AT Commands Reference Guide

GM862-QUAD, GM862-QUAD-PY, GE862-GPS, GE863-QUAD, GE863-PY, GE863-GPS, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY

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Making machines talk.

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1 INTRODUCTION

1.1 Scope Of Document

To describe all AT commands implemented on the following Telit wireless modules:

Model	P/N
GM862-QUAD-PY	3990250656
GM862-QUAD	3990250655
GE863-QUAD	3990250653
GE863-PY	3990250654
GM862-QUAD-PY	3990250658
GM862-QUAD	3990250659
GM862-GPS	3990250657
GE863-QUAD	3990250662
GE863-PY	3990250661
GE863-GPS	3990250660
GE864-QUAD	3990250648
GE864-PY	3990250650
GC864-QUAD	3990250675
GC864-PY	3990250676

NOTE: This document is strictly referred to the above products. It's highly recommended to double check the P/N of your GM862 or GM863 product, before any association to this document, since there are differences between P/N (es. additional functions like CMUX and SAP).

2 APPLICABLE DOCUMENTS

a) ETSI GSM 07.07 specification and rules
b) ETSI GSM 07.05 specification and rules
c) Hayes standard AT command set

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3 AT COMMAND

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

1. Hayes standard AT command set, in order to maintain the compatibility with existing SW programs.
2. ETSI GSM 07.07 specific AT command and GPRS specific commands.
3. ETSI GSM 07.05 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.
In the following is described 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.

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3.2 AT Command Syntax

The syntax rules followed by Telit implementation of either Hayes AT commands, GSM commands and FAX commands are very similar to those of standard basic and extended AT commands. A special command (**#SELINT**, see §3.3.1) 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 §3.3.1)*
    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 §3.3.1)*
    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)*

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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 enclosed between quotes is 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/**".
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

[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**

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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 +CME ERROR: - ME Error Result Code

This is NOT a command, it is the error response to +**Cxxx GSM 07.07** commands.
Syntax: **AT+CME ERROR:<err>**
Parameter: **<err>** - error code can be either numeric or verbose.The possible values of <err> are reported in the table:

Numeric Format	Verbose Format
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

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Numeric Format	Verbose Format
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 timeout
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
Easy CAMERA® related errors:	
50	Camera not found
51	Camera Initialization Error
52	Camera not Supported
53	No Photo Taken
54	NET BUSY...Camera TimeOut
55	Camera Error
General purpose error:	
100	unknown
GPRS related errors to a failure to perform an Attach:	
103	Illegal MS (#3)*
106	Illegal ME (#6)*
107	GPRS service not allowed (#7)*
111	PLMN not allowed (#11)*
112	Location area not allowed (#12)*
113	Roaming not allowed in this location area (#13)*
GPRS related errors to a failure to Activate a Context and others:	
132	service option not supported (#32)*
133	requested service option not subscribed (#33)*
134	service option temporarily out of order (#34)*
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
Network survey errors:	
257	Network survey error (No Carrier)*
258	Network survey error (Busy)*
259	Network survey error (Wrong request)*
260	Network survey error (Aborted)*
Easy GPRS® related errors:	
400	generic undocumented error
401	wrong state
402	wrong mode
403	context already activated
404	stack already active

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Numeric Format	Verbose Format
405	activation failed
406	context not opened
407	cannot setup socket
408	cannot resolve DN
409	timeout in opening socket
410	cannot open socket
411	remote disconnected or timeout
412	connection failed
413	tx error
414	already listening
FTP related errors:	
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

*(values in parentheses are GSM 04.08 cause codes)

3.2.2.2 +CMS ERROR - Message Service Failure Result Code

This is NOT a command, it is the error response to +Cxxx GSM 07.05 commands
Syntax: AT+CMS ERROR:<err>
Parameter: <err> - error code can be either numeric or verbose. The <err> values are reported in the table:

Numeric Format	Verbose Format
0...127	GSM 04.11 Annex E-2 values
128...255	GSM 03.40 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

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315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network service
332	network timeout
340	no +CNMA acknowledgement expected
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 code*s that inform about progress of TA operation (e.g. connection establishment **CONNECT**)
- *result code*s 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
2	RING
3	NO CARRIER
4	ERROR
6	NO DIALTONE
7	BUSY
8	NO ANSWER

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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 from command to command and may depend also from the network on which the command may interact. As a result every command is provided with a proper timeout time, if this time elapses without any result from the operation, then an **ERROR** response can be reported as if the operation was not successful and the operation is anyway terminated.

The timeout time is quite short for commands that imply only internal set up commands, but may be very long for command that interact with the network (or even a set of Networks).
The default timeout is **100 ms** for all the commands that have no interaction with the network or upper software layers.
In the table below are listed all the commands whose timeout differs from the default **100 ms** and their effective timeout is reported:

Command	Time-Out (Seconds)
+CBST	0.2
+CR	0.2
+CRC	0.2
+CRLP	0.2
+CSCS	0.2
+CEER	5
+CGMI	5
+CGMM	5
+CGMR	5
+CGSN	20
+CIMI	20
+CNUM	20
+CREG	5
+COPS	180
+CLCK	180
@CLCK	180
+CPWD	180
+CLIP	180
+CLIR	180
+CCFC	180
+CCWA	20
+CHLD	20
+CUSD	180
+CAOC	20
+CSSN	20
+CLCC	20
+CPAS	5
+CPIN	20
+CSQ	5
+CPBS	5

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Command	Time-Out (Seconds)
+CPBR	20
+CPBF	20
+CPBW	20
+CALM	5
+CRSL	5
+CLVL	5
+CMUT	5
+CACM	20
+CAMM	20
+CPUC	20
+CMEE	5
+VTS	20
+GMI	5
+GMM	5
+GMR	5
+GSN	20
I3	5
I4	5
I5	5
+CSMS	5
+CPMS	5
+CMGF	5
+CSCA	20
+CSMP	5
+CSDH	5
+CSAS	5
+CRES	5
+CNMI	5
+CMGS	180 / 5 for prompt”>”
+CMSS	180
+CMGW	5 / 5 for prompt”>”
+CMGD	5
+CMGR	5
+CMGL	5
#CAP	10
#SRS	10
#SRP	10
#STM	10
#PCT	10
#SHDN	10
#QTEMP	10
#SGPO	10
#GGPI	10
#MONI	10
#CGMI	5

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Command	Time-Out (Seconds)
#CGMM	5
#CGMR	5
#CGSN	20
#CIMI	5
+CGACT	180
+CGATT	180
+CGDATA	20
+CGDCONT	20
+CGPADDR	20
+CGQMIN	20
+CGQREQ	20

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.

3.2.6 Factory Profile And User Profiles

The Telit wireless modules stores the values set by several commands as **profiles** in the internal non volatile memory (NVM), allowing to remember this setting even after power off.

There are **two user customizable 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 start-up. **&Y** instructs the device to load at start-up only the **base section**. **&P** instructs the device to load at start-up 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.

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The values set by some other particular commands are stored in NVM outside the profile, either without any **&W**/**&Y**/**&P**/**&F** issues, or through custom commands **#SKTSAV** and **#ESAV**; they have only one saved value, always restored at start-up.

The values set by following commands are stored in the profile base section:

GSM DATA MODE:	+CBST
AUTOBAUD:	+IPR
COMMAND ECHO:	E
RESULT MESSAGES:	Q
VERBOSE MESSAGES:	V
EXTENDED MESSAGES:	X
FLOW CONTROL OPTIONS:	&K, +IFC
CTS (C106) OPTIONS:	&B
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;S1;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:

+CRC,	+FCLASS,	+DR,
+ILRR,	+CR,	+CSNS,
+CRLP,	+CNMI,	+CMEE,
+CSMP,	+CSDH,	+CSCB,
+CSSN,	+CUSD,	+CALM,
+CRSL,	+CMUT,	+CAOC,
+CREG,	+CLIP,	+CLIR,
+CMGF,	+CCWA,	+CLVL,
#QSS,	#ACAL,	#SMOV,
#CAP,	#HFMICG,	#HSMICG,
#CODEC	#SHFEC,	#SRS,
#STM,	#SHFSD,	#SRP
#NITZ,	#SKIPESC	#I2S1

The values set by following commands are always stored in NVM, independently from the profile (unique values):

#SELINT,		
+COPS,	+CGCLASS,	+CGDCONT,
+CGQMIN,	+CGQREQ,	
#BND,	#COPSMODE,	#DIALMODE

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

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

saved with #SKTSAV command and reset with #SKTRST command.

#ESMTP,	#EADDR,	#EUSER,
#EPASSW		

saved with #ESAV command and reset with #ERST command.

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3.2.7 AT Command Availability Table

The following table show the AT command set and the applicability/backward compatibility matrix on the Telit wireless module family.

COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
Backward Compatibility												
#SELINT	•	•	•	•	•	•	•	•	Select Interface Style	25	25	25
Repeating A Command Line												
A/	•	•	•	•	•	•	•	•	Last Command Automatic Repetition	26	26	26
Hayes AT Commands - Generic Modem Control												
&F	•	•	•	•	•	•	•	•	Set To Factory-Defined Configuration	27	228	427
Z	•	•	•	•	•	•	•	•	Soft Reset	27	228	427
+FCLASS	•	•	•	•	•	•	•	•	Select Active Service Class	28	229	428
&Y	•	•	•	•	•	•	•	•	Designate A Default Reset Basic Profile	28	229	428
&P	•	•	•	•	•	•	•	•	Designate A Default Reset Full Profile	29	229	428
&W	•	•	•	•	•	•	•	•	Store Current Configuration	29	230	429
&Z	•	•	•	•	•	•	•	•	Store Telephone Number In The Module Internal Phonebook	29	230	429
&N	•	•	•	•	•	•	•	•	Display Internal Phonebook Stored Numbers	30	231	430
+GMI	•	•	•	•	•	•	•	•	Manufacturer Identification	30	231	430
+GMM	•	•	•	•	•	•	•	•	Model Identification	30	231	430
+GMR	•	•	•	•	•	•	•	•	Revision Identification	30	231	430
+GCAP	•	•	•	•	•	•	•	•	Capabilities List	31	231	430
+GSN	•	•	•	•	•	•	•	•	Serial Number	31	232	431
&V	•	•	•	•	•	•	•	•	Display Current Configuration & Profile	31	232	431
&V0	•	•	•	•	•	•	•	•	Display Current Configuration & Profile	31	232	431
&V1	•	•	•	•	•	•	•	•	Display S Registers Values	32	232	431
&V3	•	•	•	•	•	•	•	•	Display S Registers Values	32	233	432
&V2	•	•	•	•	•	•	•	•	Display Last Connection Statistics	32	233	432
\V	•	•	•	•	•	•	•	•	Single Line Connect Message	32	233	432
+GCI	•	•	•	•	•	•	•	•	Country Of Installation	33	233	432
%L	•	•	•	•	•	•	•	•	Line Signal Level	33	234	433
%Q	•	•	•	•	•	•	•	•	Line Quality	33	234	433
L	•	•	•	•	•	•	•	•	Speaker Loudness	33	234	433
M	•	•	•	•	•	•	•	•	Speaker Mode	33	234	433
Hayes AT Commands - DTE-Modem Interface Control												
E	•	•	•	•	•	•	•	•	Command Echo	34	235	434
Q	•	•	•	•	•	•	•	•	Quiet Result Codes	34	235	434
V	•	•	•	•	•	•	•	•	Response Format	35	236	435
X	•	•	•	•	•	•	•	•	Extended Result Codes	35	236	435
I	•	•	•	•	•	•	•	•	Identification Information	36	237	436
&C	•	•	•	•	•	•	•	•	Data Carrier Detect (DCD) Control	36	237	436
&D	•	•	•	•	•	•	•	•	Data Terminal Ready (DTR) Control	37	238	437
\Q	•	•	•	•	•	•	•	•	Standard Flow Control	37	238	437
&K	•	•	•	•	•	•	•	•	Flow Control	37	239	438
&S	•	•	•	•	•	•	•	•	Data Set Ready (DSR) Control	38	239	438
\R	•	•	•	•	•	•	•	•	Ring (RI) Control	39	240	438
+IPR	•	•	•	•	•	•	•	•	Fixed DTE Interface Rate	39	240	439
+IFC	•	•	•	•	•	•	•	•	DTE-Modem Local Flow Control	40	241	440
+ILRR	•	•	•	•	•	•	•	•	DTE-Modem Local Rate Reporting	40	241	442
+ICF	•	•	•	•	•	•	•	•	DTE-Modem Character Framing	40	242	444

