them directly to the TE. <p><bfr> - controls the effect on buffered codes when <mode> 1 or 2 is entered:</p> <ul style="list-style-type: none"> 0 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=1 or 2 is entered. 1 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=1 or 2 is entered (OK response shall be given before flushing the codes) 	

Unsolicited Result Codes

The following unsolicited result codes and the corresponding events are defined:

+CGEV: REJECT <PDP_type>, <PDP_addr>

A network request for PDP context activation occurred when the **TA** was unable to report it to the **TE** with a +CRING unsolicited result code and was automatically rejected

+CGEV: NW REACT <PDP_type>, <PDP_addr>, [<cid>]

The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to **TA**

+CGEV: NW DEACT <PDP_type>, <PDP_addr>, [<cid>]

The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to **TA**

+CGEV: ME DEACT <PDP_type>, <PDP_addr>, [<cid>]

The mobile equipment has forced a context deactivation. The <cid> that was used to activate the context is provided if known to **TA**

+CGEV: NW DETACH

The network has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately

+CGEV: ME DETACH

The mobile equipment has forced a GPRS detach. This implies that all active



+CGEREP - GPRS Event Reporting		SELINT 2
	contexts have been deactivated. These are not reported separately	
	+CGEV: ME CLASS <class> The mobile equipment has forced a change of MS class. The highest available class is reported (see +CGCLASS)	
AT+CGEREP?	Read command returns the current <mode> and <bfr> settings, in the format: +CGEREP: <mode>,<bfr>	
AT+CGEREP=?	Test command reports the supported range of values for the +CGEREP command parameters.	
Reference	3GPP TS 27.007	

3.5.4.7.4. GPRS Network Registration Status - +CGREG

+CGREG - GPRS Network Registration Status		SELINT 0 / 1
AT+CGREG[= [<n>]]	<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 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) <lac> - location area code in hexadecimal format (e.g. "00C3" equals 195 in</p>	



+CGREG - GPRS Network Registration Status		SELINT 0 / 1
	<p style="text-align: center;">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:</p> <p><n> - result code presentation mode</p> <p>0 - disable network registration unsolicited result code</p> <p>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:</p> <p><stat> - registration status</p> <p>0 - not registered, terminal is not currently searching a new operator to register to</p> <p>1 - registered, home network</p> <p>2 - not registered, but terminal is currently searching a new operator to register to</p> <p>3 - registration denied</p> <p>4 - unknown</p> <p>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>	



+CGREG - GPRS Network Registration Status		SELINT 2
	<p>+CGREG: <stat>[,<lac>,<ci>]</p> <p>where:</p> <p><stat> - registration status (see above for values)</p> <p><lac> - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)</p> <p><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>	
AT+CGREG?	Read command returns the status of result code presentation mode <n> and the integer <stat> which shows whether the network has currently indicated the registration of the terminal in the format:	
	<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	

3.5.4.7.5. Define PDP Context - +CGDCONT

+CGDCONT - Define PDP Context		SELINT 0 / 1
AT+CGDCONT[=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<pd1>[,...[<pdN>]]]]]]]]]	<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</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 address may be read using the +CGPADDR command.</p> <p><d_comp> - numeric parameter that controls PDP data compression</p> <p>0 - off (default if value is omitted)</p> <p>1 - on</p> <p><h_comp> - numeric parameter that controls PDP header compression</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?	Read command returns the current settings for each defined context in the format: +CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<pd1>[,...,[pdN]]]<CR><LF>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<pd1>[,...,[pdN]]]<CR><LF>[...]]	
AT+CGDCONT=?	Test command returns values supported as a compound value	
Example	AT+CGDCONT=1,"IP","APN","10.10.10.10",0,0 OK AT+CGDCONT? +CGDCONT: 1,"IP","APN","10.10.10.10",0,0 OK AT+CGDCONT=? +CGDCONT: (1-5),"IP",,(0-1),(0-1) OK	
Reference	3GPP TS 27.007	

+CGDCONT - Define PDP Context		SELINT 2
AT+CGDCONT=[<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<pd1>[,...,[pdN]]]]]]]]]	<p>Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid></p> <p>Parameters:</p> <ul style="list-style-type: none"> <cid> - (PDP Context Identifier) numeric parameter which specifies a particular PDP context definition. 1..max - where the value of max is returned by the Test command <PDP_type> - (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol <ul style="list-style-type: none"> "IP" - Internet Protocol <APN> - (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is empty ("") or omitted, then the subscription value will be requested. <PDP_addr> - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be read using the +CGPADDR command. <d_comp> - numeric parameter that controls PDP data compression 	



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

3.5.4.7.6. Quality Of Service Profile - +CGQMIN

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)		SELINT 0 / 1
AT+CGQMIN[=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]]]	<p>Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <cid> - PDP context identification (see +CGDCONT). <precedence> - precedence class <delay> - delay class <reliability> - reliability class <peak> - peak throughput class <mean> - mean throughput class <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, +CGQMIN=<cid> causes the requested</p>	



+CGQMIN - Quality Of Service Profile (Minimum Acceptable)		SELINT 0 / 1
	<p>profile for context number <cid> to become undefined.</p> <p>Note: issuing AT+CGQMIN<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CGQMIN=<CR> returns the OK result code.</p>	
AT+CGQMIN?	<p>Read command returns the current settings for each defined context in the format:</p> <p>+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean><CR><LF>[<CR><LF>+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean><CR><LF>[...]]</p> <p>If no PDP context has been defined, it has no effect and OK result code is returned.</p>	
AT+CGQMIN=?	<p>Test command returns as a compound value the type of the current PDP context and 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),(0-19,31) OK</pre>	
Reference	3GPP TS 27.007; GSM 03.60	

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)		SELINT 2
AT+CGQMIN= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]	<p>Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <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>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, +CGQMIN=<cid> causes the requested</p>	



+CGQMIN - Quality Of Service Profile (Minimum Acceptable)		SELINT 2
	profile for context number <cid> to become undefined.	
AT+CGQMIN?	Read command returns the current settings for each defined context in the format: +CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[<CR><LF>] +CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[...]] If no PDP context has been defined, it has no effect and OK result code is returned.	
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: +CGQMIN: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s) Note: only the “IP” PDP_Type is currently supported.	
Example	AT+CGQMIN=1,0,0,3,0,0 OK AT+CGQMIN? +CGQMIN: 1,0,0,5,0,0 OK AT+CGQMIN=? +CGQMIN: “IP”,(0-3),(0-4),(0-5),(0-9),(0-18,31) OK	
Reference	3GPP TS 27.007; GSM 03.60	

3.5.4.7.7. Quality Of Service Profile - +CGQREQ

+CGQREQ - Quality Of Service Profile (Requested)		SELINT 0 / 1
AT+CGQREQ[=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]]]	Set command allows to specify a Quality of Service Profile that is used when the terminal sends an Activate PDP Context Request message to the network. It specifies a profile for the context identified by the (local) context identification parameter, <cid>. Parameters: <cid> - PDP context identification (see +CGDCONT command). <precedence> - precedence class <delay> - delay class <reliability> - reliability class <peak> - peak throughput class <mean> - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, +CGQREQ=<cid> causes the requested	



+CGQREQ - Quality Of Service Profile (Requested)		SELINT 0 / 1
	<p>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>	
AT+CGQREQ?	<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> <p>If no PDP context has been defined, it has no effect and OK result code is returned.</p>	
AT+CGQREQ=?	<p>Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format:</p> <p>+CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)</p> <p>Note: only the “IP” PDP_Type is currently supported.</p>	
Example	<pre>AT+CGQREQ? +CGQREQ: 1,0,0,3,0,0 OK AT+CGQREQ=1,0,0,3,0,0 OK AT+CGQREQ=? +CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-19,31) OK</pre>	
Reference	3GPP TS 27.007; GSM 03.60	

+CGQREQ - Quality Of Service Profile (Requested)		SELINT 2
AT+CGQREQ= [<cid>] [,<precedence>] [,<delay>] [,<reliability>] [,<peak>] [,<mean>]]]]]	<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:</p> <p><cid> - PDP context identification (see +CGDCONT command).</p> <p><precedence> - precedence class</p> <p><delay> - delay class</p> <p><reliability> - reliability class</p> <p><peak> - peak throughput class</p> <p><mean> - mean throughput class</p> <p>If a value is omitted for a particular class then this class is not checked.</p>	



+CGQREQ - Quality Of Service Profile (Requested)		SELINT 2
	Note: a special form of the Set command, +CGQREQ=<cid> causes the requested profile for context number <cid> to become undefined.	
AT+CGQREQ?	Read command returns the current settings for each defined context in the format: +CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[<CR><LF>] +CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[...] <p>If no PDP context has been defined, it has no effect and OK result code is returned.</p>	
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: +CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s) Note: only the “IP” PDP_Type is currently supported.	
Example	<pre>AT+CGQREQ? +CGQREQ: 1,0,0,3,0,0 OK AT+CGQREQ=1,0,0,3,0,0 OK AT+CGQREQ=? +CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31) OK</pre>	
Reference	3GPP TS 27.007; GSM 03.60	

3.5.4.7.8. PDP Context - +CGACT

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



+CGACT - PDP Context Activate Or Deactivate		SELINT 0 / 1
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: +CGACT: <cid>,<state><CR><LF>[<CR><LF>+CGACT: <cid>,<state><CR><LF>[...]]	
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: +CGACT: (0-1)	
Example	AT+CGACT? +CGACT: 1,1 OK AT+CGACT=1,1 OK	
Reference	3GPP TS 27.007	

+CGACT - PDP Context Activate Or Deactivate		SELINT 2
AT+CGACT=[<state>[,<cid>[,<cid>[,...]]]]	Execution command is used to activate or deactivate the specified PDP context(s) Parameters: <state> - indicates the state of PDP context activation 0 - deactivated 1 - activated <cid> - a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) Note: if no <cid>s are specified the activation/deactivation form of the command activates/deactivates all defined contexts.	
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: +CGACT: <cid>,<state>[<CR><LF>+CGACT: <cid>,<state>[...]]	
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: +CGACT: (0,1)	
Example	AT+CGACT=1,1 OK AT+CGACT? +CGACT: 1,1 OK	
Reference	3GPP TS 27.007	



3.5.4.7.9. Show PDP Address - +CGPADDR

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



+CGPADDR - Show PDP Address		SELINT 2
		address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid> ; if no address is available the empty string ("") is represented as <PDP_addr>
AT+CGPADDR=?	Test command returns a list of defined <cid> s.	
Example	<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	

3.5.4.7.10. Enter Data State - +CGDATA

+CGDATA - Enter Data State		SELINT 0 / 1
AT+CGDATA=[<L2P>,[<cid>[,<cid>[,...]]]]	<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:</p> <ul style="list-style-type: none"> <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>Note: if parameter <L2P> is omitted, the layer 2 protocol is unspecified</p>	
AT+CGDATA=?	<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=? +CGDATA: "PPP" OK AT+CGDATA="PPP",1 CONNECT</pre>	
Reference	3GPP TS 27.007	



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

3.5.4.7.11. Modify PDP context - +CGCMOD

+CGCMOD – Modify PDP context		SELINT 2
AT+CGCMOD=[<cid1>[,<cid2>[,...,<cidN>]]]	<p>The execution command is used to modify the specified PDP context(s) with respect to QoS profiles.</p> <p>If no <cid> is specified the command modifies all active contexts.</p> <p>Parameters:</p> <p><cid>: 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: <bcs>,<bcl></p> <p>where:</p> <p><bcs> - battery charge status 0 - ME is powered by the battery 1 - ME has a battery connected, and charger pin is being powered</p>	



+CBC - Battery Charge	SELINT 0 / 1
	<p>2 - ME does not have a battery connected 3 - Recognized power fault, calls inhibited <bcl> - battery charge level, only if <bcs>=0 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged.</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?	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 <bcs> 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 <bcs> and <bcl>:</p> <p>+CBC: (0-3),(0-100)</p>
Example	<p>AT+CBC +CBC: 0,75 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: <bcs>,<bcl></p> <p>where:</p> <p><bcs> - 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 <bcs>=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. <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	AT+CBC +CBC: 0,75 OK	
Note	The ME does not make differences between being powered by a battery or by a power supply on the VBATT pins, so it is not possible to distinguish between these two cases.	
Reference	3GPP TS 27.007	



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

3.5.5.1. General Configuration

3.5.5.1.1. Select Message Service - +CSMS

+CSMS - Select Message Service		SELINT 0 / 1
AT+CSMS [=<service>]	<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> <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)</p> <p><mt> - mobile terminated messages support (see above)</p> <p><mo> - mobile originated messages support (see above)</p> <p><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> <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>	
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 the supported value of the parameter <service>.</p>	
Reference	GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.041	

3.5.5.1.2. Preferred Message Storage - +CPMS

+CPMS - Preferred Message Storage		SELINT 0 / 1
AT+CPMS[= <memr> [,<memw> [,<mems>]]]	<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 "ME" - ME internal storage</p> <p><memw> - memory to which writing and sending operations are made "SM" - SIM SMS memory storage</p>	



+CPMS - Preferred Message Storage		SELINT 0 / 1
	<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> <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> <p>Note: If all parameters are omitted the behavior of Set command is the same as Read command.</p>	
AT+CPMS?	Read command reports the message storage status in the format:	
	<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	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK <i>you have 5 out of 10 SMS SIM positions occupied</i>	
Reference	GSM 27.005	



+CPMS - Preferred Message Storage		SELINT 2
Note: the behaviour of command +CPMS differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)		
# S M S M O D E = 0 # S M S M O D E = 0 # S M S M O D E = 0 # S	(#SMSMODE=0)	
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> <ul style="list-style-type: none"> <memr> - memory from which messages are read and deleted <ul style="list-style-type: none"> "SM" - SIM SMS memory storage "ME" - ME internal storage <memw> - memory to which writing and sending operations are made <ul style="list-style-type: none"> "SM" - SIM SMS memory storage <mems> - memory to which received SMs are preferred to be stored <ul style="list-style-type: none"> "SM" - SIM SMS memory storage <p>The command returns the memory storage status in the format:</p> <p>+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals></p> <p>where:</p> <ul style="list-style-type: none"> <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>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>	
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	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK	



+CPMS - Preferred Message Storage		SELINT 2
M S M		(you have 5 out of 10 SMS SIM positions occupied)
(#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	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> <p><usedr> - number of SMs stored into <memr></p> <p><totalr> - max number of SMs that <memr> can contain</p> <p><usedw> - number of SMs stored into <memw></p> <p><totalw> max number of SMs that <memw> can contain</p> <p><useds> - number of SMs stored into <mems></p> <p><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>
	AT+CPMS?	Read command reports the message storage status in the format: +CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>,<mems>,<useds>,<totals> where <memr>, <memw> and <mems> are the selected storage memories for reading, writing and storing respectively.
	AT+CPMS=?	Test command reports the supported values for parameters <memr>, <memw> and <mems>
	Example	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK



+CPMS - Preferred Message Storage		SELINT 2
		(you have 5 out of 10 SMS SIM positions occupied)
Reference	GSM 27.005	

3.5.5.1.3. Message Format - +CMGF

+CMGF - Message Format		SELINT 0 / 1
AT+CMGF[= [<mode>]]	<p>Set command selects the format of messages used with send, list, read and write commands.</p> <p>Parameter: <mode></p> <p>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	

+CMGF - Message Format		SELINT 2
AT+CMGF[= [<mode>]]	<p>Set command selects the format of messages used with send, list, read and write commands.</p> <p>Parameter: <mode></p> <p>0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode</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	



3.5.5.2. Message Configuration

3.5.5.2.1. Service Center Address - +CSCA

+CSCA - Service Center Address		SELINT 0 / 1
AT+CSCA[= <number> [,<type>]]]	<p>Set command sets the Service Center Address to be used for mobile originated SMS transmissions.</p> <p>Parameter:</p> <p><number> - SC phone number in the format defined by <type></p> <p><type> - the type of number</p> <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <p>Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed.</p> <p>Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the <pdu> parameter equals zero.</p> <p>Note: the current settings are stored through +CSAS</p> <p>Note: issuing AT+CSCA<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CSCA=<CR> causes an OK result code to be issued.</p>	
AT+CSCA?	Read command reports the current value of the SCA in the format: +CSCA: <number>,<type> Note: if SCA is not present the device reports an error message.	
AT+ CSCA=?	Test command returns the OK result code.	
Reference	GSM 27.005	

+CSCA -Service Center Address		SELINT 2
AT+CSCA= <number> [,<type>]	<p>Set command sets the Service Center Address to be used for mobile originated SMS transmissions.</p> <p>Parameter:</p> <p><number> - SC phone number in the format defined by <type></p> <p><type> - the type of number</p> <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <p>Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed.</p> <p>Note: in Text mode, this setting is used by send and write commands; in PDU</p>	



+CSCA -Service Center Address		SELINT 2
		mode, setting is used by the same commands, but only when the length of the SMSC address coded into the <pdu> parameter equals zero.
Note: the current settings are stored through +CSAS		
AT+CSCA?	Read command reports the current value of the SCA in the format: +CSCA: <number>,<type> Note: if SCA is not present the device reports an error message.	
AT+CSCA=?	Test command returns the OK result code.	
Reference	GSM 27.005	

3.5.5.2.2. Set Text Mode Parameters - +CSMP

+CSMP - Set Text Mode Parameters		SELINT 0 / 1
AT+CSMP[= [<fo> [,<vp> [,<pid> [,<dcs>]]]]]	<p>Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (+CMGF=1)</p> <p>Parameters:</p> <ul style="list-style-type: none"> <fo> - depending on the command or result code: first octet of 3GPP TS 23.040 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. <vp> - depending on SMS-SUBMIT <fo> setting: 3GPP TS 23.040 TP-Validity-Period either in integer format (default 167) or in quoted time-string format <pid> - 3GPP TS 23.040 TP-Protocol-Identifier in integer format. <dcs> - depending on the command or result code: 3GPP TS 23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme <p>Note: the current settings are stored through +CSAS</p> <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>	
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><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</p>	



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

+CSMP - Set Text Mode Parameters	SELINT 2
<p><i>Note: the behaviour of command +CPMS differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</i></p>	
(#SMSMODE=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 # S M S M O D E = 0	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 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]):</p> <p>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]</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]): [00] - Validity Period field <i>not present</i> [01] - Validity Period field present in <i>enhanced format</i>: it is currently converted in [00], i.e. <i>not present</i> [10] - Validity Period field present in <i>relative format</i>, (i.e. integer type, see below) [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</p>



+CSMP - Set Text Mode Parameters		SELINT 2
# S M S M O D E = 0		<p><i>relative format <vp></i> shall be integer type (default 167, i.e. 24 hours); if <i><fo></i> 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 <i><vp></i> with a quoted time string type.</p> <p>(for <i>relative format</i> only):</p> <ul style="list-style-type: none"> 0..143 - (<i><vp></i> + 1) x 5 minutes; 144..167 - 12 hours + ((<i><vp></i> - 143) x 30 minutes); 168..196 - (<i><vp></i> - 166) x 1 day; 197..255 - (<i><vp></i> - 192) x 1 week; <p><pid> - 3GPP TS 23.040 TP-Protocol-Identifier in integer format.</p> <p><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</p>
# S M S M O D E = 0	AT+CSMP?	Read command reports the current setting in the format: +CSMP: <fo>,<vp>,<pid>,<dcs>
# S M S M O D E = 0	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>
Reference		GSM 27.005; 3GPP TS 23.040; 3GPP TS 23.038
(#SMSMODE=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; [00] - SMS-DELIVER; [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>



+CSMP - Set Text Mode Parameters		SELINT 2
<pre>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 # S M S M O D E = 1</pre>	<p>[00] - Validity Period field <i>not present</i> [01] - Validity Period field present in <i>enhanced format</i>(i.e. quoted time-string type, see below) [10] - Validity Period field present in <i>relative format</i>, (i.e. integer type, see below) [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]); [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:</p> <ul style="list-style-type: none"> a) if <fo> asks for a <i>Not Present</i> Validity Period, <vp> can be any type and it will be not considered; b) if <fo> asks for a Validity Period in <i>relative format</i>, <vp> shall be integer type (default 167, i.e. 24 hours); 0..143 - (<vp> + 1) x 5 minutes 144..167 - 12 hours + ((<vp> - 143) x 30 minutes) 168..196 - (<vp> - 166) x 1 day 197..255 - (<vp> - 192) x 1 week c) if <fo> asks for a Validity Period in <i>absolute format</i>, <vp> shall be quoted time-string type (see +CCLK); this is the only admitted format if <fo> value defines SMS-DELIVER as message type d) if <fo> asks for a Validity Period in <i>enhanced format</i>, <vp> shall be the quoted hexadecimal representation (string type) of 7 octets, as follows: <ul style="list-style-type: none"> • the first octet is the Validity Period Functionality Indicator, indicating the way in which the other 6 octets are used; let's consider its bit field description: <p>bit[7]: extension bit [0] - there are no more VP Fuctionality Indicator extension octets to follow</p> <p>bit[6]: Single Shot SM; [0] - the SC is not required to make up to one delivery attempt [1] - the SC is required to make up to one delivery attempt</p> <p>bit[5]bit[4]bit[3]: reserved [000]</p> 	



+CSMP - Set Text Mode Parameters		SELINT 2
# 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 # S M S	<p>bit[2]bit[1]bit[0]: Validity Period Format [000] - No Validity Period specified [001] - Validity Period specified as for the relative format. The following octet contains the VP value as described before; all the other octets are 0's. [010] - Validity Period is relative in integer representation. The following octet contains the VP value in the range 0 to 255, representing 0 to 255 seconds; all the other octets are 0's. [011] - Validity Period is relative in semi-octet representation. The following 3 octets contain the relative time in Hours, Minutes and Seconds, giving the length of the validity period counted from when the SMS-SUBMIT is received by the SC; all the other octets are 0's.</p> <p><pid> - 3GPP TS 23.040 TP-Protocol-Identifier in integer format.</p> <p><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</p> <p>Note: we're storing through +CSAS the <vp> value too, but only as integer type, i.e. only in its <i>relative format</i></p>	
AT+CSMP?	Read command reports the current setting in the format: +CSMP: <fo>,<vp>,<pid>,<dcs>	
		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 ("").
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"</p>	



+CSMP - Set Text Mode Parameters		SELINT 2
M O D E = 1	<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 <tooaa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in +CMGR result code do not show <pid>, <mn>, <da>, <toda>, <length> or <cdata> 1 - show the values in result codes</p> <p>Note: issuing AT+CSDH<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+CSDH=<CR> is the same as issuing the command AT+CSDH=0<CR>.</p>	
AT+CSDH?	Read command reports the current setting in the format:	
	+CSDH: <show>	
AT+CSDH=?	Test command reports the supported range of values for parameter <show>	
Reference	GSM 27.005	

+CSDH - Show Text Mode Parameters		SELINT 2
AT+CSDH=[<show>]	<p>Set command controls whether detailed header information is shown in text mode (AT+CMGF=1) result codes.</p> <p>Parameter: <show></p> <p>0 - do not show header values defined in commands +CSCA and +CSMP (<sca>,</p>	



+CSDH - Show Text Mode Parameters		SELINT 2
	<tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERS and SMS-SUBMITs in text mode. For SMS-COMMANDs in +CMGR result code do not show <pid>, <mn>, <da>, <toda>, <length> or <cdata> 1 - show the values in result codes	
AT+CSDH?	Read command reports the current setting in the format: +CSDH: <show>	
AT+CSDH=?	Test command reports the supported range of values for parameter <show>	
Reference	GSM 27.005	

3.5.5.2.4. Select Cell Broadcast - +CSCB

+CSCB -Select Cell Broadcast Message Types		SELINT 0 / 1
AT+CSCB[= [<mode> [,<mids> [,<dcess>]]]]	Set command selects which types of Cell Broadcast Messages are to be received by the device. Parameter: <mode> 0 - the message types defined by <mids> and <dcess> are accepted (factory default) 1 - the message types defined by <mids> and <dcess> are rejected <mids> - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string (""). <dcess> - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string (""). Note: the current settings are stored through +CSAS	
	Note: issuing AT+CSCB<CR> is the same as issuing the Read command.	
	Note: issuing AT+CSCB=<CR> is the same as issuing the command AT+CSCB=0<CR> .	
AT+CSCB?	Read command reports the current value of parameters <mode>, <mids> and <dcess>.	
AT+CSCB=?	Test command returns the range of values for parameter <mode>.	
Example	AT+CSCB? +CSCB: 1,"", "" OK (all CBMs are accepted, none is rejected) AT+CSCB=0,"0,1,300-315,450","0-3" OK	
Reference	GSM 27.005, 3GPP TS 23.041, 3GPP TS 23.038.	



+CSCB -Select Cell Broadcast Message Types		SELINT 2
AT+CSCB= [<mode>[,<mids> ,<dcss>]]]	Set command selects which types of Cell Broadcast Messages are to be received by the device.	
Parameters: <mode> 0 - the message types defined by <mids> and <dcss> are accepted (factory default) 1 - the message types defined by <mids> and <dcss> are rejected <mids> - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string (""). <dcss> - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string (""). Note: the current settings are stored through +CSAS		
AT+CSCB?	Read command reports the current value of parameters <mode>, <mids> and <dcss>.	
AT+CSCB=?	Test command returns the range of values for parameter <mode>.	
Example	AT+CSCB? +CSCB: 1,"","" OK <i>(all CBMs are accepted, none is rejected)</i> AT+CSCB=0,"0,1,300-315,450","0-3" OK	
Reference	GSM 27.005, 3GPP TS 23.041, 3GPP TS 23.038.	

3.5.5.2.5. Save Settings - +CSAS

+CSAS - Save Settings		SELINT 0 / 1
AT+CSAS [=<profile>]	Execution command saves settings which have been made by the +CSCA, +CSMP and +CSCB commands in local non volatile memory.	

Parameter:

<profile>

0 - it saves the settings to NVM (factory default).

1..n - SIM profile number; the value of n depends on the SIM and its max is 3.

Note: certain settings may not be supported by the SIM and therefore they are always saved to NVM, regardless the value of <profile>.

Note: If parameter is omitted the settings are saved in the non volatile memory.

Note: +CSCB <mids> (Message Identifiers) parameter can be saved to SIM only if the "Cell broadcast message identifier selection" file is present on the SIM itself. This file, if present, has storage for only a single set of data. Therefore, it is not possible to save different <mids> in different SIM profiles; <mids> value, once changed and saved, will be the same for all SIM profiles.



+CSAS - Save Settings		SELINT 0 / 1
AT+CSAS?	Read command has the same effect as Execution command with parameter omitted.	
AT+CSAS=?	Test command returns the possible range of values for the parameter <profile>.	
Reference	GSM 27.005	

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

3.5.5.2.6. Restore Settings - +CRES

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



+CRES - Restore Settings	SELINT 0 / 1
Reference	GSM 27.005

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

3.5.5.3. Message Receiving And Reading

3.5.5.3.1. New Message Indications - +CNMI

+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
AT+CNMI[=[<mode>[,<mt> [,<bm>[,<ds> [,<bfr>]]]]]]	Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE . Parameter: <mode> - unsolicited result codes buffering option 0 - Buffer unsolicited result codes in the TA . If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE . 2 - Buffer unsolicited result codes in the TA in case the DTE is busy and flush them to the TE after reservation. Otherwise forward them directly to the TE . 3 - if <mt> is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too. <mt> - result code indication reporting for SMS-DELIVER 0 - No SMS-DELIVER indications are routed to the TE . 1 - If SMS-DELIVER is stored into ME/TA , indication of the memory location is routed to the TE using the following unsolicited result code: +CMTI: <memr>,<index>



+CNMI - New Message Indications To Terminal Equipment	SELINT 0 / 1
	<p>where:</p> <p><memr> - memory storage where the new message is stored "SM" "ME"</p> <p><index> - location on the memory where SM is stored.</p> <p>2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the TE using the following unsolicited result code:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CMT: ,<length><CR><LF><pdu></p> <p>where:</p> <p><length> - PDU length <pdu> - PDU message</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CMT:<oa>,,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> (the information written in italics will be present depending on +CSDH last setting)</p> <p>where:</p> <p><oa> - originating address, string type converted in the currently selected character set (see +CSCS) <scts> - arrival time of the message to the SC <tooa>, <tosca> - type of number <oa> or <sca>: 129 - number in national format 145 - number in international format (contains the "+") <fo> - first octet of 3GPP TS 23.040 <pid> - Protocol Identifier <dcs> - Data Coding Scheme <sca> - Service Centre address, string type, converted in the currently selected character set (see +CSCS) <length> - text length <data> - TP-User-Data</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 0 - Cell Broadcast Messages are not sent to the DTE 2 - New Cell Broadcast Messages are sent to the DTE with the unsolicited result code:</p> <p style="text-align: center;">(PDU Mode)</p>



+CNMI - New Message Indications To Terminal Equipment		SELINT 0 / 1
	<p>+CBM: <PDU> where: <PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data> where: <sn> - message serial number <mid> - message ID <dcs> - Data Coding Scheme <pag> - page number <pags> - total number of pages of the message <data> - CBM Content of Message</p> <p><ds> - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the DTE 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> where: <length> - PDU length <PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CDS: <fo>,<mr>,,<scts>,<dt>,<st> where: <fo> - first octet of the message PDU <mr> - message reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU</p> <p>2 - if a status report is stored, then the following unsolicited result code is sent: +CDSI: <memr>,<index> where: <memr> - memory storage where the new message is stored "SM" <index> - location on the memory where SM is stored</p> <p><bfr> - buffered result codes handling method: 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=1..3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=1..3 is entered.</p>	



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

+CNMI - New Message Indications To Terminal Equipment		SELINT 2
<p><i>Note: the behaviour of command +CNMI differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</i></p>		
(#SMSMODE=0)		
# S M S M O D E = 0	AT+CNMI=[<mode>[,<mt> [,<bm>[,<ds> [,<bfr>]]]]]	<p>Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE.</p> <p>Parameter:</p> <p><mode> - unsolicited result codes buffering option</p> <ul style="list-style-type: none"> 0 - Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE. 2 - Buffer unsolicited result codes in the TA in case the DTE is busy and



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
# S M S M O D E = 0		<p>flush them to the TE after reservation. Otherwise forward them directly to the TE.</p> <p>3 - if <mt> is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too.</p> <p><mt> - result code indication reporting for SMS-DELIVER</p> <p>0 - No SMS-DELIVER indications are routed to the TE.</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:</p> <p>+CMTI: <mems>,<index></p> <p>where:</p> <p><mems> - memory storage where the new message is stored (see +CPMS)</p> <p><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></p> <p>where:</p> <p><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.</p> <p><length> - PDU length</p> <p><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)</p> <p>where:</p> <p><oa> - originating address, string type converted in the currently selected character set (see +CSCS)</p> <p><alpha> - alphanumeric representation of <oa>; used character set should be the one selected with command +CSCS.</p> <p><scts> - arrival time of the message to the SC</p> <p><tooa>, <tosca> - type of number <oa> or <sca>:</p> <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <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>
# S M S M O D E = 0		
# S M S M O D E = 0		
# S M S M O		



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
D E = 0		<p><length> - text length <data> - TP-User-Data</p> <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)
# S M S M O D E = 0		<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>
# S M S M O D E = 0		(PDU Mode)
# S M S M O D E = 0		<p>+CBM: <PDU> where: <PDU> - message PDU</p>
# S M S M O D E = 0		(TEXT Mode)
# S M S M O D E = 0		<p>+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data> where:</p> <p><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> <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 0 - status report receiving is not reported to the DTE</p>



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
# 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>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> where: <length> - PDU length <PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CDS: <fo>,<mr>,,<scts>,<dt>,<st> where: <fo> - first octet of the message PDU <mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU</p> <p>2 - if a status report is stored, then the following unsolicited result code is sent:</p> <p>+CDSI: <memr>,<index> where: <memr> - memory storage where the new message is stored "SM" <index> - location on the memory where SMS is stored <bfr> - buffered result codes handling method: 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=1..3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=1..3 is entered.</p>	
AT+CNMI?	Read command returns the current parameter settings for +CNMI command in the form:	
	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>	
AT+CNMI=?	Test command reports the supported range of values for the +CNMI command parameters.	
Reference	GSM 27.005	
Note	DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE startup is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages	



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
E = 0		received.
(#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	AT+CNMI=[<mode>[,<mtn>[,<bm>[,<ds>[,<bfr>]]]]] Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE . Parameter: <mode> - unsolicited result codes buffering option 0 - Buffer unsolicited result codes in the TA . If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE . 2 - Buffer unsolicited result codes in the TA in case the DTE is busy and flush them to the TE after reservation. Otherwise forward them directly to the TE . 3 - if <mtn> is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too. <mtn> - result code indication reporting for SMS-DELIVER 0 - No SMS-DELIVER indications are routed to the TE and messages are stored in SIM. 1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code: +CMTI: <mems>,<index> where: <mems> - memory storage where the new message is stored (see +CPMS) <index> - location on the memory where SMS is stored. 2 - SMS-DELIVERS (except class 2 messages and messages in the “store” message waiting indication group) are routed directly to the TE using the following unsolicited result code: (PDU Mode) +CMT: <alpha>,<length><CR><LF><pdu> where: <alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook; used character set should be the one selected	



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
# S M S M O D E = 1		<p>with command +CSCS.</p> <p><length> - PDU length <pdu> - PDU message</p> <p 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:</p> <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 <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 2 - New Cell Broadcast Messages are sent to the DTE with the unsolicited result code:</p> <p align="center">(PDU Mode)</p> <p>+CBM: <length><CR><LF><PDU></p>
# S M S M O D E = 1		
# S M S M O D E = 1		
# S M S M		



+CNMI - New Message Indications To Terminal Equipment		SELINT 2
<pre>O D E = 1 # S M S M O D E = 1 # S M S M M O D E = 0 # S M S M O D E = 1</pre>	<p>where:</p> <p><length> - PDU length <PDU> - message PDU</p> <p align="center">(TEXT Mode)</p> <p>+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data></p> <p>where:</p> <p><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> <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 1 - the status report is sent to the DTE with the following unsolicited result code:</p> <p align="center">(PDU Mode)</p> <p>+CDS: <length><CR><LF><PDU></p> <p>where:</p> <p><length> - PDU length <PDU> - message PDU</p> <p 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</p>	



+CNMI - New Message Indications To Terminal Equipment		SELINT 2									
# S M S M O D E = 1		<p>sent: +CDSI: <memr>,<index></p> <p>where:</p> <p><memr> - memory storage where the new message is stored "SM"</p> <p><index> - location on the memory where SMS is stored</p> <p><bfr> - buffered result codes handling method:</p> <ul style="list-style-type: none"> 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=1..3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=1..3 is entered. 									
# S M S M O D E = 1	AT+CNMI?	Read command returns the current parameter settings for +CNMI command in the form: +CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>									
# S M S M O D E = 1	AT+CNMI=?	Test command reports the supported range of values for the +CNMI command parameters.									
# S M S M O D E = 1	Reference	GSM 27.005									
# S M S M O D E = 1	Note	<p>DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE startup is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.</p>									
# S M S M O D E = 1	Note	<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="padding: 5px; vertical-align: top;"> Message Class or Indication group, as in the DCS <mt> settings in different sessions </td> <td style="padding: 5px; vertical-align: top;"> SM Class is No Class <i>OR</i> SM Class is 0 or 1 or 3 <i>OR</i> SM is an Indication with group "Discard" </td> <td style="padding: 5px; vertical-align: top;"> SM Class is 3 </td> </tr> <tr> <td style="padding: 5px; vertical-align: top;"> <mt>=2 for session "0" <i>AND</i> <mt>=anyvalue for other session(s) </td> <td style="padding: 5px; vertical-align: top;"> URC is shown only on session "0" </td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px; vertical-align: top;"> <mt>=3 for session "0" <i>AND</i> <mt>=0 or 1 for other session(s) </td> <td style="padding: 5px;"></td> <td style="padding: 5px; vertical-align: top;"> URC is shown only on session "0" </td> </tr> </table>	Message Class or Indication group, as in the DCS <mt> settings in different sessions	SM Class is No Class <i>OR</i> SM Class is 0 or 1 or 3 <i>OR</i> SM is an Indication with group "Discard"	SM Class is 3	<mt>=2 for session "0" <i>AND</i> <mt>=anyvalue for other session(s)	URC is shown only on session "0"		<mt>=3 for session "0" <i>AND</i> <mt>=0 or 1 for other session(s)		URC is shown only on session "0"
Message Class or Indication group, as in the DCS <mt> settings in different sessions	SM Class is No Class <i>OR</i> SM Class is 0 or 1 or 3 <i>OR</i> SM is an Indication with group "Discard"	SM Class is 3									
<mt>=2 for session "0" <i>AND</i> <mt>=anyvalue for other session(s)	URC is shown only on session "0"										
<mt>=3 for session "0" <i>AND</i> <mt>=0 or 1 for other session(s)		URC is shown only on session "0"									
# S M S M O	Note	The following table clarifies which URC is shown and if the DELIVER SM is stored, depending on the <mt> parameter value and the SM class.									



+CNMI - New Message Indications To Terminal Equipment							SELINT 2
D E = 1	<mt>	SM CLASS					msg waiting store
			0 / msg waiting discard	1 / no class	2	3	
		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
		3	Store in <mems> - Send ind +CMTI	Store in <mems> - Send ind +CMTI	Store in SIM - Send ind +CMTI	Route msg to TE: +CMT ^l	Store in <mems> - Send ind +CMTI

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

Note

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

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

²⁷ The SM is not stored!


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> <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>,[<tooa/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</p>	



+CMGL - List Messages		SELINT 0 / 1
	<p>selected character set (see +CSCS)</p> <p><tooa/toda> - type of number <oa/da></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> <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</p> <p><stat> - message status</p> <p><fo> - first octet of the message PDU</p> <p><mr> - message reference number</p> <p><scts> - arrival time of the message to the SC</p> <p><dt> - sending time of the message</p> <p><st> - message status as coded in the PDU</p> <p>Note: OK result code is sent at the end of the listing.</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	If Text Mode (+CMGF=1) the Test command output is not included in parenthesis	
	AT+CMGL=?	
	+CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"	
Note	The improving command @CMGL has been defined	
Reference	GSM 27.005	



+CMGL - List Messages		SELINT 2
<p><i>Note: the behaviour of command +CMGL differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</i></p>		
<p align="center">(#SMSMODE=0)</p> <p># S 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 # S M S M O D E = 0</p>	<p>AT+CMGL [=<stat>]</p> <p>The parameter type and the command output depend on the last settings of command +CMGF (message format to be used)</p> <p 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>If there is at least one message to be listed the representation format is:</p> <pre>+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu> [<CR><LF> +CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[...]]</pre> <p>where: <index> - message position in the memory storage list. <stat> - status of the message <alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS. <length> - length of the PDU in bytes <pdu> - message in PDU format according to GSM 3.40</p> <p 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</p>	



+CMGL - List Messages		SELINT 2
<pre>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 # S M S M O D E = 0</pre>	<p>(the information written in italics will be present depending on +CSDH last setting):</p> <p>+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF></p> <p>+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<tooa/toda>,<length>]<CR><LF><data>[...]]</p> <p>where:</p> <ul style="list-style-type: none"> <index> - message position in the storage <stat> - message status <oa/da> - originator/destination address, string type , represented in the currently selected character set (see +CSCS) <alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS. <scts> - TP-Service Centre Time Stamp in Time String Format <tooa/toda> - type of number <oa/da> <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User-Data <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> <p>+CMGL: <index>,<stat>,<fo>,<mr>,,<scts>,<dt>,<st>[<CR><LF></p> <p>+CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>[...]]</p> <p>where</p> <ul style="list-style-type: none"> <index> - message position in the storage <stat> - message status <fo> - first octet of the message PDU <mr> - message reference number; 3GPP TS 23.040 TP-Message- Reference in integer format <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU 	



+CMGL - List Messages		SELINT 2
# S M S M O D E = 0		<p>Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.</p> <p>Note: the order in which the messages are reported by +CMGL is the same order in which these messages have been processed by the module</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
	Reference	GSM 27.005, 3GPP TS 23.040
(#SMSMODE=1)		
# S M S M O D E = 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 align="center">(PDU Mode)</p> <p>Parameter:</p> <p><stat></p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. <p>If there is at least one message to be listed the representation format is:</p> <p>+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[<CR><LF> +CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>[...]]</p> <p>where:</p> <p><index> - message position in the memory storage list.</p> <p><stat> - status of the message</p> <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><length> - length of the PDU in bytes</p> <p><pdu> - message in PDU format according to GSM 3.40</p>



+CMGL - List Messages		SELINT 2
<pre>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 # S M S M O D E = 1</pre>	<p align="center">(Text Mode)</p> <p>Parameter:</p> <p><stat></p> <p>"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>[,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<tooa/toda>,<length>]<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) <alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS. <scts> - TP-Service Centre Time Stamp in Time String Format <tooa/toda> - type of number <oa/da> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User-Data</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) • If <fo> indicates that a UDH is present each 8-bit octet will be converted into two IRA character long hexadecimal number. The <length> indicates text length in characters without UDH length. <p>If there is at least one message delivery confirm to be listed the</p>	



+CMGL - List Messages		SELINT 2
# S M S M O D E = 1 # S M S M O D E = 1	<p>representation format is:</p> <pre>+CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st> [<CR><LF> +CMGL: <index>,<stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st> [...]]</pre> <p>where</p> <ul style="list-style-type: none"> <index> - message position in the storage <stat> - message status <fo> - first octet of the message PDU <mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format <ra> - recipient address, string type , represented in the currently selected character set (see +CSCS) <tora> - type of number <ra> <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU <p>Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.</p> <p>Note: the order in which the messages are reported by +CMGL corresponds to their position in the memory storage</p>	
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:</p> <p><stat></p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 	



@CMGL - List Messages Improved	SELINT 0
<p>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</p> <p><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:</p> <p><stat></p> <p>"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 <i>italics</i> will be present depending on +CSDH last setting):</p> <p>@CMGL: <index>,<stat>,<oa/da>,,<<i>tooa/toda</i>>,<length>]<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) <tooa/toda> - type of number <oa/da> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User-Data</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</p>	



@CMGL - List Messages Improved		SELINT 0
	<p><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	If Text Mode (+CMGF=1) the Test command output is not included in parenthesis	
	AT@CMGL=? @CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"	
Reference	GSM 27.005	

@CMGL - List Messages Improved		SELINT 1
AT@CMGL [=<stat>]	<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:</p> <p><stat></p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. <p>Each message to be listed is represented in the format:</p> <p>@CMGL: <index>,<stat>,<length><CR><LF><pdu></p> <p>where</p> <p><index> - message position in the memory storage list.</p> <p><stat> - status of the message</p> <p><length> - length of the PDU in bytes</p>	



@CMGL - List Messages Improved	SELINT 1
	<p><pdu> - message in PDU format according to GSM 3.40</p> <p style="text-align: center;">(Text Mode)</p> <p>Parameter:</p> <p><stat></p> <p>"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:</p> <pre>@CMGL: <index>,<stat>,<oa/da>[,,<tooa/toda>,<length>] <CR><LF> <data></pre> <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) <tooa/toda> - type of number <oa/da> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User-Data</p> <p>Each message delivery confirm is represented in the format:</p> <pre>@CMGL: <index>,<stat>,<fo>,<mr>,,<scts>,<dt>,<st></pre> <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



@CMGL - List Messages Improved		SELINT 1
AT@CMGL=?	Test command returns a list of supported <stat>s	
Note	If Text Mode (+CMGF=1) the Test command output is not included in parenthesis	
	AT@CMGL=? @CMGL: "REC UNREAD","REC READ","STO UNSENT", "STO SENT","ALL"	
Reference	GSM 27.005	

3.5.5.3.4. Read Message - +CMGR

+CMGR - Read Message		SELINT 0 / 1
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</p> <p><stat> - status of the message</p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent <p><length> - length of the PDU in bytes.</p> <p><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 (the information written in italics will be present depending on +CSDH last setting):</p> <p>+CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data></p> <p>Output format for either sent or unsent messages:</p> <p>+CMGR: <stat>,<da>[,<toda>,<fo>,<pid>,<dcs>,</p>	



+CMGR - Read Message		SELINT 0 / 1
	<p><sca>,<tosca>,<length>]<CR><LF><data></p> <p>Output format for message delivery confirm: +CMGR: <stat>,<fo>,<mr>,,<scts>,<dt>,<st></p> <p>where:</p> <ul style="list-style-type: none"> <stat> - status of the message <ul style="list-style-type: none"> "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent <fo> - first octet of the message PDU <mr> - message reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU <pid> - Protocol Identifier <dcs> - Data Coding Scheme <oa> - Originator address, string type represented in the currently selected character set (see +CSCS) <da> - Destination address, string type represented in the currently selected character set (see +CSCS) <sca> - Service Centre number <tooa>,<toda>,<tosca> - type of number <oa>,<da>,<sca> <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User_data <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.	
Note	The improving command @CMGR has been defined	
Reference	GSM 27.005	



+CMGR - Read Message		SELINT 2
<p><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></p>		
(#SMSMODE=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 # S M S M O D E = 0 # S M S M O D E = 0 # S M	<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 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> <p><stat> - status of the message</p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent <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><length> - length of the PDU in bytes.</p> <p><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 align="center">(Text Mode)</p> <p>If there is a Received message in location <index> the output format is (the information written in <i>italics</i> will be present depending on +CSDH last setting):</p> <p>+CMGR: <stat>,<oa>,<alpha>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sea>,<tosca>,<length>]<CR><LF><data></p> <p>If there is either a Sent or an Unsent message in location <index> the output format is:</p> <p>+CMGR: <stat>,<da>,<alpha>[,<toda>,<fo>,<pid>,<dcs>,<vp>,<sca>,<tosca>,<length>]<CR><LF><data></p>
M 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 # S M		



+CMGR - Read Message		SELINT 2
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 # S M S M O D E = 0	If there is a Message Delivery Confirm in location <index> the output format is: +CMGR: <stat>,<fo>,<mr>,,<scts>,<dt>,<st> where: < stat > - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent < fo > - first octet of the message PDU < mr > - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format < scts > - arrival time of the message to the SC < dt > - sending time of the message < st > - message status as coded in the PDU < pid > - Protocol Identifier < dcs > - Data Coding Scheme < vp > - Validity period; only the integer format is supported < oa > - Originator address, string type represented in the currently selected character set (see +CSCS) < da > - Destination address, string type represented in the currently selected character set (see +CSCS) < alpha > - string type alphanumeric representation of < da > or < oa >, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS. < sca > - Service Centre number < tooa >,< toda >,< tosca > - type of number < oa >,< da >,< sca > 129 - number in national format 145 - number in international format (contains the "+") < length > - text length < data > - TP-User_data <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) 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	
Reference	GSM 27.005	





+CMGR - Read 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 # S M S M O D E = 1	<p>format is:</p> <p>+CMGR: <stat>,<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st></p> <p>where:</p> <p><stat> - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent</p> <p><fo> - first octet of the message PDU</p> <p><mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format</p> <p><ra> - recipient address, string type, represented in the currently selected character set (see +CSCS)</p> <p><tora> - type of number <ra></p> <p><scts> - arrival time of the message to the SC</p> <p><dt> - sending time of the message</p> <p><st> - message status as coded in the PDU</p> <p><pid> - Protocol Identifier</p> <p><dcs> - Data Coding Scheme</p> <p><vp> - Validity Period; its format depends on SMS-SUBMIT <fo> setting (see +CSMP):</p> <ul style="list-style-type: none"> a) <i>Not Present</i> if <fo> tells that the <i>Validity Period Format is Not Present</i> b) <i>Integer</i> type if <fo> tells that the <i>Validity Period Format is Relative</i> c) <i>Quoted time-string type</i> if <fo> tells that the <i>Validity Period Format is Absolute</i> d) Quoted hexadecimal representation of 7 octets if <fo> tells that the <i>Validity Period Format is Enhanced</i>. <p><oa> - Originator address, string type represented in the currently selected character set (see +CSCS)</p> <p><da> - Destination address, string type represented in the currently selected character set (see +CSCS)</p> <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><tooatodatosca> - type of number <oa>,<da>,<sca></p> <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <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 , each character of GSM alphabet will be converted into current TE character set (see +CSCS) 	



+CMGR - Read Message		SELINT 2
	<ul style="list-style-type: none"> 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> <p>where</p> <p><stat> - status of the message</p> <p>0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent</p> <p><length> - length of the PDU in bytes.</p> <p><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 (the information written in italics will be present depending on +CSDH last setting):</p> <p>@CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><text></p>	



@CMGR - Read Message Improved		SELINT 0
	<p>Output format for either sent or unsent messages: @CMGR: <stat>,<da>[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]<CR><LF><text></p> <p>Output format for message delivery confirm: @CMGR: <stat>,<fo>,<mr>,,<scts>,<dt>,<st></p> <p>where:</p> <p><stat> - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent <fo> - first octet of the message PDU <mr> - message reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU <pid> - Protocol Identifier <dcs> - Data Coding Scheme <oa> - Originator address, string type represented in the currently selected character set (see +CSCS) <da> - Destination address, string type represented in the currently selected character set (see +CSCS) <sca> - Service Centre number <tooatoda>,<tosca> - type of number <oa>,<da>,<sca> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <text> - message text</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>	Execution command reports the message with location value < index > from < memr > message storage (< memr > is the message storage for read and delete SMs as last settings of command +CPMS).	