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COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
Hayes AT Commands - Call Control												
D	•	•	•	•	•	•	•	•	Dial	42	243	444
T	•	•	•	•	•	•	•	•	Tone Dial	44	245	444
P	•	•	•	•	•	•	•	•	Pulse Dial	44	245	444
A	•	•	•	•	•	•	•	•	Answer	44	245	445
H	•	•	•	•	•	•	•	•	Disconnect	45	246	445
O	•	•	•	•	•	•	•	•	Return To On Line Mode	45	246	445
&G	•	•	•	•	•	•	•	•	Guard Tone	45	246	442
&Q	•	•	•	•	•	•	•	•	Sync/Async Mode	45	246	444
Hayes AT Commands - Modulation Control												
+MS	•	•	•	•	•	•	•	•	Modulation Selection	46	247	446
%E	•	•	•	•	•	•	•	•	Line Quality Monitor And Auto Retrain Or Fallback/Fallforward	46	247	446
Hayes AT Commands - Compression Control												
+DS	•	•	•	•	•	•	•	•	Data Compression	47	248	447
+DR	•	•	•	•	•	•	•	•	Data Compression Reporting	47	248	447
Hayes AT Commands - Break Control												
\B	•	•	•	•	•	•	•	•	Transmit Break To Remote	48	249	448
\K	•	•	•	•	•	•	•	•	Break Handling	48	249	448
\N	•	•	•	•	•	•	•	•	Operating Mode	48	249	448
Hayes AT Commands - S Parameters												
S0	•	•	•	•	•	•	•	•	Number Of Rings To Auto Answer	49	250	449
S1	•	•	•	•	•	•	•	•	Ring Counter	50	251	449
S2	•	•	•	•	•	•	•	•	Escape Character	50	251	450
S3	•	•	•	•	•	•	•	•	Command Line Termination Character	50	251	450
S4	•	•	•	•	•	•	•	•	Response Formatting Character	51	252	450
S5	•	•	•	•	•	•	•	•	Command Line Editing Character	51	252	451
S7	•	•	•	•	•	•	•	•	Connection Completion Time-Out	52	253	451
S12	•	•	•	•	•	•	•	•	Escape Prompt Delay	52	253	452
S25	•	•	•	•	•	•	•	•	Delay To DTR Off	52	253	452
S30	•	•	•	•	•	•	•	•	Disconnect Inactivity Timer	53	254	452
S38	•	•	•	•	•	•	•	•	Delay Before Forced Hang Up	53	254	453
ETSI GSM 07.07 - General												
+CGMI	•	•	•	•	•	•	•	•	Request Manufacturer Identification	55	255	454
+CGMM	•	•	•	•	•	•	•	•	Request Model Identification	55	255	454
+CGMR	•	•	•	•	•	•	•	•	Request Revision Identification	55	255	454
+CGSN	•	•	•	•	•	•	•	•	Request Product Serial Number Identification	55	255	454
+CSCS	•	•	•	•	•	•	•	•	Select TE Character Set	56	256	455
+CIMI	•	•	•	•	•	•	•	•	Request International Mobile Subscriber Identity (IMSI)	56	256	455
+CMUX	•	•	•	•	•	•	•	•	Multiplexing Mode	NA[3]	NA	455
ETSI GSM 07.07 - Call Control												
+CHUP	•	•	•	•	•	•	•	•	Hang Up Call	57	257	457
+CBST	•	•	•	•	•	•	•	•	Select Bearer Service Type	57	257	457
+CRLP	•	•	•	•	•	•	•	•	Radio Link Protocol	58	258	458
+CR	•	•	•	•	•	•	•	•	Service Reporting Control	59	259	458
+CEER	•	•	•	•	•	•	•	•	Extended Error Report	59	259	459
+CRC	•	•	•	•	•	•	•	•	Cellular Result Codes	60	260	460
+CSNS	•	•	•	•	•	•	•	•	Single Numbering Scheme	61	261	460
+CVHU	•	•	•	•	•	•	•	•	Voice Hang Up Control	61	261	461
ETSI GSM 07.07 - Network Service Handling												
+CNUM	•	•	•	•	•	•	•	•	Subscriber Number	62	262	462
+COPN	•	•	•	•	•	•	•	•	Read Operator Names	62	262	462

[3] NA: Not Available

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COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
+CREG	•	•	•	•	•	•	•	•	Network Registration Report	62	262	462
+COPS	•	•	•	•	•	•	•	•	Operator Selection	64	264	464
+CLCK	•	•	•	•	•	•	•	•	Facility Lock/ Unlock	66	266	465
@CLCK	•	•	•	•	•	•	•	•	Facility Lock/ Unlock	68	268	NA
+CPWD	•	•	•	•	•	•	•	•	Change Facility Password	69	269	466
+CLIP	•	•	•	•	•	•	•	•	Calling Line Identification Presentation	70	270	467
+CLIR	•	•	•	•	•	•	•	•	Calling Line Identification Restriction	71	271	468
+CCFC	•	•	•	•	•	•	•	•	Call Forwarding Number And Conditions	72	272	469
+CCWA	•	•	•	•	•	•	•	•	Call Waiting	73	273	470
+CHLD	•	•	•	•	•	•	•	•	Call Holding Services	75	275	472
+CUSD	•	•	•	•	•	•	•	•	Unstructured Supplementary Service Data	76	276	472
+CAOC	•	•	•	•	•	•	•	•	Advice Of Charge	77	277	474
+CLCC	•	•	•	•	•	•	•	•	List Current Calls	78	278	474
+CSSN	•	•	•	•	•	•	•	•	SS Notification	79	279	475
+CCUG	•	•	•	•	•	•	•	•	Closed User Group Supplementary Service Control	80	280	476
ETSI GSM 07.07 - Mobile Equipment Control												
+CPAS	•	•	•	•	•	•	•	•	Phone Activity Status	82	282	478
+CFUN	•	•	•	•	•	•	•	•	Set Phone Functionality	82	282	478
+CPIN	•	•	•	•	•	•	•	•	Enter PIN	83	283	479
+CSQ	•	•	•	•	•	•	•	•	Signal Quality	86	286	482
+CIND	•	•	•	•	•	•	•	•	Indicator Control	87	287	483
+CMER	•	•	•	•	•	•	•	•	Mobile Equipment Event Reporting	89	289	485
+CPBS	•	•	•	•	•	•	•	•	Select Phonebook Memory Storage	90	290	486
+CPBR	•	•	•	•	•	•	•	•	Read Phonebook Entries	91	291	486
+CPBF	•	•	•	•	•	•	•	•	Find Phonebook Entries	92	292	487
+CPBW	•	•	•	•	•	•	•	•	Write Phonebook Entry	92	292	488
+CCLK	•	•	•	•	•	•	•	•	Clock Management	93	293	489
+CALA	•	•	•	•	•	•	•	•	Alarm Management	94	294	489
+CRSM	•	•	•	•	•	•	•	•	Restricted SIM Access	96	296	491
+CALM	•	•	•	•	•	•	•	•	Alert Sound Mode	97	297	492
+CRSL	•	•	•	•	•	•	•	•	Ringer Sound Level	98	298	492
+CLVL	•	•	•	•	•	•	•	•	Loudspeaker Volume Level	98	298	493
+CMUT	•	•	•	•	•	•	•	•	Microphone Mute Control	99	299	493
+CACM	•	•	•	•	•	•	•	•	Accumulated Call Meter	99	299	494
+CAMM	•	•	•	•	•	•	•	•	Accumulated Call Meter Maximum	100	300	494
+CPUC	•	•	•	•	•	•	•	•	Price Per Unit And Currency Table	100	300	495
+CLAC	•	•	•	•	•	•	•	•	Available AT commands	NA	NA	495
+CCID	•	•	•	•	•	•	•	•	Read ICCID (Integrated Circuit Card Identification)	101	301	NA
ETSI GSM 07.07 - Mobile Equipment Errors												
+CMEE	•	•	•	•	•	•	•	•	Report Mobile Equipment Error	102	302	496
ETSI GSM 07.07 - Voice Control												
+VTS	•	•	•	•	•	•	•	•	DTMF Tones Transmission	103	303	497
+VTD	•	•	•	•	•	•	•	•	Tone Duration	103	303	497
ETSI GSM 07.07 - Commands For GPRS												
+CGCLASS	•	•	•	•	•	•	•	•	GPRS Mobile Station Class	105	304	503
+CGATT	•	•	•	•	•	•	•	•	GPRS Attach Or Detach	105	304	498
+CGREG	•	•	•	•	•	•	•	•	GPRS Network Registration Status	106	305	504
+CGDCONT	•	•	•	•	•	•	•	•	Define PDP Context	107	306	500
+CGQMIN	•	•	•	•	•	•	•	•	Quality Of Service Profile (Minimum Acceptable)	107	307	504
+CGQREQ	•	•	•	•	•	•	•	•	Quality Of Service Profile (Requested)	109	308	498
+CGACT	•	•	•	•	•	•	•	•	PDP Context Activate Or Deactivate	110	309	498
+CGPADDR	•	•	•	•	•	•	•	•	Show PDP Address	111	310	501

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COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
+CGDATA	•	•	•	•	•	•	•	•	Enter Data State	111	311	502
ETSI GSM 07.07 - Commands For Battery Charger												
+CBC	•	•	•	•	•	•	•	•	Battery Charge	114	312	506
ETSI GSM 07.05 - General Configuration												
+CSMS	•	•	•	•	•	•	•	•	Select Message Service	116	314	507
+CPMS	•	•	•	•	•	•	•	•	Preferred Message Storage	117	315	508
+CMGF	•	•	•	•	•	•	•	•	Message Format	118	316	509
ETSI GSM 07.05 - Message Configuration												
+CSCA	•	•	•	•	•	•	•	•	Service Center Address	119	317	510
+CSMP	•	•	•	•	•	•	•	•	Set Text Mode Parameters	119	318	510
+CSDH	•	•	•	•	•	•	•	•	Show Text Mode Parameters	120	318	511
+CSCB	•	•	•	•	•	•	•	•	Select Cell Broadcast Message Types	121	319	511
+CSAS	•	•	•	•	•	•	•	•	Save Settings	122	320	512
+CRES	•	•	•	•	•	•	•	•	Restore Settings	122	320	513
ETSI GSM 07.05 - Message Receiving And Reading												
+CNMI	•	•	•	•	•	•	•	•	New Message Indications To Terminal Equipment	123	322	514
+CMGL	•	•	•	•	•	•	•	•	List Messages	126	325	517
@CMGL	•	•	•	•	•	•	•	•	List Messages	128	327	NA
+CMGR	•	•	•	•	•	•	•	•	Read Message	130	328	519
@CMGR	•	•	•	•	•	•	•	•	Read Message	131	330	NA
ETSI GSM 07.05 - Message Sending And Writing												
+CMGS	•	•	•	•	•	•	•	•	Send Message	134	332	522
+CMSS	•	•	•	•	•	•	•	•	Send Message From Storage	135	333	523
+CMGW	•	•	•	•	•	•	•	•	Write Message To Memory	136	334	524
+CMGD	•	•	•	•	•	•	•	•	Delete Message	137	335	526
FAX AT Commands - General Configuration												
+FMI	•	•	•	•	•	•	•	•	Manufacturer ID	139	337	527
+FMM	•	•	•	•	•	•	•	•	Model ID	139	337	527
+FMR	•	•	•	•	•	•	•	•	Revision ID	139	337	527
FAX AT Commands - Transmission/Reception Control												
+FTS	•	•	•	•	•	•	•	•	Stop Transmission And Pause	140	338	528
+FRS	•	•	•	•	•	•	•	•	Wait For Receive Silence	140	338	528
+FTM	•	•	•	•	•	•	•	•	Transmit Data Modulation	140	338	528
+FRM	•	•	•	•	•	•	•	•	Receive Data Modulation	141	339	529
+FTH	•	•	•	•	•	•	•	•	Transmit Data With HDLC Framing	141	339	529
+FRH	•	•	•	•	•	•	•	•	Receive Data With HDLC Framing	141	339	529
FAX AT Commands - Serial Port Control												
+FLO	•	•	•	•	•	•	•	•	Select Flow Control Specified By Type	142	340	530
+FPR	•	•	•	•	•	•	•	•	Select Serial Port Rate	142	340	530
+FDD	•	•	•	•	•	•	•	•	Double Escape Character Replacement Control	142	340	530
Custom AT Commands - General Configuration												
#CGMI	•	•	•	•	•	•	•	•	Manufacturer Identification	143	341	532
#CGMM	•	•	•	•	•	•	•	•	Model Identification	143	341	532
#CGMR	•	•	•	•	•	•	•	•	Revision Identification	143	341	532
#CGSN	•	•	•	•	•	•	•	•	Product Serial Number Identification	143	341	532
#CIMI	•	•	•	•	•	•	•	•	International Mobile Subscriber Identity (IMSI)	143	341	532
#CCID	•	•	•	•	•	•	•	•	Read ICCID (Integrated Circuit Card Identification)	NA	NA	533
#CAP	•	•	•	•	•	•	•	•	Change Audio Path	144	342	533
#SRS	•	•	•	•	•	•	•	•	Select Ringer Sound	144	342	533
#SRP	•	•	•	•	•	•	•	•	Select Ringer Path	145	343	534
#STM	•	•	•	•	•	•	•	•	Signaling Tones Mode	146	344	535
#PCT	•	•	•	•	•	•	•	•	Display PIN Counter	146	345	535

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COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
#SHDN	•	•	•	•	•	•	•	•	Software Shut Down	147	345	536
#WAKE	•	•	•	•	•	•	•	•	Wake From Alarm Mode	147	345	536
#QTEMP	•	•	•	•	•	•	•	•	Query Temperature Overflow	148	346	537
#SGPO	•	•	•	•	•	•	•	•	Set General Purpose Output	148	347	NA
#GGPI	•	•	•	•	•	•	•	•	General Purpose Input	149	347	NA
#GPIO	•	•	•	•	•	•	•	•	General Purpose Input/Output Pin Control	150	348	537
#I2S1							•	•	Set PCM Output For Channel 1	151	350	539
#E2SMSRI	•	•	•	•	•	•	•	•	SMS Ring Indicator	152	350	539
#ADC	•	•	•	•	•	•	•	•	Analog/Digital Converter Input	153	351	540
#DAC				•	•	•	•	•	Digital/Analog Converter Control	153	352	541
#VAUX				•	•	•	•	•	Auxiliary Voltage Pin Output	154	353	541
#CBC	•	•	•	•	•	•	•	•	Battery and Charger Status	155	353	542
#AUTOATT	•	•	•	•	•	•	•	•	Auto-Attach Property	155	354	543
#MSCLASS	•	•	•	•	•	•	•	•	Multislot Class Control	156	354	543
#MONI	•	•	•	•	•	•	•	•	Cell Monitor	157	355	543
#SERVINFO	•	•	•	•	•	•	•	•	Serving Call Information	158	357	545
#COPSMODE	•	•	•	•	•	•	•	•	+COPS Mode	159	358	NA
#QSS	•	•	•	•	•	•	•	•	Query SIM Status	160	358	546
#DIALMODE	•	•	•	•	•	•	•	•	ATD Dialing Mode	161	359	546
#ACAL	•	•	•	•	•	•	•	•	Automatic Call	161	360	547
#ECAM	•	•	•	•	•	•	•	•	Extended Call Monitoring	162	360	548
#SMOV	•	•	•	•	•	•	•	•	SMS Overflow	163	361	549
#CODEC	•	•	•	•	•	•	•	•	Audio Codec	163	362	549
#SHFEC	•	•	•	•	•	•	•	•	Handsfree Echo Canceller	164	363	550
#HFMICG	•	•	•	•	•	•	•	•	Handsfree Microphone Gain	165	363	550
#HSMICG	•	•	•	•	•	•	•	•	Handset Microphone Gain	165	364	551
#SHFSD	•	•	•	•	•	•	•	•	Set Headset Sidetone	166	364	551
#/	•	•	•	•	•	•	•	•	Repeat Last Command	166	365	551
#NITZ	•	•	•	•	•	•	•	•	Network Timezone	166	365	552
#BND	•	•	•	•	•	•	•	•	Select Band	167	366	552
#AUTOBND	•	•	•	•	•	•	•	•	Automatic Band Selection	168	366	553
#SKIPESC	•	•	•	•	•	•	•	•	Skip Escape Sequence	168	367	553
#E2ESC	•	•	•	•	•	•	•	•	Escape Sequence Guard Time	169	368	554
#GAUTH	•	•	•	•	•	•	•	•	PPP-GPRS Connection Authentication Type	170	368	554
#RTCSTAT	•	•	•	•	•	•	•	•	RTC Status	170	369	555
Custom AT Commands - FTP												
#FTPTO	•	•	•	•	•	•	•	•	FTP Time-Out	171	370	556
#FTPOPEN	•	•	•	•	•	•	•	•	FTP Open	171	370	556
#FTPCLOSE	•	•	•	•	•	•	•	•	FTP Close	171	370	556
#FTPPUT	•	•	•	•	•	•	•	•	FTP Put	172	371	557
#FTPPUTPH	•	•	•	•	•	•	•	•	FTP Put Photo	172	371	557
#FTPGET	•	•	•	•	•	•	•	•	FTP Get	173	372	558
#FTPTYPE	•	•	•	•	•	•	•	•	FTP Type	173	372	558
#FTPMSG	•	•	•	•	•	•	•	•	FTP Read Message	174	373	559
#FTPDELE	•	•	•	•	•	•	•	•	FTP Delete	174	373	559
#FTPPWD	•	•	•	•	•	•	•	•	FTP Print Working Directory	174	373	559
#FTPCWD	•	•	•	•	•	•	•	•	FTP Change Working Directory	174	373	559
#FTPLIST	•	•	•	•	•	•	•	•	FTP List	175	374	560
Custom AT Commands - Enhanced Easy GPRS® Extension												
#USERID	•	•	•	•	•	•	•	•	Authentication User ID	176	375	561
#PASSW	•	•	•	•	•	•	•	•	Authentication Password	176	375	561
#PKTSZ	•	•	•	•	•	•	•	•	Packet Size	177	376	562
#DSTO	•	•	•	•	•	•	•	•	Data Sending Time-Out	177	376	562
#SKTTO	•	•	•	•	•	•	•	•	Socket Inactivity Time-Out	178	377	563
#SKTSET	•	•	•	•	•	•	•	•	Socket Definition	179	378	563

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COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
#SKTOP	•	•	•	•	•	•	•	•	Socket Open	180	379	564
#QDNS	•	•	•	•	•	•	•	•	Query DNS	180	379	565
#SKTCT	•	•	•	•	•	•	•	•	Socket TCP Connection Time-Out	181	380	565
#SKTSAV	•	•	•	•	•	•	•	•	Socket Parameters Save	181	380	566
#SKTRST	•	•	•	•	•	•	•	•	Socket Parameters Reset	182	381	566
#GPRS	•	•	•	•	•	•	•	•	GPRS Context Activation	182	381	567
#SKTD	•	•	•	•	•	•	•	•	Socket Dial	183	382	568
#SKTL	•	•	•	•	•	•	•	•	Socket Listen	185	384	569
@SKTL	•	•	•	•	•	•	•	•	Socket Listen	187	386	NA
#E2SLRI	•	•	•	•	•	•	•	•	Socket Listen Ring Indicator	189	388	571
#FRWL	•	•	•	•	•	•	•	•	Firewall Setup	189	388	571
Custom AT Commands - Easy Camera® Management												
#CAMON	•	•	•	•	•	•	•	•	Camera ON	191	390	NA
#CAMOFF	•	•	•	•	•	•	•	•	Camera OFF	191	390	NA
#CAMEN	•	•	•	•	•	•	•	•	Camera ON/OFF	191	390	573
#SELCAM	•	•	•	•	•	•	•	•	Camera Model	192	391	573
#CAMRES	•	•	•	•	•	•	•	•	Camera Resolution	192	391	574
#CAMCOL	•	•	•	•	•	•	•	•	Camera Colour Mode	193	392	574
#CAMQUA	•	•	•	•	•	•	•	•	Camera Photo Quality	193	392	574
#CMODE	•	•	•	•	•	•	•	•	Camera Exposure	194	393	575
#CAMZOOM	•	•	•	•	•	•	•	•	Camera Zoom	194	393	575
#CAMTXT	•	•	•	•	•	•	•	•	Camera Time/Date Overprint	195	394	575
#TPHOTO	•	•	•	•	•	•	•	•	Camera Take Photo	195	394	576
#RPHOTO	•	•	•	•	•	•	•	•	Camera Read Photo	196	395	576
#OBJL	•	•	•	•	•	•	•	•	Object List	196	395	576
#OBJR	•	•	•	•	•	•	•	•	Object Read	197	396	577
Custom AT Commands - E-Mail Management												
#ESMTP	•	•	•	•	•	•	•	•	E-mail SMTP Server	198	397	578
#EADDR	•	•	•	•	•	•	•	•	E-mail Sender Address	198	397	578
#EUSER	•	•	•	•	•	•	•	•	E-mail Authentication User Name	199	398	579
#EPASSW	•	•	•	•	•	•	•	•	E-mail Authentication Password	200	399	579
#SEMAIL	•	•	•	•	•	•	•	•	E-mail Sending With GPRS Context Activation	200	399	580
#EMAILACT	•	•	•	•	•	•	•	•	E-mail GPRS Context Activation	201	400	581
#EMAILD	•	•	•	•	•	•	•	•	E-mail Sending	202	401	582
#ESAV	•	•	•	•	•	•	•	•	Email Parameters Save	203	402	583
#ERST	•	•	•	•	•	•	•	•	E-mail Parameters Reset	203	402	583
#EMAILMSG	•	•	•	•	•	•	•	•	SMTP Read Message	203	402	583
Custom AT Commands - Easy Scan® Extension												
#CSURV	•	•	•	•	•	•	•	•	Network Survey	204	403	584
#CSURVC	•	•	•	•	•	•	•	•	Network Survey (Numeric Format)	206	405	587
#CSURVU	•	•	•	•	•	•	•	•	Network Survey Of User Defined Channels	209	408	590
#CSURVUC	•	•	•	•	•	•	•	•	Network Survey Of User Defined Channels (Numeric Format)	210	409	591
#CSURVB	•	•	•	•	•	•	•	•	BCCH Network Survey	211	410	591
#CSURVBC	•	•	•	•	•	•	•	•	BCCH Network Survey (Numeric Format)	211	410	592
#CSURVF	•	•	•	•	•	•	•	•	Network Survey Format	212	411	592
#CSURVNLF	•	•	•	•	•	•	•	•	<CR><LF> Removing On Easy Scan® Commands Family	212	411	593
#CSURVEXT	•	•	•	•	•	•	•	•	Extended Network Survey	213	412	593
Jammed Detect & Report AT commands												
#JDR	•	•	•	•	•	•	•	•	Jammed Detect & Report	214	413	594
Custom AT Commands - Easy Script® Extension - Python Interpreter[4]												

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

COMMAND	GM862-QUAD	GM862-QUAD-PY	GM862-GPS	GE863-QUAD	GE863-QUAD-PY	GE863-GPS	GE864-QUAD & GC864-QUAD	GC864-PY & GE864-PY	Function	SEL 0 Page	SEL 1 Page	SEL 2 Page
#WSCRIPT		•	•		•	•		•	Write Script	216	415	596
#ESCRIPT		•	•		•	•		•	Select Active Script	217	416	597
#RSCRIPT		•	•		•	•		•	Read Script	218	417	597
#LSCRIPT		•	•		•	•		•	List Script Names	218	417	598
#DSCRIPT		•	•		•	•		•	Delete Script	219	418	599
#REBOOT		•	•		•	•		•	Reboot	219	418	599
#CMUXSCR		•	•		•	•		•	CMUX Script Enable	NA	NA	599
Custom AT Commands - GPS Application												
$GPSP			•			•			GPS Controller power management	220	419	601
$GPSR			•			•			GPS Reset	220	419	601
$GPSD			•			•			GPS Device Type Set	221	420	602
$GPSSW			•			•			GPS Software Version	221	420	602
$GPSAT			•			•			GPS Antenna Type Definition	221	420	602
$GPSAV			•			•			GPS Antenna Supply Voltage Readout	222	421	603
$GPSAI			•			•			GPS Antenna Current Readout	222	421	603
$GPSAP			•			•			GPS Antenna Protection	223	422	604
$GPSNMUN			•			•			Unsolicited GPS NMEA Data Configuration	224	422	605
$GPSACP			•			•			GPS Actual Position Information	225	424	606
$GPSSAV			•			•			Save GPS Parameters Configuration	226	425	607
$GPSRST			•			•			Restore Default GPS Parameters	227	426	608
Custom AT Commands - SAP												
#RSEN	•	•	•	•	•	•	•	•	Remote SIM Enable	NA	NA	609
#RSM:	•	•	•	•	•	•	•	•	Remote SIM Message (Unsolicited)	NA	NA	609
#RSM	•	•	•	•	•	•	•	•	Remote SIM Message Command	NA	NA	610
#RSS	•	•	•	•	•	•	•	•	Remote SIM Status Command	NA	NA	611

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3.3 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 behavior of the device and its AT command interface. It is up to the user to select the AT interface he prefers.