@CMGR - Read Message Improved	SELINT 1
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Parameter:
<index> - message index.

The output depends on the last settings of command +CMGF (message format to be used)

(PDU Mode)

The output has the following format:

@CMGR: <stat>,<length><CR><LF><pdu>

where

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

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

(Text Mode)

Output format for received messages:

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

Output format for either sent or unsent messages:

@CMGR: <stat>,<da>[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]<CR><LF><text>

Output format for message delivery confirm:

@CMGR: <stat>,<fo>,<mr>,,<scts>,<dt>,<st>

where:

<stat> - status of the message
 "REC UNREAD" - new received message unread
 "REC READ" - received message read
 "STO UNSENT" - message stored not yet sent
 "STO SENT" - message stored already sent
<fo> - first octet of the message PDU
<mr> - message reference number
<scts> - arrival time of the message to the SC
<dt> - sending time of the message
<st> - message status as coded in the PDU
<pid> - Protocol Identifier



@CMGR - Read Message Improved	SELINT 1
<p><des> - Data Coding Scheme <oa> - Originator address, string type represented in the currently selected character set (see +CSCS) <da> - Destination address, string type represented in the currently selected character set (see +CSCS) <sca> - Service Centre number <tooa>,<toda>,<tosca> - type of number <oa>,<da>,<sca> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <text> - message text</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

3.5.5.4. Message Sending And Writing

3.5.5.4.1. Send Message - +CMGS

+CMGS - Send Message	SELINT 0 / 1
<p>(PDU Mode) AT+CMGS= <length></p> <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> <p>Note: the echoing of given characters back from the TA is controlled by echo command E</p>	<p>(PDU Mode)</p>



+CMGS - Send Message	SELINT 0 / 1
	<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.</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>
<i>(Text Mode)</i> AT+CMGS=<da>[,<toda>]	<p style="text-align: center;">(Text Mode)</p> <p>Execution command sends to the network a message.</p> <p>Parameters:</p> <p><da> - destination address, string type. <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 style="text-align: center;"><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 <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-



+CMGS - Send Message		SELINT 0 / 1
	<p>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> 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> <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>	
Note	To avoid malfunctions is suggested to wait for the +CMGS: <mr> or +CMS ERROR: <err> response before issuing further commands.	
Reference	GSM 27.005	

+CMGS - Send Message		SELINT 2
<p><i>Note: the behaviour of command +CMGS differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE)</i></p> <p style="text-align: center;">(#SMSMODE=0)</p>		
# S (PDU Mode) M AT+CMGS= S <length> M O D E = Parameter: 0 <length> - length of the PDU to be sent in bytes (excluding the SMSC address octets). 7..164	(PDU Mode) Execution command sends to the network a message. After command line is terminated with <CR>, the device responds sending a four character sequence prompt:	



+CMGS - Send Message		SELINT 2
# S M S M O D E = 0	<CR><LF><greater_than><space> (IRA 13, 10, 62, 32) and waits for the specified number of bytes. Note: the DCD signal shall be in ON state while PDU is given. Note: the echoing of given characters back from the TA is controlled by echo command E Note: the PDU shall be hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one line.	
# S M S M O D E = 0	Note: when the length octet of the SMSC address (given in the PDU) equals zero, the SMSC address set with command +CSCA is used; in this case the SMSC Type-of-Address octet shall not be present in the PDU . To send the message issue Ctrl-Z char (0x1A hex). To exit without sending the message issue ESC char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: +CMGS: <mr>	
# S M S M	where < mr > - message reference number; 3GPP TS 23.040 TP-Message-Reference in integer format. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.	
O D E = 0	(Text Mode) AT+CMGS=<da> [,<toda>]	(Text Mode) Execution command sends to the network a message. Parameters: < da > - destination address, string type represented in the currently selected character set (see +CSCS). < toda > - type of destination address 129 - number in national format 145 - number in international format (contains the "+") After command line is terminated with <CR>, the device responds sending a four character sequence prompt:



+CMGS - Send Message		SELINT 2
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 # S M S M O D E = 0 # S M S M O D E = 0	<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 <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the ‘asterisk’ will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A) <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</p> <p><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.



+CMGS - Send Message		SELINT 2
	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 # 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>(PDU Mode)</p> <p>AT+CMGS=<length></p> <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> <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).</p> <p>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</p> <p><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>	(PDU Mode)



+CMGS - Send Message		SELINT 2
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 # S M S M O D E = 1 # S M S M O D E	<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>(Text Mode) AT+CMGS=<da> [,<toda>]</p> <p>Parameters:</p> <ul style="list-style-type: none"> <da> - destination address, string type represented in the currently selected character set (see +CSCS). <toda> - type of destination address <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <p>After command line is terminated with <CR>, the device responds sending a four character sequence prompt:</p> <p style="text-align: center;"><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 <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used; after every <CR> entered by the user the sequence <CR><LF><greater_than><space> is sent to the TE. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the 'asterisk' will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A) <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>	



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

3.5.5.4.2. Send Message From Storage - +CMSS

+CMSS - Send Message From Storage		SELINT 0 / 1
AT+CMSS= <index>[,<da> [,<toda>]]	<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:</p> <p><index> - location value in the message storage <memw> of the message to send</p> <p><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.</p> <p><toda> - type of destination address</p> <ul style="list-style-type: none"> 129 - number in national format 145 - number in international format (contains the "+") <p>If message is successfully sent to the network then the result is sent in the format:</p> <p>+CMSS: <mr></p> <p>where:</p> <p><mr> - message reference number.</p> <p>If message sending fails for some reason, an error code is reported:</p>	



+CMSS - Send Message From Storage		SELINT 0 / 1
	<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>[,<toda>]]	<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:</p> <p><index> - location value in the message storage <memw> of the message to send</p> <p><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.</p> <p><toda> - type of destination address</p> <p>129 - number in national format</p> <p>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
<p>(PDU Mode) AT+CMGW= <length> [,<stat>]</p>	<p>(PDU Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameter:</p> <p><length> - length in bytes of the PDU to be written. 7..164</p> <p><stat> - message status.</p> <p>0 - new message 1 - read message 2 - stored message not yet sent (default) 3 - stored message already sent</p> <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>(Text Mode) AT+CMGW[=<da>[,<toda>[,<stat>]]]</p>	<p>(Text Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameters:</p> <p><da> - destination address, string type represented in the currently selected character set (see +CSCS). 129 - number in national format 145 - number in international format (contains the "+")</p> <p><toda> - type of destination address. 129 - number in national format 145 - number in international format (contains the "+")</p> <p><stat> - message status. "REC UNREAD" - new received message unread "REC READ" - received message read</p>	



+CMGW - Write Message To Memory	SELINT 0 / 1
<p>"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 style="padding-left: 40px;"><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 <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the 'asterisk' will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A) <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>	



+CMGW - Write Message To Memory		SELINT 0 / 1
		Note: in Text Mode, only SUBMIT messages can be stored in memory and only with status "STO UNSENT" or "STO SENT".
Reference	GSM 27.005	
Note		To avoid malfunctions is suggested to wait for the +CMGW: <index> or +CMS ERROR: <err> response before issuing further commands.

+CMGW - Write Message To Memory		SELINT 2
Note: the behaviour of command +CMGW differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE).		
(#SMSMODE=0)		
# S M S M O D E = 0 # S M S M O D E = 0 # S M S M O	<p>(PDU Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameter:</p> <p><length> - length in bytes of the PDU to be written. 7..164</p> <p><stat> - message status.</p> <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent (default) 3 - stored message already sent <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></p> <p>where:</p> <p><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>	



+CMGW - Write Message To Memory		SELINT 2
D	(Text Mode)	(Text Mode)
E	AT+CMGW[=<da>	Execution command writes in the <memw> memory storage a new message.
=	[,<toda>	
O	[,<stat>]]]	
#		Parameters:
S		<da> - destination address, string type represented in the currently selected character set (see +CSCS).
M		<toda> - type of destination address.
S		129 - number in national format
M		145 - number in international format (contains the "+")
O		<stat> - message status.
D		"REC UNREAD" - new received message unread
E		"REC READ" - received message read
=		"STO UNSENT" - message stored not yet sent (default)
O		"STO SENT" - message stored already sent
#		After command line is terminated with <CR>, the device responds sending a four character sequence prompt:
S		<CR><LF><greater_than><space> (IRA 13, 10, 62, 32)
M		After this prompt text can be entered; the entered text should be formatted as follows:
S		- if current <des> (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.
M		- if current <des> (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)
O		Note: the DCD signal shall be in ON state while text is entered.
D		Note: the echoing of entered characters back from the TA is controlled by echo command E
E		To write the message issue Ctrl-Z char (0x1A hex).
=		To exit without writing the message issue ESC char (0x1B hex).
O		If message is successfully written in the memory, then the result is sent in



+CMGW - Write Message To Memory		SELINT 2
# S M S M O D E = 0		<p>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>
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	<p><i>(PDU Mode)</i></p> <p>AT+CMGW= <length> $[,<\text{stat}>]$</p> <p>Parameter:</p> <p><length> - length in bytes of the PDU to be written. 7..164</p> <p><stat> - message status.</p> <p>0 - new message (received unread message; default for DELIVER messages (3GPP TS 23.040 SMS-DELIVER messages))</p> <p>1 - read message</p> <p>2 - stored message not yet sent (default for SUBMIT messages(3GPP TS 23.040 SMS-SUBMIT messages))</p> <p>3 - stored message already sent</p> <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).</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></p>	(PDU Mode)
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+CMGW - Write Message To Memory		SELINT 2
# 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 # S M S M O	<p>where: <index> - message location index in the memory <memw>. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued. Note: in PDU mode, not only SUBMIT messages can be stored in SIM as per #SMSMODE=0, but also DELIVER and STATUS REPORT messages (3GPP TS 23.040 SMS-STATUS-REPORT messages). SUBMIT messages can only be stored with status 2 or 3; DELIVER and STATUS REPORT messages can only be stored with status 0 or 1.</p>	
	<p>(Text Mode) AT+CMGW[=<da>[,<toda>[,<stat>]]]</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameters:</p> <p><da> - destination address, string type represented in the currently selected character set (see +CSCS).</p> <p><toda> - type of destination address.</p> <p>129 - number in national format</p> <p>145 - number in international format (contains the "+")</p> <p><stat> - message status.</p> <p>"REC UNREAD" - new received message unread (default for DELIVER messages)</p> <p>"REC READ" - received message read</p> <p>"STO UNSENT" - message stored not yet sent (default for SUBMIT messages)</p> <p>"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> <ul style="list-style-type: none"> - if current <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used; after 	



+CMGW - Write Message To Memory		SELINT 2
D E = 1 # S M S M O D E = 1	<p>every <CR> entered by the user the sequence <CR><LF><greater_than><space> is sent to the TE.</p> <p>- if current <des> (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).</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 <des>: 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.</p> <p>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".</p> <p>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.		



+CMGW - Write Message To Memory		SELINT 2
Reference	GSM 27.005	
Note	To avoid malfunctions is suggested to wait for the +CMGW: <index> or +CMS ERROR: <err> response before issuing further commands.	

3.5.5.4.4. Delete Message - +CMGD

+CMGD - Delete Message		SELINT 0 / 1
AT+CMGD= <index> [,<delflag>]	<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 from 1 to N, where N depends on the available space (see +CPMS)</p> <p><delflag> - an integer indicating multiple message deletion request.</p> <ul style="list-style-type: none"> 0 (or omitted) - delete message specified in <index> 1 - delete all read messages from <memr> storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from <memr> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from <memr> storage, sent and unsent mobile originated messages, leaving unread messages untouched 4 - delete all messages from <memr> storage. <p>Note: if <delflag> is present and not set to 0 then <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=?	Test command shows the valid memory locations and optionally the supported values of <delflag>.	
	+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]	
Example	AT+CMGD=? +CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4) OK	
Reference	GSM 27.005	

+CMGD - Delete Message		SELINT 2
<p><i>Note: the behaviour of command +CMGD differs depending on whether or not the improved SMS commands operation mode has been enabled (see #SMSMODE).</i></p> <p align="center">(#SMSMODE=0)</p>		
# S M S	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</p>



+CMGD - Delete Message		SELINT 2
M O D E = 0 # S M S M O D E = 0		<p>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> <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) OK</p>
	Reference	GSM 27.005

(#SMSMODE=1)

# S M S M O D E = 1 # S M S	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>
---	--	--



+CMGD - Delete Message		SELINT 2
M O D E = 1		Note: if <delflag> is present and not set to 0 then, if <index> is greater than 0, <index> is ignored and ME shall follow the rules for <delflag> shown above.
	AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of <delflag>. +CMGD: (supported <index>s list)[,(supported <delflag>s list)]
	Example	AT+CMGD=? +CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4) 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> <ul style="list-style-type: none"> 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>Note: the <service> value is saved on NVM as global parameter</p>	
AT+CGSMS?	The read command returns the currently selected service or service preference in the form: +CGSMS: <service>	
AT+CGSMS=?	Test command reports the supported list of currently available <service>s.	



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

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

3.5.6.2.5. Transmit Data With HDLC Framing - +FTH

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



3.5.6.2.6. Receive Data With HDLC Framing - +FRH

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

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



3.5.6.3.2. Serial Port Rate - +FPR

+FPR - Select Serial Port Rate		SELINT 0 / 1 / 2
AT+FPR=<rate>	Set command selects the the serial port speed in both directions, from DTE to DTA and from DTA to DTE . When autobauding is selected, then the speed is detected automatically.	
	Parameter: < rate > - serial port speed selection 0 – autobauding	
	Note: it has no effect and is included only for backward compatibility with landline modems	
AT+FPR?	Read command returns the current value of parameter < rate >	
AT+FPR=?	Test command returns all supported values of the parameters < rate >. Note: test command result is without command echo.	
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>	Set command concerns the use of the < DLE >< SUB > pair to encode consecutive escape characters (< 10h >< 10h >) in user data.	
	Parameter <mode> 0 - currently the only available value. The DCE decode of < DLE >< SUB > is either < DLE >< DLE > or discard. The DCE encode of < 10h >< 10h > is < DLE >< DLE >< DLE >< DLE >	
AT+FDD?	Read command returns the current value of parameter < mode >	
AT+FDD=?	Test command returns all supported values of parameter < mode >. Note: test command result is without command echo.	
Reference	ITU T.31 and TIA/EIA-578-A specifications	



3.5.7. Custom AT Commands

3.5.7.1. General Configuration AT Commands

3.5.7.1.1. Network Selection Menu Availability - +PACSP

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

3.5.7.1.2. Manufacturer Identification - #CGMI

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

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

3.5.7.1.3. Model Identification - #CGMM

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

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



3.5.7.1.4. Revision Identification - #CGMR

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

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

3.5.7.1.5. Product Serial Number Identification - #CGSN

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

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

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

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

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

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

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

3.5.7.1.8. Service Provider Name - #SPN



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

3.5.7.1.9. Extended Numeric Error report - #CEER

#CEER – Extended numeric error report		SELINT 2																														
AT#CEER	<p>Execution command causes the TA to return a numeric code in the format</p> <p>#CEER: <code></p> <p>which should offer the user of the TA a report of the reason for</p> <ul style="list-style-type: none"> • the failure in the last unsuccessful call setup (originating or answering); • the last call release; • the last unsuccessful GPRS attach or unsuccessful PDP context activation; • the last GPRS detach or PDP context deactivation. <p>Note: if none of the previous conditions has occurred since power up then 0 is reported (i.e. No error, see below)</p> <p><code> values as follows</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Diagnostic</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No error</td> </tr> <tr> <td>1</td> <td>Unassigned (unallocated) number</td> </tr> <tr> <td>3</td> <td>No route to destination</td> </tr> <tr> <td>6</td> <td>Channel unacceptable</td> </tr> <tr> <td>8</td> <td>Operator determined barring</td> </tr> <tr> <td>16</td> <td>Normal call clearing</td> </tr> <tr> <td>17</td> <td>User busy</td> </tr> <tr> <td>18</td> <td>No user responding</td> </tr> <tr> <td>19</td> <td>User alerting, no answer</td> </tr> <tr> <td>21</td> <td>Call rejected</td> </tr> <tr> <td>22</td> <td>Number changed</td> </tr> <tr> <td>26</td> <td>Non selected user clearing</td> </tr> <tr> <td>27</td> <td>Destination out of order</td> </tr> <tr> <td>28</td> <td>Invalid number format (incomplete number)</td> </tr> </tbody> </table>	Value	Diagnostic	0	No error	1	Unassigned (unallocated) number	3	No route to destination	6	Channel unacceptable	8	Operator determined barring	16	Normal call clearing	17	User busy	18	No user responding	19	User alerting, no answer	21	Call rejected	22	Number changed	26	Non selected user clearing	27	Destination out of order	28	Invalid number format (incomplete number)	
Value	Diagnostic																															
0	No error																															
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16	Normal call clearing																															
17	User busy																															
18	No user responding																															
19	User alerting, no answer																															
21	Call rejected																															
22	Number changed																															
26	Non selected user clearing																															
27	Destination out of order																															
28	Invalid number format (incomplete number)																															



#CEER – Extended numeric error report		SELINT 2
	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
	<i>GPRS related errors</i>	
	224	MS requested detach
	225	NWK requested detach
	226	Unsuccessful attach cause NO SERVICE
	227	Unsuccessful attach cause NO ACCESS
	228	Unsuccessful attach cause GPRS SERVICE REFUSED
	229	PDP deactivation requested by NWK
	230	PDP deactivation cause LLC link activation Failed
	231	PDP deactivation cause NWK reactivation with same TI



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

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

#CEERNET – Ext error report for Network reject cause		SELINT 2																		
AT#CEERNET	<p>Execution command causes the TA to return a numeric code in the format</p> <p>#CEERNET: <code></p> <p>which should offer the user of the TA a report for the last mobility management(MM) or session management(SM) procedure not accepted by the network and a report of detach or deactivation causes from network.</p> <p><code> values as follows</p> <table border="1"> <thead> <tr> <th>Value</th><th>Diagnostic</th></tr> </thead> <tbody> <tr> <td>2</td><td>IMSI UNKNOWN IN HLR</td></tr> <tr> <td>3</td><td>ILLEGAL MS</td></tr> <tr> <td>4</td><td>IMSI UNKNOWN IN VISITOR LR</td></tr> <tr> <td>5</td><td>IMEI NOT ACCEPTED</td></tr> <tr> <td>6</td><td>ILLEGAL ME</td></tr> <tr> <td>7</td><td>GPRS NOT ALLOWED</td></tr> <tr> <td>8</td><td>GPRS AND NON GPRS NOT ALLOWED</td></tr> <tr> <td>9</td><td>MS IDENTITY CANNOT BE DERIVED BY NETWORK</td></tr> </tbody> </table>	Value	Diagnostic	2	IMSI UNKNOWN IN HLR	3	ILLEGAL MS	4	IMSI UNKNOWN IN VISITOR LR	5	IMEI NOT ACCEPTED	6	ILLEGAL ME	7	GPRS NOT ALLOWED	8	GPRS AND NON GPRS NOT ALLOWED	9	MS IDENTITY CANNOT BE DERIVED BY NETWORK	
Value	Diagnostic																			
2	IMSI UNKNOWN IN HLR																			
3	ILLEGAL MS																			
4	IMSI UNKNOWN IN VISITOR LR																			
5	IMEI NOT ACCEPTED																			
6	ILLEGAL ME																			
7	GPRS NOT ALLOWED																			
8	GPRS AND NON GPRS NOT ALLOWED																			
9	MS IDENTITY CANNOT BE DERIVED BY NETWORK																			



#CEERNET – Ext error report for Network reject cause		SELINT 2
	10	IMPLICITLY DETACHED
	11	PLMN NOT ALLOWED
	12	LA NOT ALLOWED
	13	ROAMING NOT ALLOWED
	14	GPRS NOT ALLOWED IN THIS PLMN
	15	NO SUITABLE CELLS IN LA
	16	MSC TEMP NOT REACHABLE
	17	NETWORK FAILURE
	22	CONGESTION
	25	LLC OR SNDCP FAILURE
	26	INSUFFICIENT RESOURCES
	27	MISSING OR UNKNOWN APN
	28	UNKNOWN PDP ADDRESS OR PDP TYPE
	29	USER AUTHENTICATION FAILED
	30	ACTIVATION REJECTED BY GGSN
	31	ACTIVATION REJECTED UNSPECIFIED
	32	SERVICE OPTION NOT SUPPORTED
	33	REQ. SERVICE OPTION NOT SUBSCRIBED
	34	SERV.OPTION TEMPORARILY OUT OF ORDER
	35	NSAPI ALREADY USED
	36	REGULAR DEACTIVATION
	37	QOS NOT ACCEPTED
	38	SMN NETWORK FAILURE
	39	REACTIVATION REQUIRED
	40	FEATURE NOT SUPPORTED
	41	SEM ERROR IN TPF
	42	SYNT ERROR IN TPF
	43	UNKNOWN PDP CNTXT
	44	SEM ERR IN PKT FILTER
	45	SYNT ERR IN PKT FILTER
	46	PDP CNTXT WITHOUT TPF ACT
	48	RETRY ON NEW CELL ENTRY
	81	INVALID TRANSACTION IDENTIFIER
	95	SEMANTICALLY INCORRECT MESSAGE
	96	INVALID MANDATORY INFORMATION
	97	MSG TYPE NON EXISTENT OR NOT IMPLEMENTED
	98	MSG TYPE NOT COMPATIBLE WITH PROTOCOL STATE
	99	IE NON_EXISTENT OR NOT IMPLEMENTED
	100	CONDITIONAL IE ERROR
	101	MSG NOT COMPATIBLE WITH PROTOCOL STATE
	111	PROTOCOL ERROR UNSPECIFIED
Note: causes 15, 41 to 46 are not considered for R98 products(GSM 04.08).		
AT#CEERNET=?	Test command returns OK result code.	
Reference	GSM 24.008 for REL4 and GSM 04.08 for R98	



3.5.7.1.11. Select Registration Operation Mode - #REGMODE

#REGMODE – Select Registration Operation Mode		SELINT 2
AT#REGMODE=<mode>	<p>There are situations in which the presentation of the URCs controlled by either +CREG and +CGREG are slightly different from ETSI specifications. We identified this behaviour and decided to maintain it as default for backward compatibility issues, while we're offering a more formal 'Enhanced Operation Mode' through #REGMODE.</p> <p>Set command sets the operation mode of registration status commands.</p> <p>Parameter: <mode> - operation mode of registration status commands 0 - basic operation mode (default for all products, except GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL) 1 - enhanced operation mode (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p>	
AT#REGMODE?	Read command returns the current registration operation mode.	
AT#REGMODE=?	Test command reports the available range of values for parameter <mode>	
Note	The affected commands are +CREG and +CGREG	

3.5.7.1.12. SMS Commands Operation Mode - #SMSMODE

#SMSMODE - SMS Commands Operation Mode		SELINT 2
AT#SMSMODE=<mode>	<p>Set command enables/disables the improved SMS commands operation mode</p> <p>Parameter: <mode> - SMS commands operation mode 0 - disable improved SMS commands operation mode (default for all products, except GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL) 1 - enable improved SMS commands operation mode (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p>	
AT#SMSMODE?	Read command reports whether the improved SMS commands operation mode is enabled or not, in the format: #SMSMODE: <mode> (<mode> described above)	
AT#SMSMODE=?	Test command reports the supported range of values for parameter <mode>	
Note	The SMS commands affected by #SMSMODE are: +CPMS, +CNMI, +CMGS, +CMGW, +CMGL, +CMGR, +CMGD, +CSMP	



3.5.7.1.13. PLMN List Selection - #PLMNMODE

#PLMNMODE - PLMN List Selection		SELINT 0 / 1 / 2
AT#PLMNMODE= [<plmnlist>]	<p>Set command selects the list of PLMN names to be used currently</p> <p>Parameter:</p> <p><plmnlist> - list of PLMN names</p> <p>0 - PLMN names list, currently used in commands like +COPS or #MONI, is fixed and depends upon currently selected interface (see #SELINT) (default for all products, except GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p> <p>1 - PLMN names list is not fixed and can be updated in newer software versions (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p>	
	<p>Note: <plmnlist> parameter is saved in NVM</p>	
AT#PLMNMODE?	<p>Read command reports whether the currently used list of PLMN names is fixed or not, in the format:</p> <p>#PLMNMODE: <plmnlist> (<plmnlist> described above)</p>	
AT#PLMNMODE=?	Test command returns the supported range of values for parameter <plmnlist>.	

3.5.7.1.14. Display PIN Counter - #PCT

#PCT - Display PIN Counter		SELINT 0 / 1
AT#PCT	<p>Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on +CPIN requested password in the format:</p> <p>#PCT: <n></p> <p>where:</p> <p><n> - remaining attempts</p> <p>0 - the SIM is blocked.</p> <p>1..3 - if the device is waiting either SIM PIN or SIM PIN2 to be given.</p> <p>1..10 - if the device is waiting either SIM PUK or SIM PUK2 to be given.</p>	
AT#PCT?	Read command has the same behaviour as Execution command.	

#PCT - Display PIN Counter		SELINT 2
AT#PCT	<p>Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on +CPIN requested password in the format:</p> <p>#PCT: <n></p> <p>where:</p> <p><n> - remaining attempts</p> <p>0 - the SIM is blocked.</p> <p>1..3 - if the device is waiting either SIM PIN or SIM PIN2 to be given.</p>	



#PCT - Display PIN Counter	SELINT 2
AT#PCT=?	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.

3.5.7.1.15. Software Shut Down - #SHDN

#SHDN - Software Shutdown	SELINT 0 / 1
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=?	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.

3.5.7.1.16. 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.



3.5.7.1.17. 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:</p> <p><mod></p> <ul style="list-style-type: none"> 0 – disables the unit reset (factory default) 1 – enables the unit reset only for one time 2 – enables the periodic unit reset <p><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>
AT#ENHRST?	Read command reports the current parameter settings for # ENHRST command in the format: # ENHRST: < mod >[,<delay>,<remainTime>] <remainTime> - time remaining before next reset
AT#ENHRST=?	Test command reports supported range of values for parameters <mod> and <delay>.
Examples	<p>AT#ENHRST=1,60</p> <p>.... Module reboots after 60 minutes ...</p> <p>AT#ENHRST=1,0</p> <p>.... Module reboots now ...</p> <p>AT#ENHRST=2,60</p> <p>.... Module reboots after 60 minutes and indefinitely after every following power on ...</p>



3.5.7.1.18. 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 style="text-align: center;">#WAKE: <status></p> <p>where: <status> 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity.</p> <p>Note: the alarm mode is indicated by status ON of hardware pin CTS and by status ON of pin DSR, the power saving status is indicated by a CTS - OFF and DSR - OFF status; the normal operating status is indicated by DSR - ON.</p> <p>Note: during the alarm mode the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p>
AT#WAKE?	Read command has the same effect as Execution command when parameter is omitted.
AT#WAKE=?	Test command returns OK result code.

#WAKE - Wake From Alarm Mode	SELINT 2
AT#WAKE=[<opmode>]	<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 0 - normal operating mode; 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: the alarm mode is indicated by status ON of hardware pin CTS and by status ON of pin DSR; the power saving status is indicated by a CTS - OFF and DSR - OFF status.</p>



#WAKE - Wake From Alarm Mode		SELINT 2
	<p>OFF status; the normal operating status is indicated by DSR - ON.</p> <p>Note: during the alarm mode the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the #WAKE and #SHDN, every other command must not be issued during this state.</p>	
AT#WAKE?	<p>Read 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>	
AT#WAKE=?	<p>Test command returns OK result code.</p>	

3.5.7.1.19. Query Temperature Overflow - #QTEMP

#QTEMP - Query Temperature Overflow		SELINT 0 / 1
AT#QTEMP [=<mode>]	<p>Set command has currently no effect. The interpretation of parameter <mode> is currently not implemented.</p> <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command</p> <p>Note: Only <mode>=0 is accepted.</p>	
AT#QTEMP?	<p>Read command queries the device internal temperature sensor for over temperature and reports the result in the format:</p> <p>#QTEMP: <temp></p> <p>where</p> <p><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></p> <p>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</p>	
#QTEMP=?	<p>Test command reports supported range of values for parameter <mode>.</p>	
Note	<p>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.</p>	



#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?	<p>Read command queries the device internal temperature sensor for over temperature and reports the result in the format:</p> <p>#QTEMP: <temp></p> <p>where</p> <p><temp> - over temperature indicator</p> <p>0 - the device temperature is in the <i>working range</i> 1 - the device temperature is out of the <i>working range</i></p> <p>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</p>	
#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.	

3.5.7.1.20. 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> <p>0 - sets the command parameters. 1 - triggers the measurement of the module internal temperature, reporting the result in the format:</p> <p>#TEMPMEAS: <level>,<value></p> <p>where:</p> <p><level> - threshold level</p> <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) <p><value> - actual temperature expressed in Celsius degrees.</p>	



	<p><i>Setting of the following optional parameters has meaning only if <mod>=0</i></p> <p><urcmode> - URC presentation mode.</p> <p>0 - it disables the presentation of the temperature monitor URC</p> <p>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> <p>#TEMPMEAS: <level>,<value></p> <p>where: <level> and <value> are as before</p> <p><action> - sum of integers, each representing an action to be done whenever the module internal temperature reaches either operating or extreme levels (default is 0). If <action> is not zero, it is mandatory to set the <hyst_time> parameter too.</p> <p>0..7 - as a sum of:</p> <ul style="list-style-type: none"> 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><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.</p> <p>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?	Read command reports the current parameter settings for #TEMPMON command



	in the format: #TEMPMON: <uremode>,<action>[,<hyst_time>[,<GPIO>]]																				
AT#TEMPMON=?	Test command reports the supported range of values for parameters <mod> , <uremode> , <action> , <hyst_time> and <GPIO>																				
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" data-bbox="489 646 1251 900"> <tbody> <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> </tbody> </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" data-bbox="489 1057 1251 1311"> <tbody> <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> </tbody> </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
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Operating Temperature																					
Operating Temperature Upper Bound	85°C																				
Extreme Temperature Upper Bound	120°C																				



3.5.7.1.21. 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></p> <p>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?	Read command reports the #SGPO command setting, hence the opposite status of the open collector pin in the format: #SGPO: <stat> .	
AT#SGPO=?	Test command reports the supported range of values of parameter <stat> .	
Note	This command is meaningful only for GM862 family	

3.5.7.1.22. 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?	Read command reports the read value for the input pin GPIO1, in the format:	



#GGPI - General Purpose Input	SELINT 0 / 1
	<p>#GGPI: <dir>,<stat></p> <p>where</p> <p><dir> - direction setting (see #GGPI=<dir>)</p> <p><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>.
Note	This command is meaningful only for GM862 family

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

#GPIO - General Purpose Input/Output Pin Control	SELINT 0/1/2
AT#GPIO=[<pin>, <mode>[,<dir>]]	<p>Execution command sets the value of the general purpose output pin GPIO<pin> according to <dir> and <mode> parameter.</p> <p>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>



#GPIO - General Purpose Input/Output Pin Control	SELINT 0/1/2
	<p>where:</p> <p><dir> - current direction setting for the GPIO<pin></p> <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 style="text-align: center;"><i>For GM862 family products only</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> GPIO1 is input only and GPIO2 is output only. <input type="checkbox"/> since the GPIO1 reading is done after an insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin <ol style="list-style-type: none"> 1. GPIO2 is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated <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 userguide to verify if Tristate pull down settings is available and if it is the default at system startup</p>
AT#GPIO?	Read command reports the read direction and value of all GPIO pins, in the format: #GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[...]] where <dir> - as seen before <stat> - as seen before
AT#GPIO=?	Test command reports the supported range of values of the command parameters <pin> , <mode> and <dir> .
Example	AT#GPIO=3,0,1 OK AT#GPIO=3,2



#GPIO - General Purpose Input/Output Pin Control	SELINT 0/1/2
	#GPIO: 1,0 OK AT#GPIO=4,1,1 OK AT#GPIO=5,0,0 OK AT#GPIO=6,2 #GPIO: 0,1 OK

3.5.7.1.24. Alarm Pin - #ALARMPIN

#ALARMPIN – Alarm Pin	SELINT 2
AT#ALARMPIN=<pin>	Set command sets the GPIO pin for the ALARM pin 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. 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>.

3.5.7.1.25. 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 and GL868-DUAL) 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>



#SLED - STAT_LED GPIO Setting	SELINT 2
	<p><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)</p> <p><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)</p> <p>Note: values are saved in NVM by command #SLEDSAV</p> <p>Note: at module boot the STAT_LED GPIO is always tied High and holds this value until the first NVM reading.</p>
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> .

3.5.7.1.26. Save STAT_LED GPIO Setting - #SLEDSAV

#SLEDSAV - Save STAT_LED GPIO Setting	SELINT 2
AT#SLEDSAV	Execution command saves STAT_LED setting in NVM.
AT#SLED=?	Test command returns OK result code.

3.5.7.1.27. SMS Ring Indicator - #E2SMSRI

#E2SMSRI - SMS Ring Indicator	SELINT 0 / 1
AT#E2SMSRI[=<n>]]	<p>Set command enables/disables the Ring Indicator pin response to an incoming SMS message. If enabled, a negative going pulse is generated on receipt of an incoming SMS message. The duration of this pulse is determined by the value of <n>.</p> <p>Parameter:</p> <p><n> - RI enabling</p> <p>0 - disables RI pin response for incoming SMS messages (factory default) 50..1150 - enables RI pin response for incoming SMS messages. The value of <n> is the duration in ms of the pulse generated on receipt of an incoming SM.</p> <p>Note: if +CNMI=3,1 command is issued and the module is in a GPRS connection, a 100 ms break signal is sent and a 1 sec. pulse is generated on RI pin, no matter if the RI pin response is either enabled or not.</p> <p>Note: issuing AT#E2SMSRI<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#E2SMSRI=<CR> returns the OK result code.</p>
AT#E2SMSRI?	Read command reports the duration in ms of the pulse generated on receipt of an



#E2SMSRI - SMS Ring Indicator	SELINT 0 / 1
	incoming SM, in the format: #E2SMSRI: <n> Note: as seen before, the value <n>=0 means that the RI pin response to an incoming SM is disabled.
AT#E2SMSRI=?	Reports the range of supported values for parameter <n>

#E2SMSRI - SMS Ring Indicator	SELINT 2
AT#E2SMSRI=[<n>]	Set command enables/disables the Ring Indicator pin response to an incoming SMS message. If enabled, a negative going pulse is generated on receipt of an incoming SMS message. The duration of this pulse is determined by the value of <n> . Parameter: <n> - RI enabling 0 - disables RI pin response for incoming SMS messages (factory default) 50..1150 - enables RI pin response for incoming SMS messages. The value of <n> is the duration in ms of the pulse generated on receipt of an incoming SM. Note: if +CNMI=3,1 command is issued and the module is in a GPRS connection, a 100 ms break signal is sent and a 1 sec. pulse is generated on RI pin, no matter if the RI pin response is either enabled or not.
AT#E2SMSRI?	Read command reports the duration in ms of the pulse generated on receipt of an incoming SM, in the format: #E2SMSRI: <n> Note: as seen before, the value <n>=0 means that the RI pin response to an incoming SM is disabled.
AT#E2SMSRI=?	Reports the range of supported values for parameter <n>

3.5.7.1.28. Analog/Digital Converter Input - #ADC

#ADC - Analog/Digital Converter Input	SELINT 0 / 1
AT#ADC[=<adc>,<mode>[,<dir>]]	Execution command reads pin<adc> voltage, converted by ADC, and outputs it in the format: #ADC: <value> where: <value> - pin<adc> voltage, expressed in mV Parameters: <adc> - index of pin For the number of available ADCs see HW User Guide



#ADC - Analog/Digital Converter Input	SELINT 0 / 1
	<p><mode> - required action 2 - query ADC value <dir> - direction; its interpretation is currently not implemented 0 - no effect.</p> <p>If all parameters are omitted the command reports all pins voltage, converted by ADC, in the format:</p> <p>#ADC: <value>[<CR><LF>#ADC: <value>[...]]</p> <p>Note: The command returns the last valid measure.</p>
AT#ADC?	Read command has the same effect as Execution command when all parameters are omitted.
AT#ADC=?	Test command reports the supported range of values of the command parameters < adc >, < mode > and < dir >.

#ADC - Read Analog/Digital Converter input	SELINT 2
AT#ADC= [<adc>,<mode> [,<dir>]]	<p>Execution command reads pin<adc> voltage, converted by ADC, and outputs it in the format:</p> <p>#ADC: <value></p> <p>where: <value> - pin<adc> voltage, expressed in mV</p> <p>Parameters: <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?	Read command reports all pins voltage, converted by ADC, in the format:
	#ADC: <value>[<CR><LF>#ADC: <value>[...]]
AT#ADC=?	Test command reports the supported range of values of the command parameters < adc >, < mode > and < dir >.



3.5.7.1.29. 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> <ul style="list-style-type: none"> <enable> - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven <p><value> - scale factor of the integrated output voltage; it must be present if <enable>=1</p> <p>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?	Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: #DAC: <enable>,<value>	
AT#DAC=?	Test command reports the range for the parameters <enable> and <value>.	
Example	<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. 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:</p> <ul style="list-style-type: none"> <enable> - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven <p><value> - scale factor of the integrated output voltage; it must be present if <enable>=1</p> <p>0..1023 - 10 bit precision</p>	



#DAC - Digital/Analog Converter Control	SELINT 2
	Note: integrated output voltage = MAX_VOLTAGE * value / 1023
AT#DAC?	Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: #DAC: <enable>,<value>
AT#DAC=?	Test command reports the range for the parameters <enable> and <value> .
Example	<i>Enable the DAC out and set its integrated output to the 50% of the max value:</i> AT#DAC=1,511 OK <i>Disable the DAC out:</i> AT#DAC=0 OK
Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. DAC_OUT line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the hardware user guide.