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

Product	#SELINT=0	#SELINT=1	#SELINT=2
GM862-QUAD (3990250655)	•(default)	•	
GM862-QUAD-PY (3990250656)	•	•(default)	
GE863-QUAD (3990250653&)	•	•(default)	
GE863-PY (3990250654)	•	•(default)	
GM862-QUAD (3990250659)	•(default)	•	•
GM862-QUAD-PY (3990250658)	•	•(default)	•
GM862-GPS (3990250657)	•	•	•(default)
GE863-QUAD (3990250662)	•	•(default)	•
GE863-PY (3990250661)	•	•(default)	•
GE863-GPS (3990250660)	•	•	•(default)
GE864-QUAD (3990250648)	•	•	•(default)
GE864-PY (3990250650)	•	•	•(default)
GC864-QUAD (3990250675)	•	•	•(default)
GC864-PY (3990250676)	•	•	•(default)

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3.3.1 #SELINT - Select Interface Style

#SELINT - Select Interface Style	
AT#SELINT[=<v>]	Set command sets the AT command interface style depending on parameter **<v>**. Parameter: **<v>** - AT command interface 0 - switches the AT command interface of the products, to the GM862-GSM and GM862-GPRS interface style 1 - switches the AT command interface of the products, to the GM862-PCS, PYTHON, QUAD-PY, TRIZIUM and GE863-QUAD, PY interface style 2 - switches the AT command interface style of the product, to the new products like GE864, GC864 and the GPS products[5] Note: If parameter is omitted then the behavior of Set command is the same as read command
AT#SELINT?	Read command reports the current interface style.
AT#SELINT=?	Test command reports the available range of values for parameter **<v>**.
Note	It's suggested to reboot the module after every **#SELINT** setting.

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

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3.4 Repeating A Command Line

3.4.1 Last Command Automatic Repetition

A/ - Last Command Automatic Repetition	
A/	If the prefix “A/” or “a/” is issued, the MODULE immediately execute once again the body of the preceding command line. No editing is possible and no termination character is necessary. A command line may be repeated multiple times through this mechanism, if desired. If “A/” is issued before any command line has been executed, the preceding command line is assumed to have been empty (that results in an OK result code). This command works only at fixed IPR. Note: issuing the custom command AT#/ causes the last command to be executed again too; moreover it doesn’t need a fixed IPR.
Reference	V25ter

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3.5 SELINT 0

3.5.1 Hayes Compliant AT Commands

3.5.1.1 Generic Modem Control

3.5.1.1.1 &F - Set To Factory-Defined Configuration

&F - Set To Factory-Defined Configuration	
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 behavior as **AT&F0**
Reference	V25ter.

3.5.1.1.2 Z - Soft Reset

Z - Soft Reset	
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**.
Reference	V25ter.

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3.5.1.1.3 +FCLASS - Select Active Service Class

+FCLASS - Select Active Service Class	
AT+FCLASS=<n>	Set command sets the wireless module in specified connection mode (data, fax, voice), hence all the calls done afterwards will be data or voice. Parameter: **<n>** 0 - data 1 - fax class 1 8 - voice
AT+FCLASS?	Read command returns the current configuration value of the parameter **<n>**.
AT+FCLASS=?	Test command returns all supported values of the parameters **<n>**.
Reference	GSM 07.07

3.5.1.1.4 &Y - Designate A Default Reset Basic Profile

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

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3.5.1.1.5 &P - Designate A Default Reset Full Profile

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

3.5.1.1.6 &W - Store Current Configuration

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

3.5.1.1.7 &Z - Store Telephone Number In The Module Internal Phonebook

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

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

3.5.1.1.8 &N - Display Internal Phonebook Stored Numbers

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

3.5.1.1.9 +GMI - Manufacturer Identification

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

3.5.1.1.10 +GMM - Model Identification

+GMM - Model Identification	
AT+GMM	Execution command returns the model identification.
Reference	V.25ter

3.5.1.1.11 +GMR - Revision Identification

+GMR - Revision Identification	
AT+GMR	Execution command returns the software revision identification.
Reference	V.25ter

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3.5.1.1.12 +GCAP - Capabilities List

+GCAP - Capabilities List	
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

3.5.1.1.13 +GSN - Serial Number

+GSN - Serial Number	
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

3.5.1.1.14 &V - Display Current Configuration & Profile

&V - Display Current Configuration & Profile	
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.

3.5.1.1.15 &V0 - Display Current Configuration & Profile

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

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3.5.1.1.16 &V1 - Display S Registers Values

&V1 - Display S Registers Values	
AT&V1	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0><dec> <hex>** **<reg1><dec> <hex>** ... where **<reg*n*>** - **S** register number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

3.5.1.1.17 &V3 - Display S Registers Values

&V3 - Display S Registers Values	
AT&V3	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0> <dec> <hex>** **<reg1> <dec> <hex>** ... where **<reg*n*>** - **S** register number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

3.5.1.1.18 &V2 - Display Last Connection Statistics

&V2 - Display Last Connection Statistics	
AT&V2	Execution command returns the last connection statistics & connection failure reason.

3.5.1.1.19 \V - Single Line Connect Message

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

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3.5.1.1.20 +GCI - Country Of Installation

+GCI - Country Of Installation	
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.

3.5.1.1.21 %L - Line Signal Level

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

3.5.1.1.22 %Q - Line Quality

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

3.5.1.1.23 L - Speaker Loudness

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

3.5.1.1.24 M - Speaker Mode

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

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3.5.1.2 DTE - Modem Interface Control

3.5.1.2.1 E - Command Echo

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

3.5.1.2.2 Q - Quiet Result Codes

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

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3.5.1.2.3 V - Response Format

<table>
<tr><th colspan="2">V - Response Format</th></tr>
<tr><td>ATV[<n>]</td><td>Set command determines the contents of the header and trailer transmitted with result codes and information responses. It also determines if result codes are transmitted in a numeric form or an alphanumeric form (see [§3.2.3 Information Responses And Result Codes] for the table of result codes).

Parameter:
<n>
0 - limited headers and trailers and numeric format of result codes

<table><tr><td>information responses</td><td><text><CR><LF></td></tr><tr><td>result codes</td><td><numeric code><CR></td></tr></table>
1 - full headers and trailers and verbose format of result codes (factory default)

<table><tr><td>information responses</td><td><CR><LF>
<text><CR><LF></td></tr><tr><td>result codes</td><td><CR><LF>
<numeric code><CR><LF></td></tr></table>
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</td></tr>
<tr><td>Reference</td><td>V25ter</td></tr>
</table>

3.5.1.2.4 X - Extended Result Codes

<table>
<tr><th colspan="2">X - Extended Result Codes</th></tr>
<tr><td>ATX[<n>]</td><td>Set command selects the result code messages subset used by the modem to inform the DTE of the result of the commands.

Parameter:
<n>
0 - send only OK, CONNECT, RING, NO CARRIER, ERROR, NO</td></tr>
</table>

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	ANSWER results. Busy tones reporting is disabled. 1..4 - reports all messages (factory default is 1) Note: If parameter is omitted, the command has the same behaviour as **ATX0**
Note	For complete control on **CONNECT** response message see also **+DR** command.
Reference	V25ter

3.5.1.2.5 I - Identification Information

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

3.5.1.2.6 &C - Data Carrier Detect (DCD) Control

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

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Reference	V25ter

3.5.1.2.7 &D - Data Terminal Ready (DTR) Control

&D - Data Terminal Ready (DTR) Control	
AT&D[<n>]	Set command controls the Module behaviour to the RS232 **DTR** transitions. Parameter: **<n>** 0 - **DTR** transitions are ignored. (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 - **DTR** transitions are considered only in **power saving mode**. 4 - **C108/1** operation is disabled 5 - **C108/1** operation is enabled Note: if **AT&D2** has been issued and the **DTR** has been tied **low**, autoanswering is inhibited and it is possible to answer only issuing command **ATA.** Note: if parameter is omitted, the command has the same behaviour as **AT&D0**
Reference	V25ter

3.5.1.2.8 \Q - Standard Flow Control

\Q - Standard Flow Control	
AT\Q[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - software bi-directional with filtering (**XON/XOFF**) 2 - hardware mono-directional flow control (only **CTS** active) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) Note: if parameter is omitted, the command has the same behaviour as **AT\Q0**

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\Q - Standard Flow Control	
	Note: **\Q's** settings are functionally a subset of **&K's** ones.
Reference	V25ter

3.5.1.2.9 &K - Flow Control

&K - Flow Control	
AT&K[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - hardware mono-directional flow control (only **CTS** active) 2 - software mono-directional flow control (**XON/XOFF**) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) 4 - software bi-directional with filtering (**XON/XOFF**) 5 - pass through: software bi-directional without filtering (**XON/XOFF**) 6 - both hardware bi-directional flow control (both **RTS/CTS** active) and software bi-directional flow control (**XON/XOFF**) with filtering Note: if parameter is omitted, the command has the same behaviour as **AT&K0** Note: **&K** has no Read Command. To verify the current setting of **&K**, simply check the settings of the active profile with **AT&V**.

3.5.1.2.10 &S - Data Set Ready (DSR) Control

&S - Data Set Ready (DSR) Control	
AT&S[<n>]	Set command controls the RS232 **DSR** pin behaviour. Parameter: **<n>** 0 - always **ON** 1 - follows the GSM traffic channel indication. 2 - **ON** when connected 3 - **ON** when device is ready to receive commands (factory default). Note: if option 1 is selected then **DSR** is tied up when the device receives from the network the GSM traffic channel indication. Note: if parameter is omitted, the command has the same behaviour as **AT&S0**

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3.5.1.2.11 \R - Ring (RI) Control

\R - Ring (RI) Control	
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 as **AT\R0**

3.5.1.2.12 +IPR - Fixed DTE Interface Rate

+IPR - Fixed DTE Interface Rate	
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.
AT+IPR?	Read command returns the current value of **+IPR** parameter.
AT+IPR=?	Test command returns the supported serial port speed list.
Reference	V25ter

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3.5.1.2.13 +IFC - DTE-Modem Local Flow Control

+IFC - DTE-Modem Local Flow Control	
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>**) Parameter: **<by_te>** - flow control option for the data received by **DTE** 0 - flow control None 1 - **XON/XOFF** filtered 2 - **C105 (RTS)** (factory default) 3 - **XON/XOFF** not filtered **<by_ta>** - flow control option for the data sent by **modem** 0 - flow control None 1 - **XON/XOFF** 2 - **C106 (CTS)** (factory default) Note: This command is equivalent to **&K** command.
AT+IFC?	Read command returns active flow control settings.
AT+IFC=?	Test command returns all supported values of the parameters **<by_te>** and **<by_ta>**.
Reference	V25ter

3.5.1.2.14 +ILRR - DTE-Modem Local Rate Reporting

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

3.5.1.2.15 +ICF - DTE-Modem Character Framing

+ICF - DTE-Modem Character Framing	
AT+ICF=<format> [,<parity>]	Set command defines the asynchronous character framing to be used when autobauding is disabled.

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	Parameters: **<format>** - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. 0 - autodetection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 4 - 7 Data, 2 Stop 5 - 7 Data, 1 Parity, 1 Stop **<parity>** - determines how the parity bit is generated and checked, if present 0 - Odd 1 - Even
AT+ICF?	Read command returns current settings for subparameters **<format>** and **<parity>**.
AT+ICF=?	Test command returns the ranges of values for the parameters **<format>** and **<parity>**
Reference	V25ter

Example	`AT+ICF = 0 - auto detect`
	`AT+ICF = 1 - 8N2`
	`AT+ICF = 2,0 - 8O1`
	`AT+ICF = 2,1 - 8E1`
	`AT+ICF = 3 - 8N1 (default)`
	`AT+ICF = 5,0 - 7O1`
	`AT+ICF = 5,1 - 7E1`

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3.5.1.3 Call Control

3.5.1.3.1 D - Dial

D - Dial	
ATD<number>[;]	Execution command starts a call to the phone number given as parameter. If ";" is present, a VOICE call to the given number is performed, regardless of the current value of the connection mode set by **+FCLASS** command. Parameter: **<number>** - phone number to be dialed Note: type of call (data, fax or voice) depends on last **+FCLASS** setting. Note: the numbers accepted are 0-9 and *,#,"A", "B", "C", "D","+". Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD><str>[;]	Issues a call to phone number which corresponding alphanumeric field is **<str>**; all available memories will be searched for the correct entry. If "**;**" is present a **voice** call is performed. Parameter: **<str>** - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks. Note: used character set should be the one selected with either command Select TE character set **+CSCS** or @**CSCS**.
ATD><mem><n>[;]	Issues a call to phone number in phonebook memory storage **<mem>**, entry location **<n>** (available memories may be queried with **AT+CPBS=?**). If "**;**" is present a **voice** call is performed. Parameters: **<mem>** - phonebook memory storage; it must not be enclosed in quotation marks. SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list **<n>** - entry location; it should be in the range of locations available in the memory used.
ATD><n>[;]	Issues a call to phone number in entry location **<n>** of the active

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D - Dial	
	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 Other values are reserved and will result in an **ERROR** response to the Set command. **<cid>** - a digit which specifies a particular PDP context definition (see **+CGDCONT** command).
Example	*To dial a number in SIM phonebook entry 6:* ATD>SM6

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

3.5.1.3.2 T - Tone Dial

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

3.5.1.3.3 P - Pulse Dial

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

3.5.1.3.4 A - Answer

A - Answer	
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.

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3.5.1.3.5 H - Disconnect

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

3.5.1.3.6 O - Return To On Line Mode

O - Return To On Line Mode	
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.

3.5.1.3.7 &G - Guard Tone

&G - Guard Tone	
AT&G	Set command has no effect is included only for backward compatibility with landline modems.

3.5.1.3.8 &Q - Sync/Async Mode

&Q - Sync/Async Mode	
AT&Q	Set command has no effect is included only for backward compatibility with landline modems.

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3.5.1.4 Modulation Control

3.5.1.4.1 +MS - Modulation Selection

+MS - Modulation Selection	
AT+MS= <carrier>[, <automode>[, <min_rate>[, <max_rate>]]]	Set command has no effect is included only for backward compatibility with landline modems. Parameter: **<carrier>** - a string which specifies the preferred modem carrier to use in originating or answering a connection V21 V22 V22B V23C V32 V34 **<automode>** - it enables/disables automatic modulation negotiation. 0 - disabled 1 - enabled. It has effect only if it is defined for the associated modulation. **<min_rate>** - it specifies the lowest value at which the **DCE** may establish a connection. 0 - unspecified **<max_rate>** - it specifies the highest value at which the **DCE** may establish a connection. 0 - unspecified 300..14400 - rate in bps Note: to change modulation requested use **+CBST** command.
AT+MS?	Read command returns the current value of **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.
AT+MS=?	Test command returns all supported values of the **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.

3.5.1.4.2 %E - Line Quality Monitor And Auto Retrain Or Fallback/Fallforward

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

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3.5.1.5 Compression Control

3.5.1.5.1 +DS - Data Compression

+DS - Data Compression	
AT+DS=<n>	Set command sets the V42 compression parameter. Parameter: **<n>** 0 - no compression, it is currently the only supported value
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

3.5.1.5.2 +DR - Data Compression Reporting

+DR - Data Compression Reporting	
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. 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

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3.5.1.6 Break Control

3.5.1.6.1 \B - Transmit Break To Remote

\B - Transmit Break To Remote	
AT\B	Execution command has no effect and is included only for backward compatibility with landline modems

3.5.1.6.2 \K - Break Handling

\K - Break Handling	
AT\K<n>	Execution command has no effect and is included only for backward compatibility with landline modems Parameter: **<n>** 1..5

3.5.1.6.3 \N - Operating Mode

\N - Operating Mode	
AT\N	Execution command has no effect and is included only for backward compatibility with landline modems

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3.5.1.7 S Parameters

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

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

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

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

Example:

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

3.5.1.7.1 S0 - Number Of Rings To Auto Answer

S0 - Number Of Rings To Auto Answer	
ATS0[=<n>]	Set command sets the number of rings required before device automatically answers an incoming call. Parameter: **<n>** - number of rings 0 - auto answer disabled (factory default) 1..255 - number of rings required before automatic answer.
ATS0?	Read command returns the current value of **S0** parameter.
ATS0=?	Test command returns the range for **<n>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

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3.5.1.7.2 S1 - Ring Counter

S1 - Ring Counter	
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

3.5.1.7.3 S2 - Escape Character

S2 - Escape Character	
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

3.5.1.7.4 S3 - Command Line Termination Character

S3 - Command Line Termination Character	
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**

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	setting command. However the result code issued shall use the "new" value of **S3** (as set during the processing of the command line).
ATS3?	Read command returns the current value of **S3** parameter.
ATS3=?	Test command returns the range for **<char>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.5.1.7.5 S4 - Response Formatting Character

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

3.5.1.7.6 S5 - Command Line Editing Character

S5 - Command Line Editing Character	
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

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3.5.1.7.7 S7 - Connection Completion Time-Out

S7 - Connection Completion Time-Out	
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

3.5.1.7.8 S12 - Escape Prompt Delay

S12 - Escape Prompt Delay	
ATS12[=<time>]	Set command sets the period, before and after an escape sequence, during which no character has to be detected in order to accept the escape sequence as a valid one. Parameter: **<time>** - expressed in fiftieth of a second 20..255 - factory default value is 50.
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

3.5.1.7.9 S25 - Delay To DTR Off

S25 - Delay To DTR Off	
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.

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	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

3.5.1.7.10 S30 - Disconnect Inactivity Timer

S30 - Disconnect Inactivity Timer	
ATS30[=<tout>]	Set command defines the inactivity timeout 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 timeout value.
ATS30?	Read command returns the current value of **S30** parameter.
ATS30=?	Test command returns the range for **<tout>** without command echo and parenthesis. Note: the output depends on the choice made through **#SELINT** command.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

3.5.1.7.11 S38 - Delay Before Forced Hang Up

S38 -Delay Before Forced Hang Up	
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 20). 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.

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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

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3.5.2 ETSI GSM 07.07 AT Commands

3.5.2.1 General

3.5.2.1.1 +CGMI - Request Manufacturer Identification

+CGMI - Request Manufacturer Identification	
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	GSM 07.07

3.5.2.1.2 +CGMM - Request Model Identification

+CGMM - Request Model Identification	
AT+CGMM	Execution command returns the device model identification code without command echo.
Reference	GSM 07.07

3.5.2.1.3 +CGMR - Request Revision Identification

+CGMR - Request Revision Identification	
AT+CGMR	Execution command returns device software revision number without command echo.
AT+CGMR?	Read command has the same behaviour as Execution command
Reference	GSM 07.07

3.5.2.1.4 +CGSN - Request Product Serial Number Identification

+CGSN - Request Product Serial Number Identification	
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	GSM 07.07

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3.5.2.1.5 +CSCS - Select TE Character Set

+CSCS - Select TE Character Set	
AT+CSCS [=<chset>]	Set command sets the current character set used by the device. Parameter: **<chset>** - character set “IRA” - ITU-T.50 ”8859-1” - ISO 8859 Latin 1 ”PCCP437” - PC character set Code Page 437. ”UCS2” - 16-bit universal multiple-octet coded character set (ISO/IEC10646) Note: If parameter is omitted then the behaviour of Set command is the same as Read command.
AT+CSCS?	Read command returns the current value of the active character set.
AT+CSCS=?	Test command returns the supported values of the parameter **<chset>**. For compatibility with previous versions, Test command returns **+CSCS: (“IRA”)** An enhanced version of Test command has been defined: **AT+CSCS=??**, that provides the complete range of values for **<chset>**.
AT+CSCS=??	Enhanced test command returns the supported values of the parameter **<chset>**
Reference	GSM 07.07

3.5.2.1.6 +CIMI - Request International Mobile Subscriber Identity (IMSI)

+CIMI - Request International Mobile Subscriber Identify (IMSI)	
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	GSM 07.07

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3.5.2.2 Call Control

3.5.2.2.1 +CHUP - Hang Up Call

+CHUP - Hang Up Call	
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	GSM 07.07

3.5.2.2.2 +CBST - Select Bearer Service Type

+CBST - Select Bearer Service Type	
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. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer **+CSNS**). Parameters: The default values of the subparameters are manufacturer specific since they depend on the purpose of the device and data services provided by it. Not all combinations of these subparameters are supported. The supported values are: **<speed>** 0 - autobauding (automatic selection of the speed, factory default) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) **<name>** 0 - data circuit asynchronous (factory default) **<ce>** 0 - transparent 1 - non transparent (default)

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+CBST - Select Bearer Service Type	
	Note: the settings **AT+CBST=0,0,0** **AT+CBST=14,0,0** **AT+CBST=75,0,0** are not supported. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
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	GSM 07.07

3.5.2.2.3 +CRLP - Radio Link Protocol

+CRLP - Radio Link Protocol	
AT+CRLP=<iws>[,<mws>[,<T1>[,<N2>[,<ver>]]]]	Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls are originated Parameters: **<iws>** - IWF window Dimension 1..61 - factory default value is 61 **<mws>** - MS window Dimension 1..61 - default value is 61 **<T1>** - acknowledge timer (10 ms units). 39..255 - default value is 78 **<N2>** - retransmission attempts 1..255 - default value is 6 **<ver>** - protocol version 0
AT+CRLP?	Read command returns the current value of the RLP protocol parameters.
AT+CRLP=?	Test command returns supported range of values of the RLP protocol parameters.
Reference	GSM 07.07

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3.5.2.2.4 +CR - Service Reporting Control

+CR - Service Reporting Control	
AT+CR=<mode>	Set command controls whether or not intermediate result code **+CR: <serv>** is returned from the **TA** to the **TE**, where **<serv>** ASYNC - asynchronous transparent SYNC - synchronous transparent REL ASYNC - asynchronous non-transparent REL SYNC - synchronous non-transparent If enabled, 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. Parameter: **<mode>** 0 - disables intermediate result code report (factory default) 1 - enables intermediate result code report. 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 current intermediate report setting
AT+CR=?	Test command returns the supported range of values of parameter **<mode>**.
Reference	GSM 07.07

3.5.2.2.5 +CEER - Extended Error Report

+CEER - Extended Error Report	
AT+CEER	Execution command returns one or more lines of information text **<report>** in the format: **+CEER: <report>** This report regards some error condition that may occur: - the failure in the last unsuccessful call setup (originating or answering) - the last call release - the last unsuccessful GPRS attach or unsuccessful PDP context activation,

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+CEER - Extended Error Report	
	- the last GPRS detach or PDP context deactivation. Note: if none of this condition has occurred since power up then No Error condition is reported
AT+CEER?	Read command reports a information text regarding some error condition that may occur
AT+CEER=?	Test command returns **OK** result code.
Reference	GSM 07.07

3.5.2.2.6 +CRC - Cellular Result Codes

+CRC - Cellular Result Codes	
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: 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	GSM 07.07

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3.5.2.2.7 +CSNS - Single Numbering Scheme

+CSNS - Single Numbering Scheme	
AT+CSNS= <mode>	Set command selects the bearer or teleservice to be used when mobile terminated single numbering scheme call is established. Parameter values set with **+CBST** command shall be used when **<mode>** equals to a data service. Parameter: **<mode>** 0 - voice (factory default) 2 - fax (TS 62) 4 - data Note: if **+CBST** parameter is set to a value that is not applicable to single numbering calls, ME/TA shall map the value to the closest valid one. E.g. if user has set **<speed>=71**, **<name>=0** and **<ce>=1** (non-trasparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-trasparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.
AT+CSNS?	Read command returns current value of the parameter **<mode>**.
AT+CSNS=?	Test command returns supported values of the parameter **<mode>**.
Reference	GSM 07.07

3.5.2.2.8 +CVHU - Voice Hang Up Control

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

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3.5.2.3Network Service Handling

3.5.2.3.1 +CNUM - Subscriber Number

+CNUM - Subscriber Number	
AT+CNUM	Execution command returns the subscriber number i.e. the phone number of the device that is stored in the SIM card. Note: the returned number format is: **+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	GSM 07.07

3.5.2.3.2 +COPN - Read Operator Names

+COPN - Read Operator Names	
AT+COPN	Execution command returns the list of operator names from the **ME**. The output depends on the choice made through **#SELINT** command.
Reference	GSM 07.07