3.5.7.1.30. 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> <p><n> - VAUX pin index 1 - there is currently just one VAUX pin</p> <p><stat></p> <p>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 style="text-align: center;">#VAUX: <value></p> <p>where:</p> <p><value> - power output status 0 - output off 1 - output on</p>



#VAUX- Auxiliary Voltage Output Control		SELINT 0 / 1
	<p>Note: If all parameters are omitted the command has the same behaviour as Read command.</p> <p>Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pin output is disabled while GPS is powered on they'll both also be turned off.</p> <p>Note: for the GPS products, at commands \$GPSP, \$GPSPS, \$GPSWK control VAUX and can interfere with AT# command.</p>	
AT#VAUX?	Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format:	
	#VAUX: <value>	
AT#VAUX=?	Test command reports the supported range of values for parameters <n>, <stat>.	
NOTE:	Command available only on GE864-QUAD and GC864-QUAD with SW 10.00.xxx	

#VAUX- Auxiliary Voltage Output Control		SELINT 2
AT#VAUX= [<n>,<stat>]	<p>Set command enables/disables the Auxiliary Voltage pins output.</p> <p>Parameters:</p> <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: for the GPS product (GE863-GPS): if the Auxiliary Voltage pins output is disabled while GPS is powered on they'll both also be turned off.</p> <p>Note: for the GPS products, at commands \$GPSP, \$GPSPS, \$GPSWK control VAUX and can interfere with AT# command.</p> <p>Note: the current setting is stored through #VAUXSAV</p>	
AT#VAUX?	Read command reports whether the Auxiliary Voltage pin output is currently enabled or not, in the format:	
	#VAUX: <value>	



#VAUX- Auxiliary Voltage Output Control	SELINT 2
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

3.5.7.1.31. 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.

3.5.7.1.32. 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:</p> <ul style="list-style-type: none"> <port> - serial port: 0 – ASC0 (AT command port) 1 – ASC1 (trace port) <mode> - AT commands serial port interface hardware pins mode: 0 – Tx and Rx pins are set in push/pull function during power saving. (default) 1 – Tx and Rx pins are set in open drain function during power saving. 2 – Reserved <when> - When the command is applied: 0 – Always (default) 1 – In power saving only
AT#V24MODE?	<p>Read command returns actual functioning <mode> for all ports in the format:</p> <pre>#V24MODE: 0,<mode_port0>,<when0>[<CR><LF> #V24MODE: 1,<mode_port1>,<when1> [<CR><LF></pre> <p>Where:</p> <ul style="list-style-type: none"> < mode_port0 > - mode of the serial port 0, < mode_port1 > - mode of the serial port 1, <when0> - when setting for serial port 0, <when1> - when setting for serial port 1
AT#V24MODE=?	Test command reports supported range of values for parameters <port>, <mode> and <when>.



3.5.7.1.33. 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:</p> <p><pin> - AT commands serial port interface hardware pin:</p> <ul style="list-style-type: none"> 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” <p><mode> - AT commands serial port interface hardware pins mode:</p> <ul style="list-style-type: none"> 0 - AT commands serial port mode: output pins are controlled by serial port device driver. (default) 1 - GPIO mode: output pins are directly controlled by #V24 command only. 	
AT#V24CFG?	<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:</p> <p><pinn> - AT command serial port interface HW pin</p> <p><moden> - AT commands serial port interface hardware pin mode</p>	
AT#V24CFG=?	Test command reports supported range of values for parameters <pin> and <mode>.	

3.5.7.1.34. V24 Output Pins Control - #V24

#V24 - V24 Output Pins Control		SELINT 2
AT#V24=<pin> [,<state>]	<p>Set command sets the AT commands serial port interface output pins state.</p> <p>Parameters:</p> <p><pin> - AT commands serial port interface hardware pin:</p> <ul style="list-style-type: none"> 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” 	



#V24 - V24 Output Pins Control	SELINT 2
	<p>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"</p> <p><state> - State of AT commands serial port interface output hardware pins(0, 1, 2, 3) when pin is in GPIO mode (see #V24CFG):</p> <p>0 - Low 1 - High</p> <p>Note: if <state> is omitted the command returns the actual state of the pin <pin>.</p>
AT#V24?	<p>Read command returns actual state for all the pins (either output and input) in the format:</p> <p>#V24: <pin1>,<state1>[<CR><LF> #V24: <pin2>,<state2>[...]</p> <p>where</p> <p><pinn> - AT command serial port interface HW pin <stated> - AT commands serial port interface hardware pin state</p>
AT#V24=?	Test command reports supported range of values for parameters <pin> and <state>.

3.5.7.1.35. RF Transmission Monitor Mode - #TXMONMODE

#TXMONMODE- RF Transmission Monitor Mode	SELINT 2
AT#TXMONMODE=<mode>	<p>Set TXMON pin behaviour.</p> <p>Parameter: <mode></p> <p>0 - TXMON pin goes high when a call is started and it drops down when the call is ended. It also goes high when a location update starts, and it drops down when the location update procedure stops. Finally it goes high during SMS transmission and receiving. Even if the TXMON in this case is set as GPIO in output, the read command AT#GPIO=5,2 returns #GPIO:2,0, as the GPIO is in alternate mode.</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</p>



#TXMONMODE- RF Transmission Monitor Mode		SELINT 2
	<p>restored to 1, TXMON behaves as usual, following the bursts.</p> <p>Note: this command is not supported in GM862 product family.</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>	

3.5.7.1.36. 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?	Read command has the same meaning as Execution command.	
AT#CBC=?	Test command returns the OK result code.	

#CBC- Battery And Charger Status		SELINT 2
AT#CBC	<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=?	Test command returns the OK result code.	



3.5.7.1.37. GPRS Auto-Attach Property - #AUTOATT

#AUTOATT - Auto-Attach Property		SELINT 0 / 1
AT#AUTOATT [=<auto>]	<p>Set command enables/disables the TE GPRS auto-attach property.</p> <p>Parameter: <auto></p> <p>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.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same as Read command.</p>	
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>]	<p>Set command enables/disables the TE GPRS auto-attach property.</p> <p>Parameter: <auto></p> <p>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.</p>	
AT#AUTOATT?	Read command reports whether the auto-attach property is currently enabled or not, in the format:	
	#AUTOATT: <auto>	
AT#AUTOATT=?	Test command reports available values for parameter <auto> .	

3.5.7.1.38. Multislot Class Control - #MSCLASS

#MSCLASS - Multislot Class Control		SELINT 0 / 1
AT#MSCLASS[= <class>[, <autoattach>]]	<p>Set command sets the multislot class</p> <p>Parameters:</p> <p><class> - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class</p> <p><autoattach></p> <p>0 - the new multislot class is enabled only at the next detach/attach or after a reboot.</p>	



#MSCLASS - Multislot Class Control		SELINT 0 / 1
	<p>1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure.</p> <p>Note: if all parameters are omitted the behaviour of set command is the same as read command.</p>	
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: #MSCLASS: <class>	
AT#MSCLASS=?	Test command reports the range of available values for parameter <class> .	

#MSCLASS - Multislot Class Control		SELINT 2
AT#MSCLASS=[<class>[, <autoattach>]]	<p>Set command sets the multislot class</p> <p>Parameters:</p> <p><class> - multislot class; take care: class 7 is not supported.</p> <p>1..6 - GPRS class</p> <p>8..10 - GPRS class</p> <p><autoattach></p> <p>0 - the new multislot class is enabled only at the next detach/attach or after a reboot.</p> <p>1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure.</p>	
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: #MSCLASS: <class>	
AT#MSCLASS=?	Test command reports the range of available values for both parameters <class> and <autoattach> .	

3.5.7.1.39. Cell Monitor - #MONI

#MONI - Cell Monitor		SELINT 0 / 1
AT#MONI[=<number>]]	<p>#MONI is both a set and an execution command.</p> <p>Set command sets one cell out of seven, in the neighbour list of the serving cell including it, from which we extract GSM-related information.</p> <p>Parameter:</p> <p><number></p> <p>0..6 - it is the ordinal number of a cell, in the neighbour list of the serving cell (default 0, serving cell).</p> <p>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>	



#MONI - Cell Monitor	SELINT 0 / 1
	<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:<cc> Nc:<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:</p> <p><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> <ol style="list-style-type: none"> 1. If the last setting done by #MONI is 7, the execution command produces a table-like formatted output, as follows: <ol style="list-style-type: none"> 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> b. Second row reports a complete set of GSM-related information for



#MONI - Cell Monitor		SELINT 0 / 1
	<p>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 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>	
AT#MONI=??	<p>Enhanced test command reports the maximum number of cells, in a 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> <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>	



#MONI - Cell Monitor	SELINT 0 / 1
	Note: The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.
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 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 #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</p>
Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.
Note	The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.

#MONI - Cell Monitor	SELINT 2
AT#MONI[=<number>]]	<p>#MONI is both a set and an execution command.</p> <p>Set command sets one cell out of seven, in the neighbour list of the serving cell including it, from which extract GSM-related information.</p> <p>Parameter:</p> <p><number></p> <p>0..6 - it is the ordinal number of the cell, in the neighbour list of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related information from the whole set of seven cells in the neighbour list of the serving cell.</p> <p>Execution command (AT#MONI<CR>) reports GSM-related information for</p>



#MONI - Cell Monitor	SELINT 2
	<p>selected cell and dedicated channel (if exists).</p> <p>2. If the last setting done by #MONI is in the range [0..6], the output format is as follows:</p> <p>d) When extracting data for the serving cell and the network name is known the format is: #MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv></p> <p>e) When the network name is unknown, the format is: #MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv></p> <p>f) 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:</p> <p><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> <p>3. 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> <ti</p>



#MONI - Cell Monitor	SELINT 2
	<p>madv> <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:</p> <p>#MONI:</p> <p>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 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 #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</p>



#MONI - Cell Monitor		SELINT 2
		OK
Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.	
Note	The serving cell is the current serving cell or the last available serving cell, if the module loses coverage.	

3.5.7.1.40. Serving Cell Information - #SERVINFO

#SERVINFO - Serving Cell Information		SELINT 0 / 1
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> - country code and operator code, hexadecimal representation <BSIC> - Base Station Identification Code <LAC> - Localization Area Code <TA> - Time Advance: it's available only if a GSM or GPRS is running <GPRS> - GPRS supported in the cell <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> <ul style="list-style-type: none"> <PB-ARFCN> - it's available only if PBCCH is supported by the cell and its content is the PBCCH ARFCN of the serving cell, otherwise the label "hopping" will be printed <NOM> - Network Operation Mode <ul style="list-style-type: none"> "I" "II" "III" <RAC> - Routing Area ColoUr Code <PAT> - Priority Access Threshold <ul style="list-style-type: none"> 0 3..6 <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>	SELINT 0 / 1



#SERVINFO - Serving Cell Information		SELINT 0 / 1
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> - country code and operator code, hexadecimal representation <BSIC> - Base Station Identification Code <LAC> - Localization Area Code <TA> - Time Advance: it's available only if a GSM or GPRS is running <GPRS> - GPRS supported in the cell <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> <ul style="list-style-type: none"> <PB-ARFCN> - it's available only if PBCCH is supported by the cell and its content is the PBCCH ARFCN of the serving cell, otherwise the label “hopping” will be printed <NOM> - Network Operation Mode <ul style="list-style-type: none"> “I” “II” “III” <RAC> - Routing Area Colour Code <PAT> - Priority Access Threshold <ul style="list-style-type: none"> 0 3..6 <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)	



3.5.7.1.41. +COPS Mode - #COPSMODE

#COPSMODE - +COPS Mode		SELINT 0 / 1
AT#COPSMODE [=<mode>]	<p>Set command sets the behaviour of +COPS command (<i>see +COPS</i>).</p> <p>Parameter: <mode> 0 - +COPS behaviour like former GM862 family products (default) 1 - +COPS behaviour compliant with ETSI format</p> <p>Note: The setting is saved in NVM (and available on following reboot).</p> <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command.</p>	
AT#COPSMODE?	<p>Read command returns the current behaviour of +COPS command, in the format:</p> <p>#COPSMODE: <mode></p> <p>where <mode> - +COPS behaviour as seen before.</p>	
AT#COPSMODE=?	Test command returns the range of available values for parameter <mode>.	
Note	It's suggested to reboot the module after every #COPSMODE setting.	

3.5.7.1.42. Query SIM Status - #QSS

#QSS - Query SIM Status		SELINT 0 / 1
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 unsolicited indication:</p> <p>#QSS: <status></p> <p>where: <status> - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED</p>	
AT#QSS?	<p>Note: issuing AT#QSS<CR> is the same as issuing the Read command.</p> <p>Read command reports whether the unsolicited indication #QSS is currently enabled or not, along with the SIM status, in the format:</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:</p> <p><mode> - type of notification</p> <p>0 - disabled (factory default); it's possible only to query the current SIM status through Read command AT#QSS?</p> <p>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:</p> <p><status> - current SIM status</p> <p>0 - SIM NOT INSERTED</p> <p>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:</p> <p><status> - current SIM status</p> <p>0 - SIM NOT INSERTED</p> <p>1 - SIM INSERTED</p> <p>2 - SIM INSERTED and PIN UNLOCKED</p> <p>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?	Read command reports whether the unsolicited indication #QSS is currently enabled or not, along with the SIM status, in the format:

#QSS: <mode>,<status>
(<mode> and <status> are described above)



#QSS - Query SIM Status	SELINT 2
AT#QSS=?	Test command returns the supported range of values for parameter <mode>.

3.5.7.1.43. ATD Dialing Mode - #DIALMODE

#DIALMODE - ATD Dialing Mode		SELINT 0 / 1
AT#DIALMODE[= <mode>]	<p>Set command sets ATD modality.</p> <p>Parameter:</p> <p><mode></p> <p>0 - (voice call only) OK result code is received as soon as it starts remotely ringing (factory default)</p> <p>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.</p> <p>2 - (voice call and data call) the following custom result codes are received, monitoring step by step the call status:</p> <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>	
AT#DIALMODE?	Read command returns current ATD dialing mode in the format: #DIALMODE: <mode>	
AT#DIALMODE=?	Test command returns the range of values for parameter <mode>	

#DIALMODE - Dialing Mode		SELINT 2
AT#DIALMODE=[<mode>]	<p>Set command sets dialing modality.</p> <p>Parameter:</p> <p><mode></p> <p>0 - (voice call only) OK result code is received as soon as it starts remotely ringing (factory default)</p> <p>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.</p> <p>2 - (voice call and data call) the following custom result codes are received, monitoring step by step the call status:</p> <ul style="list-style-type: none"> DIALING (MO in progress) RINGING (remote ring) 	



#DIALMODE - Dialing Mode		SELINT 2
	CONNECTED (remote call accepted) RELEASED (after ATH) DISCONNECTED (remote hang-up)	
	Note: In case a BUSY tone is received and at the same time ATX0 is enabled ATD will return NO CARRIER instead of DISCONNECTED .	
	Note: The setting is saved in NVM and available on following reboot.	
AT#DIALMODE?	Read command returns current ATD dialing mode in the format: #DIALMODE: <mode>	
AT#DIALMODE=?	Test command returns the range of values for parameter <mode>	

3.5.7.1.44. Automatic Call - #ACAL

#ACAL - Automatic Call		SELINT 0 / 1
AT#ACAL[= [<mode>]]	Set command enables/disables the automatic call function. Parameter: <mode> 0 - disables the automatic call function (factory default) 1 - enables the automatic call function. If enabled (and &D2 has been issued), the transition OFF/ON of DTR causes an automatic call to the first number (position 0) stored in the internal phonebook.	
	Note: type of call depends on the last issue of command +FCLASS . Note: issuing AT#ACAL<CR> is the same as issuing the Read command.	
AT#ACAL?	Read command reports whether the automatic call function is currently enabled or not, in the format: #ACAL: <mode>	
AT#ACAL=?	Test command returns the supported range of values for parameter <mode> .	
Note	See &Z to write and &N to read the number on module internal phonebook.	

#ACAL - Automatic Call		SELINT 2
AT#ACAL[= [<mode>]]	Set command enables/disables the automatic call function. Parameter: <mode> 0 - disables the automatic call function (factory default) 1 - enables the automatic call function. If enabled (and &D2 has been issued), the	



#ACAL - Automatic Call		SELINT 2
		transition OFF/ON of DTR causes an automatic call to the first number (position 0) stored in the internal phonebook. Note: type of call depends on the last issue of command +FCLASS .
AT#ACAL?		Read command reports whether the automatic call function is currently enabled or not, in the format: #ACAL: <mode> Note: as a consequence of the introduction of the command #ACALEXT (Extended Automatic Call) it is possible that the Read Command returns a value supported by #ACALEXT but NOT supported by #ACAL . AT#ACAL? #ACAL : 2 OK Due to this possible situation it is strongly recommended not to use contemporaneously both commands.
AT#ACAL=?		Test command returns the supported range of values for parameter <mode> .
Note		See &Z to write and &N to read the number on module internal phonebook.

3.5.7.1.45. Extended Automatic Call - #ACALEXT

#ACALEXT - Extended Automatic Call		SELINT 0 / 1 / 2
AT#ACALEXT= <mode>,<index>	Set command enables/disables the extended automatic call function. Parameters: <mode> 0 - disables the automatic call function (factory default) 1 - enables the automatic call function from “ME” phonebook. 2 - enables the automatic call function from “SM” phonebook. <index> - it indicates a position in the currently selected phonebook. If the extended automatic call function is enabled and &D2 has been issued, the transition OFF/ON of DTR causes an automatic call to the number stored in position <index> in the selected phonebook. Note: type of call depends on the last issue of command +FCLASS .	
AT#ACALEXT?	Read command reports either whether the automatic call function is currently enabled or not, and the last <index> setting in the format:	



#ACALEXT - Extended Automatic Call		SELINT 0 / 1 / 2
	#ACALEXT: <mode>,<index>	
AT#ACALEXT=?	The range of available positions in a phonebook depends on the selected phonebook. This is the reason why the test command returns three ranges of values: the first for parameter <mode>, the second for parameter <index> when “ME” is the chosen phonebook, the third for parameter <index> when “SM” is the chosen phonebook.	
Note	Issuing #ACALEXT causes the #ACAL <mode> to be changed. Issuing AT#ACAL=1 causes the #ACALEXT <index> to be set to default. It is recommended to NOT use contemporaneously either #ACALEXT and #ACAL	
Note	See &Z to write and &N to read the number on module internal phonebook.	

3.5.7.1.46. 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</p> <p><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>	



#ECAM - Extended Call Monitoring		SELINT 0 / 1
	<p>Note: the unsolicited indication is sent along with usual codes (OK, NO CARRIER, BUSY...).</p> <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?	Read command reports whether the extended call monitoring function is currently enabled or not, in the format: #ECAM: <onoff>	
AT#ECAM=?	Test command returns the list of supported values for <onoff>	

#ECAM - Extended Call Monitoring		SELINT 2
AT#ECAM= <onoff>	<p>This command enables/disables the call monitoring function in the ME.</p> <p>Parameter:</p> <p><onoff></p> <p>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>,<cstatus>,<calltype>,,,[<number>,<type>]</p> <p>where</p> <p><ccid> - call ID <cstatus> - 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 <cstatus>=1) <type> - type of <number> 129 - national number 145 - international number</p>	

Note: the unsolicited indication is sent along with usual codes (**OK**, **NO**



#ECAM - Extended Call Monitoring		SELINT 2
AT#ECAM?		CARRIER, BUSY...).
AT#ECAM?		Read command reports whether the extended call monitoring function is currently enabled or not, in the format:
#ECAM: <onoff>		
AT#ECAM=?		Test command returns the list of supported values for <onoff>

3.5.7.1.47. SMS Overflow - #SMOV

#SMOV - SMS Overflow		SELINT 0 / 1
AT#SMOV[= [<mode>]]	Set command enables/disables the SMS overflow signalling function. Parameter: <mode> 0 - disables SMS overflow signalling function(factory default) 1 - enables SMS overflow signalling function; when the maximum storage capacity has been reached, the following notification is sent: #SMOV: <memo>	
	where <memo> is a string indicating the SMS storage that has reached maximum capacity: “SM” – SIM Memory	
	Note: issuing AT#SMOV<CR> is the same as issuing the Read command.	
	Note: issuing AT#SMOV=<CR> is the same as issuing the command AT#SMOV=0<CR> .	
AT#SMOV?	Read command reports whether the SMS overflow signalling function is currently enabled or not, in the format:	
	#SMOV: <mode>	
AT#SMOV=?	Test command returns the supported range of values of parameter <mode>.	

#SMOV - SMS Overflow		SELINT 2
AT#SMOV= [<mode>]	Set command enables/disables the SMS overflow signalling function. Parameter: <mode> 0 - disables SMS overflow signalling function (factory default) 1 - enables SMS overflow signalling function; when the maximum storage capacity has been reached, the following network initiated notification is sent: #SMOV: <memo>	



#SMOV - SMS Overflow		SELINT 2
	where <memo> is a string indicating the SMS storage that has reached maximum capacity: “SM” – SIM Memory	
AT#SMOV?	Read command reports whether the SMS overflow signalling function is currently enabled or not, in the format: #SMOV: <mode>	
AT#SMOV=?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.1.48. Mailbox Numbers - #MBN

#MBN - Mailbox Numbers		SELINT 2
AT#MBN	<p>Execution command returns the mailbox numbers stored on SIM, if this service is provided by the SIM.</p> <p>The response format is:</p> <pre>[#MBN: <index>,<number>,<type>[,<text>][,mboxtyp][<CR><LF> #MBN: <index>,<number>,<type>[,<text>][,mboxtyp][...]]]</pre> <p>where:</p> <ul style="list-style-type: none"> <index> - record number <number> - string type mailbox number in the format <type> <type> - type of mailbox number octet in integer format <ul style="list-style-type: none"> 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") <text> - the alphanumeric text associated to the number; used character set should be the one selected with command +CSCS <mboxtyp> - the message waiting group type of the mailbox, if available: <ul style="list-style-type: none"> "VOICE" - voice "FAX" - fax "EMAIL" - electronic mail "OTHER" - other <p>Note: if all queried locations are empty (but available), no information text lines will be returned.</p>	
AT#MBN=?	Test command returns the OK result code.	



3.5.7.1.49. Message Waiting Indication - #MWI

#MWI - Message Waiting Indication	SELINT 2
<p>AT#MWI=<enable> Set command enables/disables the presentation of the message waiting indicator URC.</p> <p>Parameter: <enable> 0 - disable the presentation of the #MWI URC 1 - enable the presentation of the #MWI URC each time a new message waiting indicator is received from the network and, at startup, the presentation of the status of the message waiting indicators, as they are currently stored on SIM..</p> <p>The URC format is:</p> <p>#MWI: <status>,<indicator>[,<count>]</p> <p>where:</p> <p><status> 0 - clear: it has been deleted one of the messages related to the indicator <indicator>. 1 - set: there's a new waiting message related to the indicator <indicator></p> <p><indicator> 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context only) 3 - Fax 4 - E-mail 5 - Other</p> <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> 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> <p><indicator> 1 - either Line 1 (CPHS context) or Voice (3GPP context) 2 - Line 2 (CPHS context) 3 - Fax 4 - E-mail</p>	SELINT 2



#MWI - Message Waiting Indication	SELINT 2
	5 - Other <count> - message counter: number of pending messages related to the message waiting indicator <indicator> as it is stored on SIM.
AT#MWI?	Read command reports whether 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: #MWI: <enable>,<status>[,<indicator>[,<count>]]<CR><LF> #MWI: <enable>,<status>,<indicator>[,<count>][...]]
AT#MWI=?	Test command returns the range of available values for parameter <enable>.

3.5.7.1.50. Audio Codec - #CODEC

#CODEC - Audio Codec	SELINT 0 / 1
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 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).</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> <p>Note: if optional parameter <codec> is omitted the behaviour of Set command is the same as Read command.</p>
AT#CODEC?	Read command returns current audio codec mode in the format: #CODEC: <codec>
AT#CODEC=?	Test command returns the range of available values for parameter <codec>
Example	AT#CODEC=14 OK



#CODEC - Audio Codec	SELINT 0 / 1
	<i>sets the codec modes HR (4), EFR (2) and AMR-FR (8)</i>
#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 13.00.000) 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).</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?	Read command returns current audio codec mode in the format: #CODEC: <codec>
AT#CODEC=?	Test command returns the range of available values for parameter <codec>
Example	<pre>AT#CODEC=14 OK</pre> <p><i>sets the codec modes HR (4), EFR (2) and AMR-FR (8)</i></p>

3.5.7.1.51. 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</p>



#NITZ - Network Timezone	SELINT 0 / 1
<p><mode></p> <p>0 - disables unsolicited message (factory default) 1 - enables unsolicited message; after date and time updating the following unsolicited indication is sent:</p> <p>#NITZ: “yy/MM/dd,hh:mm:ss”</p> <p>where: yy - year MM - month (in digits) dd - day hh - hour mm - minute ss - second</p> <p>Note: issuing AT#NITZ<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#NITZ=<CR> is the same as issuing the command AT#NITZ=0<CR>.</p>	
AT#NITZ?	Read command reports whether automatic date/time updating is currently enabled or not, and whether Network Timezone unsolicited indication is enabled or not, in the format:
AT#NITZ=?	Test command returns supported values of parameters <val> and <mode>.

#NITZ - Network Timezone	SELINT 2
<p>AT#NITZ= [<val> [,<mode>]]</p> <p>Set command enables/disables (a) automatic date/time updating, (b) Full Network Name applying and (c) #NITZ URC; moreover it permits to change the #NITZ URC format.</p> <p>Date and time information can be sent by the network after GSM registration or after GPRS attach.</p> <p>Parameters:</p> <p><val></p> <p>0 - disables (a) automatic data/time updating, (b) Full Network Name applying and (c) #NITZ URC; moreover it sets the #NITZ URC ‘basic’ format (see <datetime> below) (factory default for all products except GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p> <p>1..15 - as a sum of:</p> <ul style="list-style-type: none"> 1 - enables automatic date/time updating 2 - enables Full Network Name applying 4 - it sets the #NITZ URC ‘extended’ format (see <datetime> below) 8 - it sets the #NITZ URC ‘extended’ format with Daylight Saving Time (DST) support (see <datetime> below) 	



#NITZ - Network Timezone	SELINT 2
	<p>(default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL: 7)</p> <p><mode></p> <p>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:</p> <p><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:</p> <p>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?	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:
	#NITZ: <val>,<mode>
AT#NITZ=?	Test command returns supported values of parameters <val> and <mode> .

3.5.7.1.52. 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:</p> <p><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?	Read command returns the current setting of the real-time clock, in the format <time>. Note: if the time is set by the network but the DST information is missing, or the time is set by +CCLK command, then the <time> format is: "yy/MM/dd,hh:mm:ss±zz"
AT#CCLK=?	Test command returns the OK result code.
Example	AT#CCLK="02/09/07,22:30:00+04,1" OK AT#CCLK? #CCLK: 02/09/07,22:30:25+04,1 OK

3.5.7.1.53. 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></p> <p>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=1) only if the previous setting was different from AT#AUTOBND=2 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#ENAUSIM? returns 1.</p>
AT#ENS?	Read command reports whether the ENS functionality is currently enabled or not, in the format: #ENS: <mode> where: <mode> as above
AT#ENS=?	Test command reports the available range of values for parameter <mode> .
Reference	Cingular Wireless LLC Requirement

3.5.7.1.54. Select Band - #BND

#BND - Select Band		SELINT 0 / 1
AT#BND[=<band>]	<p>Set command selects the current band.</p> <p>Parameter <band>:</p> <p>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> <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?	Read command returns the current selected band in the format:	



#BND - Select Band		SELINT 0 / 1
#BND: <band>		
AT#BND=?		Test command returns the supported range of values of parameter <band> . Note: the range of values differs between triband modules and quadric-band modules
Note:		Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2

#BND - Select Band		SELINT 2
AT#BND=[<band>]	Set command selects the current band. Parameter <band>: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz; this value is not available if the ENS functionality has been activated (see #ENS) 2 - GSM 850MHz + DCS 1800MHz (available only on quadri-band modules); this value is not available if the ENS functionality has been activated (see #ENS) 3 - GSM 850MHz + PCS 1900MHz (available only on quadri-band modules)	
	Note: This setting is maintained even after power off. Note: if the normal automatic band selection is enabled (AT#AUTOBND=1) then the last #BND settings can automatically change at power-up; then you can normally use the command. Note: if the ‘four bands’ automatic band selection is enabled (AT#AUTOBND=2) then you can issue AT#BND=<band> but it will have no functional effect; nevertheless every following read command AT#BND? will report that setting.	
AT#BND?	Read command returns the current selected band in the format: #BND: <band>	
AT#BND=?	Test command returns the supported range of values of parameter <band> . Note: the range of values differs between tri-band modules and quadri-band modules	
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2	



3.5.7.1.55. Automatic Band Selection - #AUTOBND

#AUTOBND - Automatic Band Selection		SELINT 0 / 1
AT#AUTOBND[= <value>]	<p>Set command enables/disables the automatic band selection at power-on.</p> <p>Parameter: <value>:</p> <p>0 - disables automatic band selection at power-on (default for all products) 1 - enables automatic band selection at power-on; +COPS=0 is necessary condition to effectively have automatic band selection at next power-on; the automatic band selection stops as soon as a GSM cell is found.</p> <p>Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found.</p> <p>Note: if parameter <value> is omitted the behaviour of Set command is the same as Read command.</p>	
AT#AUTOBND?	Read command returns whether the automatic band selection is enabled or not in the format:	
	#AUTOBND: <value>	
AT#AUTOBND=?	Test command returns the range of supported values for parameter <value> .	
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2	

#AUTOBND - Automatic Band Selection		SELINT 2
AT#AUTOBND=[<value>]	<p>Set command enables/disables the automatic band selection at power-on.</p> <p>Parameter: <value>:</p> <p>0 - disables automatic band selection at next power-up (default for all products, except GE865-QUAD)</p> <p>1 - enables automatic band selection at next power-up; the automatic band selection stops as soon as a GSM cell is found.</p> <p>2 - (default for GE865-QUAD) enables automatic band selection in four bands (at 850/1900 and 900/1800); differently from previous settings it takes immediate effect</p> <p>Note: necessary condition to <i>effectively</i> have automatic band selection at next power-up (due to either AT#AUTOBND=1 or AT#AUTOBND=2) is that AT+COPS=0 has to be previously issued</p> <p>Note: if automatic band selection is enabled (AT#AUTOBND=1) the band changes every about 90 seconds through available bands until a GSM cell is found.</p> <p>Note: if the current setting is different from AT#AUTOBND=2 and we're issuing AT#ENS=1, at first next power-up after the ENS functionality has been activated (see #ENS) the automatic band selection (AT#AUTOBND=1) is enabled.</p>	



#AUTOBND - Automatic Band Selection		SELINT 2
AT#AUTOBND?	Read command returns whether the automatic band selection is enabled or not in the form:	
	#AUTOBND: <value>	
AT#AUTOBND=?	Test command returns the range of supported values for parameter <value>.	
Note:	Not available for GC864-DUAL, GC864-DUAL V2 and GE864-DUAL V2	

3.5.7.1.56. Skip Escape Sequence - #SKIPESC

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

#SKIPESC - Skip Escape Sequence		SELINT 2
AT#SKIPESC[= [<mode>]]	Set command enables/disables skipping the escape sequence +++ while transmitting during a data connection. Parameter: <mode> 0 - doesn't skip the escape sequence; its transmission is enabled (factory default). 1 - skips the escape sequence; its transmission is not enabled. Note: in case of an FTP connection, the escape sequence is not transmitted, regardless of the command setting.	
AT#SKIPESC?	Read command reports whether escape sequence skipping is currently enabled or not, in the format:	



#SKIPESC - Skip Escape Sequence	SELINT 2
#SKIPESC: <mode>	
AT#SKIPESC=?	Test command reports supported range of values for parameter <mode>.

3.5.7.1.57. Escape Sequence Guard Time - #E2ESC

#E2ESC - Escape Sequence Guard Time	SELINT 0 / 1
AT#E2ESC[= <gt;>] Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode). Parameter: <gt;> 0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with S12 . Note: issuing AT#E2ESC<CR> is the same as issuing the Read command. Note: issuing AT#E2ESC=<CR> returns the OK result code.	
AT#E2ESC? Read command returns current value of the escape sequence guard time, in the format: #E2ESC: <gt;>	
AT#E2ESC=? Test command returns the OK result code.	

#E2ESC - Escape Sequence Guard Time	SELINT 2
AT#E2ESC= <gt;> Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode). Parameter: <gt;> 0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with S12 .	
AT#E2ESC? Read command returns current value of the escape sequence guard time, in the format: #E2ESC: <gt;>	
AT#E2ESC=? Test command returns the range of supported values for parameter <gt>.	
AT#E2ESC= <gt;> Set command sets a guard time in seconds for the escape sequence in GPRS to be considered a valid one (and return to on-line command mode).	
Parameter:	



#E2ESC - Escape Sequence Guard Time	SELINT 2
<p><gt></p> <p>0 - guard time defined by command S12 (factory default) 1..10 - guard time in seconds</p> <p>Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with S12.</p>	

3.5.7.1.58. PPP-GPRS Connection Authentication Type - #GAUTH

#GAUTH - PPP-GPRS Connection Authentication Type	SELINT 0 / 1
<p>AT#GAUTH[= <type>]</p> <p>Set command sets the authentication type either for PPP-GPRS and PPP-GSM connections.</p> <p>Parameter <type></p> <p>0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication</p> <p>Note: if parameter <type> is omitted the behaviour of Set command is the same as Read command.</p>	
<p>AT#GAUTH?</p> <p>Read command reports the current PPP-GPRS connection authentication type, in the format:</p> <p>#GAUTH: <type></p>	
<p>AT#GAUTH=?</p> <p>Test command returns the range of supported values for parameter <type>.</p>	

#GAUTH - PPP-GPRS Connection Authentication Type	SELINT 2
<p>AT#GAUTH=[<type>]</p> <p>Set command sets the authentication type either for PPP-GPRS and PPP-GSM connections.</p> <p>Parameter <type></p> <p>0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication 3 - automatic (PAP and CHAP)</p>	
<p>AT#GAUTH?</p> <p>Read command reports the current PPP-GPRS connection authentication type, in the format:</p> <p>#GAUTH: <type></p>	
<p>AT#GAUTH=?</p> <p>Test command returns the range of supported values for parameter <type>.</p>	



3.5.7.1.59. 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?	Read command reports the current PPP-GPRS connection parameters in the format: #GPPPCFG: <hostIPaddress>,<LCPtimeout>,<PPPmode>
AT# GPPPCFG=?	Test command returns the range of supported values for parameter <LCPtimeout> and <PPPmode>, in the format: #GPPPCFG: (10-600),(0-3)

3.5.7.1.60. RTC Status - #RTCSTAT

#RTCSTAT - RTC Status	SELINT 0 / 1
AT#RTCSTAT[=<status>]	<p>Set command resets the RTC status flag.</p> <p>Parameter:</p> <p><status></p> <ul style="list-style-type: none"> 0 - Set RTC Status to RTC HW OK <p>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.</p>



#RTCSTAT - RTC Status		SELINT 0 / 1
	<p>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.</p> <p>Note: if parameter <status> is omitted the behaviour of Set command is the same as Read command.</p>	
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>]	<p>Set command resets the RTC status flag.</p> <p>Parameter: <status> 0 - Set RTC Status to RTC HW OK</p> <p>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.</p> <p>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.</p>	
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: #RTCSTAT: <status>	
AT#RTCSTAT=?	Test command returns the range of supported values for parameter <status>	

3.5.7.1.61. GSM Antenna Detection - #GSMAD

#GSMAD - GSM Antenna Detection		SELINT 2
AT#GSMAD=<mod>,[<urcmode>[,<interval>[,<detGPIO>[,<repGPIO>]]]]	<p>Set command sets the behaviour of antenna detection algorithm</p> <p>Parameters:</p> <p><mod></p> <ul style="list-style-type: none"> 0 - antenna detection algorithm not active 1 - periodic activation of the antenna detection algorithm; detection is started every <interval> period, using <detGPIO> for detection; if the algorithm detects a change in the antenna status the module is notified by URC #GSMAD (see format below) 2 - instantaneous activation of the antenna detection algorithm; if the algorithm detects a change in the antenna status the module is notified by URC #GSMAD (see format below); this instantaneous activation doesn't affect a periodic activation eventually started before. This modality is obsolete and is maintained only for backward compatibility. We suggest to use the modality 3 	



	<p>URC format:</p> <p>#GSMAD: <presence></p> <p>where:</p> <p><presence></p> <ul style="list-style-type: none"> 0 - antenna connected. 1 - antenna connector short circuited to ground. 2 - antenna connector short circuited to power. 3 - antenna not detected (open). <p>3 - instantaneous activation of the antenna detection algorithm as modality 2 but in this case the command doesn't return until the algorithm ended. The returned value is the antenna <presence> status just detected. Format:</p> <pre>AT#GSMAD=3 #GSMAD: <presence></pre> <p>OK</p> <p>This instantaneous activation doesn't affect a periodic activation eventually started before, then the output format would be:</p> <pre>AT#GSMAD=3 #GSMAD: <presence></pre> <p>OK</p> <p>#GSMAD: <presence> // URC resulting of previous #GSMAD=1</p> <p><uremode> - URC presentation mode. It has meaning and can be set only if <mod> is 1.</p> <ul style="list-style-type: none"> 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>#GSMAD: <presence></p> <p>where:</p> <p><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.</p> <p>..1..3600 - seconds</p>
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	<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?	Read command returns the current parameter settings for #GSMAD command in the format: #GSMAD: <mod>,<urcmode>,<interval>,<detGPIO>,<repGPIO>
AT#GSMAD=?	Test command reports the supported range of values for parameters <mod> , <urcmode> , <interval> , <detGPIO> and <repGPIO> .

3.5.7.1.62. SIM Detection Mode - #SIMDET

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



3.5.7.1.63. 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></p> <p>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>(For BRF definition refer to ISO-7816-3)</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?	Read command returns whether the Sim Enhanced Speed Functionality is currently activated or not, in the format:	#ENHSIM: <mod>
AT#ENHSIM=?	Test command reports the supported range of values for parameter <mod>.	
Reference	GSM 11.11, ISO-7816-3	
Note	It is strongly suggested to verify which is the maximum speed supported by the final application	

3.5.7.1.64. Subscriber number - #SNUM

#SNUM – Subscriber Number		SELINT 2
AT#SNUM=<index>,<number>[,<alpha>]	<p>Set command writes the MSISDN information related to the subscriber (own number) in the EFmsisdn SIM file.</p> <p>Parameter:</p> <p><index> - record number</p> <p>The number of record in the EFmsisdn depends on the SIM. If the ENS functionality has not been previously enabled (see #ENS), <index>=1 is the only value admitted. If only <index> value is given, then delete the EFmsisdn record in location <index> is deleted.</p> <p><number> - string containing the phone number</p> <p>The string could be written between quotes. If the ENS functionality has been previously enabled (see #ENS) "+" at start only is also admitted (international numbering scheme).</p> <p><alpha> - alphanumeric string associated to <number>. Default value is empty</p>	



	<p>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>
AT#SNUM=?	Test command returns the OK result code

3.5.7.1.65. SIM Answer to Reset - #SIMATR

#SIMATR – SIM Answer To Reset		SELINT 2
AT#SIMATR	<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>	

3.5.7.1.66. CPU Clock Mode - #CPUMODE

#CPUMODE - CPU Clock Mode		SELINT 2
AT#CPUMODE=<mode>	<p>Set command specifies the CPU clock mode</p> <p>Parameter: <mode></p> <ul style="list-style-type: none"> 0 - normal CPU clock 1 - fast CPU clock 2 - fast CPU clock, during GPRS TX/RX only <p>Note: using <mode>=1, the power consumption will increase</p>	
AT#CPUMODE?	Read command returns the currently selected CPU clock mode in the format:	
	#CPUMODE: <mode>	
AT#CPUMODE=?	Test command reports the supported range of values for parameter <mode> .	



3.5.7.1.67. GSM Context Definition - #GSMCONT

#GSMCONT - GSM Context Definition		SELINT 2
AT#GSMCONT= <cid>[,<P_type>, <CSD_num>]	<p>Set command specifies context parameter values for the only GSM context, identified by the (local) context identification parameter 0.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <cid> - context Identifier; numeric parameter which specifies the only GSM context 0 <P_type> - protocol type; a string parameter which specifies the type of protocol "IP" - Internet Protocol <CSD_num> - phone number of the internet service provider <p>Note: issuing #GSMCONT=0 causes the values for context number 0 to become undefined.</p>	
AT#GSMCONT?	Read command returns the current settings for the GSM context, if defined, in the format: +GSMCONT: <cid>,<P_type>,<CSD_num>	
AT#GSMCONT=?	Test command returns the supported range of values for all the parameters.	

3.5.7.1.68. IPEGSM configurations - #GSMCONTCFG

#GSMCONTCFG - IPEGSM configurations		SELINT 2
AT#GSMCONTCFG= <actTo>[,<unused_A> [,<unused_B>[,<unused_C>]]]]	<p>Set command sets the IPEGSM configuration.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <actTo> - activation timer value 0 – no timer (default) 50..65535 – timeout value in hundreds of milliseconds <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?	Read command returns the current configuration parameters value: #GSMCONTCFG:<actTo>,0,0,0<CR><LF>	
AT#GSMCONTCFG=?	Test command returns the range of supported values for all the subparameters.	



3.5.7.1.69. Show Address - #CGPADDR

#CGPADDR - Show Address	SELINT 2
AT#CGPADDR= [<cid>[,<cid> [,...]]]	<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:</p> <p><cid> - context identifier</p> <p>0 - specifies the GSM context (see +GSMCONT).</p> <p>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> <pre>#CGPADDR: <cid>,<address>[<CR><LF> #CGPADDR: <cid>,<address>[...]]</pre> <p>where:</p> <p><cid> - context identifier, as before</p> <p><address> - its meaning depends on the value of <cid></p> <ul style="list-style-type: none"> a) if <cid> is the (only) GSM context identifier (<cid>=0) it is the dynamic address assigned during the GSM context activation. b) if <cid> is a PDP context identifier (<cid> in (1..5)) it is a string that identifies the terminal in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <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= #CGPADDR: 0,"xxx.yyy.zzz.www"</pre>



	OK AT#CGPADDR=? #CGPADDR: (0) OK
--	---

3.5.7.1.70. Network Scan Timer - #NWSCANTMR

#NWSCANTMR - Network Scan Timer	SELINT 2
AT#NWSCANTMR=<tmr>	Set command sets the Network Scan Timer that is used by the module to schedule the next network search when it is without network coverage (no signal). Parameter: <tmr> - timer value in units of seconds 5 3600 - time in seconds (default 5 secs.)
AT#NWSCANTMR	Execution command reports time, in seconds, when the next scan activity will be executed. The format is: #NWSCANTMREXP: <time> Note: if <time> is zero it means that the timer is not running
AT#NWSCANTMR?	Read command reports the current parameter setting for #NWSCANTMR command in the format: #NWSCANTMR: <tmr>
AT#NWSCANTMR=?	Test command reports the supported range of values for parameter <tmr>
Note	How much time it takes to execute the network scan depends either on how much bands have been selected and on network configuration (mean value is 5 seconds)

3.5.7.1.71. Call Establishment Lock - #CESTHLCK

#CESTHLCK – Call establishment lock	SELINT 2
AT#CESTHLCK=[<closure_type>]	This command can be used to disable call abort before the DCE enters connected state. <closure_type>: 0 - Aborting the call setup by reception of a character is generally possible at any time before the DCE enters connected state (default) 1 - Aborting the call setup is disabled until the DCE enters connected state
AT#CESTHLCK?	Read command returns the current setting of <closure_type> parameter in the format: #CESTHLCK: <closure_type>



#CESTHLCK – Call establishment lock	SELINT 2
AT#CESTHLCK=?	Test command returns the supported range of values for the <closure_type> parameter

3.5.7.1.72. 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?	Read command reports the currently selected <mode> in the format: #CPASMODE: <mode>
AT#CPASMODE=?	Test command reports the supported range of values for parameter <mode>

3.5.7.1.73. 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. <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)</p> <p>1 – the ICCID value is read from the SIM card during SIM card initialization</p> <p>Note: the value is saved in NVM and has effect only at the next power cycle.</p>
AT#FASTCCID?	The read command returns the currently selected reading mode in the form:



#FASTCCID – Set ICCID SIM file reading mode	SELINT 2
#FASTCCID: <fast>	
AT#FASTCCID=?	Test command reports the supported list of currently available <fast>s.

3.5.7.1.74. I2C data via GPIO - #I2CWR

#I2CWrite – 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> <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.</p> <pre>AT#I2CWR=2,3,20,10,14 > 00112233445566778899AABBCCDD<ctrl-z> OK</pre> <p>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>



#I2CWrite – Write to I2C		SELINT 2
	<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#I2CWR=?	Test command reports the supported list of currently available <service>s.	

3.5.7.1.75. I2C data from GPIO - #I2CRD

#I2CRD – Read to I2C	SELINT 2
AT#I2CRD= <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 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> <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.



3.5.7.1.76. 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:</p> <p><x> - RI enabling</p> <p>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>

3.5.7.1.77. Software level selection - #SWLEVEL

#SWLEVEL – SW Level selection	SELINT 2
AT#SWLEVEL=<level>	<p>Set command enables 2 enhanced features:</p> <ol style="list-style-type: none"> 1) It permits to get a faster indication of SIM status when the PIN is not required (see command #QSS) 2) DTMF duration (see AT+VTS;AT+VTD) can be controlled even for values shorter than 300mS. <p>Parameters:</p> <p><level> - SW level</p> <p>0 - disable SW level (default for all products, except GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p>



	<p>1 - enable SW level (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL)</p> <p>Note1: the value of <level> parameter is directly stored in NVM and doesn't depend on the specific AT instance.</p> <p>Note2: please remember that DTMFs are generated at network level, and the real duration can be operator dependant.</p>
AT#SWLEVEL?	Read command reports the currently selected <level> in the format: #SWLEVEL: <level>
AT#SWLEVEL=?	Test command reports the supported range of values for parameter<level>

3.5.7.1.78. Control Command Flow - #CFLO

#CFLO – Command Flow Control		SELINT 2
AT#CFLO= <enable>	<p>Set command enables/disables the flow control in command mode. If enabled, current flow control is applied to both data mode and command mode.</p> <p>Parameter:</p> <p><enable> -</p> <p>0 – disable flow control in command mode <default value></p> <p>1 – enable flow control in command mode</p>	
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>	

3.5.7.1.79. Report concatenated SMS indexes - #CMGLCONCINDEX

#CMGLCONCINDEX – Report concatenated SMS indexes		SELINT 2
AT#CMGLCONCINDEX	<p>The command will report a line for each concatenated SMS containing:</p> <p>#CMGLCONCINDEX: N,i,j,k,...</p> <p>where</p> <p>N is the number of segments that form the whole concatenated SMS</p> <p>i,j,k are the SMS indexes of each SMS segment , 0 if segment has not been received</p> <p>If no concatenated SMS is present on the SIM, only OK result code will be returned.</p>	



#CMGLCONCINDEX – Report concatenated SMS indexes		SELINT 2
AT#CMGLCONCINDEX=?	Test command returns OK result code.	
Example	at#cmglconcindex #CMGLCONCINDEX: 3,0,2,3 #CMGLCONCINDEX: 5,4,5,6,0,8 OK	

3.5.7.1.80. Codec Information - #CODECINFO

#CODECINFO – Codec Information		SELINT 2
AT#CODECINFO[=<format>[, <mode>]]	<p>This command is both a set and an execution command.</p> <p>Set command enables/disables codec information reports depending on the parameter <mode>, in the specified <format>.</p> <p>Parameters:</p> <p><format></p> <ul style="list-style-type: none"> 0 – numeric format (default) 1 – textual format <p><mode></p> <ul style="list-style-type: none"> 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 <p>If <mode>=1 the unsolicited channel mode information is reported in the following format:</p> <pre>(if <format>=0) #CODECINFO: <codec_used>,<codec_set> (if <format>=1) #CODECINFO: <codec_used>,<codec_set1> [,<codec_set2>[..[,<codec_setn>]]]</pre> <p>If <mode>=2 the unsolicited codec information is reported in the following format:</p> <pre>#CODECINFO: <codec_used></pre> <p>The reported values are described below.</p> <p>Execution command reports codec information in the specified <format>.</p> <p>(if <format>=0)</p>	



#CODECINFO – Codec Information	SELINT 2
<p>#CODECINFO: <codec_used>,<codec_set></p> <p>(if <format>=1) #CODECINFO: <codec_used>,<codec_set1>[,<codec_set2>[..[,codec_setn]]]</p> <p>The reported values are:</p> <p>(if <format>=0)</p> <p><codec_used> - one of the following channel modes:</p> <ul style="list-style-type: none"> 0 – no TCH 1 - full rate speech 1 on TCH 2 - full rate speech 2 on TCH 4 - half rate speech 1 on TCH 8 - full rate speech 3 – AMR on TCH 16 - half rate speech 3 – AMR on TCH 128 – full data 9.6 129 – full data 4.8 130 – full data 2.4 131 – half data 4.8 132 – half data 2.4 133 – full data 14.4 <p><codec_set></p> <p>1..31 - sum of integers each representing a specific codec mode:</p> <ul style="list-style-type: none"> 1 - FR, full rate mode enabled 2 - EFR, enhanced full rate mode enabled 4 - HR, half rate mode enabled 8 - FAMR, AMR full rate mode enabled 16 - HAMR, AMR half rate mode enabled <p>(if <format>=1)</p> <p><codec_used> - one of the following channel modes:</p> <ul style="list-style-type: none"> 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 	



#CODECINFO – Codec Information	SELINT 2
	<p><codec_setn></p> <p>FR - full rate mode enabled</p> <p>EFR - enhanced full rate mode enabled</p> <p>HR - half rate mode enabled</p> <p>FAMR - AMR full rate mode enabled</p> <p>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?	Read command reports <format> and <mode> parameter values in the format: #CODECINFO: <format>,<mode>
AT#CODECINFO=?	Test command returns the range of supported <format> and <mode>.

3.5.7.1.81. Second Interface Instance - #SII

#SII – Second Interface Instance	SELINT 2
AT#SII=<inst>[,<rate>[,<form at>[,<parity>]]]	<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:</p> <p><inst>: is a number that identifies the instance that will be activated on ASC1. The parameter is mandatory and can be 0, 1 or 2: 0 – disables the other AT instance and restores the trace service; 1 – enables instance 1; 2 – enables instance 2;</p> <p><rate>: Set command specifies the DTE speed at which the device accepts commands during command mode operations; it may be used to fix the DTE-DCE interface speed. The default value is 115200. It has sense only if <inst> parameter has value either 1 or 2. Parameter: 300 1200 2400 4800 9600 19200</p>



	<p>38400 57600 115200</p> <p><format>: determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. The default value is 3,0, (N81) format. It has sense only if <inst> parameter has value either 1 or 2.</p> <p>Parameter: 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 5 - 7 Data, 1 Parity, 1 Stop</p> <p><parity>: determines how the parity bit is generated and checked, if present. It has a meaning only if <format> parameter has value either 2 or 5 and only if <inst> parameter has value either 1 or 2.</p> <p>Parameter: 0 - Odd 1 - Even</p> <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific AT instance.</p> <p>Note: two sets of <rate>, <format> and <parity> parameters values are stored in NVM: one for instance 1 (<inst> = 1) and the other for instance 2 (<inst> = 2). The <rate>, <format> and <parity> parameters values are ignored when <inst> parameter has value 0.</p> <p>Note: ASC1 port doesn't support hardware flow control.</p>
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>

3.5.7.1.82. SIMIN pin configuration - #SIMINCFG



#SIMINCFG – SIMIN pin configuration		SELINT 2
AT#SIMINCFG=<GPIO_pin>	<p>This command allows to configure a General Purpose I/O pin as SIM DETECT input</p> <p>Parameters:</p> <p><GPIO_pin> - GPIO pin number: 0 – no GPIO pin is selected (default value) 1 to <i>Max_GPIO_Pin_Number</i></p> <p>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)</p>	
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>	

3.5.7.1.83. System turn-off

#SYSHALT – system turn-off		SELINT 0,1,2
AT#SYSHALT[=<GPIO_restore>,<DTR_wakeup_en>]	<p>The module is turned off. It can be awoken by reset pin, alarm or DTR pin transition to low.</p> <p>Parameters:</p> <p><GPIO_restore>: 0 – GPIOs and serial ports pins are left unchanged (default) 1 – GPIO and serial pins are set in input with pull down</p> <p><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 by SYSHALT command</p>	
AT#SYSHALT?	Read command reports the default state of the parameters <GPIO_restore> and <DTR_wakeup_en> in the format: #SYSHALT: 0,0	
AT#SYSHALT=?	Test command reports supported range of values for all parameters.	



3.5.7.1.84. Enable USIM application - #ENAUSIM

#ENAUSIM – Enable USIM application		SELINT 2
AT#ENAUSIM=<enable>	<p>This command enables/disables the USIM application</p> <p>Parameters:</p> <p><enable>:</p> <ul style="list-style-type: none"> 0: USIM application Disabled 1: USIM application Enabled <p>Note: the value set by command is directly stored in NVM and available on following reboot. USIM application activation/deactivation is only performed at power on.</p> <p>Each time enable value is changed a power cycle is needed</p> <p>Note: when the USIM application is enabled, SIM Application Toolkit will be automatically disabled and cannot be activated. In particular, the request of SAT activation (see #STIA) will return ERROR and entering AT#ENS = 1 doesn't activate SAT.</p>	
AT#ENAUSIM?	Read command reports the currently selected <enable> in the format: #ENAUSIM: <enable>	
AT#ENAUSIM=?	Test command reports the supported range of values for parameter <enable>	

3.5.7.1.85. Select language - #LANG

#LANG – select language		SELINT 2
AT#LANG=<lan>	<p>Set command selects the currently used language for displaying different messages</p> <p>Parameter:</p> <p><lan> - selected language</p> <ul style="list-style-type: none"> “en” – English (factory default) “it” – Italian 	
AT#LANG?	Read command reports the currently selected <lan> in the format: #LANG: <lan>	
AT#LANG=?	Test command reports the supported range of values for parameter <lan>	



3.5.7.1.86. Call forwarding Flags - #CFF

#CFF – Call Forwarding Flags		SELINT 2
AT#CFF=<enable>	<p>Set command enables/disables the presentation of the SIM call forwarding flags URC.</p> <p>Parameter: <enable></p> <p>0 - disable the presentation of the #CFF URC 1 - enable the presentation of the #CFF URC each time the Call Forwarding Unconditional (CFU) SS setting is changed or checked and, at startup, the presentation of the status of the call forwarding flags, as they are currently stored on SIM.</p> <p>The URC format is:</p> <p>#CFF: <status>,<fwdtonum></p> <p>where: <status></p> <p>0 – CFU disabled 1 – CFU enabled</p> <p>< fwdtonum > - number incoming calls are forwarded to</p> <p>The presentation at start up of the call forwarding flags status, as they are currently stored on SIM, is as follows:</p> <p>#CFF: <status>,<fwdtonum ></p> <p>where: <status></p> <p>0 – CFU disabled 1 – CFU enabled</p> <p>< fwdtonum > - number incoming calls are forwarded to</p>	
AT#CFF?	Read command reports whether the presentation of the call forwarding flags URC is currently enabled or not, and, if the flags field is present in the SIM, the current status of the call forwarding flags as they are currently stored on SIM, and the number incoming calls are forwarded to. The format is:	
AT#CFF=?	Test command returns the range of available values for parameter <enable> .	



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>	<p>Set command enables/disables the SMS AT RUN service.</p> <p>Parameter: <mod></p> <p style="margin-left: 20px;">0: Service Disabled 1: Service Enabled</p> <p>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.</p> <p>Note2: the current settings are stored in NVM.</p>	
AT#SMSATRUN?	<p>Read command returns the current settings of <mode> and the value of <stat> in the format:</p> <p># SMSATRUN: <mod>,<stat></p> <p>where: <stat> - service status 0 – not active 1 - active</p>	
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 <p>It can be activated either by the command AT#SMSATRUN or receiving a special SMS that can be sent from a Telit server.</p>	

3.5.7.2.2. Set SMS Run AT Service parameters - #SMSATRUNCFG

#SMSATRUNCFG – Set SMS AT Run Parameters	
AT#SMSATRUNCFG=<instance>[,<urcmod>[,<timeout>]]	<p>Set command configures the SMS AT RUN service.</p> <p>Parameter: <instance>: AT instance that will be used by the service to run the AT Command. Range 2 - 3, default 3.</p> <p><urcmod>: 0 – disable unsolicited message</p>



#SMSATRUNCFG – Set SMS AT Run Parameters	
	<p>1 - enable an unsolicited message when an AT command is requested via SMS (default).</p> <p>When unsolicited is enabled, the AT Command requested via SMS is indicated to TE with unsolicited result code:</p> <pre>#SMSATRUN: <Text></pre> <p>e.g.: <code>#SMSATRUN: AT+CGMR;+CGSN;+GSN;+CCLK</code></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. Range 1 – 60, default 5.</p> <p>Note 1: the current settings are stored in NVM.</p> <p>Note 2: the instance used for the SMS AT RUN service is the same used for the EvMoni service. Therefore, when the #SMSATRUNCFG sets the <instance> parameter, the change is reflected also in the <instance> parameter of the #ENAEVMONICFG command, and viceversa.</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#SMSATRUNCFG?	Read command returns the current settings of parameters in the format: <code>#SMSATRUNCFG:<instance>,<urcmod>,<timeout></code>
AT#SMSATRUNCFG=?	Test command returns the supported values for the SMSATRUNCFG parameters

3.5.7.2.3. SMS AT Run White List - #SMSATWL

#SMSATWL – SMS AT Run White List		SELINT 2
AT#SMSATWL= <action> ,<index> [,<entryType> [,<string>]]	Set command to handle the white list. <action >: 0 – Add an element to the WhiteList 1 – Delete an element from the WhiteList 2 – Print all elements of the WhiteList	



#SMSATWL – SMS AT Run White List	SELINT 2
	<p><index>: Index of the WhiteList. Range 1-8</p> <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?	Read command returns the list elements in the format: #SMSATWL: [<entryType>,<string>]
AT#SMSATWL=?	Test command returns the supported values for the parameter <action>, <index> and <entryType>

3.5.7.2.4. Set TCP Run AT Service parameter - #TCPATRUNCFG

#TCPATRUNCFG– Set TCP AT Run Service Parameters	SELINT 2
AT#TCPATRUNCFG= <connId> ,<instance> ,<tcpPort> ,<tcpHostPort> ,<tcpHost> [,<urcmode> [,<timeout> [,<authMode> [,<retryCnt> [,<retryDelay>]]]]]	Set command configures the TCP AT RUN service Parameters: <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 - 3. This parameter is mandatory.</p> <p><tcpPort> Tcp Listen port for the connection to the service in server mode. Default</p>



#TCPATRUNCFG – Set TCP AT Run Service Parameters	SELINT 2
<p>1024. Range 1...65535. This parameter is mandatory.</p> <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: <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 This parameter is mandatory. Default “”.</p> <p><urcmod>: 0 – disable unsolicited messages 1 - enable an unsolicited message when the TCP socket is connected or disconnect (default).</p> <p>When unsolicited is enabled, an asynchronous TCP Socket connection is indicated to TE with unsolicited result code:</p> <p>#TCPATRUN: <ihostaddress></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: 0 – (default) when connection is up, username and password (in this order and each of them followed by a Carriage Return) have to be sent to the module before the first AT command. 1 – when connection is up, the user receives a request for username and, if username is correct, a request for password. Then a message of "Login successfull" will close authentication phase.</p> <p>Note: if username and/or password are not allowed (see</p>	



#TCPATRUNCFG – Set TCP AT Run Service Parameters	SELINT 2
	<p>AT#TCPATRUNAUTH) the connection will close immediately.</p> <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#TCPATRUNL? 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 - #TCPATRUNL

#TCPATRUNL – Enables TCP AT Run Service in listen (server) mode	SELINT 2
AT#TCPATRUNL= <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 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</p>



#TCPATRUNL – Enables TCP AT Run Service in listen (server) mode	SELINT 2
	<p>AT#TCPATRUNL, that instance cannot be used for any other scope. For example, if the multiplexer requests to establish the Instance, the request will 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#TCPATRUNL?	<p>Read command returns the current settings of <mode> and the value of <stat> in the format:</p> <p>#TCPATRUNL: <mod>,<stat></p> <p>where: <stat> - connection status 0 – not in listen 1 - in listen or active</p>
AT#TCPATRUNL =?	Test command returns the supported values for the TCPATRUNL parameters

3.5.7.2.6. TCP AT Run Firewall List - #TCPATRUNFRWL

# TCPATRUNFRWL – TCP AT Run Firewall List	SELINT 2
AT#TCPATRUNFRWL = <action>, <ip_addr>, <net_mask>	<p>Set command controls the internal firewall settings for the TCPATRUN 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>



# TCPATRUNFRWL – TCP AT Run Firewall List	SELINT 2
	<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>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# TCPATRUNFRWL?	<p>Read command reports the list of all ACCEPT chain rules registered in the Firewall settings in the format:</p> <p>#TCPATRUNFRWL: <ip_addr>,<net_mask> #TCPATRUNFRWL: <ip_addr>,<net_mask> ... OK</p>
AT#TCPATRUNFRWL=?	Test command returns the allowed values for parameter <action> .

3.5.7.2.7. TCP AT Run Authentication Parameters List - #TCPATRUNAUTH

# TCPATRUNAUTH – TCP AT Run Authentication Parameters List	SELINT 2
AT# TCPATRUNAUTH = <action>, <userid>, <passw>	<p>Execution command controls the authentication parameters for the TCPATRUN connection.</p> <p>Parameters:</p> <p><action> - command action 0 - remove selected chain 1 - add an ACCEPT chain 2 - remove all chains (DROP everything); <userid> and <passw> has no meaning in this case.</p> <p><userid> - user to be added into the ACCEPT chain; string type, maximum length 50</p> <p><passw> - password of the user on the <userid>; string type, maximum length 50</p> <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>



# TCPATRUNAUTH – TCP AT Run Authentication Parameters List	SELINT 2
AT#TCPATRUNAUTH?	Note2: the Authentication Parameters List is saved in NVM. Read command reports the list of all ACCEPT chain rules registered in the Authentication settings in the format: #TCPATRUNAUTH: <user_id>,<passw> #TCPATRUNAUTH: <user_id>,<passw> OK
AT#TCPATRUNAUTH =?	Test command returns the allowed values for parameter <action>.

3.5.7.2.8. 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> 0: Service Disabled 1: Service Enabled</p> <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?	Read command returns the current settings of <mode> and the value of <stat> in the format: #TCPATRUND: <mod>,<stat>



#TCPATRUND – Enables TCP Run AT Service in dial (client) mode	SELINT 2
	<p>where:</p> <p><stat> - connection status</p> <ul style="list-style-type: none"> 0 - not connected 1 – connected or connecting at socket level 2 - not connected but still trying to connect, attempting every delay time (specified in AT#TCPATRUNCFG)
AT#TCPATRUND =?	Test command returns the supported values for the TCPATRUND parameters

3.5.7.2.9. 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



#TCPATCONSER – Connects the TCP Run AT service to a serial port	SELINT 2
	<p>port specified. If the CMUX protocol is running the command will return ERROR.</p> <p>Parameter: <port> 0 – 1. Serial port to connect to.</p> <p><rate> baud rate for data transfer. Allowed values are 300,1200,2400,4800,9600,19200,38400,57600,115200.</p> <p>Note1: the command has to be issued from the TCP ATRUN instance Note2: After this command has been issued, if no error has occurred, then a “CONNECT” will be returned by the module to advise that the TCP ATRUN instance is in <i>online mode</i> and connected to the port specified. Note3: To exit from online mode and close the connection, the escape sequence (+++) has to be sent on the TCP ATRUN instance</p>
AT# TCPATCONSER=?	Test command returns the supported values for the TCPATCONSER parameters

3.5.7.2.12. Run AT command execution - #ATRUNDELAY

#ATRUNDELAY – Set the delay on Run AT command execution	SELINT 2
AT#ATRUNDELAY= <srv>,<delay>	<p>Set command enables the use of a delay before the execution of AT command received by Run AT service (TCP and SMS). It affects just AT commands given through Run AT service.</p> <p><srv> 0 – TCP Run AT service 1 - SMS Run AT service</p> <p><delay> Value of the delay, in seconds. Range 0..30. Default value 0 for both services (TCP and SMS).</p> <p>Note1 - The use of the delay is recommended to execute some AT commands that require network interaction or switch between GSM and GPRS services. For more details see the RUN AT User Guide.</p> <p>Note2: The delay is valid till a new AT#ATRUNDELAY is set.</p>
AT#ATRUNDELAY?	Read command returns the current settings of parameters in the format: #ATRUNDELAY: 0, <delayTCP> #ATRUNDELAY: 1, <delaySMS> OK



#ATRUNDELAY – Set the delay on Run AT command execution	SELINT 2
AT#ATRUNDELAY=?	Test command returns the supported values for the ATRUNDELAY parameters

3.5.7.2.13. 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> 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

3.5.7.2.14. EvMoni Service parameter - #ENAEVMONICFG

#ENAEVMONICFG – Set EvMoni Service Parameters	SELINT 2
AT#ENAEVMONICFG=<instance>[,<urcmode>[,<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 - 3. (Default: 3)</p> <p><urcmode>: 0 – disable unsolicited message 1 - enable an unsolicited message when an AT command is executed</p>



#ENAEVMONICFG – Set EvMoni Service Parameters	SELINT 2
	<p>after an event is occurred (default)</p> <p>When unsolicited is enabled, the AT Command is indicated to TE with unsolicited result code:</p> <p>#EVMONI: <Text></p> <p>e.g.: #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?	Read command returns the current settings of parameters in the format: #ENAEVMONICFG:<instance>,<urcmod>,<timeout>
AT# ENAEVMONICFG=?	Test command returns the supported values for the ENAEVMONICFG parameters

3.5.7.2.15. Event Monitoring - #EVMONI

#EVMONI – Set the single Event Monitoring	SELINT 2
AT#EVMONI=<label>,<mode>,[<paramType>,<param>]	<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 • DTR - DTR monitoring • ROAM - roaming monitoring • CONTDEACT - context deactivation monitoring • RING - call ringing monitoring



#EVMONI – Set the single Event Monitoring	SELINT 2
<ul style="list-style-type: none"> • STARTUP – module start-up monitoring • REGISTERED – network registration monitoring • GPIO1 – monitoring on a selected GPIO in the GPIO range • GPIO2 – monitoring on a selected GPIO in the GPIO range • GPIO3 – monitoring on a selected GPIO in the GPIO range • GPIO4 – monitoring on a selected GPIO in the GPIO range • GPIO5 – monitoring on a selected GPIO in the GPIO range • ADCH1 – ADC High Voltage monitoring • ADCL1 – ADC Low Voltage monitoring • 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 <p><mode>:</p> <p style="margin-left: 20px;">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 • 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 threshold in the range 0 – 500, where one unit corresponds to 10 mV (therefore 500 corresponds to 5 V). (Default: 0) ◦ if <paramType> = 2, <param> indicates the time interval in seconds after that the voltage battery under the value specified with <paramType> = 1 causes the event. The range is 0 – 255. (Default: 0) • If <label> is DTR, <paramType> can assume values in the range 0 - 2. <ul style="list-style-type: none"> ◦ if <paramType> = 1, <param> indicates the status high or low under monitoring. The values are 0 (low) and 1 (high). (Default: 0) 	SELINT 2



#EVMONI – Set the single Event Monitoring	SELINT 2
	<ul style="list-style-type: none"> ○ if <paramType> = 2, <param> indicates the time interval in seconds after that the DTR in the status specified with <paramType> = 1 causes the event. The range is 0 – 255. (Default: 0) • If <label> is ROAM, <paramType> can assume only the value 0. The event under monitoring is the roaming state. • If <label> is CONTDEACT, <paramType> can assume only the value 0. The event under monitoring is the context deactivation. • If <label> is RING, <paramType> can assume values in the range 0 - 1. <ul style="list-style-type: none"> ○ if <paramType> = 1, <param> indicates the numbers of call rings after that the event occurs. The range is 1-50. (Default: 1) • If <label> is STARTUP, <paramType> can assume only the value 0. The event under monitoring is the module start-up. • If <label> is REGISTERED, <paramType> can assume only the value 0. The event under monitoring is the network registration (to home network or in roaming) after the start-up and the SMS ordering. • If <label> is GPIOX, <paramType> can assume values in the range 0 - 3. <ul style="list-style-type: none"> ○ if <paramType> = 1, <param> indicates the GPIO pin number; supported range is from 1 to a value that depends on the hardware. (Default: 1) ○ if <paramType> = 2, <param> indicates the status high or low under monitoring. The values are 0 (low) and 1 (high) . (Default: 0) ○ if <paramType> = 3, <param> indicates the time interval in seconds after that the selected GPIO pin in the status specified with <paramType> = 1 causes the event. The range is 0 – 255. (Default: 0) • If <label> is ADCH1, <paramType> can assume values in the range 0 - 3. <ul style="list-style-type: none"> ○ if <paramType> = 1, <param> indicates the ADC pin number; supported range is from 1 to a value that depends on the hardware. (Default: 1) ○ if <paramType> = 2, <param> indicates the ADC High voltage threshold in the range 0 – 2000 mV. (Default: 0) ○ if <paramType> = 3, <param> indicates the time interval in seconds after that the selected ADC pin above the value specified with <paramType> = 1 causes the event. The range is 0 – 255. (Default: 0) • If <label> is ADCL1, <paramType> can assume values in the range 0 - 3. <ul style="list-style-type: none"> ○ if <paramType> = 1, <param> indicates the ADC pin number; supported range is from 1 to a value that depends on the hardware. (Default: 1) ○ if <paramType> = 2, <param> indicates the ADC Low voltage threshold in the range 0 – 2000 mV. (Default: 0) ○ if <paramType> = 3, <param> indicates the time interval in seconds after that the selected ADC pin under the value specified with <paramType> = 1 causes the event. The range is 0 – 255. (Default: 0)



#EVMONI – Set the single Event Monitoring		SELINT 2
	<ul style="list-style-type: none"> • If <label> is DTMFX, <paramType> can assume values in the range 0 - 2. <ul style="list-style-type: none"> ◦ if <paramType> = 1, <param> indicates the DTMF string; the single DTMF characters have to belong to the range ((0-9),#,*,(A-D)); the maximum number of characters in the string is 15 ◦ if <paramType> = 2, <param> indicates the timeout in milliseconds. It is the maximum time interval within which a DTMF tone must be detected after detecting the previous one, to be considered as belonging to the DTMF string. It is common for every DTMFX event. The range is (500 – 5000). (Default: 1000) <p>Note: the DTMF string monitoring is available only for 10.0x.xx5 and following versions and if the DTMF decode has been enabled (see #DTMF command)</p>	
AT# EVMONI?	<p>Read command returns the current settings for each event in the format:</p> <p>#EVMONI: <label>,<mode>,<param0>[,<param1>[,<param2>[,<param3>]]]</p> <p>Where <param0>, <param1>, <param2> and <param3> are defined as before for <param> depending on <label> value</p>	
AT#EVMONI=?	Test command returns values supported as a compound value	

3.5.7.2.16. Send Message - #CMGS

#CMGS - Send Message		SELINT 2
(PDU Mode) AT#CMGS= <length>,<pdu>	<p align="center">(PDU Mode)</p> <p>Execution command sends to the network a message.</p> <p>Parameter:</p> <p><length> - length of the PDU to be sent in bytes (excluding the SMSC address octets).</p> <p>7..164</p> <p><pdu> - PDU in hexadecimal format (each octet of the PDU is given as two IAR 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>If message is successfully sent to the network, then the result is sent in the format:</p> <p>#CMGS: <mr></p> <p>where</p> <p><mr> - message reference number; 3GPP TS 23.040 TP-Message-Reference</p>	



#CMGS - Send Message	SELINT 2
	<p>in integer format.</p> <p>Note: if message sending fails for some reason, an error code is reported.</p>
(Text Mode) AT#CMGS=<da>,<text>	<p style="text-align: center;">(Text Mode)</p> <p>Execution command sends to the network a message.</p> <p>Parameters:</p> <p><da> - destination address, string type represented in the currently selected character set (see +CSCS).</p> <p><text> - text to send</p> <p>The entered text should be enclosed between double quotes and formatted as follows:</p> <ul style="list-style-type: none"> - if current <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the ‘asterisk’ will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A) <p>If message is successfully sent to the network, then the result is sent in the format:</p> <p>#CMGS: <mr></p> <p>where</p> <p><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>
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



3.5.7.2.17. Write Message To Memory - #CMGW

#CMGW - Write Message To Memory	SELINT 2
(PDU Mode) AT#CMGW=<length>,<pdu>	<p align="center">(PDU Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameter:</p> <p><length> - length in bytes of the PDU to be written. 7..164</p> <p><pdu> - PDU in hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one line.</p> <p>If message is successfully written in the memory, then the result is sent in the format:</p> <p>#CMGW: <index></p> <p>where:</p> <p><index> - message location index in the memory <memw>.</p> <p>If message storing fails for some reason, an error code is reported.</p>
(Text Mode) AT#CMGW=<da>,<text>	<p align="center">(Text Mode)</p> <p>Execution command writes in the <memw> memory storage a new message.</p> <p>Parameters:</p> <p><da> - destination address, string type represented in the currently selected character set (see +CSCS).</p> <p><text> - text to write</p> <p>The entered text should be enclosed between double quotes and formatted as follows:</p> <ul style="list-style-type: none"> - if current <dcs> (see +CSMP) indicates that GSM03.38 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM alphabet, according to GSM 27.005, Annex A. - if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the ‘asterisk’ will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A) <p>If message is successfully written in the memory, then the result is sent in the format:</p>



#CMGW - Write Message To Memory		SELINT 2
	#CMGW: <index> where: <index> - message location index in the memory <memw> . If message storing fails for some reason, an error code is reported.	
AT#CMGW=?	Test command returns the OK result code.	
Reference	GSM 27.005	
Note	To avoid malfunctions it is suggested to wait for the #CMGW: <index> or +CMS ERROR: <err> response before issuing further commands.	

3.5.7.3. FOTA Commands

3.5.7.3.1. OTA Set Network Access Point - #OTASNAP

#OTASNAP – OTA Set Network Access Point		SELINT 0/1
AT#OTASNAP= <addr>[,<company_name>]	Set command specifies the SMS number that the module has to use to send the Remote Registration SM. If the current IMSI hasn't been yet registered, the Remote Registration SM is automatically sent. Parameters: <addr> - string parameter which specifies the phone number <company_name> - string parameter containing a client identifier Note1: a special form of the Set command, #OTASNAP="" , causes the deletion of the SMS number Note2: the value of <addr> parameter can be overwritten from the OTA server by the Provisioning SMS Note3: a change of the value of <company_name> parameter causes a new FOTA Registration procedure Note4: if the <company_name> is an empty string, an ERROR is returned Note5: the setting is saved in NVM	
AT#OTASNAP?	Read command reports the current settings in the format: #OTASNAP: <addr>[,<company_name>]	
AT#OTASNAP	Execution command has the same effect as the Read command	
AT#OTASNAP =?	Test command returns the maximum length of <addr> field and maximum length of <company_name> field. The format is:	



#OTASNAP – OTA Set Network Access Point		SELINT 0/1
#OTASNAP: <nlength>,<tlength> where: <nlength> - integer type value indicating the maximum length of field <addr> <tlength> - integer type value indicating the maximum length of field <company_name>		
Example		AT#OTASNAP="SMS Number","Client Alpha" OK AT#OTASNAP? #OTASNAP:"SMS Number","Client Alpha" OK AT#OTASNAP=? #OTASNAP: 21,15 OK
#OTASNAP – OTA Set Network Access Point		SELINT 2
AT#OTASNAP= <addr>[,<company_name>] Set command specifies the SMS number that the module has to use to send the Remote Registration SM. If the current IMSI hasn't been yet registered, the Remote Registration SM is automatically sent. Parameters: <addr> - string parameter which specifies the phone number <company_name> - string parameter containing a client identifier Note1: a special form of the Set command, #OTASNAP="\"", causes the deletion of the SMS number Note2: the value of <addr> parameter can be overwritten from the OTA server by the Provisioning SMS Note3: a change of the value of <company_name> parameter causes a new FOTA Registration procedure Note4: if the <company_name> is an empty string, an ERROR is returned Note5: the setting is saved in NVM		
AT#OTASNAP? #OTASNAP: <addr>[,<company_name>]		Read command reports the current settings in the format:
AT#OTASNAP=? #OTASNAP: <nlength>,<tlength> where:		Test command returns the maximum length of <addr> field and maximum length of <company_name> field. The format is:



#OTASNAP – OTA Set Network Access Point	SELINT 2
	<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>

3.5.7.3.2. OTA Set User Answer - #OTASUAN

#OTASUAN – OTA Set User Answer	SELINT 0/1
<p>AT#OTASUAN=</p> <p><response>[,<mode>[<bfr>]]</p>	<p>Set command:</p> <ul style="list-style-type: none"> a) enables or disables sending of unsolicited result code #OTAEV that asks the TE to accept or reject the Management Server request to download a firmware b) allows the TE to accept or reject the request <p>Parameters:</p> <p><response> - numeric parameter used to accept or reject the download request</p> <ul style="list-style-type: none"> 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><mode> - numeric parameter that controls the processing of unsolicited result code #OTAEV</p> <ul style="list-style-type: none"> 0 –buffer unsolicited result codes in the MT; if MT result code buffers is full, the oldest ones can be discarded. No codes are forwarded to the TE. 1 –discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2 –buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE <p><bfr> - numeric parameter that controls the effect on buffered codes when <mode> 1 or 2 is entered</p> <ul style="list-style-type: none"> 0 – MT buffer of unsolicited result codes #OTAEV is cleared when <mode> 1 or 2 is entered 1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when <mode> 1 or 2 is entered



#OTASUAN – OTA Set User Answer	SELINT 0/1
<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> <p>"#OTAEV: Company Name Registered" The company name is registered</p> <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>	



#OTASUAN – OTA Set User Answer		SELINT 0/1
AT# OTASUAN?	Read command reports the current settings in the format: #OTASUAN: ,<mode>,<bfr>	
AT#OTASUAN	Execution command has the same effect as the Read command	
AT#OTASUAN =?	Test command returns values supported as a compound value	
Example	AT#OTASUAN=,2,1 OK AT#OTASUAN? #OTASUAN: ,2,1 OK AT#OTASUAN =? #OTASUAN: (0-2),(0-2),(0,1) OK	

#OTASUAN – OTA Set User Answer		SELINT 2
AT#OTASUAN= <response>[,<mode>][,<bfr>]]	<p>Set command:</p> <ul style="list-style-type: none"> a) enables or disables sending of unsolicited result code #OTAEV that asks the TE to accept or reject the Management Server request to download a firmware b) allows the TE to accept or reject the request <p>Parameters:</p> <p><response> - numeric parameter used to accept or reject the download request</p> <ul style="list-style-type: none"> 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><mode> - numeric parameter that controls the processing of unsolicited result code #OTAEV</p> <ul style="list-style-type: none"> 0 –buffer unsolicited result codes in the MT; if MT result code buffers is full, the oldest ones can be discarded. No codes are forwarded to the TE. 1 –discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2 –buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE <p><bfr> - numeric parameter that controls the effect on buffered codes when <mode> 1 or 2 is entered</p> <ul style="list-style-type: none"> 0 – MT buffer of unsolicited result codes #OTAEV is cleared when <mode> 1 or 2 is entered 1 – MT buffer of unsolicited result codes #OTAEV is flushed to TE when <mode> 1 or 2 is entered 	



#OTASUAN – OTA Set User Answer	SELINT 2
<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> <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>	



#OTASUAN – OTA Set User Answer		SELINT 2
AT# OTASUAN?	Read command reports the current settings in the format: #OTASUAN: ,<mode>,<bfr>	
AT#OTASUAN =?	Test command returns values supported as a compound value	
Example	AT#OTASUAN=,2,1 OK AT#OTASUAN? #OTASUAN: ,2,1 OK AT#OTASUAN =? #OTASUAN: (0-2),(0-2),(0,1) OK	

3.5.7.3.3. 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:</p> <p><n> - RI enabling</p> <p>0 - disables RI pin response when the URC “#OTAEV: Do you want to upgrade the firmware?” is prompted (factory default)</p> <p>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 rejected 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: #OTASETRI: <n>	
	Note: as seen before, the value <n>=0 means that the RI pin response to the URC is disabled.	
AT#OTASETRI	Execution command has the same effect as the Read command	
AT#OTASETRI =?	Reports the range of supported values for parameter <n>	



#OTASETRI - OTA Set Ring Indicator		SELINT 2
AT#OTASETRI=[<n>]	<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: <i>Do you want to upgrade the firmware?</i>” is prompted (see AT#OTASUAN command). The duration of this pulse is determined by the value of <n>.</p> <p>Parameter:</p> <p><n> - RI enabling</p> <p>0 - disables RI pin response when the URC “#OTAEV: <i>Do you want to upgrade the firmware?</i>” is prompted (factory default)</p> <p>50..1150 - enables RI pin response. The value of <n> is the duration in ms of the pulse generated when the URC “#OTAEV: <i>Do you want to upgrade the firmware?</i>” 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 rejected and, for every URC, a pulse is generated.</p> <p>Note: the setting is saved in the profile parameters</p>	
AT#OTASETRI?	<p>Read command reports the duration in ms of the pulse generated when the URC “#OTAEV: <i>Do you want to upgrade the firmware?</i>” is prompted, in the format:</p> <p>#OTASETRI: <n></p> <p>Note: as seen before, the value <n>=0 means that the RI pin response to the URC is disabled.</p>	
AT#OTASETRI =?	Reports the range of supported values for parameter <n>	

3.5.7.3.4. 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>,<IPaddr>[,<unused>]	<p>This command saves in NVM the IP port number and IP address of the OTA server.</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>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?	Read command reports the currently selected <IPort> and <IPaddr> in the format: #OTAIPCFG: <IPort>,<IPaddr>,0
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:</p> <p><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?	Read command reports the currently selected <IPort> and <IPaddr> in the format: #OTAIPCFG: <IPort>,<IPaddr>,0
AT#OTAIPCFG=?	Test command reports the range of supported values for parameters <IPort> and <unused>

3.5.7.3.5. 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> <p>Note: it is necessary to set some parameters beforehand: the bearer (CSD or GPRS) and the APN, through the command AT#OTASNAPIPCFG, the IP port and IP address, through the command AT#OTAIPCFG.</p>



	<p>After the command AT#OTAIPUPD has been set, some unsolicited messages will inform the user about the status of the update process:</p> <ul style="list-style-type: none"> - #OTAEV: Start Fw Download - #OTAEV: Fw Download Complete - #OTAEV: Module Upgraded To New FW - #OTAEV: Server notified about successfull FW Upgrade <p>Or, in case of failure:</p> <ul style="list-style-type: none"> - #OTAEV: OTA FW Upgrade Failed
AT#OTAIPUPD?	Read command reports the current status of the OTA over IP: the value 1 is returned if the OTA over IP is running (in this case the user shall receive the unsolicited messages), 0 otherwise.
AT#OTAIPUPD =?	Test command tests for command existence

3.5.7.3.6. OTA Set IP port and address for OTA over IP - #OTASNAPIP

#OTASNAPIP – OTA Set IP port and address for OTA over IP	SELINT 0/1
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 <IPaddr> - IP address of the OTA server, string type. This parameter can be any valid IP address in the format: "xxx.xxx.xxx.xxx" <mynumber> - string parameter which specifies the phone number of the client <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#OTASNAPIPCFG</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 0/1
	<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#OTASNAPIPCFG</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> <p>Note4: a change of the value of <company_name> parameter causes a new FOTA Registration procedure</p>	



#OTASNAPIP – OTA Set IP port and address for OTA over IP		SELINT 2
	<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>	

3.5.7.3.7. OTA Set Access Point Name for OTA over IP - #OTASNAPIPCFG

#OTASNAPIPCFG – OTA Set Access Point Name for OTA over IP		SELINT 0/1
AT#OTASNAPIPCF G= <bearer>,<APN>[,<username>,<password>[,<rspTimeout>]]	<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></p> <p>0 – Undefined (default value)</p> <p>1 – GSM</p> <p>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 TCP connection is closed.</p>	



#OTASNAPIPCFG – OTA Set Access Point Name for OTA over IP		SELINT 0/1
	<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?	Read command reports the current settings in the format: #OTASNAPIPCFG: <bearer>,<APN>[,<username>[,<password>[,<rspTimeout>]]]	
AT#OTASNAPIPCFG	Execution command has the same effect as the Read command	
AT#OTASNAPIPCFG =?	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: #OTASNAPIPCFG: (0-2),99,49,49,(0-65535)	

#OTASNAPIPCFG – OTA Set Access Point Name for OTA over IP		SELINT 2
AT#OTASNAPIPCFG G= <bearer>,<APN>[,<username>,<password>[,<rspTimeout>]]	<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></p> <ul style="list-style-type: none"> 0 – Undefined (default value) 1 – GSM 2 - GPRS <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>TCP connection is closed. 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? AT#OTASNAPIPCFG G=?	<p>Read command reports the current settings in the format:</p> <p>#OTASNAPIPCFG: <bearer>,<APN>[,<username>[,<password>[,<rspTimeout>]]]</p> <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>

3.5.7.4. Multisocket AT Commands

3.5.7.4.1. Socket Status - #SS

#SS - Socket Status	SELINT 2
AT#SS[=<connId>] Parameters: <connId> - socket connection identifier 1..6 The response format is: #SS: <connId>,<state>,<locIP>,<locPort>,<remIP>,<remPort> where: <connId> - socket connection identifier, as before <state> - actual state of the socket: 0 - Socket Closed. 1 - Socket with an active data transfer connection. 2 - Socket suspended.	