3.5.2.3.3 +CREG - Network Registration Report

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

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

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+CREG - Network Registration Report	
	+CREG: 0,2 OK at+creg? +CREG: 0,1 *(the MODULE is registered)* OK at+creg? +CREG: 0,1 OK
Reference	GSM 07.07

3.5.2.3.4 +COPS - Operator Selection

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

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+COPS - Operator Selection	
	<oper>: network operator in format defined by **<format>** parameter. **(#COPSMODE=1)** Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (default) 1 - manual choice **(<oper>** field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1** or **4** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic **(<oper>** field shall be present); if manual selection fails, automatic mode **(<mode>=0**) is entered **<format>** 0 - alphanumeric long form (max length 16 digits) 2 - numeric 5 digits [country code (3) + network code (2)] **<oper>**: network operator in format defined by **<format>** parameter. Note: **<mode>** parameter setting is stored in NVM and available at next reboot. If **<mode>=1** or **4**, the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted) Note: issuing **AT+COPS<CR>** is the same as issuing the Read command. Note: issuing **AT+COPS=<CR>** is the same as issuing the command **AT+COPS=0<CR>**.
AT+COPS?	Read command returns current value of **<mode>,<format>** and **<oper>** in format **<format>**; if no operator is selected, **<format>** and **<oper>** are omitted **+COPS: <mode>[, <format>, <oper>]**
AT+COPS=?	Test command returns a list of quadruplets, each representing an operator present in the network. The behaviour of Test command depends on the last **#COPSMODE** setting. **(#COPSMODE=0)** The command outputs as many rows as the number of quadruplets, each of them in the format: **+COPS: (<stat> ,<oper (in <format>=0)>,"",** **<oper (in <format>=2)>)**

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+COPS - Operator Selection	
	where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden **(#COPSMODE=1)** The quadruplets in the list are separated by commas: **+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,, <oper (in <format>=2)>)s][,,(list of supported <mode>s), (list of supported<format>s)]** where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden Note: since with this command a network scan is done, this command may require some seconds before the output is given. Note: The value of parameter **<oper>** (in **<format>=0**) is the same as the former GM862 family products.
Reference	GSM 07.07

3.5.2.3.5 +CLCK - Facility Lock/ Unlock

+CLCK - Facility Lock/Unlock	
AT+CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home

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+CLCK - Facility Lock/Unlock	
	country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD** **<class>** - represents the class of information of the facility as sum of bits (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **+CLCK: <status>** where **<status>** - current status of the facility 0 - not active 1 - active
AT+CLCK=?	Test command reports all the facility supported by the device.
Reference	GSM 07.07
Note	The improving command @**CLCK** has been defined.

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3.5.2.3.6 @CLCK - Facility Lock/ Unlock

@CLCK - Facility Lock/Unlock	
AT@CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD** **<class>** - represents the class of information of the facility as sum of bits (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **@CLCK: <status>[,<class1>** **[<CR><LF>@CLCK: <status>,<class2>[...]]**

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@CLCK - Facility Lock/Unlock	
	where **<status>** - the current status of the facility 0 - not active 1 - active **<class*n*>** - class of information of the facility
AT@CLCK=?	Test command reports all the facilities supported by the device.
Reference	GSM 07.07
Example	*Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:* AT@CLCK =”A0”,2 @CLCK: <status>,1 @CLCK: <status>,2 @CLCK: <status>,4 OK

3.5.2.3.7 +CPWD - Change Facility Password

+CPWD - Change Facility Password	
AT+CPWD=<fac>, <oldpwd>, <newpwd>	Execution command changes the password for the facility lock function defined by command Facility Lock **+CLCK**. Parameters: **<fac>** - facility “SC” - SIM (PIN request) “AB” - All barring services “P2” - SIM PIN2 **<oldpwd>** - string type, it shall be the same as password specified for the facility from the ME user interface or with command **+CPWD**. **<newpwd>** - string type, it is the new password Note: parameter **<oldpwd>** is the old password while **<newpwd>** is the new one.
AT+CPWD=?	Test command returns a list of pairs **(<fac>,<pwdlength>)** which presents the available facilities and the maximum length of their password (**<pwdlength>**)
Reference	GSM 07.07

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3.5.2.3.8 +CLIP - Calling Line Identification Presentation

+CLIP - Calling Line Identification Presentation	
AT+CLIP[=[<n>]]	Set command enables/disables the presentation of the CLI (Calling Line Identity) at the **TE**. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call. Parameters: **<n>** 0 - disables CLI indication (factory default) 1 - enables CLI indication If enabled the device reports after each **RING** the response: **+CLIP:<number>,<type>,<subaddress>,<satype>,<alpha>** **,<CLI_validity>** where: **<number>** - calling line number **<type>** - type of address octet in integer format 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme **<subaddress>** - string type subaddress of format specified by **<satype>** **<satype>** - type of subaddress octet in integer format **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected either with command Select **TE** character set **+CSCS** or **@CSCS**. **<CLI_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to interworking problems or limitation or originating network. Note: issuing **AT+CLIP<CR>** is the same as issuing the Read command. Note: issuing **AT+CLIP=<CR>** is the same as issuing the command **AT+CLIP=0<CR>**.
AT+CLIP?	Read command returns the presentation status of the CLI in the format: **+CLIP: <n>, <m>** where: **<n>** 0 - CLI presentation disabled

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+CLIP - Calling Line Identification Presentation	
	1 - CLI presentation enabled **<m>** - status of the CLIP service on the GSM network 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) Note: This command issues a status request to the network, hence it may take a few seconds to give the answer due to the time needed to exchange data with it.
AT+CLIP=?	Test command returns the supported values of the parameter **<n>**
Reference	GSM 07.07
Note	The command changes only the report behaviour of the device, it does not change CLI supplementary service setting on the network.

3.5.2.3.9 +CLIR - Calling Line Identification Restriction

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

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+CLIR - Calling Line Identification Restriction	
	<m> - facility status on the Network 0 - CLIR service not provisioned 1 - CLIR service provisioned permanently 2 - unknown (e.g. no network present, etc.) 3 - CLI temporary mode presentation restricted 4 - CLI temporary mode presentation allowed
AT+CLIR=?	Test command reports the supported values of parameter **<n>**.
Reference	GSM 07.07
Note	This command sets the default behaviour of the device in outgoing calls.

3.5.2.3.10 +CCFC - Call Forwarding Number And Conditions

+CCFC - Call Forwarding Number And Condition	
AT+CCFC=<reason>,<cmd>[,<number>[,<type>[,<class>[,,,<time>]]]]	Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported. Parameters: **<reason>** 0 - unconditional 1 - mobile busy 2 - no reply 3 - not reachable 4 - all calls (not with query command) 5 - all conditional calls (not with query command) **<cmd>** 0 - disable 1 - enable 2 - query status 3 - registration 4 - erasure **<number>** - phone number of forwarding address in format specified by **<type>** parameter **<type>** - type of address byte in integer format : 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme **<class>** - sum of integers each representing a class of information which the command refers to; default 7 (voice + data + fax) 1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service

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+CCFC - Call Forwarding Number And Condition	
	16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access **<time>** - the time in seconds after which the call is diverted if "no reply" reason is chosen. Valid only for "no reply" reason. Note: when **<cmd>=2** and command successful, it returns: **+CCFC: <status>,<class>[,<number>[,<type>[,<time>]]]** where: **<status>** - current status of the network service 0 - not active 1 - active **<time>** - time in *seconds* to wait before call is forwarded when "no reply" option for **<reason>** is enabled or queried 1..30 - default value is 20. The other parameters are as seen before.
AT+CCFC=?	Test command reports supported values for the parameter **<reason>**.
Reference	GSM 07.07
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>**.

3.5.2.3.11 +CCWA - Call Waiting

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

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

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+CCWA - Call Waiting	
	waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party. Note: The command **AT+CCWA=1,0** has no effect a non sense and must not be issued. Note: issuing **AT+CCWA<CR>** is the same as issuing the Read command. Note: issuing **AT+CCWA=<CR>** is the same as issuing the command **AT+CCWA=0<CR>**.
AT+CCWA?	Read command reports the current value of the parameter **<n>**.
AT+CCWA=?	Test command reports the supported values for the parameter **<n>**.
Reference	GSM 07.07

3.5.2.3.12 +CHLD - Call Holding Services

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

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	+CHLD: (0,1,2,3) Note: consider what has been written about the Set command relating the actions on a specific call (X).
Reference	GSM 07.07
Note	ONLY for VOICE calls

3.5.2.3.13 +CUSD - Unstructured Supplementary Service Data

+CUSD - Unstructured Supplementary Service Data	
AT+CUSD[=[<n>[,<str>[,<dcs>]]]]	Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]). Parameters: **<n>** - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the **DTA** 1 - enable the result code presentation in the **DTA** **<str>** - USSD-string (when **<str>** parameter is not given, network is not interrogated) - If **<dcs>** indicates that GSM338 default alphabet is used **ME/TA** converts GSM alphabet into current TE character set (see **+CSCS**) - If **<dcs>** indicates that 8-bit data coding scheme is used: **ME/TA** converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to **TE** as two characters 2A (IRA 50 and 65). **<dcs>** - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0). Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CUSD: <m>[,<str>,<dcs>]** to the **TE** where: **<m>**: 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out

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+CUSD - Unstructured Supplementary Service Data	
	Note: in case of successful mobile initiated operation, **DTA** waits the USSD response from the network and sends it to the **DTE** before the final result code. This will block the AT command interface for the period of the operation. Note: issuing **AT+CUSD<CR>** is the same as issuing the Read command. Note: issuing **AT+CUSD=<CR>** is the same as issuing the command **AT+CUSD=0<CR>**.
AT+CUSD?	Read command reports the current value of the parameter **<n>**
AT+CUSD=?	Test command reports the supported values for the parameter **<n>**
Reference	GSM 07.07
Note	Only mobile initiated operations are supported

3.5.2.3.14 +CAOC - Advice Of Charge

+CAOC - Advice Of Charge	
AT+CAOC[= [<mode>]]	Set command refers to the Advice of Charge supplementary service; the command also includes the possibility to enable an unsolicited event reporting of the CCM (Call Cost Meter) information. Parameter: **<mode>** 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting Note: the unsolicited result code enabled by parameter **<mode>** is in the format: **+CCCM: <ccm>** where: **<ccm>** - call cost meter value hexadecimal representation (3 bytes) Note: the unsolicited result code **+CCCM** is issued when the CCM value changes, but not more than every 10 seconds. Note: issuing **AT+CAOC<CR>** is the same as issuing the Read command.

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+CAOC - Advice Of Charge	
	Note: issuing **AT+CAOC=<CR>** is the same as issuing the command **AT+CAOC=0<CR>**.
AT+CAOC?	Read command reports the value of parameter **<mode>** in the format: **+CAOC: <mode>**
AT+CAOC=?	Test command reports the supported values for **<mode>** parameter. Note: the representation format doesn't match the v.25ter§5.7.3 "Information text formats for test commands". The output is: **+CAOC: 0, 1, 2**
Reference	GSM 07.07
Note	**+CAOC** command uses the CCM of the device internal memory, not the CCM stored in the SIM. The difference is that the internal memory CCM is reset at power up, while the SIM CCM is reset only on user request. Advice of Charge values stored in the SIM (ACM, ACMmax, PUCT) can be accessed with commands **+CACM**, **+CAMM** and **+CPUC**.