#SS - Socket Status	SELINT 2
	<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.</p> <p><locPort> - two meanings:</p> <ul style="list-style-type: none"> - 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><remIP> - when we are connected to a remote machine this is the remote IP address.</p> <p><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> <pre>#SS: <connId1>,<state1>,<locIP1>,<locPort1>,<remIP1>,<remPort1> <CR><LF> ... #SS: <connId6>,<state6>,<locIP6>,<locPort6>,<remIP6>,<remPort6></pre>
AT#SS=?	Test command reports the range for parameter <connId>.
Example	<p>AT#SS</p> <pre>#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</pre> <p>OK</p> <p>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</p> <p>Socket 2: listening on local IP 91.80.90.162/local port 1000</p> <p>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</p> <p>AT#SS=2</p> <pre>#SS: 2,4,91.80.90.162,1000</pre> <p>OK</p>



#SS - Socket Status	SELINT 2
	We have information only about socket number 2

3.5.7.4.2. Socket Info - #SI

#SI - Socket Info	SELINT 2
AT#SI[=<connId>]	<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> <p><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</p>



#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).</p> <p>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	<p>AT#SI</p> <pre>#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</pre> <p>OK</p> <p><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></p> <p>AT#SI=1</p> <pre>#SI: 1,123,400,10,50</pre> <p>OK</p> <p><i>We have information only about socket number 1</i></p>



3.5.7.4.3. Context Activation - #SGACT

#SGACT - Context Activation	SELINT 2
AT#SGACT=<cid>,<stat>[,<userId>,<pwd>] Execution command is used to activate or deactivate either the GSM context or the specified PDP context. Parameters: <cid> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition <stat> 0 - deactivate the context 1 - activate the context <userId> - string type, used only if the context requires it <pwd> - string type, used only if the context requires it Note: context activation/deactivation returns ERROR if there is not any socket associated to it (see AT#SCFG). Note: after the GSM context has been activated, you can use either Multisocket, or FTP or Email AT commands to send/receive TCP/IP packets via GSM. Note: to deactivate the GSM context, AT#SGACT=0,0 has to be issued on the same serial port used when the context was activated. Note: GSM context activation is affected by AT+CBST command. In particular, GSM context activation is just allowed with “non transparent” data calls. Note: activating a GSM context while a PDP context is already activated causes the PDP context to be suspended. Note: if GSM context is active, it is not allowed any PDP context activation.	
AT#SGACT?	Returns the state of all the contexts that have been defined through the commands +CGDCONT or #GSMCONT #SGACT: <cid1>,<Stat1><CR><LF> ... #SGACT: <cid5>,<Stat5> where: <cidn> - as <cid> before <statn> - context status 0 - context deactivated 1 - context activated
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.



3.5.7.4.4. 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>.	

3.5.7.4.5. 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:</p> <p><connId> - socket connection identifier 1..6</p> <p><cid> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><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.</p> <p><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.)</p> <p><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)</p> <p><txTo> - data sending timeout; after this period data are sent also if they're less than max packet size. 0 - no timeout 1..255 - timeout value in hundreds of milliseconds (default 50)</p> <p>Note: these values are automatically saved in NVM.</p>	
AT#SCFG?	Read command returns the current socket configuration parameters values for all the six sockets, in the format:	

```
#SCFG: <connId1>,<cid1>,<pktsz1>,<maxTo1>,<connTo1>,<txTo1>
<CR><LF>
...
#SCFG: <connId6>,<cid6>,<pktsz6>,<maxTo6>,<connTo6>,<txTo6>
<CR><LF>
```



#SCFG - Socket Configuration		SELINT 2
AT#SCFG=?	Test command returns the range of supported values for all the subparameters.	

3.5.7.4.6. Socket Configuration Extended - #SCFGEXT

#SCFGEXT - Socket Configuration Extended	SELINT 2
AT#SCFGEXT= <conned>,<srMode>, <recvDataMode>, <keepalive>, [<ListenAutoRsp> [,<sendDataMode>]] Set command sets the socket configuration extended parameters. Parameters: <connId> - socket connection identifier 1..6 <srMode> - SRing unsolicited mode 0 - Normal (default): SRING : <connId> where <connId> is the socket connection identifier 1 - Data amount: SRING : <connId>,<recData> where <recData> is the amount of data received on the socket connection number <connId> 2 - Data view: SRING : <connId>,<recData>,<data> same as before and <data> is data received displayed following <dataMode> value <recvDataMode> - data view mode for received data in command mode(AT#SRECV or <srMode> = 2) 0- text mode (default) 1- hexadecimal mode <keepalive> - Set the TCP Keepalive value in minutes 0 – Deactivated (default) 1 – 240 – Keepalive time in minutes <ListenAutoRsp> - Set the listen auto-response mode, that affects	



	<p>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>
AT#SCFGEXT?	<p>Read command returns the current socket extended configuration parameters values for all the six sockets, in the format:</p> <pre>#SCFGEXT:<connId1>,<srMode1>,<dataMode1>,<keepalive1>, <ListenAutoRsp1>,0<CR><LF> ... #SCFGEXT:<connId6>,<srMode6>,<dataMode6>,<keepalive6>, <ListenAutoRsp6>,0<CR><LF></pre>
AT#SCFGEXT=?	<p>Test command returns the range of supported values for all the subparameters.</p>
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>



3.5.7.4.7. Socket configuration Extended 2 - #SCFGEXT2

#SCFGEXT2 - Socket Configuration Extended

```
AT#SCFGEXT2=
<connId>,<bufferStart>,
[,<abortConnAttempt>
[,<unused_B>
[,<unused_C>[,<unused_D>]]]]
```

Set command sets the socket configuration extended parameters for features not included in #SCFGEXT command.

Parameters:

<connId> - socket connection identifier
1..6

<bufferStart> - Set the sending timeout method based on new data received from the serial port.
(<txTo> timeout value is set by #SCFG command)
Restart of transmission timer will be done when new data are received from the serial port.

0 - old behaviour for transmission timer
(#SCFG command 6th parameter old behaviour,
start only first time if new data are received from the serial port)
1 - new behaviour for transmission timer:
restart when new data received from serial port

Note: is necessary to avoid overlapping of the two methods.
Enabling new method, the old method for transmission timer(#SCFG) is automatically disabled to avoid overlapping.

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.

<abortConnAttempt> - Enable connection attempt(#SD/#SKTD/#SKTOP) abort before CONNECT(online mode) or OK(command mode)

0 – Not possible to interrupt connection attempt
1 – It is possible to interrupt the connection attempt
(<connTo> set by #SCFG or
DNS resolution running if required)

and give back control to AT interface by reception of a character.
As soon as the control has been given to the AT interface



	<p>the ERROR message will be received on the interface itself.</p> <p>Note: values are automatically saved in NVM.</p>
AT#SCFGEXT2?	<p>Read command returns the current socket extended configuration parameters values for all the six sockets, in the format:</p> <pre>#SCFGEXT2:<connId1>,<bufferStart1>,0,0,0,0<CR><LF> ... #SCFGEXT2:<connId6>,<bufferStart6>,0,0,0,0<CR><LF></pre>
AT#SCFGEXT2=?	<p>Test command returns the range of supported values for all the subparameters.</p>
Example	<pre>AT#SCFGEXT2=1,1 OK AT#SCFGEXT2=2,1 OK AT#SCFGEXT2? #SCFGEXT2: 1,1,0,0,0,0 #SCFGEXT2: 2,1,0,0,0,0 #SCFGEXT2: 3,0,0,0,0,0 #SCFGEXT2: 4,0,0,0,0,0 #SCFGEXT2: 5,0,0,0,0,0 #SCFGEXT2: 6,0,0,0,0,0 OK AT#SCFG? #SCFG: 1,1,300,90,600,50 #SCFG: 2,1,300,90,600,50 #SCFG: 3,1,300,90,600,50 #SCFG: 4,2,300,90,600,50 #SCFG: 5,2,300,90,600,50 #SCFG: 6,2,300,90,600,50 OK AT#SCFG=1,1,300,90,600,30 OK Current configuration: socket with connId 1 and 2 are configured with new transmission timer behaviour. <txTo> corresponding value has been changed(#SCFG) for connId 1, for connId 2 has been left to default value.</pre>





3.5.7.4.8. Socket Dial - #SD

#SD - Socket Dial	SELINT 2
<p>AT#SD=<connId>,<txProt>,<rPort>,<IPaddr>[,<closureType>[,<lPort>[,<connMode>]]]</p> <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 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) <lPort> - UDP connections local port 1..65535 <connMode> - Connection mode 0 - online mode connection (default) 1 - command mode connection <p>Note: <closureType> parameter is valid for TCP connections only and has no effect (if used) for UDP connections.</p> <p>Note: <lPort> 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 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>	



#SD - Socket Dial	SELINT 2
	<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>
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 ... <i>Open socket 1 in command mode</i></pre> <p>AT#SD=1,0,80,"www.google.com",0,0,1 OK</p>

3.5.7.4.9. 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.

3.5.7.4.10. Socket Listen - #SL

#SL - Socket Listen	SELINT 2
AT#SL=<connId>,<listenState>,<listenPort>>[,<closure type>]	<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> -</p>



#SL - Socket Listen	SELINT 2
	<p>0 - closes socket listening 1 - starts socket listening <listenPort> - local listening port 1..65535 <closure type> - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++)</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>
AT#SL?	Read command returns all the actual listening TCP sockets.
AT#SL=?	Test command returns the range of supported values for all the subparameters.
Example	<p><i>Next command opens a socket listening for TCP on port 3500 without.</i></p> <p>AT#SL=1,1,3500 OK</p>

3.5.7.4.11. Socket Listen UDP - #SLUDP

#SLUDP - Socket Listen UDP	SELINT 2
AT#SLUDP=<connId>,<listenState>,<listenPort>	This command opens/closes a socket listening for an incoming UDP connection on a specified port. Parameters:



#SLUDP - Socket Listen UDP	SELINT 2
	<p><connId> - socket connection identifier 1..6</p> <p><listenState> - 0 - closes socket listening 1 - starts socket listening</p> <p><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>Next command opens a socket listening for UDP on port 3500.</p> <p>AT#SLUDP=1,1,3500 OK</p>

3.5.7.4.12. Socket Accept - #SA

#SA - Socket Accept	SELINT 2
AT#SA=<connId> [,<connMode>]	<p>Execution command accepts an incoming socket connection after an URC</p> <p>SRING: <connId></p> <p>Parameter:</p>



#SA - Socket Accept	SELINT 2
	<p><connId> - socket connection identifier 1..6</p> <p><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.

3.5.7.4.13. Receive Data In Command Mode - #SRECV

#SRECV - Receive Data In Command Mode	SELINT 2
AT#SRECV= <connId>, <maxByte>	<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:</p> <p><connId> - socket connection identifier 1..6</p> <p><maxByte> - max number of bytes to read 1..1500</p> <p>Note: issuing #SRECV when there's no buffered data raises an error.</p>
AT#SRECV=?	Test command returns the range of supported values for parameters < connId > and < maxByte >
Example	<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>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</p>



#SRECV - Receive Data In Command Mode	SELINT 2
<p>SRING: 2,15</p> <p><i>Read in hexadecimal format the buffered data</i></p> <p>AT#SRECV=2,15 #SRECV: 2,15 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</p> <p>SRING: 3,15, stringa di test</p>	

3.5.7.4.14. Send Data In Command Mode - #SEND

#SEND - Send Data In Command Mode	SELINT 2
<p>AT#SEND=<connId></p> <p>Execution command permits, while the module is in command mode, to send data through a connected socket.</p> <p>Parameters:</p> <p><connId> - socket connection identifier 1..6</p> <p>The device responds to the command with the prompt '>' <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 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 #SEND 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>	



#SEND - Send Data In Command Mode		SELINT 2
Example	<i>Send data through socket number 2</i> AT#SEND=2 >Test<CTRL-Z> OK	

3.5.7.4.15. 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:</p> <ul style="list-style-type: none"> <connId> - socket connection identifier 1..6 <bytestosend> - number of bytes to be sent Please refer to test command for range <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 #SENDEXT 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#SENDEXT=?	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>	



#SSENDEXT - Send Data In Command Mode extended	SELINT 2
	All possible bytes(from 0x00 to 0xFF) are sent on the socket as generic bytes.

3.5.7.4.16. IP Easy Authentication Type - #SGACTAUTH

#SGACTAUTH – Easy GPRS Authentication Type	SELINT 2
AT#SGACTAUTH=<type>	<p>Set command sets the authentication type for IP Easy</p> <p>This command has effect on the authentication mode used on AT#SGACT or AT#GPRS commands.</p> <p>Parameter <type></p> <ul style="list-style-type: none"> 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication <p>Note: the parameter is not saved in NWM</p>
AT#SGACTAUTH?	Read command reports the current IP Easy authentication type, in the format: #SGACTAUTH: <type>
AT#SGACTAUTH=?	Test command returns the range of supported values for parameter <type> .

3.5.7.4.17. 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> <ul style="list-style-type: none"> <cid> - PDP context identifier (see +CGDCONT command) 1..5 - numeric parameter which specifies a particular PDP context definition <retry> - numeric parameter which specifies the maximum number of context activation attempts in case of activation failure. The value belongs to the following range: 0 - 15



	<p>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</p> <p>0 - disable unsolicited result code (default)</p> <p>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: the URC presentation mode <urcmode> is related to the current AT instance only. Last <urcmode> setting is saved for every instance as extended profile parameter, thus it is possible to restore it even if the multiplexer control channel is released and set up, back and forth.</p> <p>Note: <retry> and <delay> setting are global parameter saved in NVM</p> <p>Note: if the automatic activation is enabled on a context, then it is not allowed to modify by the command AT#SCFG the association between the context itself and the socket connection identifier; all the other parameters of command AT#SCFG are modifiable while the socket is not connected</p>
AT#SGACTCFG?	<p>Read command reports the state of all the five contexts, in the format:</p> <p>#SGACTCFG: <cid1>,<retry1>,<delay1>,<urcmode>CR<LF></p> <p>...</p> <p>#SGACTCFG: <cid5>,<retry5>,<delay5>,<urcmode></p> <p>where:</p> <p><cidn> - as <cid> before</p> <p><retryn> - as <retry> before</p> <p><delayn> - as <delay> before</p> <p><urcmode> - as <urcmode> before</p>
AT#SGACTCFG =?	<p>Test command reports supported range of values for parameters <cid>,<retry>,<delay>and <urcmode></p>

3.5.7.4.18. Context activation and configuration extended - #SGACTCFGEXT

#SGACTCFGEXT - context activation configuration extended	SELINT 2
AT#SGACTCFGEXT=<cid>,<abortAttemptEnable>	Execution command is used to enable new features related to context activation.



<pre>[,<unused> [,<unused> [,<unused>]]]</pre>	<p>Parameters:</p> <p><cid> - PDP context identifier (see +CGDCONT command) 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><abortAttemptEnable></p> <p>0 – old behaviour: no abort possible while attempting context activation</p> <p>1 – abort during context activation attempt is possible by sending a byte on the serial port.</p> <p>It takes effect on successive GPRS context activation attempt through #SGACT command in the following manner. While waiting for AT#SGACT=<cid>,1 response(up to 150 s) is possible to abort attempt by sending a byte and get back AT interface control(NO CARRIER indication).</p> <p>Note: If we receive delayed CTXT ACTIVATION ACCEPT after abort, network will be automatically informed of our aborted attempt through relative protocol messages(SM STATUS) and will also close on its side. Otherwise, if no ACCEPT is received after abort, network will be informed later of our PDP state through other protocol messages (routing area update for instance).</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=?	<p>Test command reports supported range of values for all parameters</p>

3.5.7.4.19. 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:</p> <p><mode>:</p> <p>Bit 1: 1 - enable forwarding; 0 – disable forwarding;</p>	



	Other bits reserved; Note: forwarding depends on character defined by AT#PADFWD
AT#PADCMD?	Read command reports the currently selected <mode> in the format: #PADCMD: mode
AT#PADCMD=?	Test command reports the supported range of values for parameter <mode>.

3.5.7.4.20. 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>	
	Note: use AT#PADCMD to enable the socket char-flush activity.	
AT#PADFWD?	Read command reports the currently selected <char> and <mode> in the format: #PADFWD: <char>,mode	
AT#PADFWD=?	Test command reports the supported range of values for parameters <char> and <mode>.	

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

#BASE64 – Base64 encoding/decoding of data sent/received on a skt		SELINT 2
AT#BASE64=<connId>,<enc>,<dec>[,<unused_B>[,<unused_C>]]	<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</p>	



	<p>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></p> <p>0 – no decoding of data received from socket <connId>. 1 - MIME RFC2045 base64 decoding of data received from socket <connId> and sent to serial port. (Same rule as for <enc> regarding line feeds in the received file that has to be decoded) 2 - RFC3548 base64 decoding of data received from socket <connId> and sent to serial port. (Same rule as for <enc> regarding line feeds in the received file that has to be decoded)</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 #SSENDEXT command, they have to be divided in multiple parts. These parts have to be a multiple of 57 bytes, except for the last one, to distinguish EOF condition. (Base64 encoding rules) For the same reason if #SRECV command is used by the application to receive data, a multiple of 78 bytes has to be considered.</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>
AT# BASE64?	Read command returns the current <enc>/<dec> settings for all the six



	sockets, in the format: # BASE64:<connId1><enc1>,<dec1>,0,0<CR><LF> ... # BASE64:<connId6>,<enc6>,<dec6>,0,0<CR><LF>
AT# BASE64=?	Test command returns the range of supported values for all the subparameters.
Example	<pre>AT#SKIPESC=1 OK AT#SD=<connId>,<txProt>,<rPort>,<IPaddr> CONNECT //Data sent without modifications(default) +++ (suspension) OK at#base64=<connId>,1,0 OK AT#SO=<connId> CONNECT // Data received from serial port are encoded // base64 before to be sent on the socket +++ (suspension) OK at#base64=<connId>,0,1 OK AT#SO=<connId> CONNECT // Data received from socket are decoded // base64 before to be sent on the serial port +++ (suspension)</pre>



3.5.7.4.22. Send UDP data to a specific remote host - #SENDUDP

#SENDUDP – send UDP data to a specific remote host	SELINT 2
AT#SENDUDP=<connId>,<remoteIP>,<remotePort>	<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 #SEND, the device responds with ‘> ‘ and waits for the data to send.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <connId> - socket connection identifier 1..6 <remoteIP> - IP address of the remote host in dotted decimal notation, string type: “xxx.xxx.xxx.xxx” <remotePort> - remote host port 1..65535 <p>Note: after SRING that indicates incoming UDP data and issuing #RECV 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>
AT#SENDUDP=?	Test command reports the supported range of values for parameters < connId >,< remoteIP > and < remotePort >
Example	<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>



	<pre> AT#SI=1 #SI: 1,0,0,23,0 // 23 bytes to read OK AT#SRECV=1,23 #SRECV:1,23 message from first host OK AT#SS=1 #SS: 1,2,<LocIP>,<LocPort>,<RemIP1>,<RemPort1> OK AT#SENDUDP=1,<RemIP1>,<RemPort1> >response to first host OK SRING: 1 // UDP data from a remote host available AT#SI=1 #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 response: AT#SENDUDP=1,<RemIP2>,<RemPort2> >response to second host OK </pre>
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3.5.7.4.23. Send UDP data to a specific remote host extended - #SENDUDPEXT

#SENDUDPEXT – send UDP data to a specific remote host extended		SELINT 2
AT#SENDUDPEXT =<connId>,<bytestosend>, <remoteIP>,<remotePort>	<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 #SENDUDP: UDP socket has to be previously opened through #SLUDP / #SA, then we are able to send data to different remote hosts</p> <p>Like #SENDEXT, 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:</p> <p><connId> - socket connection identifier 1..6</p> <p><bytestosend> - number of bytes to be sent 1-1500</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>	
AT#SENDUDPEXT=?	Test command reports the supported range of values for parameters <connId>,<bytestosend>,<remoteIP> and <remotePort>	

3.5.7.4.24. 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:</p> <p><ConnId> - socket connection identifier 1..6</p> <p>The response format is:</p> <p>#ST: <connId>,<type>,<direction></p>	



#ST – Socket Type	SELINT 2
	<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> <pre>#ST: <connId1>,<type1>,<direction1> <CR><LF> ... #ST: <connId6>,< type 6>,< direction 6></pre>
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> <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>



#ST – Socket Type	SELINT 2

3.5.7.5. FTP AT Commands

3.5.7.5.1. FTP Time-Out - #FTPTO

#FTPTO - FTP Time-Out		SELINT 0 / 1
AT#FTPTO[= <tout>]	<p>Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel.</p> <p>Parameter: <tout> - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100)</p> <p>Note: The parameter is not saved in NVM.</p> <p>Note: if parameter <tout> is omitted the behaviour of Set command is the same as Read command.</p>	
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>]	<p>Set command sets the time-out used when opening either the FTP control channel or the FTP traffic channel.</p> <p>Parameter: <tout> - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100)</p> <p>Note: The parameter is not saved in NVM.</p>	
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>	



3.5.7.5.2. FTP Open - #FTPOPEN

#FTPOPEN - FTP Open		SELINT 0 / 1
AT#FTPOPEN= <server:port>, <username>, <password>[,<mode>]	<p>Execution command opens an FTP connection toward the FTP server.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <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> <ul style="list-style-type: none"> 0 - active mode (default) 1 - passive mode <p>Note: Before opening an FTP connection the GPRS context must have been activated by AT#GPRS=1</p>	

#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> <ul style="list-style-type: none"> <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> <ul style="list-style-type: none"> 0 - active mode (factory default) 1 - passive mode <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.	

3.5.7.5.3. 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.	



3.5.7.5.4. 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: <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
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: <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.	

3.5.7.5.5. FTP Get - #FTPGET

#FTPGET - FTP Get		SELINT 0 / 1
AT#FTPGET= <filename>	<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>	



#FTPGET - FTP Get	SELINT 0 / 1
	<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.

3.5.7.5.6. 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 #FTPRECV 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>



#FTPGETPKT - FTP Get in command mode	SELINT 2
	Note: Command closure should always be handled by application. In order to avoid download stall situations a timeout should be implemented by the application.
AT#FTPGETPKT?	Read command reports current download state for <filename> with <viewMode> chosen, in the format: #FTPGETPKT: <remotefile>,<viewMode>,<eof> where <eof> is a numeric parameter: 0 = file currently being transferred 1 = complete file has been transferred to FTP client
AT#FTPGETPKT=?	Test command returns the OK result code.

3.5.7.5.7. FTP Type - #FTPTYPE

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

#FTPTYPE - FTP Type	SELINT 2
AT#FTPTYPE[=<type>]	Set command, issued during an FTP connection, sets the file transfer type. Parameter: <type> - file transfer type: 0 - binary 1 - ascii Note: The command causes an ERROR result code to be returned if no FTP



#FTPTYPE - FTP Type		SELINT 2
	connection has been opened yet.	
#FTPTYPE?	Read command returns the current file transfer type, in the format: #FTPTYPE: <type>	
#FTPTYPE=?	Test command returns the range of available values for parameter <type> : #FTPTYPE: (0,1)	

3.5.7.5.8. 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.	

3.5.7.5.9. 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:</p>	



#FTPDELE - FTP Delete	SELINT 2
	<p><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 #FTPMMSG response will result temporary empty. (Checking later #FTPMMSG response will match with delayed server response)</p>
AT#FTPDELE=?	Test command returns the OK result code.

3.5.7.5.10. FTP Print Working Directory - #FTPPWD

#FTPPWD - FTP Print Working Directory	SELINT 0 / 1
AT#FTPPWD	<p>Execution command, issued during an FTP connection, shows the current working directory on FTP server.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p>

#FTPPWD - FTP Print Working Directory	SELINT 2
AT#FTPPWD	<p>Execution command, issued during an FTP connection, shows the current working directory on FTP server.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p>
AT#FTPPWD=?	Test command returns the OK result code.

3.5.7.5.11. FTP Change Working Directory - #FTPCWD

#FTPCWD - FTP Change Working Directory	SELINT 0 / 1
AT#FTPCWD=<dirname>	<p>Execution command, issued during an FTP connection, changes the working directory on FTP server.</p> <p>Parameter: <dirname> - string type, it's the name of the new working directory.</p> <p>Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.</p>

#FTPCWD - FTP Change Working Directory	SELINT 2
AT#FTPCWD=	Execution command, issued during an FTP connection, changes the working



#FTPCWD - FTP Change Working Directory		SELINT 2
[<dirname>]	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.	

3.5.7.5.12. FTP List - #FTPLIST

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

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

3.5.7.5.13. Get file size - #FTPFSIZE

#FTPFSIZE – Get file size from FTP server		SELINT 2
AT#FTPFSIZE=	Execution command, issued during an FTP connection, permits to get file size of	



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

3.5.7.5.14. FTP Append - #FTPAPP

#FTPAPP - FTP Append	SELINT 2
AT#FTPAPP= [<filename>]	Execution command, issued during an FTP connection, opens a data connection and append data to existing <filename> file. If the data connection succeeds, a CONNECT indication is sent, afterward a NO CARRIER indication is sent when the socket is closed. Parameter: <filename> - string type, name of the file. Note: use the escape sequence +++ to close the data connection. Note: The command causes an ERROR result code to be returned if no FTP connection has been opened yet.
AT#FTPAPP=?	Test command returns the OK result code.

3.5.7.5.15. Set restart position - # FTPREST

#FTPREST – Set restart position for FTP GET	SELINT 2
AT#FTPREST= <restartposition>	Set command sets the restart position for successive FTPGET (or FTPGETPKT) command. It permits to restart a previously interrupted FTP download from the selected position in byte. Parameter: <restartposition> position in byte of restarting for successive FTPGET (or FTPGETPKT) Note: It's necessary to issue FTPTYPE=0 before successive FTPGET



#FTPREST – Set restart position for FTP GET	SELINT 2
	<p>(or FTPGETPKT command) to set binary file transfer type.</p> <p>Note: Setting <restartposition> has effect on successive FTP download. After successive successfully initiated FTGPGET(or FTGPGETPKT) command <restartposition> is automatically reset.</p> <p>Note: value set for <restartposition> has effect on next data transfer(data port opened by FTGPGET or FTGPGETPKT). Then <restartposition> value is automatically assigned to 0 for next download.</p>
AT#FTPREST?	Read command returns the current <restartposition> #FTPREST: <restartposition>
AT#FTPREST=?	Test command returns the OK result code.

3.5.7.5.16. 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 #FTGPGETPKT 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 #FTGPGETPKT 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 FTGPGETPKT gives a EOF 0 indication).</p>



#FTP_RECV – Receive Data In Command Mode	SELINT 2
AT# FTP_RECV?	Read command reports the number of bytes currently received from FTP server, in the format: #FTP_RECV: <available>
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 * 111111111111111111111111 * Text row number 2 * 2222222222222222222222 * Text row number 3 * 3333333333333333333333 * Text row number 4 * 444444444444444444444444 * Text row number 5 * 5555555555555555555555 * Text row number 6 * 666666666666666666666666 * Text row number 7 * 777777777777777777777777 * Text row number 8 * 888888888888888888888888 OK AT#FTP_RECV =200 #FTP_RECV: 200 88888 * Text row number 9 * 99999999999999999999999999999999 * Text row number 10 * AAAAAAAAAAAAAAAAAAAAAAA * Text row number 12 * BBBB BBBB BBBB BBBB BBBB BBBB * Text row number 13 * CCCCCCCCCCCCCCCC OK</pre> <p>Note: to check when you have received complete file it's possible to use</p>



#FTP_RECV – Receive Data In Command Mode	SELINT 2
	<p>AT#FTPGETPKT read command:</p> <pre>AT#FTPGETPKT? #FTPGETPKT: sample.txt,0,1</pre> <p>OK</p> <p>(you will get <eof> set to 1)</p>

3.5.7.6. Enhanced IP Easy Extension AT Commands

3.5.7.6.1. 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>

#USERID - Authentication User ID	SELINT 2
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</p>



#USERID - Authentication User ID		SELINT 2
		the output of Test command, AT#USERID=? (factory default is the empty string "").
Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).		
AT#USERID?	Read command reports the current user identification string, in the format: #USERID: <user>	
AT#USERID=?	Test command returns the maximum allowed length of the string parameter <user> .	
Example	AT#USERID="myName" OK AT#USERID? #USERID: "myName" OK	

3.5.7.6.2. Authentication Password - #PASSW

#PASSW - Authentication Password		SELINT 0/1
AT#PASSW=<pwd>	Set command sets the user password string to be used during the authentication step. Parameter: <pwd> - string type, it's the authentication password; the max length for this value is the output of Test command, AT#PASSW=? (factory default is the empty string "").	
AT#PASSW=?	Test command returns the maximum allowed length of the string parameter <pwd> .	
Example	AT#PASSW="myPassword" OK	

#PASSW - Authentication Password		SELINT 2
AT#PASSW=[<pwd>]	Set command sets the user password string to be used during the authentication step. Parameter: <pwd> - string type, it's the authentication password; the max length for this value is the output of Test command, AT#PASSW=? (factory default is the empty string "").	
	Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).	
AT#PASSW=?	Test command returns the maximum allowed length of the string parameter <pwd> .	
Example	AT#PASSW="myPassword" OK	



3.5.7.6.3. 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	<pre>AT#PKTSZ=100 OK AT#PKTSZ? #PKTSZ: 100 OK AT#PKTSZ=0 OK AT#PKTSZ? #PKTSZ: 300 ->value automatically chosen by device OK</pre>

#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?	<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	AT#PKTSZ=100



#PKTSZ - Packet Size	SELINT 2
	<p>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>

3.5.7.6.4. Data Sending Time-Out - #DSTO

#DSTO - Data Sending Time-Out	SELINT 0 / 1
AT#DSTO[=<tout>]	<p>Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one.</p> <p>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</p> <p>Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5.</p> <p>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.</p> <p>Note: issuing AT#DSTO<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#DSTO=<CR> is the same as issuing the command AT#DSTO=0<CR>.</p>
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	<p>AT#DSTO=10 ->1 sec. time-out</p> <p>OK</p> <p>AT#DSTO?</p> <p>#DSTO: 10</p> <p>OK</p>

#DSTO -Data Sending Time-Out	SELINT 2
AT#DSTO=<tout>	<p>Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one.</p> <p>Parameter: <tout> - packet sending time-out in 100ms units (factory default is 50)</p>



#DSTO -Data Sending Time-Out	SELINT 2
	<p>0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms</p> <p>Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5.</p> <p>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.</p> <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>
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	<pre>AT#DSTO=10 ->1 sec. time-out OK AT#DSTO? #DSTO: 10 OK</pre>

3.5.7.6.5. Socket Inactivity Time-Out - #SKTTO

#SKTTO - Socket Inactivity Time-Out	SELINT 0 / 1
AT#SKTTO[=<tout>]]	<p>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.</p> <p>Parameter:</p> <p><tout> - socket inactivity time-out in seconds units</p> <p>0 - no time-out. 1..65535 - time-out in sec. units (factory default is 90).</p> <p>Note: this time-out applies when no data is exchanged through the socket for a long time and therefore the socket connection has to be automatically closed; the GPRS context is deactivated only if it has been activated issuing #SKTOP; if it has been activated issuing #SKTD, now it stays activated.</p> <p>Note: issuing AT#SKTTO<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT+#SKTTO=<CR> is the same as issuing the command AT+#SKTTO=0<CR>.</p>
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter <tout>.
Example	<pre>AT#SKTTO=30 ->(30 sec. time-out) OK AT#SKTTO? #SKTTO: 30</pre>



#SKTTO - Socket Inactivity Time-Out	SELINT 0 / 1
OK	

#SKTTO - Socket Inactivity Time-Out	SELINT 2
AT#SKTTO=[<tout>]	<p>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.</p> <p>Parameter: <tout> - socket inactivity time-out in seconds units 0 - no time-out. 1..65535 - time-out in sec. units (factory default is 90).</p> <p>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.</p> <p>Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).</p>
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter <tout>.
Example	<pre>AT#SKTTO=30 ->(30 sec. time-out) OK AT#SKTTO? #SKTTO: 30 OK</pre>

3.5.7.6.6. Socket Definition - #SKTSET

#SKTSET - Socket Definition	SELINT 0 / 1
AT#SKTSET[=<socket type>,<remote port>,<remote addr>,[<closure type>],[<local port>]]	<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: - 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> <p><closure type> - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) or after an abortive disconnect from remote.</p>



#SKTSET - Socket Definition	SELINT 0 / 1
	<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?	Read command reports the socket parameters values, in the format: AT#SKTSET: <socket type>,<remote port>,<remote addr>,<closure type>,<local port>
AT#SKTSET=?	Test command returns the allowed values for the parameters.
Example	AT#SKTSET=0,1024,"123.255.020.001" OK AT#SKTSET=0,1024,"www.telit.net" OK
Note	Issuing command #QDNS will overwrite <remote addr> setting.

#SKTSET - Socket Definition	SELINT 2
AT#SKTSET=[<socket type>,<remote port>,<remote addr>,[<closure type>],[<local port>]]	<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> <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 0 - local host closes immediately when remote host has closed (default)</p>



#SKTSET - Socket Definition	SELINT 2
	<p>255 - local host closes after an escape sequence (+++) or after 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.

3.5.7.6.7. Socket Open - #SKTOP

#SKTOP - Socket Open	SELINT 0 / 1
AT#SKTOP	Execution command activates the context number 1, proceeds with the authentication with the user ID and password previously set by #USERID and #PASSW commands, and opens a socket connection with the host specified in the #SKTSET command. Eventually, before opening the socket connection, it issues automatically a DNS query to solve the IP address of the host name. If the connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.
AT#SKTOP?	Read command behaviour is the same as Execution command.
Example	AT#SKTOP ..GPRS context activation, authentication and socket open.. CONNECT



#SKTOP - Socket Open		SELINT 2
AT#SKTOP	Execution command activates the context number 1, proceeds with the authentication with the user ID and password previously set by #USERID and #PASSW commands, and opens a socket connection with the host specified in the #SKTSET command. Eventually, before opening the socket connection, it issues automatically a DNS query to solve the IP address of the host name. If the connection succeeds a CONNECT indication is sent, otherwise a NO CARRIER indication is sent.	
	Note: this command is not allowed for sockets associated to a GSM context (see #SCFG).	
AT#SKTOP=?	Test command returns the OK result code.	
Example	AT#SKTOP ..GPRS context activation, authentication and socket open.. CONNECT	
Note	This command is obsolete. It's suggested to use the couple #SGACT and #SO instead of it.	

3.5.7.6.8. Query DNS - #QDNS

#QDNS - Query DNS		SELINT 0 / 1
AT#QDNS=<host name>	Execution command executes a DNS query to solve the host name into an IP address. Parameter: <host name> - host name, string type. If the DNS query is successful then the IP address will be reported in the result code, as follows: #QDNS: <host name>,<IP address> where <host name> - string type <IP address> - string type, in the format “ xxx.xxx.xxx.xxx ” Note: the command has to activate the GPRS context if it was not previously activated. In this case the context is deactivated after the DNS query.	
Note	This command requires that the authentication parameters are correctly set and that the GPRS network is present.	
Note	Issuing command #QDNS will overwrite <remote addr> setting for command #SKTSET .	



#QDNS - Query DNS		SELINT 2
AT#QDNS= [<host name>]	<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</p> <p><host name> - string type</p> <p><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)	

3.5.7.6.9. 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></p> <p>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 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</p>	



#CACHEDNS – DNS Response Caching	SELINT 2
	while the DNS Response Caching was enabled.
AT#CACHEDNS?	Read command reports whether the DNS Response Caching is currently enabled or not, in the format: #CACHEDNS: <mode>
AT#CACHEDNS=?	Test command returns the currently cached mapping along with the range of available values for parameter <mode>, in the format: #CACHEDNS: [<hostnI>,<IPaddrI>,[...,[<hostnn>,<IPaddrn>],]](0,1) where: <hostnI> - hostname, string type <IPaddrn> - IP address, string type, in the format “xxx.xxx.xxx.xxx”

3.5.7.6.10. 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:</p> <p><cid> - context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition</p> <p><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”)</p> <p><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 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</p>



#DNS – Manual DNS Selection	SELINT 2
	<p>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>

3.5.7.6.11. 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	AT#SKTCT=600 OK <i>socket first connection answer time-out has been set to 60 s.</i>

#SKTCT - Socket TCP Connection Time-Out	SELINT 2
AT#SKTCT=[<tout>]	Set command sets the TCP connection time-out for the first CONNECT answer from the TCP peer to be received.



#SKTCT - Socket TCP Connection Time-Out	SELINT 2
	<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: 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	<pre>AT#SKTCT=600 OK socket first connection answer time-out has been set to 60 s.</pre>

3.5.7.6.12. Socket Parameters Save - #SKTSAV

#SKTSAV - Socket Parameters Save	SELINT 0 / 1
AT#SKTSAV	<p>Execution command stores the current socket parameters in the NVM of the device.</p> <p>The socket parameters to store are:</p> <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	<pre>AT#SKTSAV OK socket parameters have been saved in NVM</pre>
Note	If some parameters are not previously specified then a default value will be stored.

#SKTSAV - Socket Parameters Save	SELINT 2
AT#SKTSAV	<p>Execution command stores the current socket parameters in the NVM of the device.</p> <p>The socket parameters to store are:</p> <ul style="list-style-type: none"> - User ID - Password - Packet Size



#SKTSAV - Socket Parameters Save		SELINT 2
	<ul style="list-style-type: none"> - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) - 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.	

3.5.7.6.13. Socket Parameters Reset - #SKTRST

#SKTRST - Socket Parameters Reset		SELINT 0 / 1
AT#SKTRST	<p>Execution command resets the socket parameters to the “factory default” configuration and stores them in the NVM of the device.</p> <p>The socket parameters to reset are:</p> <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	<p>Execution command resets the socket parameters to the “factory default” configuration and stores them in the NVM of the device.</p> <p>The socket parameters to reset are:</p> <ul style="list-style-type: none"> - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out 	



#SKTRST - Socket Parameters Reset		SELINT 2
	<ul style="list-style-type: none"> - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out 	
AT#SKTRST=?	Test command returns the OK result code.	
Example	AT#SKTRST OK <i>socket parameters have been reset</i>	

3.5.7.6.14. GPRS Context Activation - #GPRS

#GPRS - GPRS Context Activation		SELINT 0 / 1
AT#GPRS[= [<mode>]]	<p>Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with #PASSW and #USERID.</p> <p>Parameter:</p> <p><mode> - GPRS context activation mode</p> <p>0 - GPRS context deactivation request</p> <p>1 - GPRS context activation request</p> <p>In the case that the GPRS context 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: issuing AT#GPRS<CR> reports the current status of the GPRS context, in the format:</p> <p>#GPRS: <status></p> <p>where:</p> <p><status></p> <p>0 - GPRS context deactivated</p> <p>1 - GPRS context activated</p> <p>2 - GPRS context activation pending.</p> <p>Note: issuing AT#GPRS=<CR> is the same as issuing the command AT#GPRS=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 #GPRS, you need to issue the following sequence of three commands</p>	



#GPRS - GPRS Context Activation		SELINT 0 / 1
	AT#GPRS=1 OK AT#GPRS=0 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 	



#GPRS - GPRS Context Activation		SELINT 2
	<p>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</p> <pre>AT#GPRS=1 OK AT#GPRS=0 OK AT#GPRS=1 OK</pre> <p>(Analogous considerations if you want to request the activation of PDP context #1 issuing AT#EMAILACT=1, see #EMAILACT)</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> <pre>#GPRS: <status></pre> <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	<pre>AT#GPRS=1 +IP: 129.137.1.1 OK</pre> <p>Now PDP Context #1 has been activated and our IP is 129.137.1.1</p> <pre>AT#GPRS=0 OK</pre> <p>Now PDP Context #1 has been deactivated, IP is lost.</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>	

3.5.7.6.15. Socket Dial - #SKTD

#SKTD - Socket Dial		SELINT 0 / 1
AT#SKTD [=<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	<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</p>	



#SKTD - Socket Dial	SELINT 0 / 1
	<p>0..65535 - port number (factory default is 0)</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</p> <p>0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) or after an abortive disconnect from remote.</p> <p><local port> - local host port to be used on UDP socket</p> <p>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</pre> <pre>AT#SKTD=1,1024,"123.255.020.001",,1025 CONNECT</pre> <p><i>In this way my local port 1025 is opened to the remote port 1024</i></p> <pre>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



#SKTD - Socket Dial	SELINT 0 / 1
	the context (and hence the local IP address) is maintained.

#SKTD - Socket Dial	SELINT 2
AT#SKTD= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	<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 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) or after an abortive disconnect from remote.</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>
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>



#SKTD - Socket Dial		SELINT 2
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 #SKTD is closed the context (and hence the local IP address) is maintained.	

3.5.7.6.16. Socket Listen - #SKTL

#SKTL - Socket Listen	SELINT 0 / 1
AT#SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	<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 <ul style="list-style-type: none"> 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) or after an abortive disconnect from remote. <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>



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



#SKTL - Socket Listen	SELINT 0 / 1
	<p><i>to stop listening</i> AT#SKTL=0,0,1024, 255 OK</p>
Note	<p>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.</p> <p>The improving command @SKTL has been defined.</p>
#SKTL - Socket Listen	SELINT 2
AT#SKTL $=[<\text{mode}>,$ $<\text{socket type}>,$ $<\text{input port}>,$ $[<\text{closure type}>]]$	<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 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++)</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:</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> <p>On connection close or when context is closed with #GPRS=0 the socket is closed</p>



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



#SKTL - Socket Listen	SELINT 2
	with #SKTL is closed the context (and hence the local IP address) is maintained.

3.5.7.6.17. Socket Listen Improved - @SKTL

@SKTL - Socket Listen Improved	SELINT 0 / 1
AT@SKTL <code>[=<mode>, <socket type>, <input port>, [<closure type>]]</code>	<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 <ul style="list-style-type: none"> 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (+++) or after an abortive disconnect from remote. <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="padding-left: 2em;">+CONN FROM: <remote addr></p> <p>Where:</p> <p style="padding-left: 2em;"><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>



@SKTL - Socket Listen Improved		SELINT 0 / 1
@SKTL: ABORTED		
<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 <closure type>, in the format:</p> <p>@SKTL: <status>,<socket type>,<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>, <socket type>, <input port> and <closure type>.
Example <i>Activate GPRS</i> AT#GPRS=1 +IP: ###.###.###.### OK <i>Start listening</i> AT@SKTL=1,0,1024 OK or AT@SKTL=1,0,1024,255 OK <i>Receive connection requests</i> +CONN FROM: 192.164.2.1 CONNECT <i>exchange data with the remote host</i> <i>send escape sequence</i> +++ NO CARRIER <i>Now listen is not anymore active</i> <i>to stop listening</i> AT@SKTL=0,0,1024, 255 OK		
Note		The main difference between this command and the #SKTD is that @SKTL does not contact any peer, nor does any interaction with the GPRS context status, leaving it ON or OFF according to the #GPRS setting, therefore when the connection made with @SKTL is closed the context (and hence the local IP address) is maintained.



3.5.7.6.18. Socket Listen Ring Indicator - #E2SLRI

#E2SLRI - Socket Listen Ring Indicator		SELINT 0 / 2
AT#E2SLRI=[<n>]	<p>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.</p> <p>Parameter:</p> <p><n> - RI enabling</p> <p>0 - RI disabled for Socket Listen connect (factory default)</p> <p>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.</p>	
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>.	

3.5.7.6.19. 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:</p> <p><action> - command action</p> <p>0 - remove selected chain</p> <p>1 - add an ACCEPT chain</p> <p>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>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</p>	



#FRWL - Firewall Setup		SELINT 0 / 1
	<p>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:</p> <pre>#FRWL: <ip_addr>,<net_mask> #FRWL: <ip_addr>,<net_mask> ... OK</pre>	
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></p> <pre>AT#FRWL=1,"197.158.1.1","255.255.0.0" OK</pre>	
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 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><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>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>	



#FRWL - Firewall Setup		SELINT 2
	When a packet comes from the IP address incoming_IP , the firewall chain rules will be scanned for matching with the following criteria: incoming_IP & <net_mask> = <ip_addr> & <net_mask> If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped.	
AT#FRWL?	Read command reports the list of all ACCEPT chain rules registered in the Firewall settings in the format: #FRWL: <ip_addr>,<net_mask> #FRWL: <ip_addr>,<net_mask> OK	
AT#FRWL=?	Test command returns the allowed values for parameter <action> .	
Example	<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 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>	

3.5.7.6.20. GPRS Data Volume - #GDATAVOL

#GDATAVOL - GPRS Data Volume		SELINT 2
AT#GDATAVOL=[<mode>]	<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>	



#GDATAVOL - GPRS Data Volume	SELINT 2
	<pre>#GDATAVOL: <cidn>,<totn>,<sentr>,<receivedn>[<CR><LF> #GDATAVOL: <cidm>,<totm>,<sentr>,<receivedm>[...]]</pre> <p>where:</p> <p><cidn> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition <totn> - number of bytes either received or transmitted in the last GPRS (or GSM) session for <cidn> PDP context; <sentr> - number of bytes transmitted in the last GPRS (or GSM) session for <cidn> PDP context; <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 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> <pre>#GDATAVOL: <cidn>,<totn>,<sentr>,<receivedn>[<CR><LF> #GDATAVOL: <cidm>,<totm>,<sentr>,<receivedm>[...]]</pre> <p>where:</p> <p><cidn> - PDP context identifier 0 - specifies the GSM context 1..5 - numeric parameter which specifies a particular PDP context definition <totn> - number of bytes either received or transmitted, in every GPRS (or GSM) session since last reset, for <cidn> PDP context; <sentr> - number of bytes transmitted, in every GPRS (or GSM) session since last reset, for <cidn> PDP context; <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>.

3.5.7.6.21. 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: <mode> 0 - disable ICMP Ping support (default)</p>



#ICMP - ICMP Ping Support		SELINT 2
	1 - enable firewalled ICMP Ping support: the module is sending a proper ECHO_REPLY only to a subset of IP Addresses pinging it; this subset of IP Addresses has been previously specified through #FRWL (see) 2 - enable free ICMP Ping support; the module is sending a proper 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.	

3.5.7.6.22. Maximum TCP Payload Size - #TCPMAXDAT

#TCPMAXDAT - Maximum TCP Payload Size		SELINT 2
AT#TCPMAXDAT=<size>	Set command allows to set the maximum TCP payload size in TCP header options. Parameter: <size> - maximum TCP payload size accepted in one single TCP/IP datagram; it is sent in TCP header options in SYN packet. 0 - the maximum TCP payload size is automatically handled by module (default). 496..1420 - maximum TCP payload size	
AT#TCPMAXDAT?	Read command reports the current maximum TCP payload size, in the format: #TCPMAXDAT: <size>	
AT#TCPMAXDAT=?	Test command reports the supported range of values for parameter <size>	

3.5.7.6.23. TCP Reassembly - #TCPREASS

#TCPREASS - TCP Reassembly		SELINT 2
AT#TCPREASS=<n>	Set command enables/disables the TCP reassembly feature , in order to handle fragmented TCP packets. Parameter: <n> 0 - disable TCP reassembly feature (default) 1 - enable TCP reassembly feature	
AT#TCPREASS?	Read command returns whether the TCP reassembly feature is enabled or not, in the format:	



#TCPREASS - TCP Reassembly	SELINT 2
	#TCPREASS: <n>
AT#TCPREASS=?	Test command returns the supported range of values for parameter <n>.

3.5.7.6.24. PING request - #PING

#PING – Send PING request	
AT#PING= <IPAddr>[,<retryNum>[,<len>[,<timeout>[,<ttl>]]]]	<p>This command is used to send Ping Echo Request messages and to receive the corresponding Echo Reply.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <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 <retryNum> - the number of Ping Echo Request to send 1-64 (default 4) <len> - the lenght of Ping Echo Request message 32-1460 (default 32) <timeout> - the timeout, in 100 ms units, waiting a single Echo Reply 1-600 (default 50) <ttl> - time to live 1-255 (default 128) <p>Once the single Echo Reply message is receive a string like that is displayed:</p> <p>#PING: <replyId>,<Ip Address>,<replyTime>,<ttl></p> <p>Where:</p> <ul style="list-style-type: none"> <replyId> - Echo Reply number <Ip Address> - IP address of the remote host <replyTime> - time, in 100 ms units, required to receive the response <ttl> - time to live of the Echo Reply message <p>Note1: when the Echo Request timeout expires (no reply received on time) the response will contain <replyTime> set to 600 and <ttl> 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>
AT#ICMP=?	Test command reports the supported range of values for the #PING command parameters.



#PING – Send PING request

Example	AT#PING="www.telit.com" #PING: 01,"81.201.117.177",6,50 #PING: 02,"81.201.117.177",5,50 #PING: 03,"81.201.117.177",6,50 #PING: 04,"81.201.117.177",5,50 OK
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3.5.7.7. E-mail Management AT Commands

3.5.7.7.1. E-mail SMTP Server - #ESMTP

#ESMTP - E-mail SMTP Server		SELINT 0 / 1
AT#ESMTP [=<smtp>]	<p>Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name.</p> <p>Parameter: <smtp> - SMTP server address, 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>Note: the max length for <smtp> is the output of Test command.</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command</p>	
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: #ESMTP: <smtp>	
AT#ESMTP=?	Test command returns the max length for the parameter <smtp>.	
Example	AT#ESMTP="smtp.mydomain.com" OK	
Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the e-mail.	

#ESMTP - E-mail SMTP Server		SELINT 2
AT#ESMTP= [<smtp>]	<p>Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name.</p> <p>Parameter: <smtp> - SMTP server address, 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>Note: the max length for <smtp> is the output of Test command.</p>	
AT#ESMTP?	Read Command reports the current SMTP server address, in the format:	



#ESMTP - E-mail SMTP Server		SELINT 2
	#ESMTP: <smtp>	
AT#ESMTP=?	Test command returns the max length for the parameter <smtp>.	
Example	AT#ESMTP="smtp.mydomain.com" OK	
Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the e-mail.	

3.5.7.7.2. E-mail Sender Address - #EADDR

#EADDR - E-mail Sender Address		SELINT 0 / 1
AT#EADDR [=<e-addr>]	Set command sets the sender address string to be used for sending the e-mail. Parameter: <e-addr> - sender address, string type. - any string value up to max length reported in the Test command. (factory default is the empty string "")	
	Note: If parameter is omitted then the behaviour of Set command is the same of Read command	
AT#EADDR?	Read command reports the current sender address, in the format: #EADDR: <e-addr>	
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter <e-addr>.	
Example	AT#EADDR="me@email.box.com" OK AT#EADDR? #EADDR: "me@email.box.com" OK	

#EADDR - E-mail Sender Address		SELINT 2
AT#EADDR [<e-add>]	Set command sets the sender address string to be used for sending the e-mail. Parameter: <e-addr> - sender address, string type. - any string value up to max length reported in the Test command. (factory default is the empty string "")	
AT#EADDR?	Read command reports the current sender address, in the format: #EADDR: <e-addr>	
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter <e-addr>.	
Example	AT#EADDR="me@email.box.com" OK	



#EADDR - E-mail Sender Address	SELINT 2
	AT#EADDR? #EADDR: "me@email.box.com" OK

3.5.7.7.3. E-mail Authentication User Name - #EUSER

#EUSER - E-mail Authentication User Name	SELINT 0 / 1
AT#EUSER [=<e-user>]	<p>Set command sets the user identification string to be used during the authentication step of the SMTP.</p> <p>Parameter:</p> <p><e-user> - e-mail authentication User ID, string type.</p> <ul style="list-style-type: none"> - any string value up to max length reported in the Test command. <p>(factory default is the empty string "")</p> <p>Note: if no authentication is required then the <e-user> parameter shall be empty "".</p> <p>Note: If parameter is omitted then the behaviour of Set command is the same of Read command</p>
AT#EUSER?	Read command reports the current user identification string, in the format: #EUSER: <e-user>
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter <e-user>.
Example	AT#EUSER="myE-Name" OK AT#EUSER? #EUSER: "myE-Name" OK
Note	It is a different user field than the one used for GPRS authentication (see #USERID).

#EUSER - E-mail Authentication User Name	SELINT 2
AT#EUSER= [<e-user>]	<p>Set command sets the user identification string to be used during the authentication step of the SMTP.</p> <p>Parameter:</p> <p><e-user> - e-mail authentication User ID, string type.</p> <ul style="list-style-type: none"> - any string value up to max length reported in the Test command. <p>(factory default is the empty string "")</p> <p>Note: if no authentication is required then the <e-user> parameter shall be empty "".</p>
AT#EUSER?	Read command reports the current user identification string, in the format:



#EUSER - E-mail Authentication User Name		SELINT 2
	#EUSER: <e-user>	
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter <e-user>.	
Example	<pre>AT#EUSER="myE-Name" OK AT#EUSER? #EUSER: "myE-Name" OK</pre>	
Note	It is a different user field than the one used for GPRS authentication (see #USERID).	

3.5.7.7.4. E-mail Authentication Password - #EPASSW

#EPASSW - E-mail Authentication Password		SELINT 0 / 1
AT#EPASSW=<e-pwd>	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: <e-pwd> - e-mail authentication password, string type. - any string value up to max length reported in the Test command. (factory default is the empty string "")	
	Note: if no authentication is required then the <e-pwd> parameter shall be empty "".	
AT#EPASSW=?	Test command returns the maximum allowed length of the string parameter <e-pwd>.	
Example	AT#USERID="myPassword" OK	
Note	It is a different password field than the one used for GPRS authentication (see #PASSW).	

#EPASSW - E-mail Authentication Password		SELINT 2
AT#EPASSW=[<e-pwd>]	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: <e-pwd> - e-mail authentication password, string type. - any string value up to max length reported in the Test command. (factory default is the empty string "")	
	Note: if no authentication is required then the <e-pwd> parameter shall be empty "".	
AT#EPASSW=?	Test command returns the maximum allowed length of the string parameter <e-pwd>.	
Example	AT#EPASSW="myPassword"	



#EPASSW - E-mail Authentication Password	SELINT 2
	OK
Note	It is a different password field than the one used for GPRS authentication (see #PASSW).

3.5.7.7.5. 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:</p> <p><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 <i>Message has been sent.</i></pre>
Note	This command is obsolete. It's suggested to use the couple #EMAILACT and #EMAILID 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> <p>Parameters:</p> <ul style="list-style-type: none"> <da> - destination address, string type. (maximum length 100 characters) <subj> - subject of the message, string type. (maximum length 100 characters) <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> <p>Note: this command is not allowed if GSM context is active (see AT#SGACT=0,1).</p>	
AT#SEMAIL=?	Test command returns the OK result code.	
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>	



3.5.7.7.6. E-mail GPRS Context Activation - #EMAILACT

#EMAILACT - E-mail GPRS Context Ativation		SELINT 0 / 1
AT#EMAILACT[=<mode>]]	<p>Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with #PASSW and #USERID.</p> <p>Parameter: <mode> - GPRS context activation mode 0 - GPRS context deactivation request 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>	



#EMAILACT - E-mail GPRS Context Activation		SELINT 0 / 1
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 Activation		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:</p> <p><mode> - PDP context activation mode</p> <ul style="list-style-type: none"> 0 - GPRS context deactivation request 1 - GPRS context activation request <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>	
AT#EMAILACT?	<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>	



#EMAILACT - E-mail GPRS Context Activation		SELINT 2
<status>		0 - GPRS context deactivated 1 - GPRS context activated
AT#EMAILACT=?		Test command returns the allowed values for parameter <mode>.
Example		AT#EMAILACT=1 OK <i>Now GPRS Context has been activated</i> AT# EMAILACT=0 OK <i>Now GPRS context has been deactivated.</i>
Note		It is strongly recommended to use the same command (e.g. #EMAILACT) to activate the context, deactivate it and interrogate about its status.

3.5.7.7.7. E-mail Sending - #EMAILD

#EMAILD - E-mail Sending		SELINT 0 / 1
AT#EMAILD=<da>, <subj>	<p>Execution command sends an e-mail message if GPRS context has already been activated by either AT#EMAILACT=1 or AT#GPRS=1.</p> <p>Parameters:</p> <p><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	AT#EMAILD="me@myaddress.com","subject of the mail" >message body... this is the text of the mail message...	



#EMAILD - E-mail Sending		SELINT 0 / 1
	CTRL-Z <i>...wait..</i> OK <i>Message has been sent.</i>	
Note	<p>The only difference between this command and the #SEMAIL is that this command does not interact with the GPRS context status, leaving it ON or OFF according to the #EMAILACT setting, thus, when the connection made with #EMAILD is closed, the context status is maintained.</p>	

#EMAILD - E-mail Sending		SELINT 2
AT#EMAILD=[<da>,<subj>]]	<p>Execution command sends an e-mail message if GPRS context has already been activated by either AT#SGACT=1,1 or AT#EMAILACT=1 or AT#GPRS=1.</p> <p>It is also possible to send an e-mail on the GSM context, if it has already been activated by AT#SGACT=0,1.</p> <p>Parameters:</p> <p><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 for versions till 7.03.02/7.02.07 and from 10.0x.xx0 till 10.0x.xx2, 1500 bytes for versions starting from 10.0x.xx3, trying to send more data will cause the surplus to be discarded and lost.</p>	



#EMAILD - E-mail Sending		SELINT 2
AT#EMAILD=?	Test command returns the OK result code.	
Example	AT#EMAILD="me@myaddress.com","subject of the mail" >message body... this is the text of the mail message... CTRL-Z ..wait.. OK <i>Message has been sent.</i>	
Note	The only difference between this command (set using GPRS context) and the #SEMAIL is that this command does not interact with the GPRS context status, leaving it ON or OFF according to the #EMAILACT (#SGACT) setting, thus, when the connection made with #EMAILD is closed, the context status is maintained.	

3.5.7.7.8. E-mail Parameters Save - #ESAV

#ESAV - E-mail Parameters Save		SELINT 0 / 1
AT#ESAV	Execution command stores the e-mail parameters in the NVM of the device. The e-mail parameters to store are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server	
Note	If some parameters have not been previously specified then a default value will be taken.	

#ESAV - E-mail Parameters Save		SELINT 2
AT#ESAV	Execution command stores the e-mail parameters in the NVM of the device. The e-mail parameters to store are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server	
AT#ESAV=?	Test command returns the OK result code.	
Note	If some parameters have not been previously specified then a default value will be taken.	

3.5.7.7.9. E-mail Parameters Reset - #ERST

#ERST - E-mail Parameters Reset		SELINT 0 / 1
AT#ERST	Execution command resets the e-mail parameters to the “factory default” configuration and stores them in the NVM of the device. The e-mail parameters to reset are: - E-mail User Name	



#ERST - E-mail Parameters Reset	SELINT 0 / 1
	<ul style="list-style-type: none"> - 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.

3.5.7.7.10. 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.

3.5.7.7.11. #SMTPCL – 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.</p> <p>While in online mode data received on the serial port are transmitted on the SMTP socket as MIME attachment.</p> <p>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:</p> <p><da> - destination address, string type.</p>



	<p>(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>
AT#SMTPCL=?	Test command reports the supported range of values for parameters <da> , <subj> , <att> [, <filename> , <encod>]
Examples	at#smtpcl="me@myaddress.com","test1",1,"sample.txt",0 >message body...this is the text of the mail message... <i>Send CTRL-Z</i> CONNECT <i>...data received on the serial port are sent as attachment....</i> <i>Send escape sequence to close the SMTP connection</i> +++ NO CARRIER at#smtpcl="me@myaddress.com","test2",2,"image.jpg",1



	<p>>message body...this is the text of the mail message...</p> <p><i>Send CTRL-Z</i></p> <p>CONNECT</p> <p><i>...data received on the serial port are base64-encoded and sent as attachment....</i></p> <p><i>Send escape sequence to close the SMTP connection</i></p> <p>+++</p> <p>NO CARRIER</p>
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3.5.7.8. Easy Scan® Extension AT Commands



NOTE:

it is strongly suggested to issue all the Easy Scan® Extension AT commands with **NO SIM** inserted, to avoid a potential conflict with normal module operations, such as “incoming call”, “periodic location update, “periodic routing area update” and so on.

3.5.7.8.1. Network Survey - #CSURV

#CSURV - Network Survey		SELINT 0 / 1
AT#CSURV [=<s>,<e>]	Execution command allows to perform a quick survey through channels belonging to the band selected by last #BND command issue, starting from channel <s> to channel <e>. If parameters are omitted, a full band scan is performed.	
AT*CSURV [=<s>,<e>] (both syntax are possible)	<p>Parameters:</p> <p><s> - starting channel</p> <p><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:</p>	



#CSURV - Network Survey	SELINT 0 / 1
<p><numChannels> array: [<ba1> ..<ba32>] [pbccch: <pbccch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> neo: <neo> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]<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 <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 ..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 <arfcnn> - arfcn of a valid channel in the Cell Channel Description (<i>n</i> is in the range 1..<numArfcn>)</p> <p><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>(The following informations will be printed only if GPRS is supported in the cell)</p> <p><pbccch> - packet broadcast control channel 0 - pbccch not activated on the cell 1 - pbccch activated on the cell</p>	



#CSURV - Network Survey	SELINT 0 / 1
<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</p> <p><t3192> - timer 3192</p> <p><drxmax> - discontinuous reception max time (in seconds)</p> <p><ctrlAck> - packed control ack</p> <p><bsCVmax> - blocked sequenc countdown max value</p> <p><alpha> - alpha parameter for power control</p> <p><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> - receiption 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 style="text-align: center;">Network survey ended</p> <p style="text-align: center;">if #CSURVF=2</p> <p>the output ends with the string:</p> <p style="text-align: center;">Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)</p>	



#CSURV - Network Survey		SELINT 0 / 1
	where <NoARFCN> - number of scanned frequencies <NoBCCH> - number of found BCCh	
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> <p>OK</p>	
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 channels belonging to the band selected by last #BND command issue, starting from channel <s> to channel <e>. Issuing AT#CSURV<CR>, a full band scan is performed.</p> <p>Parameters:</p> <p><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> <pre>arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]<CR><LF><CR><LF></pre>	



#CSURV - Network Survey	SELINT 2
	<p>where:</p> <p><arfcn> - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel)</p> <p><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</p> <p><rxLev> - decimal number; it is the reception level (in dBm)</p> <p><ber> - decimal number; it is the bit error rate (in %)</p> <p><mcc> - hexadecimal 3-digits number; it is the mobile country code</p> <p><mnc> - hexadecimal 2-digits number; it is the mobile network code</p> <p><lac> - location area code; if #CSURVF last setting is 0, <lac> is a decimal number, else it is a 4-digits hexadecimal number</p> <p><cellId> - cell identifier; if #CSURVF last setting is 0, <cellId> is a decimal number, else it is a 4-digits hexadecimal number</p> <p><cellStatus> - string type; it is the cell status</p> <p>..CELL_SUITABLE - C0 is a suitable cell.</p> <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><arfcnn> - 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 or 2 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>(The following informations will be printed only if GPRS is supported in the cell)</p> <p><pbcch> - packet broadcast control channel</p> <p>0 - pbcch not activated on the cell</p> <p>1 - pbcch activated on the cell</p> <p><nom> - network operation mode</p> <p>1</p> <p>2</p>



#CSURV - Network Survey	SELINT 2
	<p>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</p> <p><t3192> - timer 3192</p> <p><drxmax> - discontinuous reception max time (in seconds)</p> <p><ctrlAck> - packed control ack</p> <p><bsCVmax> - blocked sequenc countdown max value</p> <p><alpha> - alpha parameter for power control</p> <p><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> - 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</p>



#CSURV - Network Survey		SELINT 2
Example	<p><NoBCCH> - number of found BCCh</p> <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> <p>OK</p>	
Note	The command is executed within max. 2 minute.	

3.5.7.8.2. Network Survey - #CSURVC

#CSURVC - Network Survey (Numeric Format)		SELINT 0 / 1
<p>AT#CSURVC [=<s>,<e>]</p> <p>AT*CSURVC [=<s>,<e>] (both syntax are possible)</p>	<p>Execution command allows to perform a quick survey through channels belonging to the band selected by last #BND command issue, starting from channel <s> to channel <e>. If parameters are omitted, a full band scan is performed.</p> <p>Parameters:</p> <p><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> <pre><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></pre> <p>where:</p> <p><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 %)</p>	



#CSURVC - Network Survey (Numeric Format)	SELINT 0 / 1
<p><mcc> - mobile country code</p> <p><mnc> - mobile network code</p> <p><lac> - location area code</p> <p><cellId> - cell identifier</p> <p><cellStatus> - cell status</p> <p>..0 - C0 is a suitable cell (CELL_SUITABLE).</p> <p>1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY).</p> <p>2 - the cell is forbidden (CELL_FORBIDDEN).</p> <p>3 - the cell is barred based on the received system information (CELL_BARRED).</p> <p>4 - the cell <rxLev> is low (CELL_LOW_LEVEL).</p> <p>5 - none of the above e.g. exclusion timer running, no BCCH available...etc.. (CELL_OTHER).</p> <p><numArfcn> - number of valid channels in the Cell Channel Description</p> <p><arfcnn> - arfcn of a valid channel in the Cell Channel Description (<i>n</i> is in the range 1..<numArfcn>)</p> <p><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>(The following informations will be printed only if GPRS is supported in the cell)</p> <p><pbcch> - packet broadcast control channel</p> <p>0 - pbcch not activated on the cell</p> <p>1 - pbcch 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>	



#CSURVC - Network Survey (Numeric Format)	SELINT 0 / 1
	<p>3..6 - <nco> - network control order 0..2 - <t3168> - timer 3168 <t3192> - timer 3192 <drxmax> - discontinuous reception max time (in seconds) <ctrlAck> - packed control ack <bsCVmax> - blocked sequenc countdown max value <alpha> - alpha parameter for power control <pcMeasCh> - type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH</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	<pre>AT#CSURVC Network survey started... 48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82 14,8 Network survey ended OK</pre>
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 only for backward compatibility and will not be present in future versions)</i></p>	<p>Execution command allows to perform a quick survey through channels belonging to the band selected by last #BND command issue, starting from channel <s> to channel <e>. Issuing AT#CSURVC<CR>, a full band scan is performed.</p> <p>Parameters:</p> <p><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> <pre><arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>, <cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]] [,<numChannels>[,<ba1> ..[<ba32>]][,<pbech> [,<nom>,<rac>,<spgc>, <pat>,<nco>,<t3168>,<t3192>,<drxmax>,<ctrlAck>,<bsCVmax>, <alpha>,<pcMeasCh>]]] <CR><LF><CR><LF><CR><LF></pre> <p>where:</p> <p><arfcn> - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel)</p> <p><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</p> <p><rxLev> - decimal number; it is the reception level (in dBm)</p> <p><ber> - decimal number; it is the bit error rate (in %)</p> <p><mcc> - hexadecimal 3-digits number; it is the mobile country code</p> <p><mnc> - hexadecimal 2-digits number; it is the mobile network code</p> <p><lac> - location area code; if #CSURVF last setting is 0, <lac> is a decimal number, else it is a 4-digits hexadecimal number</p> <p><cellId> - cell identifier; if #CSURVF last setting is 0, <cellId> is a decimal number, else it is a 4-digits hexadecimal number</p> <p><cellStatus> - string type; it is the cell status</p> <p>..0 - C0 is a suitable cell (CELL_SUITABLE).</p> <p>1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY).</p> <p>2 - the cell is forbidden (CELL_FORBIDDEN).</p> <p>3 - the cell is barred based on the received system information (CELL_BARRED).</p> <p>4 - the cell <rxLev> is low (CELL_LOW_LEVEL).</p> <p>5 - none of the above e.g. exclusion timer running, no BCCH available...etc.. (CELL_OTHER).</p> <p><numArfcn> - decimal number; it is the number of valid channels in the Cell</p>	



#CSURVC - Network Survey (Numeric Format)	SELINT 2
<p>Channel Description</p> <p><arfenn> - 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"> 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> - 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"> 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>(The following informations will be printed only if GPRS is supported in the cell)</p> <p><pbcch> - packet broadcast control channel</p> <p>0 - pbcch not activated on the cell</p> <p>1 - pbcch 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> <p><ctrlAck> - packed control ack</p> <p><bsCVmax> - blocked sequenc countdown max value</p> <p><alpha> - alpha parameter for power control</p> <p><pcMeasCh> - type of channel which shall be used for downlink measurements for power control</p> <p>0 - BCCH</p> <p>1 - PDCH</p>	SELINT 2



#CSURVC - Network Survey (Numeric Format)		SELINT 2
	(For non BCCH-Carrier) <arfcn>,<rxLev> where: <arfcn> - decimal number; it is the RF channel <rxLev> - decimal number; it is the reception level (in dBm)	
The last information from #CSURVC depends on the last #CSURVF setting:		
#CSURVF=0 or #CSURVF=1		
The output ends with the string: Network survey ended		
#CSURVF=2		
the output ends with the string: Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>) where <NoARFCN> - number of scanned frequencies <NoBCCh> - number of found BCCh		
Example	<pre>AT#CSURVC Network survey started... 48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82 14,8 Network survey ended OK</pre>	
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>	

3.5.7.8.3. Network Survey - #CSURVU

#CSURVU - Network Survey Of User Defined Channels		SELINT 0 / 1
AT#CSURVU=[<ch1>[,<ch2>[,...[,<chn>]]]]]	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last #BND issue.	
AT*CSURVU=[<ch1>[,<ch2>[,...[,<chn>]]]]]	The result format is like command #CSURV. Parameters: <chn> - channel number (arfcn)	



#CSURVU - Network Survey Of User Defined Channels		SELINT 0 / 1
(both syntax are possible)	Note: issuing AT#CSURVU=<CR> is the same as issuing the command AT#CSURVU=0<CR>.	
Example	AT#CSURVU=59,110 Network survey started... arfcn: 59 bsic: 16 rxLev: -76 ber: 0.00 mcc: 546 mnc: 1 lac: 54717 cellId: 21093 cellStatus: CELL_SUITABLE numArfcn 2 arfcn: 36 59 arfcn: 110 rxLev: -107 Network survey ended OK	
Note	The command is executed within max. 2 minute.	

#CSURVU - Network Survey Of User Defined Channels		SELINT 2
AT#CSURVU=[<ch1>[,<ch2>[,...[,<chn>]]]] AT*CSURVU=[<ch1>[,<ch2>[,...[,<chn>]]]] (both syntax are possible; the second syntax is maintained only for backward compatibility and will not be present in future versions)	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last #BND issue. The result format is like command #CSURV. Parameters: <chn> - channel number (arfcn)	
Example	AT#CSURVU=59,110 Network survey started... arfcn: 59 bsic: 16 rxLev: -76 ber: 0.00 mcc: 546 mnc: 1 lac: 54717 cellId: 21093 cellStatus: CELL_SUITABLE numArfcn 2 arfcn: 36 59 arfcn: 110 rxLev: -107 Network survey ended OK	
Note	The command is executed within max. 2 minute.	



3.5.7.8.4. Network Survey - #CSURVUC

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

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)		SELINT 2
AT#CSURVUC=[<ch1>[,<ch2>[,... [,<chn>]]]]	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last #BND issue.	
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>	The result format is like command #CSURVC. Parameters: <chn> - channel number (arfcn)	
Example		AT#CSURVUC=59,110 Network survey started...



#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)		SELINT 2
	59,16,-76,0,0,546,1,54717,21093,0,2,36 59 110,-107 Network survey ended OK	
Note	<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>	

3.5.7.8.5. BCCH Network Survey - #CSURVB

#CSURVB - BCCH Network Survey		SELINT 0 / 1
AT#CSURVB=<n>	<p>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.</p> <p>The result format is like command #CSURV.</p> <p>Parameter: <n> - number of desired BCCH carriers 1..M</p>	
AT#CSURVB=?	<p>Test command reports the range of values for parameter <n> in the format:</p> <p>(1-M)</p> <p>where M is the maximum number of available frequencies depending on last selected band.</p>	

#CSURVB - BCCH Network Survey		SELINT 2
AT#CSURVB=[<n>]	<p>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.</p> <p>The result format is like command #CSURV.</p> <p>Parameter: <n> - number of desired BCCH carriers 1..M</p>	
AT#CSURVB=?	<p>Test command reports the range of values for parameter <n> in the format:</p>	



#CSURVB - BCCH Network Survey	SELINT 2
	<p>(1-M)</p> <p>where M is the maximum number of available frequencies depending on last selected band.</p>

3.5.7.8.6. BCCH Network Survey - #CSURVBC

#CSURVBC - BCCH Network Survey (Numeric Format)	SELINT 0 / 1
AT#CSURVBC=<n>	<p>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.</p> <p>The result is given in numeric format and is like command #CSURVC.</p> <p>Parameter: <n> - number of desired BCCH carriers 1..M</p>
AT#CSURVBC=?	<p>Test command reports the range of values for parameter <n> in the format:</p> <p>(1-M)</p> <p>where M is the maximum number of available frequencies depending on last selected band.</p>

#CSURVBC - BCCH Network Survey (Numeric Format)	SELINT 2
AT#CSURVBC=[<n>]	<p>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.</p> <p>The result is given in numeric format and is like command #CSURVC.</p> <p>Parameter: <n> - number of desired BCCH carriers 1..M</p>
AT#CSURVBC=?	<p>Test command reports the range of values for parameter <n> in the format:</p> <p>(1-M)</p> <p>where M is the maximum number of available frequencies depending on last selected band.</p>



3.5.7.8.7. Network Survey Format - #CSURVF

#CSURVF - Network Survey Format		SELINT 0 / 1
AT#CSURVF=[<format>]	<p>Set command controls the format of the numbers output by all the Easy Scan®</p> <p>Parameter: <format> - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text</p> <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: <format> - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text</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>.	

3.5.7.8.8. <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: <value> 0 - disables <CR><LF> removing; they'll be present in the information text (factory default) 1 - remove <CR><LF> from imformation text</p> <p>Note: if parameter is omitted the behaviour of Set command is the same as Read</p>	



#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family		SELINT 0 / 1
command.		
AT#CSURVNLF?	Read command reports whether automatic <CR><LF> removing is currently enabled or not, in the format: <value>	
AT#CSURVNLF=?	Test command reports the range of values for parameter <value>.	

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family		SELINT 2
AT#CSURVNLF=[<value>]	Set command enables/disables the automatic <CR><LF> removing from each information text line. Parameter: <value> 0 - disables <CR><LF> removing; they'll be present in the information text (factory default) 1 - remove <CR><LF> from imformation text	
AT#CSURVNLF?	Read command reports whether automatic <CR><LF> removing is currently enabled or not, in the format: <value>	
AT#CSURVNLF=?	Test command reports the range of values for parameter <value>.	

3.5.7.8.9. 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>	



#CSURVEXT - Extended Network Survey	SELINT 0 / 1
AT#CSURVEXT=?	Test command reports the range of values for parameter <value>.

#CSURVEXT - Extended Network Survey	SELINT 2
AT#CSURVEXT [=<value>]	<p>Set command enables/disables extended network survey.</p> <p>Parameter:</p> <p><value></p> <p>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</p>
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format:
AT#CSURVEXT=?	Test command reports the range of values for parameter <value>.

3.5.7.8.10. PLMN Network Survey - #CSURVP

#CSURVP - PLMN Network Survey	SELINT 2
AT#CSURVP=<plmn>	<p>Execution command performs a quick network survey through channels. The survey stops as soon as a BCCH carriers belonging to the selected PLMN is found.</p> <p>The result format is like command #CSURV.</p> <p>Parameter:</p> <p><plmn> - the desidered PLMN in numeric format</p>
AT#CSURVP=?	Test command returns OK

3.5.7.8.11. PLMN Network Survey (Numeric Format) - #CSURVPC

#CSURVPC - PLMN Network Survey (Numeric Format)	SELINT 2
AT#CSURVPC=<plmn>	<p>Execution command performs a quick network survey through channels. The survey stops as soon as a BCCH carriers belonging to the selected PLMN is found.</p> <p>The result is given in numeric format and is like command #CSURVC.</p> <p>Parameter:</p>



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

3.5.7.9. SIM Toolkit AT Commands

3.5.7.9.1. 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 and GL868-DUAL) 1 - enable SAT without unsolicited indication #STN (default for GE865-QUAD, GE864-DUAL V2, GL865-DUAL and GL868-DUAL) 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> <p>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:</p> <p>#STN: <cmdTerminateValue></p> <p>where:</p> <p><cmdTerminateValue> is defined as <cmdType> + terminate offset; the terminate offset equals 100.</p>



#STIA - SIM Toolkit Interface Activation	SELINT 2
<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: <p style="padding-left: 40px;">#STN: <cmdType></p> <ul style="list-style-type: none"> • 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: <p style="padding-left: 40px;"><i>if <cmdType>=1 (REFRESH)</i></p> <p>an unsolicited notification will be sent to the user:</p> <p style="padding-left: 40px;">#STN: <cmdType>,<refresh type></p> <p>where:</p> <p style="padding-left: 40px;"><refresh type></p> <p style="padding-left: 40px;">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> <div style="border: 1px solid black; padding: 5px;"> <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: right; margin-right: 100px;"> <i>if <cmdType>=17 (SEND SS) if <cmdType>=19 (SEND SHORT MESSAGE) if <cmdType>=20 (SEND DTMF) if <cmdType>=32 (PLAY TONE)</i> </p> <p>an unsolicited notification will be sent if allowed by SIM (see GSM 11.14):</p> <p style="padding-left: 40px;">#STN: <cmdType>[,<text>]</p> <p>where:</p> <p style="padding-left: 40px;"><text> - (optional) text to be displayed to user</p>	



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<p>In these cases neither #STGI nor #STSР commands are required:</p> <ul style="list-style-type: none"> • AT#STGI is accepted anyway. • AT#STSР=<cmdType>,0 will answer OK but do nothing.
	<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:</p> <p><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> - (optional) text to be displayed to user</p>
	<p>In this case:</p> <ol style="list-style-type: none"> 1. if <cmdDetails>/bit8 is 0 neither #STGI nor #STSР commands are required: <ul style="list-style-type: none"> • AT#STGI is accepted anyway. • AT#STSР=<cmdType>,0 will answer OK but do nothing. 2. If <cmdDetails>/bit8 is 1 #STSР command is required <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> <p>where:</p> <p><text> - (optional) text to be displayed to user</p>

In these cases neither #STGI nor #STSР commands are required:



#STIA - SIM Toolkit Interface Activation	SELINT 2
	<ul style="list-style-type: none"> • AT#STGI is accepted anyway. • AT#STSR=<cmdType>,0 will answer OK but do nothing.
	<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> <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.
	<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) - '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> <p>The hexadecimal number is actually a bit mask, where each bit, when set, indicates that the corresponding event has to be monitored (e.g., if <event list mask> is 0x0001, it means that MT call has to be monitored).</p> <p>In these cases neither #STGI nor #STSR commands are required:</p> <ul style="list-style-type: none"> • AT#STGI is accepted anyway.



#STIA - SIM Toolkit Interface Activation	SELINT 2
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- AT#STSRI=<cmdType>,0 will answer OK but do nothing.

All other commands:

the unsolicited indication will report just the proactive command type:

#STN: <cmdType>

Note: if the **call control or SMS control facility in the SIM** is activated, when the customer application makes an outgoing call, or sends an SS or USSD, or an SMS, the following #STN unsolicited indication could be sent, according to GSM 11.14, to indicate whether the outgoing call has been accepted, rejected or modified by the SIM, or if the SMS service centre address or destination has been changed:

#STN: <cmdTerminateValue>,<Result>[,<TextInfo>[,<Number>[,<MODestAddr>]]]

where

<cmdTerminateValue>

150 - SMS control response
160 - call/SS/USSD response

<Result>

0 - Call/SMS not allowed
1 - Call/SMS allowed
2 - Call/SMS allowed with modification

<Number> - Called number, Service Center Address or SS String in ASCII format.

<MODestAddr> - MO destination address in ASCII format.

<TextInfo> - alpha identifier provided by the SIM in ASCII format.

Note: an unsolicited result code

#STN: 254

is sent if the user has indicated the need to end the proactive SIM application session (AT#STSRI=<cmdType>,16 i.e. “proactive SIM application session terminated by the user” according to GSM 11.14).

The TA does not need to respond directly, i.e. AT#STSRI is not required.
It is possible to restart the SAT session from the main menu again with the command **AT#STGI=37**.

Note: The settings are saved on user profile and available on following reboot. SIM Toolkit activation/deactivation is only performed at power on.



#STIA - SIM Toolkit Interface Activation		SELINT 2
	Note: from version 10.0x.xx4 the set command returns ERROR when USIM is enabled (AT#ENAUSIM? returns 1).	
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> <p><state> - the device is in one of the following state: 0 - SIM has not started its application yet 1 - SIM has started its application (SAT main menu ready)</p> <p><mode> - SAT and unsolicited indications enabling status (see above)</p> <p><timeout> - time-out for user responses (see above)</p> <p><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> <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=?	Test command returns the range of available values for the parameters < mode > and < timeout >.	
Note	<p>Just one instance at a time, the one which first issued AT#STIA=n (with n different from zero), is allowed to issue SAT commands, and this is valid till the same instance issues AT#STIA=0.</p> <p>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#STSRI=37,0,x command is issued to select an item in the menu (see #STSRI).</p>	

3.5.7.9.2. SIM Toolkit Get Information - #STGI

#STGI - SIM Toolkit Get Information		SELINT 2
AT#STGI= [<cmdType>]	#STGI set command is used to request the parameters of a proactive command from the ME.	



#STGI - SIM Toolkit Get Information	SELINT 2
<p>Parameter:</p> <p><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> <p>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> <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></p> <p>where:</p> <p><refresh type></p> <p>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> <p style="text-align: center;"><i>if <cmdType>=5 (SET UP EVENT LIST)</i></p> <p>#STGI: <cmdType>,<event list mask></p> <p>where:</p> <p><event list mask> - hexadecimal number representing the list of events to monitor (see GSM 11.14):</p>	



#STGI - SIM Toolkit Get Information	SELINT 2
	<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, indicates that the corresponding event has to be monitored (e.g., if <event list mask> is 0x0001, it means that MT call has to be monitored).</p> <p style="text-align: center;"><i>if <cmdType>=16 (SET UP CALL)</i></p> <p>#STGI: <cmdType>,<commandDetails>,[<confirmationText>],<calledNumber></p> <p>where:</p> <p><commandDetails> - unsigned integer, used as an enumeration</p> <ul style="list-style-type: none"> 0 Set up call, but only if not currently busy on another call 1 Set up call, but only if not currently busy on another call, with redial 2 Set up call, putting all other calls (if any) on hold 3 Set up call, putting all other calls (if any) on hold, with redial 4 Set up call, disconnecting all other calls (if any) 5 Set up call, disconnecting all other calls (if any), with redial <p><confirmationText> - string for user confirmation stage</p> <p><calledNumber> - string containing called number</p> <p style="text-align: center;"><i>if <cmdType>=17 (SEND SS) if <cmdType>=18 (SEND USSD) if <cmdType>=19 (SEND SHORT MESSAGE) if <cmdType>=20 (SEND DTMF) if <cmdType>=32 (PLAY TONE) if <cmdType>=40 (SET UP IDLE MODE TEXT)</i></p> <p>#STGI: <cmdType>[,<text>]</p> <p>where:</p> <p><text> - text to be displayed to user</p>



#STGI - SIM Toolkit Get Information	SELINT 2
	<p align="center"><i>if <cmdType>=33 (DISPLAY TEXT)</i></p> <p>#STGI: <cmdType>,<cmdDetails>[,<text>]</p> <p>where:</p> <p><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 align="center"><i>if <cmdType>=34 (GET INKEY)</i></p> <p>#STGI: <cmdType>,<commandDetails>,<text></p> <p>where:</p> <p><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> <p align="center"><i>if <cmdType>=35 (GET INPUT)</i></p> <p>#STGI: <cmdType>,<commandDetails>,<text>,<responseMin>,</p>



#STGI - SIM Toolkit Get Information	SELINT 2
<p><responseMax>[,<defaultText>]</p> <p>where:</p> <p><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 - 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.</p> <p>bit 4: 0 - User input to be in unpacked format 1 - User input to be in SMS packed format</p> <p>bits 5 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> <p><responseMin> - minimum length of user input 0..255</p> <p><responseMax> - maximum length of user input 0..255</p> <p><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> <p>where:</p> <p><commandDetails> - unsigned Integer used as a bitfield 0..255 - used as a bit field:</p>	



#STGI - SIM Toolkit Get Information	SELINT 2
	<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</p> <p><titleText> - string giving menu title</p> <p><itemId> - item identifier</p> <p>1..<numOfItems></p> <p><itemText> - title of item</p> <p><nextActionId> - the next proactive command type to be issued upon execution of the menu item.</p> <p>0 - no next action information available.</p> <p><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: 0</p> <p>bit 8: 0 - no help information available 1 - help information available</p>



#STGI - SIM Toolkit Get Information	SELINT 2
	<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>Note: upon receiving the #STGI response, the TA must send #STS command (see below) to confirm the execution of the proactive command and provide any required user response, e.g. selected menu item.</p>
AT#STGI?	<p>The read command can be used to request the currently ongoing proactive command and the SAT state in the format</p> <p>#STGI: <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#STGI=?	<p>Test command returns the range for the parameters <state> and <cmdType>.</p>
Note	<p>The unsolicited notification sent to the user:</p> <p>#STN: 37</p> <p>is an indication that the main menu of the SIM Application has been sent to the TA. It will be stored by the TA so that it can be displayed later at any time by issuing an AT#STGI=37 command.</p> <p>A typical SAT session on AT interface starts after an #STN: 37 unsolicited code is received, if enabled. At that point usually an AT#STGI=37 command is issued, and after the SAT main menu has been displayed on TE an AT#STS=37,0,x command is issued to select an item in the menu (see below). The session usually ends with a SIM action like sending an SMS, or starting a call. After this, to restart the session from the beginning going back to SAT main menu it is usually required an AT#STS=37,16 command.</p> <p>The unsolicited notification sent to the user:</p> <p>#STN:237</p> <p>is an indication that the main menu of the SIM Application has been removed from the TA, and it is no longer available. In this case AT#STGI=37 command response will be always ERROR.</p>



#STGI - SIM Toolkit Get Information	SELINT 2
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3.5.7.9.3. SIM Toolkit Send Response - #STSRR

#STSRR - SIM Toolkit Send Response	SELINT 2
AT#STSRR= [<cmdType>, <userResponse> [,<data>]]]	<p>The write command is used to provide to SIM user response to a command and any required user information, e.g. a selected menu item.</p> <p>Parameters:</p> <p><cmdType> - integer type; proactive command ID according to GSM 11.14 (see #STGI)</p> <p><userResponse> - action performed by the user</p> <ul style="list-style-type: none"> 0 - command performed successfully (call accepted in case of call setup) 16 - proactive SIM session terminated by user 17 - backward move in the proactive SIM session requested by the user 18 - no response from user 19 - help information required by the user 20 - USSD/SS Transaction terminated by user 32 - TA currently unable to process command 34 - user has denied SIM call setup request 35 - user cleared down SIM call before connection or network release <p><data> - data entered by user, depending on <cmdType>, only required if <Result> is 0:</p> <p>Get Inkey</p> <p><data> contains the key pressed by the user; used character set should be the one selected with +CSCS.</p> <p>Note: if, as a user response, a binary choice (Yes/No) is requested by the SIM application using bit 3 of the <commandDetails> parameter the valid content of the <inputString> is:</p> <ul style="list-style-type: none"> a) "IRA", "8859-1", "PCCP437" charsets: "Y" or "y" (positive answer) and "N" or "n" (negative answer) b) UCS2 alphabet "0079" or "0059" (positive answer) and "006E" or "004E" (negative answer) <p>Get Input</p> <p><data> - contains the string of characters entered by the user (see above)</p> <p>Select Item</p> <p><data> - contains the item identifier selected by the user</p> <p>Note: Use of icons is not supported. All icon related actions will respond with no icon available.</p>
AT#STSRR?	The read command can be used to request the currently ongoing proactive command and the SAT state in the format



#STSRI - SIM Toolkit Send Response		SELINT 2
#STSRI: <state>,<cmdType> where: <state> - SAT interface state (see #STIA) <cmdType> - ongoing proactive command An error message will be returned if there is no pending command.		
AT#STSRI=?	Test command returns the range for the parameters <state> and <cmdType>.	