3.5.2.3.15 +CLCC - List Current Calls

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

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+CLCC - List Current Calls	
	<mode> - call type 0 - voice 1 - data 2 - fax 9 - unknown **<mpty>** - multiparty call flag 0 - call is not one of multiparty (conference) call parties **<number>** - phone number in format specified by **<type>** **<type>** - type of phone number byte in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: If no call is active then only **OK** message is sent. This command is useful in conjunction with command **+CHLD** to know the various call status for call holding.
Reference	GSM 07.07

3.5.2.3.16 +CSSN - SS Notification

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

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+CSSN - SS Notification	
	<code1>: 1 - some of the conditional call forwardings are active 2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred When **<m>=1** and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code **+CSSU: <code2>** is sent to **TE**, where: **<code2>**: 0 - this is a forwarded call (**MT** call setup) 2 - call has been put on hold (during a voice call) 3 - call has been retrieved (during a voice call) Note: issuing **AT+CSSN<CR>** is the same as issuing the Read command. Note: issuing **AT+CSSN=<CR>** is the same as issuing the command **AT+CSSN=0<CR>**.
AT+CSSN?	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters **<n>**, **<m>**.
Reference	GSM 07.07

3.5.2.3.17 +CCUG - Closed User Group Supplementary Service Control

+CCUG - Closed User Group Supplementary Service Control	
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)

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	<info> 0 - no information (default) 1 - suppress Outgoing Access (OA) 2 - suppress preferential CUG 3 - suppress OA and preferential CUG Note: issuing **AT+CCUG<CR>** is the same as issuing the Read command. Note: issuing **AT+CCUG=<CR>** is the same as issuing the command **AT+CCUG=0<CR>**.
AT+CCUG?	Read command reports the current value of the parameters
AT+CCUG=?	Test command reports the supported range of values for the parameters **<n>**, **<index>**, **<info>**
Reference	GSM 07.07

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3.5.2.4 Mobile Equipment Control

3.5.2.4.1 +CPAS - Phone Activity Status

+CPAS - Phone Activity Status	
AT+CPAS	Execution command reports the device status in the form: **+CPAS: <pas>** Where: **<pas>** - phone activity status 0 - ready (device allows commands from **TA/TE**) 1 - unavailable (device does not allow commands from **TA/TE**) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from **TA/TE**, but the ringer is active) 4 - call in progress (device is ready for commands from **TA/TE**, but a call is in progress)
AT+CPAS?	Read command has the same effect as Execution command.
AT+CPAS=?	Test command reports the supported range of values for **<pas>**. Note: although **+CPAS** is an execution command, ETSI 07.07 requires the Test command to be defined.
Example	ATD03282131321; OK AT+CPAS +CPAS: 3 *the called phone is ringing* OK AT+CPAS +CPAS: 4 *the called phone has answered to your call* OK ATH OK
Reference	GSM 07.07

3.5.2.4.2 +CFUN - Set Phone Functionality

+CFUN - Set Phone Functionality	
AT+CFUN=<fun>	Set command selects the level of functionality in the **ME**. Parameter: **<fun>** - is the power saving function mode 0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible. Consequently, once you have set **<fun>** level

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	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 stops power saving and takes the ME back to full functionality level **<fun>=1**. 1 - mobile full functionality with power saving disabled (factory default) 2 - disable TX 4 - disable either TX and RX 5 - mobile full functionality with power saving enabled Note: if power saving enabled, it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity. Note: to place the telephone 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 telephone is really in power saving condition. During the power saving condition, before sending any AT command on the serial line, the **DTR** must be enabled and it must be waited for the **CTS** (RS232) line to go in **ON** status. Until the **DTR** line is **ON**, the telephone will not return back in the power saving condition. Note: the power saving function does not affect the network behavior of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call arrives during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code
AT+CFUN?	Read command reports the current level of functionality.
AT+CFUN=?	Test command returns the list of supported values for **<fun>** For compatibility with previous versions, Test command returns **+CFUN: (1, 5)** An enhanced version of Test command has been defined: **AT+CFUN=??**, that provides the complete range of values for **<fun>**.
AT+CFUN=??	Enhanced test command returns the list of supported values for **<fun>**
Reference	GSM 07.07

3.5.2.4.3 +CPIN - Enter PIN

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

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

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+CPIN - Enter PIN

Note: Pin pending status at startup depends on PIN facility setting, to change or query the default power up setting use either the **AT+CLCK=SC,<mode>, <pin>** command or the **AT@CLCK=SC,<mode>, <pin>** command.