3.5.7.9.4. SIM Toolkit terminal Attach - #STTA

#STTA – SIM Toolkit Terminal Attach		SELINT 2
AT#STTA=<state>	This command attaches/detaches the SIM Toolkit application to the AT instance reserved for this use. Parameters: <state>: attached state 0 – SIM Toolkit detaches 1 – SIM Toolkit attaches If SIM Toolkit application has been already attached/detached the command does nothing and returns OK.	
AT#STTA?	Read command reports the current <state> in the format: #STTA: <state>	
AT#STTA=?	Test command reports the supported range of values for parameter <state>	
Note	The AT instance reserved for the SIM Toolkit application is the #3. Issuing AT#STTA=<state> when the AT instance has been already attached to another service (CMUX, SMSATRUN/TCPATRUN, OTA) causes an ERROR result code to be returned.	

3.5.7.10. Jammed Detect & Report AT Commands

3.5.7.10.1. Jammed Detect & Report - #JDR

#JDR - Jammed Detect & Report		SELINT 0 / 1
AT#JDR[= [<mode> [,<MNPL>, <DCMN>]]]	Set command allows to control the Jammed Detect & Report feature. The MODULE can detect if a communication Jammer is active in its range and give indication to the user of this condition either on the serial line with an unsolicited code or on a dedicated GPIO by rising it.	



#JDR - Jammed Detect & Report	SELINT 0 / 1
	<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 style="padding-left: 20px;">GPIO2/JDR Low - Normal Operating Condition</p> <p style="padding-left: 20px;">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 style="margin-left: 40px;">#JDR: <status></p> <p>where:</p> <p><status></p> <p style="padding-left: 20px;">JAMMED - Jammed condition detected</p> <p style="padding-left: 20px;">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> <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 style="margin-left: 40px;">#JDR: <status></p> <p>where:</p> <p><status></p> <p style="padding-left: 20px;">JAMMED - Jammed condition detected</p> <p style="padding-left: 20px;">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><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>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?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format:



#JDR - Jammed Detect & Report		SELINT 0 / 1
AT#JDR=?	#JDR: <mode>,<MNPL>,<DCMN>	Test command reports the supported range of values for the parameters <mode>, <MNPL> and <DCMN>
Example	AT#JDR=2 OK ...jammer enters in the range... #JDR: JAMMED ...jammer exits the range... #JDR: OPERATIVE	
Note		If the device is installed in a particular environment where the default values are not satisfactory the two parameters <MNPL> and <DCMN> permit to adapt the detection to all conditions.

#JDR - Jammed Detect & Report		SELINT 2
AT#JDR=[<mode>,[<MNPL>,<DCMN>]]	<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 <ul style="list-style-type: none"> 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></p> <p>where:</p> <p><status></p> <ul style="list-style-type: none"> JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. <p>3 - enables the Jammed Detect; the MODULE will make both the actions as for <mode>=1 and <mode>=2.</p> <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></p> <p>where:</p> <p><status></p> <ul style="list-style-type: none"> JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be 	



#JDR - Jammed Detect & Report	SELINT 2
	<p>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)</p> <p><DCMN> - Disturbed Channel Minimum Number 0..254 (factory default is 5)</p>
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format:
	#JDR: <mode>,<MNPL>,<DCMN>
AT#JDR=?	Test command reports the supported range of values for the parameters <mode> , <MNPL> and <DCMN>
Example	<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 #JDR: UNKNOWN // default state before 1st PLMN searching OK</pre>
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.



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

3.5.7.11.1. Write Script - #WSCRIPT

#WSCRIPT - Write Script	SELINT 0 / 1
AT#WSCRIPT= <script_name>, <size> [,<hidden>]	<p>Execution command causes the MODULE to store a file in the Easy Script® related NVM, naming it <script_name></p> <p>The file should be sent using RAW ASCII file transfer. It is important to set properly the port settings. In particular:</p> <p>Flow control: hardware. Baud rate: 115200 bps</p>
	<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). 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)</p> <p>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>
AT#WSCRIPT=?	Test command returns OK result code.
Example	AT#WSCRIPT="First.py ",54,0 <i>>>> here receive the prompt: depending on your editor settings it's possible that</i>

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



#WSRIPT - Write Script		SELINT 0 / 1
	<i>the prompt overrides the above line; then type or send the script, sized 54 bytes</i> OK	Script has been stored.
Note		It's recommended to use the extension .py only for textual script files and the extension .pyo only for pre-compiled executable script files.

#WSRIPT - Write Script		SELINT 2
AT#WSRIPT= <script_name>, <size>, [<hidden>]]	<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;"> <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). <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 five character sequence <CR><LF><greater_than><greater_than><greater_than> (IRA 13, 10, 62, 62, 62)</p> <p>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>	



#WSRIPT - Write Script		SELINT 2
AT#WSRIPT=?	Test command returns OK result code.	
Example	AT#WSRIPT="First.py ",54,0 <i>>>> here receive the prompt; then type or send the textual script, sized 54 bytes</i> 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.	

3.5.7.11.2. Select Active Script - #ESCRIP

#ESCRIP - Select Active Script		SELINT 0 / 1
AT#ESCRIP[=<script_name>]]	<p>Set command selects either</p> <ul style="list-style-type: none"> a) the name of the textual script file that will be compiled and executed by the Easy Script® compiler at startup according to last #STARTMODESCR setting, or b) the name of the pre-compiled executable file that will be executed at startup according to last #STARTMODESCR setting. <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 #WSRIPT 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>]	<p>Set command selects either</p> <ul style="list-style-type: none"> c) the name of the textual script file that will be compiled and executed by the Easy Script® compiler at startup according to last #STARTMODESCR 	



#ESCRIT - 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#ESCRIT?	Read command reports as a quoted string the file name of the current script .
AT#ESCRIT=?	Test command returns OK result code.

3.5.7.11.3. Script Execution Start Mode - #STARTMODESCR

#STARTMODESCR - Script Execution Start Mode	SELINT 0 / 1
AT#STARTMODESCR[=] <script_start_mode> $[,<\text{script_start_to}>]$	<p>Set command sets the current script (see #ESCRIT) 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.</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?	Read command reports the current script start mode and the current script start time-out, in the format:	#STARTMODESCR= <script_start_mode>,<script_start_timeout>
AT#STARTMODESCR=?	Test command returns the range of available values for parameters <script_start_mode> and <script_start_timeout> , in the format: #STARTMODESCR: (0-2),(10-60)	

#STARTMODESCR - Script Execution Start Mode		SELINT 2
AT#STARTMODESCR= <script_start_mode> [<script_start_to>]	<p>Set command sets the current script (see #ESCRIT) 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.</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 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>	



#STARTMODESCR - Script Execution Start Mode		SELINT 2
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)	

3.5.7.11.4. Execute Active Script - #EXECSCR

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

3.5.7.11.5. Read Script - #RSCRIPT

#RSCRIPT - Read Script		SELINT 0 / 1
AT#RSCRIPT=<script_name>	Execution command reports the content of file <script_name>. Parameter: <script_name> - file name, string type (max 16 chars, case sensitive). The device shall prompt a three character sequence <less_than><less_than><less_than> (IRA 60, 60, 60) followed by the file content. Note: if the file <script_name> was saved with the hidden attribute, then an empty file is reported with the OK result code. Note: If the file <script_name> is not present an error code is reported.	
AT#RSCRIPT=?	Test command returns OK result code.	



#RSCRIPT - Read Script		SELINT 0 / 1
Example	<pre>AT#RSCRIPT="First.py " hereafter receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then the script is displayed, immediately after the prompt <<<import MDM MDM.send('AT\r',10) Ans=MDM.receive(20) OK</pre>	

#RSCRIPT - Read Script		SELINT 2
AT#RSCRIPT=[<script_name>]	<p>Execution command reports the content of file <script_name>.</p> <p>Parameter:</p> <p><script_name> - file name, string type (max 16 chars, case sensitive).</p> <p>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.</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> <p>Note: If the file <script_name> is not present an error code is reported.</p>	
AT#RSCRIPT=?	Test command returns OK result code.	
Example	<pre>AT#RSCRIPT="First.py " hereafter receive the prompt; then the script is displayed, immediately after the prompt <<<import MDM MDM.send('AT\r',10) Ans=MDM.receive(20) OK</pre>	

3.5.7.11.6. List Script Names - #LSCRIPT

#LSCRIPT - List Script Names		SELINT 0 / 1
AT#LSCRIPT	<p>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:</p> <pre>[#LSCRIPT: <script_name1> <size1>... [<CR><LF><CR><LF>#LSCRIPT: <script_namen> <sizen>]] <CR><LF><CR><LF>#LSCRIPT: free bytes: <free_NVM></pre>	



#LSCRIPT - List Script Names		SELINT 0 / 1
	<p>where:</p> <p><script-namen> - file name, quoted string type (max 16 chars, case sensitive)</p> <p><sizen> - size of script in bytes</p> <p><free_NVM> - size of available NVM memory in bytes</p>	
AT#LSCRIPT?	Read command has the same behavior of Execution command.	

#LSCRIPT - List Script Names		SELINT 2
AT#LSCRIPT	<p>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:</p> <pre>[#LSCRIPT: <script_name1>,<size1>... [<CR><LF>#LSCRIPT: <script_namen>,<sizen>]] <CR><LF>#LSCRIPT: free bytes: <free_NVM></pre> <p>where:</p> <p><script-namen> - file name, quoted string type (max 16 chars, case sensitive)</p> <p><sizen> - size of script in bytes</p> <p><free_NVM> - size of available NVM memory in bytes</p>	
AT#LSCRIPT=?	Test command returns OK result code.	
Example	<pre>AT#LSCRIPT #LSCRIPT: "First.py",51 #LSCRIPT: "Second.py",178 #LSCRIPT: "Third.py",95 #LSCRIPT: free bytes: 20000 OK</pre>	

#LCSCRIPT - List Script Names		SELINT 2
AT#LCSCRIPT	<p>Execution command reports either the list of file names for the files currently stored in the Easy Script® related NVM, adding CRC16 information, and the available free NVM memory in the format:</p> <pre>[#LCSCRIPT: <script_name1>,<size1>[,<crc1>]... [<CR><LF>#LCSCRIPT: <script_namen>,<sizen>[,<crcn>]] <CR><LF>#LCSCRIPT: free bytes: <free_NVM></pre> <p>where:</p> <p><script-namen> - file name, quoted string type (max 16 chars, case sensitive)</p>	



#LCSCRIPT - List Script Names	SELINT 2
	<p><sizen> - 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 CRC16-CCITT $x^{16}+x^{12}+x^5+1$ polynomial (0x1021 representation) 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 #ESCIPT is in use.</p>
AT#LCSCRIPT=<script_name>	<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 CRC16-CCITT $x^{16}+x^{12}+x^5+1$ polynomial (0x1021 representation) 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>
AT#LCSCRIPT=?	<p>Test command returns OK result code.</p>
Example	<pre>AT#LCSCRIPT #LCSCRIPT: "First.py",51,8FD6 #LCSCRIPT: "Second.py",178,A034 #LCSCRIPT: "Third.py",120,7C48 #LCSCRIPT: free bytes: 20000</pre> <p>OK</p> <pre>AT#LCSCRIPT="Second.py" #LCSCRIPT: "Second.py",178,A034</pre> <p>OK</p>



#LCSCRIPT - List Script Names	SELINT 2
	If file Third.py is already in use. AT#LCSCRIPT #LCSCRIPT: "First.py",51,8FD6 #LCSCRIPT: "Second.py",178,A034 #LCSCRIPT: "Third.py",120 #LCSCRIPT: free bytes: 20000 OK

3.5.7.11.7. Delete Script - #DSCRIPT

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

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



3.5.7.11.8. Reboot - #REBOOT

#REBOOT - Reboot		SELINT 0 / 1
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running. 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	
AT#REBOOT?	Read command has the same behaviour of Execution command.	
AT#REBOOT=?	Test command returns OK result code.	
Example	AT#REBOOT OK ... Module Reboots ...	

#REBOOT - Reboot		SELINT 2
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running. 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 Note: AT#REBOOT is an obsolete AT command; please refer to AT#ENHRST to perform a module reboot	
AT#REBOOT=?	Test command returns OK result code.	
Example	AT#REBOOT OK ... Module Reboots ...	

3.5.7.11.9. CMUX Interface Enable - #CMUXSCR

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



#CMUXSCR - CMUX Interface Enable	SELINT 2
	<p>Parameters:</p> <p><enable> - enables/disables CMUX interface at startup. 0 - it disables CMUX interface at startup, before current script execution (factory default) 1 - it enables CMUX interface at startup, before current script execution</p> <p><rate></p> <p>300 1200 2400 4800 9600 19200 38400 57600 115200 (default)</p> <p>If <rate> is omitted the value is unchanged</p> <p><enable> and <rate> values are saved in NVM</p>
AT#CMUXSCR ?	Read command returns the current value of #CMUXSCR parameters in the format: #CMUXSCR: <enable>,<rate>
AT#CMUXSCR =?	Test command reports the range for the parameters <enable> and <rate>



3.5.7.12. GPS AT Commands Set

3.5.7.12.1. GPS Controller Power Management - \$GPSP

\$GPSP - GPS Controller Power Management		SELINT 0 / 1 / 2
AT\$GPSP=<status>	<p>Set command allows to manage power-up or down of the GPS controller</p> <p>Parameter: <status></p> <p>0 - GPS controller is powered down 1 - GPS controller is powered up (default)</p> <p>Note: for the GPS product (GE863-GPS): if the GPS controller is powered down while Vaux pin is enabled they'll both be also powered off.</p> <p>Note: the current setting is stored through \$GPSSAV</p>	
AT\$GPSP?	Read command reports the current value of the <status> parameter, in the format:	
	\$GPSP: <status>	
AT\$GPSP=?	Test command reports the range of supported values for parameter <status>	
Example	AT\$GPSP=0 OK	
Note	The command is available in “controlled mode” only (GE864-GPS)	

3.5.7.12.2. GPS Reset - \$GPSR

\$GPSR - GPS Reset		SELINT 0 / 1 / 2
AT\$GPSR=<reset_type>	<p>Execution command allows to reset the GPS controller.</p> <p>Parameter: <reset_type></p> <p>0 – For GM862-GPS and GE863-GPS: Hardware reset: the GPS receiver is reset and restarts by using the values stored in the internal memory of the GPS receiver.</p> <p>0 – For GE864-GPS: Factory reset: this option clears all GPS memory including clock drift. 1 - Coldstart (No Almanac, No Ephemeris): this option clears all data that is currently stored in the internal memory of the GPS receiver including position, almanac, ephemeris, and time. The stored clock drift however, is retained. It is available in controlled mode only. 2 - Warmstart (No ephemeris): this option clears all initialization data in the GPS receiver and subsequently reloads the data that is currently displayed in the Receiver Initialization Setup screen. The almanac is retained but the ephemeris is cleared. It is available in controlled mode only. 3 - Hotstart (with stored Almanac and Ephemeris): the GPS receiver restarts by using the values stored in the internal memory of the GPS receiver; validated ephemeris and almanac. It is available in controlled mode only.</p>	



\$GPSR - GPS Reset		SELINT 0 / 1 / 2
AT\$GPSR=?	Test command reports the range of supported values for parameter <reset_type>	
Example	AT\$GPSR=0 OK	
Note	The command is available in “controlled mode” only (GE864-GPS) This command must be issued only when the GPS chip is operating in Full Power Mode (see \$GPSPS) otherwise it might have no effect (GE864-GPS)	

3.5.7.12.3. GPS Device Type Set - \$GPSD

\$GPSD - GPS Device Type Set		SELINT 0 / 1 / 2
AT\$GPSD=<device_type>	Set command defines which GPS device is connected to the module. It dedicates the Serial port #1 of the module (TRACE) to receive the GPS strings from the GPS module. Parameter: <device type> 0 - none; the serial port is not connected to GPS device and available for standard use 1 - currently has no meaning, maintained for backward compatibility 2 - serial port connected to GPS serial port: controlled mode (default) 3 - currently has no meaning, maintained for backward compatibility Note: In case of GM862-GPS <device type> has always value 2, if you set any other value it will give ERROR. Note: the current setting is stored through \$GPSSAV	
AT\$GPSD?	Read command reports the current value of <device_type> parameter, in the format:	
	\$GPSD: <device_type>	
AT\$GPSD=?	Test command reports the range of supported values for parameter <device_type>	
Example	AT\$GPSD=0 OK	

3.5.7.12.4. GPS Software Version - \$GPSSW

\$GPSSW - GPS Software Version		SELINT 0 / 1 / 2
AT\$GPSSW	Execution command provides GPS Module software version in the format: \$GPSSW: <sw version>	



\$GPSSW - GPS Software Version		SELINT 0 / 1 / 2
AT\$GPSSW?	Read command has the same meaning as the Execution command	
AT\$GPSSW=?	Test command returns the OK result code	
Example	<p>For GM862-GPS and GE863-GPS:</p> <pre>AT\$GPSSW \$GPSSW: GSW3.1.1_3.1.00.07-C23P1.00 OK</pre> <p>For GE864-GPS:</p> <pre>AT\$GPSSW \$GPSSW: GSD4e_4.0.2-P1 05/26/2010 146 OK</pre>	
Note	<p>The command is available in “controlled mode” only (GE864-GPS)</p> <p>GPS Module software version is available in few seconds at first GPS module startup (GE864-GPS)</p>	

3.5.7.12.5. GPS Antenna Type Definition - \$GPSAT

\$GPSAT – GPS Antenna LNA Control		SELINT 0 / 1 / 2
AT\$GPSAT=<type>	Set command selects the GPS antenna used.	
	<p>For GM862-GPS and GE863-GPS</p> <p>Parameter:</p> <p><type></p> <ul style="list-style-type: none"> 0 - GPS Antenna not power supplied by the module 1 - GPS Antenna power supplied by the module (default) <p>For GE864-GPS</p> <p>Parameter:</p> <p><type></p> <ul style="list-style-type: none"> 0 - Disable External GPS Antenna LNA (default): GPS chip Internal LNA Gain Mode is High and signal is Low GPS_EXT_LNA_EN 1 - Enable External GPS Antenna LNA: GPS chip Internal LNA Gain Mode is Low and signal is High GPS_EXT_LNA_EN <p>Note: if current <type> is 0, either \$GPSSAV and \$GPSAI have no meaning (GM862-GPS and GE863-GPS)</p> <p>Note: the current setting is stored through \$GPSSAV</p>	
AT\$GPSAT?	Read command returns the current value of <type> in the format:	
	\$GPSAT: <type>	
AT\$GPSAT=?	Test command reports the range of supported values for parameter <type>	
Example	AT\$GPSAT=1	



	OK
Note	<p>The command is available in “controlled mode” only (GE864-GPS)</p> <p>This command must be issued only when the GPS module is operating in Full Power Mode (see \$GPSPS) otherwise it might have no effect (GE864-GPS)</p> <p>Please refer to the HW User Guide for the compatible GPS antennas and their usage</p>

3.5.7.12.6. GPS Antenna Supply Voltage Readout - **\$GPSAV**

\$GPSAV - GPS Antenna Supply Voltage Readout		SELINT 0 / 1 / 2
AT\$GPSAV	Execution command returns the measured GPS antenna’s supply voltage in mV	
AT\$GPSAV?	Read command has the same meaning as the Execution command	
AT\$GPSAV=?	Test command returns the OK result code	
Example	AT\$GPSAV \$GPSAV:3800 OK	
Note	It has meaning only if current \$GPSAT setting is not 0	

3.5.7.12.7. GPS Antenna Current Readout - **\$GPSAI**

\$GPSAI - GPS Antenna Current Readout		SELINT 0 / 1 / 2
AT\$GPSAI	Execution command reports the GPS antenna’s current consumption in the format: \$GPSAI:<value>[,<status>]	
	where: <value> - the measured current in mA <status> 0 - GPS antenna OK 1 - GPS antenna consumption out of the limits	
	Note: the output <status> is available only if the antenna protection is activated (see \$GPSAP)	
AT\$GPSAI?	Read command has the same meaning as the Execution command	
AT\$GPSAI=?	Test command returns the OK result code	
Example	AT\$GPSAI? \$GPSAI:040,0 OK	
Note	It has meaning only if current \$GPSAT setting is not 0	



3.5.7.12.8. GPS Antenna Protection - \$GPSAP

\$GPSAP - GPS Antenna Protection		SELINT 0 / 1 / 2
AT\$GPSAP=<set>[,<value>]	<p>Set command allows to activate an automatic protection in case of high current consumption of GPS antenna. The protection disables the GPS antenna supply voltage.</p> <p>Parameters:</p> <p><set></p> <ul style="list-style-type: none"> 0 - deactivate current antenna protection (default) 1 - activate current antenna protection <p><value> - the antenna current limit value in mA</p> <p>0..200</p> <p>The parameter <value> has meaning only if parameter <set>=1, otherwise it is not accepted.</p> <p>Note: the new setting is stored through \$GPSSAV</p>	
AT\$GPSAP?	Read command reports the current activation status of antenna automatic protection and the current antenna limit value, in the format:	
AT\$GPSAP=?	\$GPSAP: <set>,<value>	Test command reports the range of supported values for parameters <set> and <value>
Example	<pre>AT\$GPSAP=0 OK Note : no SW control on antenna status (HW current limitation only) AT\$GPSAP=1,25 OK activate current antenna protection with related current limit AT\$GPSAP? \$GPSAP:1,50 OK Antenna protection activated with 50mA limit</pre>	
Note	The module is already provided of an Hardware protection for the high current consumption that is automatically activated if the consumption exceeds 50mA	

3.5.7.12.9. GPS NMEA Serial Port Speed - \$GPSS

\$GPSS - GPS Serial Port Speed		SELINT 0 / 1 / 2
AT\$GPSS=<speed>	Set command allows to select the speed of the NMEA serial port.	



\$GPSS - GPS Serial Port Speed		SELINT 0 / 1 / 2
	38400 57600	
Note: the new setting is stored through \$GPSSAV		
AT\$GPSS?	Read command returns the current serial ports speed in the format: \$GPSS: <speed>	
AT\$GPSS=?	Test command returns the available range for <speed>	

3.5.7.12.10. Unsolicited NMEA Data Configuration - \$GPSNMUN

\$GPSNMUN - Unsolicited NMEA Data Configuration		SELINT 0 / 1 / 2
AT\$GPSNMUN= <enable> [,<GGA>,<GLL>, <GSA>,<GSV>, <RMC>,<VTG >]	<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:</p> <p><enable></p> <ul style="list-style-type: none"> 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated with the following unsolicited response syntax: \$GPSNMUN:<CR><NMEA SENTENCE><CR> 2 - NMEA data stream activated with the following unsolicited response syntax: <NMEA SENTENCE><CR> 3 - dedicated NMEA data stream; it is not possible to send AT commands; with the escape sequence ‘+++’ the user can return to command mode <p><GGA> - Global Positioning System Fix Data 0 - disable (default) 1 - enable</p> <p><GLL> - Geographical Position - Latitude/Longitude 0 - disable (default) 1 - enable</p> <p><GSA> - GPS DOP and Active Satellites 0 - disable (default) 1 - enable</p> <p><GSV> - GPS Satellites in View 0 - disable (default) 1 - enable</p> <p><RMC> - recommended Minimum Specific GPS Data 0 - disable (default) 1 - enable</p> <p><VTG> - Course Over Ground and Ground Speed 0 - disable (default)</p>	



\$GPSNMUN - Unsolicited NMEA Data Configuration		SELINT 0 / 1 / 2
	1 - enable	
AT\$GPSNMUN?	Read command returns whether the unsolicited GPS NMEA data streaming is currently enabled or not, along with the NMEA sentences availability status, in the format: \$GPSNMUN:<enable>,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG>	
AT\$GPSNMUN=?	Test command returns the supported range of values for parameters <enable>, <GGA>, <GLL>, <GSA>, <GSV>, <RMC>, <VTG>	
Example	<p>AT\$GPSNMUN=1,0,0,1,0,0,0 OK <i>These sets the GSA as available sentence in the unsolicited message</i></p> <p>AT\$GPSNMUN=0 OK <i>Turn-off the unsolicited mode</i></p> <p>AT\$GPSNMUN? \$GPSNMUN: 1,0,0,1,0,0,0 OK <i>Give the current frame selected (GSA)</i></p> <p>The unsolicited message will be: \$GPSNMUN: \$GPGSA,A,3,23,20,24,07,13,04,02,,,,,,2.4,1.6,1.8*3C</p>	
Reference	NMEA 01803 Specifications	
Note	<p><i>The command is available in “Controlled Mode” only</i></p> <p><i>The available NMEA Sentences are depending on the GPS receiver used</i></p> <p><i>In GE863-GPS, GM862-GPS and GE864-GPS the fields PDOP and VDOP are not available</i></p> <p><i>Use NMEA serial port instead if full DOP info are needed (GE863-GPS and GM862-GPS only)</i></p>	

3.5.7.12.11. Get Acquired Position - \$GPSACP

\$GPSACP - Get Acquired Position		SELINT 0 / 1 / 2
AT\$GPSACP	<p>Execution command returns information about the last GPS position in the format:</p> <p>\$GPSACP: <UTC>,<latitude>,<longitude>,<hdop>,<altitude>,<fix>,<cog>,<spkm>,<spkn>,<date>,<nSAT></p> <p>where:</p> <p><UTC> - UTC time (hhmmss.sss) referred to GGA sentence</p> <p><latitude> - format is ddmm.mmmm N/S (referred to GGA sentence) where: dd - degrees</p>	



\$GPSACP - Get Acquired Position		SELINT 0 / 1 / 2
	00..90 mm.mmmm - minutes 00.0000..59.9999 N/S: North / South <longitude> - format is dddmm.mmmm E/W (referred to GGA sentence) where: ddd - degrees 000..180 mm.mmmm - minutes 00.0000..59.9999 E/W: East / West <hdop> - x.x - Horizontal Dilution of Precision (referred to GGA sentence) <altitude> - x.x Altitude - mean-sea-level (geoid) in meters (referred to GGA sentence) <fix> - 0 - Invalid Fix 2 - 2D fix 3 - 3D fix <cog> - ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) where: ddd - degrees 000..360 mm - minutes 00..59 <spkm> - x.x Speed over ground (Km/hr) (referred to VTG sentence) <spkn> - x.x - Speed over ground (knots) (referred to VTG sentence) <date> - ddmmyy Date of Fix (referred to RMC sentence) where: dd - day 01..31 mm - month 01..12 yy - year 00..99 - 2000 to 2099 <nSAT> - nn - Total number of satellites in use (referred to GGA sentence) 00..12	
AT\$GPSACP?	Read command has the same meaning as the Execution command	
AT\$GPSACP=?	Test command returns the OK result code	
Example	AT\$GPSACP \$GPSACP:080220.479,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09 OK	
Note	The command is available in “Controlled Mode” only (GE864-GPS)	



3.5.7.12.12. Direct Access to GPS Module - \$GPSCON

\$GPSCON - Direct Access to GPS Module		SELINT 0 / 1 / 2
AT\$GPSCON	<p>Execution command allows to set the GSM baseband in transparent mode in order to have a direct access to the serial port of the GPS module. The GSM module will transfer directly the received data to the GPS module, without checking or elaborating them.</p> <p>Note: the command is usable only in “controlled mode”.</p> <p>Note: in case of an incoming call from GSM, this will be visible on the RING pin of serial port.</p> <p>Note: the escape sequence is “+++”</p> <p>Note: the Serial Port Speed can be maximum 38400 bps (GM862-GPS and GE863-GPS) The suggested Serial Port Speed for GE864-GPS is 57600</p>	
AT\$GPSCON=?	Test command returns the OK result code	

3.5.7.12.13. Set The GPS Module In Programming Mode - \$GPSPRG

\$GPSPRG - Set The GPS Module In Programming Mode		SELINT 0 / 1 / 2
AT\$GPSPRG	<p>Execution command allows to switch on the GPS part in BOOT mode and set the GSM processor in Transparent Mode, in order to permit the re-programming of the GPS flash memory.</p> <p>Note: the escape sequence is “+++”</p> <p>Note: it is possible to issue \$GPSPRG only if the Serial Port Speed is fixed 38400 bps</p>	
AT\$GPSPRG?	Read command has the same effect as Execution command.	
AT\$GPSPRG=?	Test command returns the OK result code	

3.5.7.12.14. Set The GPS Module In Power Saving Mode - \$GPSPS

\$GPSPS - Set The GPS Module In Power Saving Mode		SELINT 0 / 1
AT\$GPSPS[= <mode> [,<PTF_Period>]]	<p>Set command allows to set the GPS module in Power saving mode.</p> <p>Parameters:</p> <p><mode> - the GPS receiver can operate in three modes</p> <p>0 - full power mode, power saving disabled (default); it is the standard operating mode; power is supplied to the receiver continuously and the GPS receiver continues to operate without an interrupt.</p> <p>1 - tricklepower mode; the power to the SiRF chipset is cycled periodically, so</p>	



\$GPSPS - Set The GPS Module In Power Saving Mode		SELINT 0 / 1
	<p>that it operates only a fraction of the time; power is applied only when a position fix is scheduled.</p> <p>2 - push-to-fix mode; the GPS receiver is generally off, but turns on frequently enough to collect ephemeris data to maintain the GPS1 real-time clock calibration so that, upon user request, a position fix can be provided quickly after power-up.</p> <p><PTF_Period> - push-to-fix period, numeric value in secs; when mode is push-to-fix, the receiver turns on periodically according to this parameter; default value is 1800 sec. This parameter has meaning only when <mode>=2</p> <p>NOTE: with at\$gpsps=2,x, during the push to fix period VAUX is turned off. VAUX can be controlled by AT#VAUX command, too.</p>	
AT\$GPSPS?	Read command returns the current power saving mode and push-to-fix period, in the format:	
	\$GPSPS: <mode>,<PTF_Period>	
AT\$GPSPS	Execution command has the same effect as the Read command	
AT\$GPSPS=?	Test command returns the available range for <mode> and <PTF_Period>	
Note	Available in “controlled mode” only	

\$GPSPS - Set The GPS Module In Power Saving Mode		SELINT 2
AT\$GPSPS=<mode>[,<PTF_Period>]	<p>Set command allows to set the GPS module in Power saving mode.</p> <p>Parameters:</p> <p><mode> - the GPS receiver can operate in three modes (four in GE864-GPS)</p> <p>0 - full power mode, power saving disabled (default); it is the standard operating mode; power is supplied to the receiver continuously and the GPS receiver continues to operate without an interrupt.</p> <p>1 - tricklepower mode; the power to the SiRF chipset is cycled periodically, so that it operates only a fraction of the time; power is applied only when a position fix is scheduled.</p> <p>2 - push-to-fix mode; the GPS receiver is generally off, but turns on frequently enough to collect ephemeris data to maintain the GPS real-time clock calibration so that, upon user request, a position fix can be provided quickly after power-up.</p> <p>3 - micro power mode (GE864-GPS only); a direct transition is requested to the Micro Power Management low power mode as soon as sufficient ephemeris data is available and a valid navigation position solution is calculated at near zero user velocity.</p> <p><PTF_Period> - push-to-fix period, numeric value in secs; when mode is push-to-fix, the receiver turns on periodically according to this parameter; default value is 1800 sec. This parameter has meaning only when <mode>=2</p> <p>NOTE: with at\$gpsps=2,x, during the push to fix period VAUX is turned off. VAUX can be controlled by AT#VAUX command, too (GM862-GPS and GE863-GPS only).</p>	
AT\$GPSPS?	Read command returns the current power saving mode and push-to-fix period, in the format:	



\$GPSPS - Set The GPS Module In Power Saving Mode		SELINT 2
	\$GPSPS: <mode>,<PTF_Period>	
AT\$GPSPS=?	Test command returns the available range for <mode> and <PTF_Period>	
Note	Available in “controlled mode” only	

3.5.7.12.15. Wake Up GPS From Power Saving Mode - \$GPSWK

\$GPSWK - Wake Up GPS From Power Saving Mode		SELINT 0 / 1 / 2
AT\$GPSWK	<p>Execution command allows to wake up the GPS module if set in sleeping mode due to power saving.</p> <p>Note: if the GPS module is in tricklepower mode, it will start up, make the fix and then continue to work in power saving mode.</p> <p>Note: if the GPS module is in push-to-fix mode, issuing \$GPSWK permits to wake up before the push to fix period; after the new fix the GPS module will return in push-to-fix mode with the same parameters.</p> <p>Note: this command turns on the VAUX, so it could interfere with AT#VAUX command (<u>GM862-GPS</u> and <u>GE863-GPS</u> only).</p> <p>Note: if the GPS module is in micro power mode, it will be set to full power mode (same as issuing AT\$GPSPS=0 command). (<u>GE864-GPS</u> only)</p>	
AT\$GPSWK=?	Test command returns the OK result code	
Note	Available in “controlled mode” only	

3.5.7.12.16. Save GPS Parameters Configuration - \$GPSSAV

\$GPSSAV - Save GPS Parameters Configuration		SELINT 0 / 1 / 2
AT\$GPSSAV	Execution command stores the current GPS parameters in the NVM of the device.	
AT\$GPSSAV=?	Test command returns the OK result code	
Example	AT\$GPSSAV OK	
Note	The module must be restarted to use the new configuration	

3.5.7.12.17. Restore To Default GPS Parameters - \$GPSRST

\$GPSRST - Restore To Default GPS Parameters		SELINT 0 / 1 / 2
AT\$GPSRST	Execution command resets the GPS parameters to “Factory Default” configuration	



\$GPSRST - Restore To Default GPS Parameters		SELINT 0 / 1 / 2
	and stores them in the NVM of the device.	
AT\$GPSRST=?	Test command returns the OK result code	
Example	AT\$GPSRST OK	
Note	The module must be restarted to use the new configuration	

3.5.7.12.18. GPS Controller Disabling - \$GPSCMODE

\$GPSCMODE - GPS Controller Disabled at Start-up With Charger Inserted		SELINT 0 / 1 / 2
AT\$GPSCMODE=<n>	<p>Execution command allows to keep off the GSP controller when the module is woken up by charger insertion. The GPS controller can be turned on by AT\$GPSP=1.</p> <p>Parameter: <n> 0 – GPS controller on at start-up (factory default) 1 – GSP controller off at start-up with charger inserted </p>	
AT\$GPSCMODE ?	Read command reports whether GPS controller is enabled or not when the module is turned on by the charger insertion, in the format:	
	\$GPSCMODE : <n>	
AT\$GPSCMODE =?	reports the supported values for <n> parameter..	

3.5.7.13. SAP AT Commands Set

3.5.7.13.1. Remote SIM Enable - #RSEN

#RSEN – Remote SIM Enable		SELINT 2
AT#RSEN=<mode> [,<sapformat> [,<role> [,<muxch> [,<beacon> [,<scriptmode>]]]]]	<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: <mode> 0 - disable 1 - enable <sapformat> 1 - binary SAP (default) <role> 0 - remote SIM Client (default) </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <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>	



#RSEN – Remote SIM Enable	SELINT 2
	<p><muxch> - MUX Channel Number; mandatory if <mode>=1 1..3</p> <p><i>If the ME support the Easy Script Extension® and <scriptmode> is 1</i></p> <p><muxch> - MDM interface number in scripts; mandatory if <mode>=1 1 - MDM interface 2 - MDM2 interface</p> <p><beacon> - retransmition timer of SAP Connection Request 0 - only one transmition (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> <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?	Read command returns the SAP connection status in the format: #RSEN: <conn> where <conn> - connection status, as before
AT#RSEN=?	Test command reports the range of values for all the parameters.



3.5.7.14. 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.

3.5.7.15. Audio Commands

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

3.5.7.15.1. Audio Basic configuration

3.5.7.15.1.1. 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:</p> <p><n> - audio path</p> <p>0 - audio path follows the AXE input (factory default):</p> <ul style="list-style-type: none"> • if AXE is low, handsfree is enabled; • if AXE is high, internal path is enabled <p>1 - enables handsfree external mic/ear audio path</p> <p>2 - enables internal mic/ear audio path</p> <p>Note: The audio path are mutually exclusive, enabling one disables the other.</p> <p>Note: when changing the audio path, the volume level is set at the previously stored value for that audio path (see +CLVL).</p> <p>Note: issuing AT#CAP<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#CAP=<CR> is the same as issuing the command AT#CAP=0<CR>.</p>	
AT#CAP?	Read command reports the active audio path in the format: #CAP: <n>.	
AT#CAP=?	Test command reports the supported values for the parameter <n>.	

#CAP – Change Audio Path		SELINT 2
AT#CAP[=<n>]]	<p>Set command switches the active audio path depending on parameter <n></p> <p>Parameter:</p> <p><n> - audio path</p> <p>0 - audio path follows the AXE input (factory default):</p> <ul style="list-style-type: none"> • if AXE is low, handsfree is enabled; • if AXE is high, internal path is enabled 	



	<p>1 - enables handsfree external mic/ear audio path 2 - enables internal mic/ear audio path</p> <p>Note: The audio path are mutually exclusive, enabling one disables the other.</p> <p>Note: when changing the audio path, the volume level is set at the previously stored value for that audio path (see +CLVL).</p> <p>Note: #CAP=1 is not available for GE865-QUAD despite it is accepted, because GE865-QUAD has only one audio path.</p>
AT#CAP?	Read command reports the active audio path in the format: #CAP: <n> .
AT#CAP=?	Test command reports the supported values for the parameter <n> .

3.5.7.15.1.2. AXE Pin Reading - #AXE

#AXE - AXE Pin Reading		SELINT 2
AT#AXE	Execution command causes the ME to return the current state of AXE pin in the format: #AXE: <state> where: <state> 0 - Low ..1 - High	
AT#AXE=?	Test command returns the OK result code.	
NOTE:	This command is not available for GE865 modules	

3.5.7.15.1.3. Select Ringer Sound - #SRS

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



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

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



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

3.5.7.15.1.4. Select Ringer Path - #SRP

#SRP - Select Ringer Path		SELINT 0 / 1
AT#SRP[=[<n>]]	<p>Set command selects the ringer path towards whom sending ringer sounds and all signalling tones.</p> <p>Parameter:</p> <p><n> - ringer path number</p> <ul style="list-style-type: none"> 0 - sound output towards current selected audio path (see command #CAP) 1 - sound output towards handsfree 2 - sound output towards handset 3 - sound output towards Buzzer Output pin GPIO7 <p>Note: In order to use the Buzzer Output an external circuitry must be added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function); see command #GPIO.</p> <p>Note: issuing AT#SRP<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#SRP=<CR> is the same as issuing the command AT#SRP=0<CR>.</p>	
AT#SRP?	Read command reports the selected ringer path in the format:	
	#SRP: <n>.	
AT#SRP=?	Test command reports the supported values for the parameter <n> .	



#SRP - Select Ringer Path		SELINT 0 / 1
Example	AT#SRP=? #SRP: (0-3) OK AT#SRP=3 OK	

#SRP - Select Ringer Path		SELINT 2
AT#SRP=[<n>]	<p>Set command selects the ringer path towards whom sending ringer sounds and all signalling tones.</p> <p>Parameter:</p> <p><n> - ringer path number</p> <ul style="list-style-type: none"> 0 - sound output towards current selected audio path (see command #CAP) 1 - sound output towards handsfree 2 - sound output towards handset 3 - sound output towards Buzzer Output pin GPIO7 <p>Note: In order to use the Buzzer Output an external circuitry must be added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function); see command #GPIO.</p>	
AT#SRP?	Read command reports the selected ringer path in the format: #SRP: <n>.	
AT#SRP=?	Test command reports the supported values for the parameter <n>.	
Example	AT#SRP=? #SRP: (0-3) OK AT#SRP=3 OK	

3.5.7.15.1.5. Handsfree Microphone Gain - #HFMICG

#HFMICG - Handsfree Microphone Gain		SELINT 0 / 1
AT#HFMICG[=<level>]]	<p>Set command sets the handsfree microphone input gain</p> <p>Parameter:</p> <p><level>: handsfree microphone input gain</p> <p>0..7 - handsfree microphone gain (+6dB/step, factory default = 4)</p> <p>Note: issuing AT#HFMICG<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#HFMICG=<CR> returns the OK result code.</p>	
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format:	



#HFMICG - Handsfree Microphone Gain	SELINT 0 / 1
AT#HFMICG=<level>	
AT#HFMICG=?	Test command returns the supported range of values of parameter <level>.

#HFMICG - Handsfree Microphone Gain	SELINT 2
AT#HFMICG=[<level>]	Set command sets the handsfree microphone input gain Parameter: <level>: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step, factory default = 4)
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format: #HFMICG: <level>
AT#HFMICG=?	Test command returns the supported range of values of parameter <level>.

3.5.7.15.1.6. Handset Microphone Gain - #HSMICG

#HSMICG - Handset Microphone Gain	SELINT 0 / 1
AT#HSMICG=[<level>]	Set command sets the handset microphone input gain Parameter: <level>: handset microphone input gain 0..7 - handset microphone gain (+6dB/step, factory default = 0) Note: issuing AT#HSMICG<CR> is the same as issuing the Read command. Note: issuing AT#HSMICG=<CR> returns the OK result code.
AT#HSMICG?	Read command returns the current handset microphone input gain, in the format: #HSMICG: <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>



#HSMICG - Handset Microphone Gain	SELINT 2
AT#HSMICG=?	Test command returns the supported range of values of parameter <level>.

3.5.7.15.1.7. Handsfree Receiver Gain - #HFRECG

#HFRECG - Handsfree Receiver Gain	SELINT 2
AT#HFRECG=<level>	<p>Set command sets the handsfree analogue output gain</p> <p>Parameter:</p> <p><level>: handsfree analogue output gain 0..6 - handsfree analogue output (-3dB/step, factory default = 0)</p> <p><i>Note: This parameter is saved in NVM issuing AT&W command.</i></p>
AT#HFRECG?	<p>Read command returns the current handsfree analog output gain, in the format:</p> <p>#HFRECG: <level></p>
AT#HFRECG =?	Test command returns the supported range of values of parameter <level>.

3.5.7.15.1.8. Handset Receiver Gain - #HSRECG

#HSRECG - Handset Receiver Gain	SELINT 2
AT#HSRECG=<level>	<p>Set command sets the handset analogue output gain</p> <p>Parameter:</p> <p><level>: handset analogue output gain 0..6 - handset analogue output (-3dB/step, default value = 0)</p> <p><i>Note: This parameter is saved in NVM issuing AT&W command.</i></p>
AT#HSRECG?	<p>Read command returns the current handset analog output gain, in the format:</p> <p>#HSRECG: <level></p>
AT#HSRECG =?	Test command returns the supported range of values of parameter <level>.

3.5.7.15.1.9. Set Headset Sidetone - #SHFSD

#SHFSD - Set Headset Sidetone	SELINT 0 / 1
AT#SHFSD[=<mode>]	<p>Set command enables/disables the sidetone on headset audio output.</p> <p>Parameter:</p> <p><mode></p> <p>0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone.</p>



#SHFSD - Set Headset Sidetone		SELINT 0 / 1
	<p>Note: This setting returns to default after power off.</p> <p>Note: issuing AT#SHFSD<CR> is the same as issuing the Read command.</p> <p>Note: issuing AT#SHFSD=<CR> is the same as issuing the command AT#SHFSD=0<CR>.</p>	
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: #SHFSD: <mode>	
AT#SHFSD=?	Test command returns the supported range of values of parameter <mode>.	

#SHFSD - Set Headset Sidetone		SELINT 2
AT#SHFSD= <mode>	<p>Set command enables/disables the sidetone on headset audio output.</p> <p>Parameter:</p> <p><mode></p> <p>0 - disables the headset sidetone (factory default)</p> <p>1 - enables the headset sidetone.</p>	
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: #SHFSD: <mode>	
AT#SHFSD=?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.15.1.10. Set Handset Sidetone - #SHSSD

#SHSSD - Set Handset Sidetone		SELINT 2
AT#SHSSD= <mode>	<p>Set command enables/disables the sidetone on handset audio output.</p> <p>Parameter:</p> <p><mode></p> <p>0 - disables the handset sidetone</p> <p>1 - enables the handset sidetone (factory default)</p>	
	<i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
AT#SHSSD?	Read command reports whether the handset sidetone is currently enabled or not, in the format: #SHSSD: <mode>	
AT#SHSSD=?	Test command returns the supported range of values of parameter <mode>.	



3.5.7.15.1.11. Speaker Mute Control - #SPKMUT

#SPKMUT - Speaker Mute Control	SELINT 2
AT#SPKMUT=<n>	<p>Set command enables/disables the global muting of the speaker audio line, for every audio output (ring, incoming sms, voice, Network coverage)</p> <p>Parameter: <n> 0 - mute off, speaker active (factory default) 1 - mute on, speaker muted.</p> <p>Note: this command mutes/activates both speaker audio paths, internal speaker and external speaker.</p>
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.

3.5.7.15.1.12. Open Audio Loop - #OAP

#OAP - Open Audio Loop	SELINT 2
AT#OAP=[<mode>]	<p>Set command sets Open Audio Path.</p> <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?	Read command reports whether the Open Audio Path is currently enabled or not, in the format:
#OAP: <mode>	
AT#OAP=?	Test command returns the supported range of values of parameter <mode> .
Note	The audio loop will be established between microphone and speaker using sidetone scaling value.



3.5.7.15.2. Tones configuration

3.5.7.15.2.1. 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?	Read command reports whether the current signaling tones status is enabled or not, in the format:	
#STM: <mode>		
AT#STM=?	Test command reports supported range of values for parameter <mode>.	

#STM - Signaling Tones Mode		SELINT 2
AT#STM= [<mode>]	<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?	Read command reports whether the current signaling tones status is enabled or not, in the format:	
#STM: <mode>		
AT#STM=?	Test command reports supported range of values for parameter <mode>.	



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

3.5.7.15.2.3. Extended tone generation - #TONEEXT

#TONEEXT – Extended tone generation	SELINT 2
AT#TONEEXT=<tonId>,<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> <ul style="list-style-type: none"> <tonId> - ASCII characters in the set (0-9),#,*,(A-D),(G-L),Y,Z ; - (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 <tonId> if running. - 1: Start the <tonId>.
AT#TONEEXT=?	Test command returns the range of supported values for parameter <tonId>,<act>.

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



3.5.7.15.2.4. Tone Classes Volume - #TSVOL

#TSVOL – Tone Classes Volume	SELINT 2
AT#TSVOL= <class>, <mode> [,<volume>]	<p>Set command is used to select the volume mode for one or more tone classes.</p> <p>Parameters:</p> <p><class> - sum of integers each representing a class of tones which the command refers to</p> <ul style="list-style-type: none"> 1 - GSM tones 2 - ringer tones 4 - alarm tones 8 - signalling tones 16 - DTMF tones 32 - SIM Toolkit tones 64 - user defined tones 128 – Dial tones 255 - all classes <p><mode> - it indicates which volume is used for the classes of tones represented by <class></p> <ul style="list-style-type: none"> 0 - default volume is used 1 - the volume <volume> is used <p><volume> - volume to be applied to the set of classes of tones represented by <class>; it is mandatory if <mode> is 1.</p> <p>0..max - the value of <i>max</i> can be read issuing the Test command AT#TSVOL=?</p> <p>Note: The class DTMF Tones (<class>=16) refers only to the volume for locally generated DTMF tones. It doesn't affect the level of the DTMF generated by the network as result of AT+VTS command</p>
AT#TSVOL?	Read command returns for each class of tones the last setting of <mode> and, if <mode> is not 0, of <volume> too, in the format: #TSVOL: 1,<mode1>[,<volume1>]<CR><LF> ... #TSVOL:128,<mode128>[,<volume128>]
AT#TSVOL=?	Test command returns the supported range of values of parameters <class> , <mode> and <volume> .
Example	<pre>AT#TSVOL=64,1,5 OK AT#TSVOL? #TSVOL:1,0 #TSVOL:2,0 #TSVOL:4,1,5 #TSVOL:8,0 #TSVOL:16,1,5</pre>



#TSVOL – Tone Classes Volume		SELINT 2
	<pre>#TSVOL:32,0 #TSVOL:64,1,5 #TSVOL:128,0 OK</pre>	
Note:	<p>GSM Tones:</p> <ul style="list-style-type: none"> BusyToneId CongestionToneId RadioPathToneId CallWaitingToneId <p>Ringer Tone:</p> <ul style="list-style-type: none"> RingingToneMOId RingingToneMTId AutoRedialConnToneId <p>Alarm Tones:</p> <ul style="list-style-type: none"> AlarmToneId BatteryLowToneId SMSToneId MMSToneId PowerOnToneId PowerOffToneId NoUnitsLeftToneId <p>Signaling Tones:</p> <ul style="list-style-type: none"> classzeroToneId NetworkIndToneId NoServiceToneId SignallingErrToneId AutoRedialToneId ErrorToneId CallDroppedToneId <p>DTMF Tones</p> <ul style="list-style-type: none"> Local ADTMF <p>SIM Toolkit Tones</p> <ul style="list-style-type: none"> SIMTDialToneId SIMTBusyToneId SIMTCongestionToneId SIMTRadioPathToneId SIMTCallDroppedToneId SIMTErrorToneId SIMTCallWaitingToneId SIMTRingingToneMTId <p>User Defined Tones:</p> <ul style="list-style-type: none"> Tone defined with AT#UDTSET <p>Dial tones:</p>	



#TSVOL – Tone Classes Volume	SELINT 2
	DialToneId

3.5.7.15.2.5. User Defined Tone SET - #UDTSET command

#UDTSET – User Defined Tone SET	SELINT 2
AT#UDTSET= <tone> ,<F1>,<A1> [,<F2>,<A2> [,<F3>,<A3>]]	<p>Set command sets frequency and amplitude composition for a User Defined Tone.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <toner> - 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 <p>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).</p> <p>Note: issuing AT&F1 or AT&Z has the effect to set the parameters with the last saved in NVM values</p> <p>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.</p>
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 <toner>, <Fi> and <Ai> parameters.



3.5.7.15.2.6. 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	

3.5.7.15.2.7. User Defined Tone Reset - #UDTRST command

#UDTRST – User Defined Tone ReSeT		SELINT 2
AT#UDTRST	Execution command resets to the default set the actual values of frequency and amplitude parameters that can be set with the command #UDTSET.	
AT#UDTRST =?	Test command returns the OK result code.	
Example	AT#UDRST OK The default value tones are restored in NVM	

3.5.7.15.3. Audio profiles

3.5.7.15.3.1. Audio Profile Selection - #PSEL

#PSEL - Audio Profile Selection		SELINT 2
AT#PSEL=<prof>	Set command selects the active audio profile Parameter: <prof>: current profile 0 - standard profile 1..3 - extended profile, modifiable. <i>Note: This parameter is saved in NVM issuing AT&W command.</i>	
AT#PSEL?	The read command returns the active profile in the format: #PSEL:<prof>	
AT#PSEL=?	Test command returns the supported range of values of parameter <prof>.	

3.5.7.15.3.2. Audio Profile Configuration Save - #PSAV



#PSAV - Audio Profile Configuration Save		SELINT 2
AT#PSAV	Execution command saves the actual audio parameters in the NVM of the device. It is not allowed if active audio profile is 0.	
<p>The audio parameters to store are:</p> <ul style="list-style-type: none"> - microphone line gain - earpiece line gain - side tone gain - LMS adaptation speed - LMS filter length (number of coefficients) - speaker to micro signal power relation - noise reduction max attenuation - noise reduction weighting factor (band 300-500Hz) - noise reduction weighting factor (band 500-4000Hz) - AGC Additional attenuation - AGC minimal attenuation - AGC maximal attenuation - Uplink path biquad filters - Downlink path biquad filters 		
AT#PSAV=?	Test command returns the OK result code.	
Example	<pre>AT#PSAV OK <i>Current audio profile is saved in NVM</i></pre>	

3.5.7.15.3.3. 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.	
<p>The audio parameters to reset are:</p> <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.	



#PRST - Audio Profile Factory Configuration		SELINT 2
Example	AT#PRST OK <i>Current audio profile is reset</i>	

3.5.7.15.4. Audio filters

3.5.7.15.4.1. Cascaded filters - #BIQUADIN

#BIQUADIN - Uplink Path Biquad Filters		SELINT 2
AT# BIQUADIN=	<p><a_{F0}> <a_{F1}> <a_{F2}> <b_{F1}> <b_{F2}> <a_{S0}> <a_{S1}> <a_{S2}> <b_{S1}> <b_{S2}>]]]]]]])]</p>	<p>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 not allowed if active audio profile is 0.</p> <p>Parameters: $< a_{Fn} >, < b_{Fn} >, < a_{Sn} >, < b_{Sn} >$ - 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# BIQUADIN?		Read command returns the parameters for the active profile in the format: #BIQUADIN: $< a_{F0} >, < a_{F1} >, < a_{F2} >, < b_{F1} >, < b_{F2} >, < a_{S0} >, < a_{S1} >, < a_{S2} >, < b_{S1} >, < b_{S2} >$ It is not allowed if active audio profile is 0.
AT# BIQUADIN=?		Test command returns the supported range of values for parameters $< a_{F0} >, < a_{F1} >, < a_{F2} >, < b_{F1} >, < b_{F2} >, < a_{S0} >, < a_{S1} >, < a_{S2} >, < b_{S1} >, < b_{S2} >$



3.5.7.15.4.2. Cascaded filters - #BIQUADOUT

#BIQUADOUT - Downlink Path Biquad Filters	SELINT 2
AT# BIQUADOUT= <af0> [,<af1> [,<af2> [,<bf1> [,<bf2> [,<as0> [,<as1> [,<as2> [,<bs1> [,<bs2>]]]]]]]	<p>Set command allows to configure the parameters of the two cascaded digital biquad filters $H_{First}(z) \cdot H_{Second}(z)$ in Downlink path (receiving). It is not allowed if active audio profile is 0.</p> <p>Parameters: <afn>, <bfn>, <asn>, <bsn> - 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 <af1>, <as1>, <bf1> and <bs1></p> <p>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# BIQUADOUT?	Read command returns the parameters for the active profile in the format: # BIQUADOUT: <af0>, <af1>, <af2>, <bf1>, <bf2>, <as0>, <as1>, <as2>, <bs1>, <bs2> It is not allowed if active audio profile is 0.
AT# BIQUADOUT=?	Test command returns the supported range of values for parameters <af0>, <af1>, <af2>, <bf1>, <bf2>, <as0>, <as1>, <as2>, <bs1>, <bs2>

3.5.7.15.4.3. Extended Uplink Biquad Filters - #BIQUADINEX

#BIQUADINEX – Extended Uplink Biquad Filters	SELINT 2
AT#BIQUADINEX= <af0> [,<af1> [,<af2> [,<bf1> [,<bf2> [,<as0>	<p>Set command allows to configure the parameters of the two extended digital biquad filters $H_{First}(z) \cdot H_{Second}(z)$ in Uplink path (sending). It is not allowed if active audio profile is 0.</p> <p>Parameters: <afn>, <bfn>, <asn>, <bsn> - they all are specific parameters for the calculation of digital biquad filters as follows:</p>



<pre>[,<a_{S1}> [,<a_{S2}> [,<b_{S1}> [,<b_{S2}>]]]]]]])]</pre>	$H_F(z) = \frac{a_{F0} + 2 \cdot a_{F1} \cdot z^{-1} + a_{F2} \cdot z^{-2}}{1 + 2 \cdot b_{F1} \cdot z^{-1} + b_{F2} \cdot z^{-2}}$ $H_S(z) = \frac{a_{S0} + 2 \cdot a_{S1} \cdot z^{-1} + a_{S2} \cdot z^{-2}}{1 + 2 \cdot b_{S1} \cdot z^{-1} + b_{S2} \cdot z^{-2}}$ <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#BIQUADINEX?	<p>Read command returns the parameters for the active profile in the format:</p> <p>#BIQUADINEX: $<a_{F0}>,<a_{F1}>,<a_{F2}>,<b_{F1}>,<b_{F2}>,<a_{S0}>,<a_{S1}>,<a_{S2}>,<b_{S1}>,<b_{S2}>$</p> <p>Note: It is not allowed if active audio profile is 0; in this case an ERROR is returned.</p>
AT#BIQUADINEX=?	<p>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}</p>

3.5.7.15.4.4. Extended Downlink Biquad Filters - #BIQUADOUTEX

#BIQUADOUTEX – Extended Downlink Biquad Filters		SELINT 2
<pre>AT#BIQUADOUTEX= <a_{F0}> [,<a_{F1}> [,<a_{F2}> [,<b_{F1}> [,<b_{F2}> [,<a_{S0}> [,<a_{S1}> [,<a_{S2}> [,<b_{S1}> [,<b_{S2}>]]]]]]])]</pre>	<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: $<a_{Fn}>,<b_{Fn}>,<a_{Sn}>,<b_{Sn}>$ - 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 $\langle a_{f1} \rangle$, $\langle a_{s1} \rangle$, $\langle b_{f1} \rangle$ and $\langle b_{s1} \rangle$ 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?	<p>Read command returns the parameters for the active profile in the format:</p> <p>#BIQUADOUTEX:</p> <p>$\langle a_{f0} \rangle, \langle a_{f1} \rangle, \langle a_{f2} \rangle, \langle b_{f1} \rangle, \langle b_{f2} \rangle, \langle a_{s0} \rangle, \langle a_{s1} \rangle, \langle a_{s2} \rangle, \langle b_{s1} \rangle, \langle b_{s2} \rangle$</p> <p>Note: It is not allowed if active audio profile is 0; in this case an ERROR is returned.</p>
AT#BIQUADOUTEX=?	<p>Test command returns the supported range of values for parameters $\langle a_{f0} \rangle$, $\langle a_{f1} \rangle$, $\langle a_{f2} \rangle$, $\langle b_{f1} \rangle$, $\langle b_{f2} \rangle$, $\langle a_{s0} \rangle$, $\langle a_{s1} \rangle$, $\langle a_{s2} \rangle$, $\langle b_{s1} \rangle$, $\langle b_{s2} \rangle$</p>

3.5.7.15.5. Echo canceller configuration

3.5.7.15.5.1. Audio Profile Setting - #PSET



#PSET - Audio Profile Setting		SELINT 2
	<p><min_atten> - AGC minimal attenuation <max_atten> - AGC maximal attenuation</p>	
AT#PSET?	<p>Read command returns the parameters for the active profile in the format:</p> <pre>#PSET:<scal_in>,<scal_out>,<side_tone_atten>,<adaption_speed>,<filter_length>,<rxtxrelation>,<nr_atten>,<nr_w_0>,<nr_w_1>,<add_atten>,<min_atten>,<max_atten></pre> <p>It is not allowed if active audio profile is 0.</p>	
AT#PSET=?	Test command returns the supported range of values for the audio parameters.	

3.5.7.15.5.2. Handsfree Configuration - #HFCFG

#HFCFG – Handsfree Configuration		SELINT 2
AT#HFCFG= <i><agc_rxtx_en>, <agc_rxtx>,<hf_gain></i>	<p>Set command configures AGC threshold for Double Talk detection and digital gain in Uplink.</p> <p>Parameters:</p> <p><agc_rxtx_en></p> <p>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>	
AT#HFCFG?	<p>Read command reports the currently selected parameters in the format:</p> <pre>#HFCFG: <agc_rxtx_en>,<agc_rxtx>,<hf_gain></pre> <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#HFCFG =?	Test command returns the supported range of values for all the parameters.
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3.5.7.15.5.3. TX Noise Injector configuration - #TXCNI

#TXCNI – TX Noise Injector configuration	SELINT 2
AT#TXCNI=<support>,<gain>,<floor>	<p>Set command enables and configures comfort noise injector embedded.</p> <p>Parameters:</p> <p><support></p> <p>0 - disable TXCNI functionality 1 - enable TXCNI functionality</p> <p><gain></p> <p>0..32767 – gain value of noise injected</p> <p><floor></p> <p>0..32767 – floor value of noise injected</p> <p>Note: the value set by command is directly stored in NVM and doesn't depend on the specific CMUX instance.</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

3.5.7.15.5.4. 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:</p> <p><mode></p>



#SHFEC - Handsfree Echo Canceller		SELINT 0 / 1
	<p>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?	Read command reports whether the echo canceller function on audio handsfree output is currently enabled or not, in the format:	
	#SHFEC: <mode>	
AT#SHFEC=?	Test command returns the supported range of values of parameter <mode> .	

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

3.5.7.15.5.5. Handset Echo Canceller - #SHSEC

#SHSEC - Handset Echo Canceller		SELINT 2
AT#SHSEC = <mode>	<p>Set command enables/disables the echo canceller function on audio handset output.</p> <p>Parameter: <mode></p> <p>0 - disables echo canceller for handset mode (default) 1 - enables echo canceller for handset mode</p> <p><i>Note: This parameter is saved in NVM issuing AT&W command.</i></p>	
AT#SHSEC?	Read command reports whether the echo canceller function on audio handset output is currently enabled or not, in the format:	
	#SHSEC: <mode>	



#SHSEC - Handset Echo Canceller		SELINT 2
AT#SHSEC =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.15.5.6. Handsfree Automatic Gain Control - #SHFAGC

#SHFAGC - Handsfree Automatic Gain Control		SELINT 2
AT# SHFAGC = <mode>	Set command enables/disables the automatic gain control function on audio handsfree input. Parameter: <mode> 0 - disables automatic gain control for handsfree mode (default) 1 - enables automatic gain control for handsfree mode	
AT# SHFAGC?	Read command reports whether the automatic gain control function on audio handsfree input is currently enabled or not, in the format: #SHFAGC: <mode>	
AT# SHFAGC =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.15.5.7. Handset Automatic Gain Control - #SHSAGC

#SHSAGC - Handset Automatic Gain Control		SELINT 2
AT#SHSAGC = <mode>	Set command enables/disables the automatic gain control function on audio handset input. Parameter: <mode> 0 - disables automatic gain control for handset mode (default) 1 - enables automatic gain control for handset mode	
AT#SHSAGC?	Read command reports whether the automatic gain control function on audio handset input is currently enabled or not, in the format: #SHSAGC: <mode>	
AT#SHSAGC =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.15.5.8. Handsfree Noise Reduction - #SHFNR



#SHFNR - Handsfree Noise Reduction		SELINT 2
AT#SHFNR = <mode>	<p>Set command enables/disables the noise reduction function on audio handsfree input.</p> <p>Parameter: <mode></p> <p>0 - disables noise reduction for handsfree mode (default) 1 - enables noise reduction for handsfree mode</p>	<i>Note: This parameter is saved in NVM issuing AT&W command.</i>
AT#SHFNR?	Read command reports whether the noise reduction function on audio handsfree input is currently enabled or not, in the format:	#SHFNR: <mode>
AT#SHFNR =?	Test command returns the supported range of values of parameter <mode>.	

3.5.7.15.5.9. Handset Noise Reduction - #SHSNR

#SHSNR - Handset Noise Reduction		SELINT 2
AT# SHSNR = <mode>	<p>Set command enables/disables the noise reduction function on audio handset input.</p> <p>Parameter: <mode></p> <p>0 - disables noise reduction for handset mode (default) 1 - enables noise reduction for handset mode</p>	<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>.	

3.5.7.15.6. Embedded DTMF decoder

3.5.7.15.6.1. Embedded DTMF decoder enabling - #DTMF

#DTMF – Embedded DTMF decoder enabling		SELINT 2
AT#DTMF=<mode>	<p>Set command enables/disables the embedded DTMF decoder.</p> <p>Parameters: <mode>:</p> <p>0 – disable DTMF decoder (default) 1 – enables DTMF decoder</p>	



	<p>2 – enables DTMF decoder without URC notify</p> <p>Note: This functionality has to be enabled only with AT#CPUMODE=1.</p> <p>Note: if <mode>=1, the receiving of a DTMF tone is pointed out with an unsolicited message through AT interface in the following format:</p> <p>#DTMFEV: x with x as the DTMF digit</p> <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.</p> <p>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?	Read command reports the currently selected <mode> in the format: #DTMF: <mode>
AT#DTMF =?	Test command reports supported range of values for all parameters.

3.5.7.15.6.2. Embedded DTMF decoder configuration - #DTMFCFG

#DTMFCFG – Embedded DTMF decoder configuration		SELINT 2
AT#DTMFCFG=<scaling>,<threshold>	<p>Set command allows configuration of the embedded DTMF decoder.</p> <p>Parameters:</p> <p><scaling>: 3..8 – this is the scaling applied to the pcm samples in order to manage arithmetic operations. The default value is 7.</p> <p><threshold>: 1500..9999 – this is the numeric threshold use to detect DTMF tones. The default value is 2500.</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>	



AT#DTMFCFG?	Read command reports the currently selected <scaling>,<threshold> in the format: #DTMFCFG: <scaling>,<threshold>
AT#DTMFCFG=?	Test command reports supported range of values for all parameters.

3.5.7.15.7. Digital Voice Interface

3.5.7.15.7.1. Digital Voiceband Interface - #DVI

#DVI - Digital Voiceband Interface		SELINT 2
AT#DVI=<mode>[,<dviport>,<clockmode>]	<p>Set command enables/disables the Digital Voiceband Interface.</p> <p>Parameters:</p> <p><mode> - enables/disables the DVI.</p> <ul style="list-style-type: none"> 0 - disable DVI; audio is forwarded to the analog line; DVI pins can be used for other purposes, like GPIO, etc. (factory default) 1 - enable DVI; audio is forwarded to the DVI block 2 - enable DVI; audio is forwarded both to the DVI block and to the analog lines (Note: analog input disabled) <p><dviport></p> <ul style="list-style-type: none"> 1 - DVI port 1 will be used (factory default) 2 - DVI port 2 will be used. Not available for GC864-QUAD V2, GC864-DUAL V2, GE864-QUAD Automotive V2, GE864-QUAD ATEX, GE864-QUAD V2, GE864-DUAL V2, GE865-QUAD (see Test Command for availability of this port) <p><clockmode></p> <ul style="list-style-type: none"> 0 - DVI slave 1 - DVI master (factory default) <p>Note: setting <clockmode>=0 has full effect only if <dviport>=1</p> <p>NOTE: DVI slave is available only on port 1</p> <p>NOTE: for further information see “Digital Voice Interface Application Note” (Rev. 2)</p>	
AT#DVI?	Read command reports last setting, in the format:	
	#DVI: <mode>,<dviport>,<clockmode>	
AT#DVI=?	Test command reports the range of supported values for parameters <mode>,<dviport> and <clockmode>	
Example	AT#DVI=2,1,1 OK	<i>Both analog and DVI activated for audio. DVI is configured as master providing on</i>



#DVI - Digital Voiceband Interface	SELINT 2
<i>DVI Port #1</i>	

3.5.7.15.8. Misellaneous commands

3.5.7.15.8.1. 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> <ul style="list-style-type: none"> 1 - reproduce PCM stream from serial to selected path. 2 - send speech from selected path to serial. <p><dir>: Select the audio path.</p> <ul style="list-style-type: none"> 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 <p>Note: Execution command switches module in online mode, with flow control set by &Kr. Module moves back to command mode either after 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" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th align="center">mode = 1</th> <th align="center">mode = 2</th> </tr> </thead> <tbody> <tr> <td align="center">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 align="center">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 align="center">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>		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	SELINT 2
	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											
AT#SPCM=?	Test command returns the supported range of values for parameters												



	<p><mode> and <dir>.</p> <p>#SPCM: <mode>,<dir></p>
Example	<pre>AT#SPCM=1,0 CONNECT +++ NO CARRIER</pre> <p>Note: after the CONNECT, PCM stream has to be sent to serial port</p> <pre>AT#SPCM=2,0 CONNECT +++ NO CARRIER</pre> <p>Note: after the CONNECT, PCM stream can be read from serial port</p>

3.5.7.15.8.2. TeleType Writer - #TTY

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

3.5.7.16. Emergency call and ECall Management

3.5.7.16.1. Dial an emergency call - #EMRGD

#EMRGD – dial an emergency call	SELINT 2
AT#EMRGD[=<par>]	<p>This command initiates an emergency call.</p> <p>Parameters:</p> <p><par>:</p> <ul style="list-style-type: none"> 0 – initiates an emergency call without specifying the Service Category. (default value) 1..31 - sum of integers each representing a specific Emergency Service



	<p>Category:</p> <ul style="list-style-type: none"> 1 - Police 2 - Ambulance 4 - Fire Brigade 8 - Marine Guard 16 - Mountain Rescue <p>32 - Manually Initiated eCall (if eCall is supported – Rel8 feature)</p> <p>64 - Automatically Initiated eCall (if eCall is supported – Rel8 feature)</p> <p>When the emergency call can initiate, an indication of the Service Categories selected is shown before the OK in the following format:</p> <p>#EMRGD: <serv>[,<serv>..[,<serv>]]</p> <p>Where</p> <p><serv></p> <ul style="list-style-type: none"> “Police” “Ambul” “FireBrig” “MarineGuard” “MountRescue” “MleC” “AieC” <p>Example:</p> <pre>AT#EMRGD=17 #EMRGD: "Police"," MountRescue " OK</pre>
AT#EMRGD	The execution command initiates an emergency call without specifying the Service Category.
AT#EMRGD?	<p>The read command reports the emergency numbers received from the network (Rel5 feature) and the associated service categories in the format</p> <pre>[#EMRGD: <num1>[,<par1>,<serv>[,<serv>..[,<serv>]]] [#EMRGD: <numn>[,<parn>,<serv>[,<serv>..[,<serv>]]]]</pre> <p>Where</p> <p><numn></p> <p>Is the emergency number (that can be dialled with ATD command).</p>



	<p><parn></p> <p>1..31 - sum of integers each representing a specific Emergency Service Category:</p> <ul style="list-style-type: none"> 1 - Police 2 - Ambulance 4 - Fire Brigade 8 – Marine Guard 16 - Mountain Rescue <p>32 - Manually Initiated eCall (if eCall is supported – Rel8 feature)</p> <p>64 - Automatically Initiated eCall (if eCall is supported– Rel8 feature)</p> <p>Example:</p> <pre>AT#EMRGD? #EMRGD: 123,2,"Ambul" #EMRGD: 910,5,"Police","FireBrig" OK</pre>
AT#EMRGD=?	<p>Test command reports the supported range of values for parameter <par>.</p> <p>If eCall is supported 0-32,64</p> <p>If eCall is not supported 0-31</p>

3.5.7.16.2. IVS push mode activation - #MSDPUSH

#MSDPUSH – IVS push mode activation		SELINT 2
AT#MSDPUSH	Execution command enables IVS to issue the request for MSD transmission. It reuses downlink signal format to send a initiation message to the PSAP.	
AT#MSDPUSH=?	Test command returns the OK result code.	

3.5.7.16.3. Sending MSD data to IVS - #MSDSEND



#MSDSEND – Sending MSD data to IVS		SELINT 2
AT#MSDSEND	<p>Execution command allows to send 140 bytes of MSD data to the IVS embedded while modem is in command mode.</p> <p>The device responds to the command with the prompt ‘>’ and waits for the MSD 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 140; trying to send more data will cause the surplus to be discarded and lost.</p>	
AT#MSDSEND=?	Test command returns the OK result code.	

3.5.7.16.4. Initiate eCall - +CECALL

+CECALL – Initiate eCall		SELINT 2
AT+CECALL=<type of eCall>	<p>Set command is used to trigger an eCall to the network. Based on the configuration selected, it can be used to either trigger a test call, a reconfiguration call, a manually initiated call or an automatically initiated call.</p> <p>Parameters: <type of eCall></p> <ul style="list-style-type: none"> 0 – test call 1 – reconfiguration call 2 – manually initiated eCall 3 – automatically initiated eCall 	
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> .	



3.5.7.17. SSL Commands

3.5.7.17.1. 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> <ul style="list-style-type: none"> <SSID> - Secure Socket Identifier 1 - Until now SSL block manages only one socket <cid> - PDP Context Identifier. 1 - Until now only context one is supported. <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. <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.) <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). <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>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)



3.5.7.17.2. Opening a socket SSL to a remote server - #SSL

#SSL – Opens a socket SSL to a remote server	SELINT 2
<p>AT#SSL=<SSID>, <rPort>,<IPAddress>, <ClosureType>[, <connMode>[, <Timeout>]]</p> <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 #SSLRECV 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> - string type, address of SSL server</p> <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 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: in online mode the socket is closed after an inactivity period</p>	



	<p>(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>
AT#SSLD=?	<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>

3.5.7.17.3. Enabling a SSL socket - #SSLEN

#SSLEN – Enable a SSL socket	SELINT 2
AT#SSLEN=<SSID>, <Enable>	<p>This command enables a socket secured by SSL</p> <p>Parameters:</p> <p><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</p>



	<p>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>
AT#SSLEN?	<p>Read command reports the currently enable status of secure socket in the format:</p> <pre>#SSLEN: <SSID>,<Enable><CR><LF> <CR><LF> OK</pre>
AT#SSLEN=?	<p>Test command returns the range of supported values for all the parameters:</p> <pre>#SSLEN: (1),(0,1)</pre>

3.5.7.17.4. 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</p>	



	<p>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>
AT#SSLFASTD=?	<p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLFASTD: (1),(0,1),(10-5000)</p>

3.5.7.17.5. 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:</p> <p><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>	



AT#SSLH=?	Test command returns the range of supported values for all the parameters: #SSLH: (1),(0,1)
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3.5.7.17.6. Restoring a SSL socket after a +++ - #SSLO

#SSLO – Restore a SSL socket after a +++		SELINT 2
AT#SSLO=<SSID>	<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:</p> <p><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)	



3.5.7.17.7. Reading data from a SSL socket - #SSLRECV

#SSLRECV – Read data from a SSL socket	SELINT 2
<p>AT#SSLRECV=<SSId>,<MaxNumByte>[,<TimeOut>]</p> <p>This command allows receiving data from a secure socket.</p> <p>Parameters:</p> <ul style="list-style-type: none"> <SSId> - Secure Socket Identifier 1 - Until now SSL block manage only one socket. <MaxNumByte> - max number of bytes to read 1..1000 <Timeout> - time-out in 100 ms units 10..5000 - hundreds of ms (factory default is 100) <p>If no data are received the device responds:</p> <pre>#SSLRECV: 0<CR><LF> TIMEOUT<CR><LF> <CR><LF> OK</pre> <p>If the remote host closes the connection the device responds:</p> <pre>#SSLRECV: 0<CR><LF> DISCONNECTED<CR><LF> <CR><LF> OK</pre> <p>If data are received the device responds:</p> <pre>#SSLRECV: NumByteRead<CR><LF> ...(Data read)... <CR><LF> <CR><LF> OK</pre> <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 established using AT#SSLID.</p>	
AT#SSLRECV=?	Test command returns the range of supported values for all the parameters:



#SSLRECV: (1),(1-1000),(10-5000)

3.5.7.17.8. 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:</p> <p><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>	



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

#SSLSECCFG – Configure security parameters of a SSL socket	SELINT 2
<p>AT#SSLSECCFG= <SSID>, <CipherSuite>, <SecLevel></p> <p>This command allows configuring SSL connection parameters.</p> <p>Parameters:</p> <p><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 - SSL_RSA_WITH_RC4_128_MD5 2 - SSL_RSA_WITH_RC4_128_SHA 3 - TLS_RSA_WITH_AES_256_CBC_SHA</p> <p><SecLevel> 0 - No authentication [default] 1 - Manage server authentication 2 - Manage server and client authentication if requested by the remote server</p> <p>Note: if no authentication 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 handshake 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>	
<p>AT#SSLSECCFG?</p> <p>Read command reports the currently selected parameters in the format:</p> <p>#SSLSECCFG: <SSID1>,<CipherSuite>,<SecLevel></p>	



AT#SSLSECCFG =?	Test command returns the range of supported values for all the parameters. #SSLSECCFG: (1),(0-2),(0-2)
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3.5.7.17.10. 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, CA certificate, 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:</p> <p style="padding-left: 20px;">#SSLSECDATA: <connId>,<DataType></p> <p style="padding-left: 20px;"><DATA></p> <p style="padding-left: 20px;">OK</p>	



	<p>If <DataType> data has not been stored (or it has been deleted) the response has the following format:</p> <p style="padding-left: 40px;">#SSLSECDATA: <connId>,<DataType> No data stored</p> <p style="text-align: center;">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 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#SSLEN 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 style="padding-left: 40px;">#SSLSECDATA: <SSID 1>,<CertIsSet>,<CAcertIsSet>,<PrivKeyIsSet></p> <p style="padding-left: 40px;"><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 style="padding-left: 40px;">#SSLSECDATA: (1),(0-2),(0-2),(1-2047)</p>



3.5.7.17.11. Sending data through a SSL socket - #SSLSEND

#SSLSEND – Send data through a SSL socket	SELINT 2
<p>AT#SSLSEND=<SSId>[,<Timeout >]</p> <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.</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 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>	
<p>AT#SSLSEND=?</p> <p>Test command returns the range of supported values for all the parameters:</p> <p>#SSLSEND: (1),(10-5000)</p>	



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



NMEA	National Marine Electronics Association
NVM	Non Volatile Memory
PCS	Personal Communication Service
PDP	Packet Data Protocol
PDU	Packet Data Unit
PIN	Personal Identification Number
PPP	Point to Point Protocol
PUK	Pin Unblocking Code
RLP	Radio Link Protocol
RMC	Recommended minimum Specific data
RTS	Request To Send
SAP	SIM Access Profile
SCA	Service Center Address
SMS	Short Message Service
SMSC	Short Message Service Center
SMTP	Simple Mail Transport Protocol
TA	Terminal Adapter
TCP	Transmission Control Protocol
TE	Terminal Equipment
UDP	User Datagram Protocol
USSD	Unstructured Supplementary Service Data
UTC	Coordinated Universal Time
VDOP	Vertical dilution of precision
VTG	Course over ground and ground speed
WAAS	Wide Area Augmentation System



5. Document History

Revision	Date	SW release	Changes																					
ISSUE #0	2006-08-04	7.02.01	Initial release																					
ISSUE #1	2006-10-26	7.02.02	<p>3.2.2.1 +CME ERROR: - ME Error Result Code: updated</p> <p>3.2.2.2 +CMS ERROR - Message Service Failure Result Code: updated</p> <p>3.2.6 Factory and user profile: updated</p> <p>-“GPS Commands Set” total update</p> <p>-updated the following commands description under SELINT 0, SELINT 1 and SELINT 2 paragraph: +COPN, +CCFC, +CCWA, +CPIN, +CIND, +CNMI, +COPS, +CMEE, #SKTD, #AUTOATT, +CALA, +CAOC, +CACM, +CAMM, +CPUC, S12</p> <p>-updated under SELINT 0 and SELINT 1 command +CPAS, #FTPOOPEN, \Q, #CSURV, #CSURVC</p> <p>-updated the following commands only under SELINT 2: +CMUX, +CLCC, +CMGL, +CMGR, #LSCRIPT</p> <p>-removed from the AT commands table under SELINT 0 and SELINT 1 the following commands: #CBC and #EMAILMSG</p> <p>-added new commands (for SELINT 2): #EXECSCR, #STARTMODESCR</p>																					
ISSUE #2	2007-03-16	7.02.03	<p>-Revision of the whole document form.</p> <p>-Added new commands: #ENS, +WS46, +CPOL, +PACSP, #SPN, #SLED, #SLEDSAV, #VAUXSAV, #V24CFG, #V24, #AXE, #ACALEXT, #MBN, #MWI, #SPKMUT, multisocket commands, SIM toolkit commands, \$GPSS, \$GPSCON, \$GPSPRG, \$GPSPS, \$GPSWK</p> <p>-3.2.6 Factory and user profile: updated</p> <p>-Removed AT commands for camera and #I2S1</p> <p>-Updated following AT commands: +CNUM, +CPIN, +CPBW, +CPBS, +CLIP, #STGI, #FTPOOPEN, \$GPSACP,</p>																					
ISSUE #3	2007-08-10		Update list of products to which this document can be applied																					
ISSUE #4	2007-11-19	7.02.04	<p>Added new commands: #CEER, #SMSMODE, #Z, #TEMPMON, #HFRECG, #HSRECG, #PRST, #PSEL, #PSAV, #PSET, #SHFAGC, #SHFNR, #SHSAGC, #SHSEC, #SHSNR, #SHSSD, #GSMAD, #CSURVP, #CSURVPC</p> <p>Added: 3.5.7.12 Telefonica OpenGate M2M AT Commands Set</p>																					
ISSUE #5	2008-07-09	7.02.05 / 7.03.00	<p>modified description of AT#SD and AT#SL, ...</p> <table border="1"> <tr> <td colspan="3">New commands</td> </tr> <tr> <td>+CGEREP</td> <td>#TSVOL</td> <td>#REGMODE</td> </tr> <tr> <td>#TXMONMODE</td> <td>#SIMDET</td> <td>#ENHSIM</td> </tr> <tr> <td>#TTY</td> <td>#CPUMODE</td> <td>#GSMCONT</td> </tr> <tr> <td>#CGPADDR</td> <td>#NWSCANTMR</td> <td>#OSC32KHZ</td> </tr> <tr> <td>#CACHEDNS</td> <td>#DNS</td> <td>#ICMP</td> </tr> <tr> <td>#TCPMAXDAT</td> <td>#TCPREASS</td> <td></td> </tr> </table>	New commands			+CGEREP	#TSVOL	#REGMODE	#TXMONMODE	#SIMDET	#ENHSIM	#TTY	#CPUMODE	#GSMCONT	#CGPADDR	#NWSCANTMR	#OSC32KHZ	#CACHEDNS	#DNS	#ICMP	#TCPMAXDAT	#TCPREASS	
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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, #TCPATRUNAUTH, #TCPATRUND, #TCPATRUNCLOSE, #TCPATRUNCMDSEQ, #TCPATCONSER, #ATRUNDELAY, #ENAEVMONI, #ENAEVMONICFG, #FASTCCID, #FTPAPP, #FTPPSIZE, #FTPGET, #FTPGETPKT, #FTPPUT, #FTPRECV, #FTPREST, #GPIO, #GPPPCFG, #GSMAD, #GSMCONT, #HFMICG, #HFRECG, #HSMICG, #HSRECG, #I2CWR, #I2CRD, #JDR, #LCSCRIPT, #MONI, #NITZ, #OAP, #OTASNAP, #OTASUAN, #CMGS, #CMGW, #PING, #PSMRI, #QSS, #REBOOT, #SA, #SCFG, #SCFGEXT, #SD, #SERVINFO, #SGACTAUTH, #SGACTCFG, #SIMDET, #SKTD, #SKTL, #SL, #/, #SLUDP, #SMOV, #SPCM, #SRECV, #SS, #SEND, #STARTMODESCR, #SWLEVEL, #TEMPPMON, #TONEEXT, #TSVOL, #VAUX, #V24MODE, #V24CFG, #Z, \$GPSACP, \$GPSAP, \$GPSCON, \$GPSPS, \$GPSWK, +CCLK, +CEER, +CFUN, +CGPADDR, +CGSMS, +CMGD, +CMGW, +CNMI, +CPBS, +CSMP, +DS, +VTS, SO. - 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, #SSENDEXT, +CMAR - New commands added for SW 10.0.2: #PADFWD, #PADCMD; new parameters for CFUN: CFUN=1,1 - Updated Timeout Table par. 3.2.4 - Removed note 18 - Updated Table Factory Profile and User Profile par. 3.3.1 - Deleted commands: &G, &Q - Updated commands: #JDR, #FTPDELETE, +CNMI, #CMGW, #OTASUAN, #I2CWR, #I2CRD, #ATS38, #GSMAD, +CFUN, &D, #E2ESC, #TXMONMODE, #SNUM, #STIA, #FTPPSIZE, #COPSMODE, # SCFGEXT, #SCFGEXT2, #SD, #SELINT, #ADC, #DVI, #EMAILD, #EVMONI, #GPPPCFG, #MSCLASS, #SEMAIL, #SPCM, #SWLEVEL, #TONEEXT, #UDTSET, +CMER, #E2ESC, #SLUDP, #SIMATR
ISSUE#8	2010-07-26	SW 7.03.02 /	<ul style="list-style-type: none"> - Updated commands: #SCFGEXT2, S38, #SEMAIL, #EMAILD,



		7.02.07 SW 10.0.3	<ul style="list-style-type: none"> #CSURVF, +CMAR, #CCLK, +CMGL, +CFUN, #FTPOOPEN, #OTASNAP, #OTASUAN, #AUTOBND, #STIA, #STGI, +CLCC, +CNMI, +CPMS, +CSAS, #PLMNMODE, #SMSMODE, #REGMODE, #AUTOBND, #ENHSIM, #SWLEVEL, #NITZ, #STIA, #JDR, #TSVOL - New commands added for SW 10.0.3: +CPLS, +CGCMOD, #STTA, #CMEEMODE, #SGACTCFGEXT, #BASE64, #CEERNET, #ENHRST, #SII, #OTASETRI - Updated references specification from 07.05, 07.07, 03.40 to 27.005, 27.007, 23.040, etc
ISSUE#9	2010-10-04	SW 10.0.4	<ul style="list-style-type: none"> - Added GL865-DUAL to the applicability table and the matrix
ISSUE#10		SW 7.03.02 / 7.02.07	<ul style="list-style-type: none"> - New commands added for SW 10.0.4: #MSDPUSH, #MSDSEND, +CECALL, #SYSHALT, #SIMINCFG, #EMRGD, #BIQUADINEX, #BIQUADOUTEX, #TXCNI, #DTMF, #DTMFCFG, #OTAIPCFG, #OTAIPUPD, #OTASNAPIP, #OTASNAPIPCFG, #HFCFG, #SMTPCL
		SW 10.0.4	<ul style="list-style-type: none"> - Modified par 3.3.1 and 3.2.4 - Edited #DNS command description - Updated tab at 3.5.2.1 - Reorganized the matrix
ISSUE #11	2011-07-12	SW 7.03.03 / 7.02.08	<ul style="list-style-type: none"> - Modified commands: #CAP, #CSURV, #CSURVC, #EVMONI, #FTPGETPKT, #QDNS, #DTMF, \$GPSACP, \$GPSAT, \$GPSCON, \$GPSNMUN, \$GPSP, \$GPSPS, \$GPSR, \$GPSSW, \$GPSWK - New commands: #ALARMPIN, #CFF, #SSENDUDP, #SSENDUDPEXT, #ST
		SW 10.0.5	<ul style="list-style-type: none"> - New paragraph added “SSL commands” 3.5.7.17 : #SSLCFG, #SSLD, #SSLLEN, #SSLFASTD, #SSLH, #SSLO, #SSLRECV, #SSLS, #SSLSECCFG, #SSLSECDATA, #SSLSEND
ISSUE #12	2011-09-09	SW 7.03.03 / 7.02.08	<ul style="list-style-type: none"> - Updated #SIMDET, #JDR, #NITZ, #PLMNMODE, #REGMODE, #SERVINFO, #SMSMODE, #SSLSECDATA, #STIA, #SWLEVEL, #TEMPMON, +CGREG, +CSSN - Edited par 3.4 Command Availability Table
		SW 10.0.5	
ISSUE #13	2012-03-20	SW 7.03.03 / 7.02.08	<ul style="list-style-type: none"> - Added GE910-QUAD in the availability table. - Specified 13.00.000 parameter in AT#CODEC command description (SELINT=2)
		SW 10.0.5	
		SW 13.00.000	