Example

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

OK
```

Note

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

A	**#SRP**	**#CAMOFF**	**+IPR**
D	**#CAP**	**#CAMEN**	**+ICF**
H	**#CODEC**	**#TPHOTO**	**+IFC**
O	**#CBC**	**#RPHOTO**	**+CMUX**
E	**#I2S1**	**#SELCAM**	**+CNMI**
I	**#STM**	**#CAMQUA**	**+CPAS**
L	**#SHFEC**	**#CMODE**	**+CCLK**
M	**#SHFSD**	**#CAMRES**	**+CALA**
P	**#HFMICG**	**#CAMTXT**	**+CRSM**
Q	**#HSMICG**	**#CAMZOOM**	**+CLIP**
S	**#GPIO**	**#CAMCOL**	**+DR**
T	**#SGPO**	**#OBJL**	**+DS**
V	**#GGPI**	**#OBJR**	**+MS**
X	**#ADC**	**#COPSMODE**	**+GCAP**
Z	**#QTEMP**	**#DIALMODE**	**+GCI**
&C	**#DAC**	**#SEMAIL**	**+ILRR**
&D	**#F26M**	**#EMAILD**	**+CALM**
&F	**#RTCSTAT**	**#EUSER**	**+CHUP**
&K	**#ACAL**	**#EPASSW**	**+FCLASS**
&N	**#PCT**	**#ESMTP**	**+FMI**
&P	**#WAKE**	**#EADDR**	**+FMM**
&S	**#SHDN**	**#EMAILMSG**	**+FMR**
&V	**#JDR**	**#ESAV**	**+FTS**
&W	**#CSURV**	**#ERST**	**+FRS**
&Y	**#CSURVC**	**#QSS**	**+FTM**
&Z	**#CSURVU**	**#SSCTRACE**	**+FRM**
%E	**#CSURVUC**	**+CFUN**	**+FRH**
%L	**#CSURVF**	**+CGMI**	**+FTH**

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+CPIN - Enter PIN	

%Q	#CSURVNLF	+CGMM	+FLO
\K	#CSURVB	+CGMR	+FPR
\Q	#CSURVBC	+GMI	+FDD
\R	#PASSW	+GMM	+CSNS
\V	#PKTSZ	+GMR	+CRLP
#BND	#SKTSAV	+CGSN	+CR
#AUTOBND	#SKTSET	+GSN	+CREG
#CGMI	#SKTOP	+CRC	+CGREG
#CGMM	#SKTTO	+CMEE	+COPS
#CGMR	#USERID	+CPIN	+CBC
#CGSN	#DSTO	+CSQ	+CIND
#MONI	#SKTCT	+CSDH	+CMER
#SERVINFO	#SKTRST	+CRSL	
#SELINT	#FTPPUTPH	+CLVL	
#SRS	#CAMON	+CMUT	

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

Reference	GSM 07.07

3.5.2.4.4 +CSQ - Signal Quality

+CSQ - Signal Quality	
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%

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+CSQ - Signal Quality	
	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, ETSI 07.07 requires the Test command to be defined.
Reference	GSM 07.07

3.5.2.4.5 +CIND - Indicator Control

+CIND - Indicator Control	
AT+CIND[= [<state> [,<state>[,…]]]]	Set command is used to control the registration / deregistration of ME indicators, in order to automatically send the **+CIEV URC**, whenever the value of the associated indicator changes. The supported indicators (**<descr>**) and their order appear from test command **AT+CIND=?** Parameter: **<state>** - registration / deregistration state 0 - the indicator is deregistered; it cannot be presented as unsolicited result code (**+CIEV URC**), but can be directly queried with **AT+CIND?** 1 - indicator is registered: indicator event report is allowed; this is the factory default for every indicator Note: issuing **AT+CIND<CR>** causes the read command to be executed Note: issuing **AT+CIND=<CR>** causes all the indicators to be registered, as the command **AT+CIND=1,1,1,1,1,1,1,1,1** was issued.
AT+CIND?	Read command returns the current value status of ME indicators, in the format: **+CIND: <ind>[,<ind>[,…]]** Note: the order of the values **<ind>s** is the same as that in which appear the supported indicators from test command **AT+CIND=?**
AT+CIND=?	Test command returns pairs, where string value **<descr>** is a description (max. 16 chars) of the indicator and compound value is the supported values for the indicator, in the format: **+CIND: (<descr>, (list of supported <ind>s))[,(<descr>, (list of supported <ind>s))[,…]]**

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	where: **<descr>** - indicator names as follows (along with their **<ind>** ranges) “battchg” - battery charge level **<ind>** - battery charge level indicator range 0..5 99 - not measurable “signal” - signal quality **<ind>** - signal quality indicator range 0..7 99 - not measurable “service” - service availability **<ind>** - service availability indicator range 0 - not registered to any network 1 - registered to home network “sounder” - sounder activity **<ind>** - sounder activity indicator range 0 - there’s no any sound activity 1 - there’s some sound activity “message” - message received **<ind>** - message received indicator range 0 - there is no unread short message at memory location “SM” 1 - unread short message at memory location “SM” “call” - call in progress **<ind>** - call in progress indicator range 0 - there’s no calls in progress 1 - at least a call has been established “roam” - roaming **<ind>** - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network “smsfull” - a short message memory storage in the MT has become full (1), or memory locations are available (0) **<ind>** - short message memory storage indicator range 0 - memory locations are available 1 - a short message memory storage in the MT has become full. “rssi” - received signal (field) strength **<ind>** - received signal strength level indicator range 0 - signal strength ≤ 112 dBm

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	1..4 - signal strength in 15 dBm steps 5 - signal strength ≥ 51 dBm 99 - not measurable
Example	*Next command causes all the indicators to be registered* AT+CIND=1,1,1,1,1,1,1,1,1,1 *Next command causes all the indicators to be de-registered* AT+CIND=0,0,0,0,0,0,0,0,0,0 *Next command to query the current value of all indicators* AT+CIND? CIND: 4,0,1,0,0,0,0,0,2 OK
Note	See command **+CMER**
Reference	GSM 07.07

3.5.2.4.6 +CMER - Mobile Equipment Event Reporting

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

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+CMER - Mobile Equipment Event Reporting	
	Note: issuing **AT+CMER<CR>** causes the read command to be executed Note: issuing **AT+CMER=<CR>** causes the command **AT+CMER=0,0,0,0,0** to be issued.
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	GSM 07.07

3.5.2.4.7 +CPBS - Select Phonebook Memory Storage

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

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	Note: the presentation format of the Test command output is the set of available values for **<storage>**, each of them enclosed in parenthesis: **+CPBS: ("SM"),("FD"),("LD"),("MC"),("RC")**
Reference	GSM 07.07

3.5.2.4.8 +CPBR - Read Phonebook Entries

+CPBR - Read Phonebook Entries	
AT+CPBR= <index1> [,<index2>]	Execution command returns phonebook entries in location number range **<index1>**..**<index2>** from the current phonebook memory storage selected with **+CPBS**. If **<index2>** is omitted, only location **<index1>** is returned. Parameters: **<index1>** - integer type value in the range of location numbers of phonebook memory **<index2>** - integer type value in the range of location numbers of phonebook memory The response format is: **+CPBR: <index>,<number>,<type>,<text>** where: **<index>** - the current position number of the PB index (to see the range of values use **+CPBR=?**) **<number>** - the phone number stored in the format **<type>** **<type>** - type of phone number byte 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 either command **+CSCS** or **@CSCS**. Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an **ME** error, **+CME ERROR: <err>** is returned.
AT+CPBR=?	Test command returns the supported range of values of the parameters in the form: **+CPBR: (<minIndex> - <maxIndex>),<nlength>,<tlength>** where: **<minIndex>** - the minimum **<index>** number, integer type **<maxIndex>** - the maximum **<index>** number, integer type **<nlength>** - maximum **<number>** field length, integer type

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	<tlength> - maximum **<name>** field length, integer type
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.5.2.4.9 +CPBF - Find Phonebook Entries

+CPBF - Find Phonebook Entries	
AT+CPBF= <findtext>	Execution command issues a search for the phonebook records that have the **<findtext>** sub-string at the start of the **<text>** field Parameter: **<findtext>** - string type, it is NOT case sensitive; used character set should be the one selected with either command **+CSCS** or **@CSCS**. The command returns a report in the form: **+CPBF: <index1>,<number>,<type>,<text>[[…]<CR><LF>** **+CPBF: <index*n*>,<number>,<type>,<text>]** where **<index*n*>**, **<number>**, **<type>**, and **<text>** have the same meaning as in the command **+CPBR** report. Note: if no PB records satisfy the search criteria then an **ERROR** message is reported.
AT+CPBF=?	Test command reports the maximum lengths of fields **<number>** and **<text>** in the PB entry in the form: **+CPBF: [<max_number_length>],[<max_text_length>]**
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.5.2.4.10 +CPBW - Write Phonebook Entry

+CPBW - Write Phonebook Entry	
AT+CPBW= [<index>] [,<number> [,<type> [,<text>]]]	Execution command stores at the position **<index>** a phonebook record defined by **<number>**, **<type>** and **<text>** parameters Parameters: **<index>** - record position **<number>** - string type, phone number in the format **<type>**

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	<type> - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") **<text>** - the text associated to the number, string type; used character set should be the one selected with either command **+CSCS** or **@CSCS**. Note: If record number **<index>** already exists, it will be overwritten. Note: if only **<index>** is given, the record number **<index>** is deleted. Note: if **<index>** is omitted, the number **<number>** is stored in the first free phonebook location. Note: omission of all the subparameters causes an **ERROR** result code.
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of **<number>** field supported number format of the storage and maximum length of **<text>** field. The format is: **+CPBW: (list of supported <index>s),[<nlength>],** **(list of supported <type>s),[<tlength>]** where: **<nlength>** - integer type value indicating the maximum length of field **<number>** **<tlength>** - integer type value indicating the maximum length of field **<text>**
Reference	GSM 07.07
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.

3.5.2.4.11 +CCLK - Clock Management

+CCLK - Clock Management	
AT+CCLK [=<time>]	Set command sets the real-time clock of the ME. Parameter: **<time>** - current time as quoted string in the format : "yy/MM/dd,hh:mm:ss±zz" yy - year (two last digits are mandatory), range is 00..99 MM - month (two last digits are mandatory), range is 01..12 dd - day (two last digits are mandatory), range is 01..31 (if the month MM has less than 31 days, the clock will be set for the next month) hh - hour (two last digits are mandatory), range is 00..23 mm - minute (two last digits are mandatory), range is 00..59

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	ss - seconds (two last digits are mandatory), range is 00..59 ±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48 Note: If the parameter is omitted the behaviour of Set command is the same as Read command.
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: the three last characters of **<time>** are not returned by **+CCLK?** because the **ME** doesn't support time zone information.
AT+CCLK=?	Test command returns the **OK** result code.
Example	AT+CCLK="02/09/07,22:30:00+00" OK AT+CCLK? +CCLK: 02/09/07,22:30:25 OK
Reference	GSM 07.07

3.5.2.4.12 +CALA - Alarm Management

+CALA - Alarm Management	
AT+CALA[= <time>[,<n> [,<type>[,<text>]]]]	Set command stores in the internal Real Time Clock the current alarm time and settings defined by the parameters **<time>**, **<n>**, **<type>**, and **<text>**. 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. Parameter: **<time>** - current alarm time as quoted string in the same format as defined for **+CCLK** command: "yy/MM/dd,hh:mm:ss±zz" **<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. 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: **+ALARM: <text>** where **<text>** is the **+CALA** optional parameter previously set.

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+CALA - Alarm Management	
	The device keeps on sending the unsolicited code every 3s until a **#WAKE** or **#SHDN** command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down. (default) 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 90s timeout 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 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down. 5 - the MODULE will make both the actions as for **<type>=2** and **<type>=3**. 6 - the MODULE will make both the actions as for **<type>=2** and **<type>=4**. 7 - the MODULE will make both the actions as for **<type>=3** and **<type>=4**. **<text>** - unsolicited alarm code text string. It has meaning only if **<type>** is equal to 2 or 5 or 6. Note: The "alarm mode" is indicated by hardware pin **CTS** to the **ON** status and **DSR** to the **OFF** status, while the "power saving" status is indicated by a **CTS** - **OFF** and **DSR** - **OFF** status. The normal operating status is indicated by **DSR** - **ON**. During the "alarm mode" the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SMS, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state. Note: If the parameter is omitted the behaviour of Set command is the same as Read command.
AT+CALA?	Read command reports the current alarm time stored in the internal Real Time Clock, if present, in the format: **+CALA: <time>,<n>,<type>[,<text>]** Note: if no alarm is present a **<CR><LF>** is issued.
AT+CALA=?	Test command reports the list of supported **<n>s**, the list of supported

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+CALA - Alarm Management	
	<type>s, and **<text>** maximum length
Example	AT+CALA="02/09/07,23:30:00+00" OK
Reference	GSM 07.07

3.5.2.4.13 +CRSM - Restricted SIM Access

+CRSM - Restricted SIM Access	
AT+CRSM= <command> [,<fileid> [,<P1>,<P2>,<P3> [,<data>]]]	Execution command transmits to the **ME** the SIM **<command>** and its required parameters. **ME** handles internally all **SIM-ME** interface locking and file selection routines. As response to the command, **ME** sends the actual SIM information parameters and response data. Parameters: **<command>** - command passed on by the **ME** to the SIM 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS **<fileid>** - identifier of an elementary datafile on SIM. Mandatory for every command except STATUS. **<P1>**,**<P2>**,**<P3>** - parameter passed on by the **ME** to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0..255 **<data>** - information to be read/written to the SIM (hexadecimal character format). The response of the command is in the format: **+CRSM: <sw1>,<sw2>[,<response>]** where: **<sw1>**,**<sw2>** - information from the SIM about the execution of the actual command either on successful or on failed

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+CRSM - Restricted SIM Access	
	execution. **<response>** - on a successful completion of the command previously issued it gives the requested data (hexadecimal character format). It's not returned after a successful UPDATE BINARY or UPDATE RECORD command. Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files. Note: use only decimal numbers for parameters **<command>**, **<fileid>**, **<P1>**, **<P2>** and **<P3>**.
AT+CRSM=?	Test command returns the **OK** result code
Reference	GSM 07.07, GSM 11.11

3.5.2.4.14 +CALM - Alert Sound Mode

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

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AT+CALM=??	Enhanced test command returns the complete range of values for the parameter **<mode>** as compound value: **+CALM: (0-2)**
Reference	GSM 07.07

3.5.2.4.15 +CRSL - Ringer Sound Level

+CRSL - Ringer Sound Level	
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. 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	GSM 07.07

3.5.2.4.16 +CLVL - Loudspeaker Volume Level

+CLVL - Loudspeaker Volume Level	
AT+CLVL[=	Set command is used to select the volume of the internal loudspeaker audio

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<level>]	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	GSM 07.07

3.5.2.4.17 +CMUT - Microphone Mute Control

+CMUT - Microphone Mute Control	
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	GSM 07.07

3.5.2.4.18 +CACM - Accumulated Call Meter

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+CACM - Accumulated Call Meter	
AT+CACM[= <pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter in SIM (ACM). Internal memory CCM remains unchanged. Parameter: **<pwd>** - to access this command PIN2 password is required 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>** Note: the value **<acm>** is in units whose price and currency is defined with command **+CPUC**
Reference	GSM 07.07

3.5.2.4.19 +CAMM - Accumulated Call Meter Maximum

+CAMM - Accumulated Call Meter Maximum	
AT+CAMM[= <acmmax>, <pwd>]	Set command sets the Advice of Charge related Accumulated Call Meter ACM maximum value in SIM (see also **+CACM** command). 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. SIM PIN2 is required to set the value. Parameter: **<acmmax>** - maximum number of units allowed to be consumed **<pwd>** - PIN2 password Note: The **<acmmax>=0** value disables the feature. Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CAMM?	Read command reports the maximum value of ACM stored in SIM in the format: **+CAMM : <acmmax>**
Reference	GSM 07.07

3.5.2.4.20 +CPUC - Price per Unit and Currency Table

+CPUC - Price Per Unit And Currency Table	
AT+CPUC[=	Set command sets the values of Advice of Charge related price per unit and

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<currency>, <ppu>,<pwd>]	currency table in SIM. The price per unit currency table information can be used to convert the home units (as used in commands **+CAOC**, **+CACM** and **+CAMM**) into currency units. Parameters: **<currency>** - string type; three-character currency code (e.g. LIT, USD, DEM etc..); used character set should be the one selected with either command **+CSCS** or **@CSCS**. **<ppu>** - price per unit string (dot is used as decimal separator) e.g. 1989.27 **<pwd>** - SIM PIN2 is usually required to set the values Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CPUC?	Read command reports the current values of **<currency>** and **<ppu>** parameters in the format: **+CACM : <currency>,<ppu>**
Reference	GSM 07.07

3.5.2.4.21 +CCID - Read ICCID (Integrated Circuit Card Identification)

+CCID - Read ICCID (Integrated Circuit Card Identification)	
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**.

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3.5.2.5 Mobile Equipment Errors

3.5.2.5.1 +CMEE - Report Mobile Equipment Error

+CMEE - Report Mobile Equipment Error	
AT+CMEE[=[<n>]]	Set command enables/disables the report of result code: **+CME ERROR: <err>** as an indication of an error relating to the **+Cxxx** commands issued. When enabled, device related errors cause the **+CME ERROR: <err>** final result code instead of the default **ERROR** final result code. **ERROR** is anyway returned normally when the error message is related to syntax, invalid parameters, or **DTE** functionality. Parameter: **<n>** - enable flag 0 - disable **+CME ERROR:<err>** reports, use only **ERROR** report. 1 - enable **+CME ERROR:<err>** reports, with **<err>** in numeric format 2 - enable **+CME ERROR: <err>** reports, with **<err>** in verbose format Note: issuing **AT+CMEE<CR>** is the same as issuing the Read command. Note: issuing **AT+CMEE=<CR>** is the same as issuing the command **AT+CMEE=0<CR>**.
AT+CMEE?	Read command returns the current value of subparameter **<n>** **+CMEE: <n>**
AT+CMEE=?	Test command returns the range of values for subparameter **<n>** in the format: **+CMEE: 0, 1, 2** Note: the representation format of the Test command output is not included in parenthesis.
Reference	GSM 07.07

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3.5.2.6 Voice Control

3.5.2.6.1 +VTS - DTMF Tones Transmission

+VTS - DTMF Tones Transmission	
AT+VTS= <dtmfstring> [,duration]	Execution command allows the transmission of DTMF tones. Parameters: **<dtmfstring>** - string of **<dtmf>s,** i.e. ASCII characters in the set **(0-9), #,*,(A-D)**; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through **+VTD** command. **<duration>** - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character 0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current **+VTD** setting is. 1..255 - a single DTMF tone will be transmitted for a time **<duration>** (in 10 ms multiples), no matter what the current **+VTD** setting is. Note: this commands operates in voice mode only (see **+FCLASS**).
AT+VTS=?	For compatibility with previous versions, Test command returns **+VTS: (),(),()** An enhanced version of Test command has been defined: **AT+VTS=??**, that provides the correct range of values for **<DTMF>**.
AT+VTS=??	Test command provides the list of supported **<dtmf>s** and the list of supported **<duration>s** in the format: **(list of supported <dtmf>s)[,(list of supported <duration>s)]**
Reference	GSM 07.07 and TIA IS-101

3.5.2.6.2 +VTD - Tone Duration

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

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	(list of supported <duration>s)
Reference	GSM 07.07 and TIA IS-101

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3.5.2.7 Commands For GPRS

3.5.2.7.1 +CGCLASS - GPRS Mobile Station Class

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

3.5.2.7.2 +CGATT - GPRS Attach Or Detach

+CGATT - GPRS Attach Or Detach	
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 behaviour 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

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+CGATT - GPRS Attach Or Detach	
	0K
Reference	GSM 07.07

3.5.2.7.3 +CGREG - GPRS Network Registration Status

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

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+CGREG - GPRS Network Registration Status	
	AT+CGREG=0<CR>.
AT+CGREG?	Read command returns the status of result code presentation mode **<n>** and the integer **<stat>** which shows whether the network has currently indicated the registration of the terminal in the format: **+CGREG:<n>,<stat>**.
AT+CGREG=?	Test command returns supported values for parameter **<n>**
Reference	GSM 07.07

3.5.2.7.4 +CGDCONT - Define PDP Context

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

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+CGDCONT - Define PDP Context	
	Note: issuing **AT+CGDCONT=<CR>** returns the **OK** result code.
AT+CGDCONT?	Read command returns the current settings for each defined context in the format: **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>, <h_comp>[,<pd1>[,…[,pdN]]]<CR><LF>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp> [,<pd1>[,…[,pdN]]]<CR><LF>[…]]**
AT+CGDCONT=?	Test command returns values supported as a compound value
Example	AT+CGDCONT=1,"IP","APN","10.10.10.10",0,0 OK AT+CGDCONT? +CGDCONT: 1,"IP","APN","10.10.10.10",0,0 OK AT+CGDCONT=? +CGDCONT: (1-5),"IP",,,(0-1),(0-1) OK
Reference	GSM 07.07

3.5.2.7.5 +CGQMIN - Quality Of Service Profile (Minimum Acceptable)

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	
AT+CGQMIN[= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]]	Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message. Parameters: **<cid>** - PDP context identification (see **+CGDCONT** command). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class **<mean>** - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQMIN=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQMIN<CR>** is the same as issuing the Read command.

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+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	
	Note: issuing **AT+CGQMIN=<CR>** returns the **OK** result code.
AT+CGQMIN?	Read command returns the current settings for each defined context in the format: **+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQMIN: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQMIN: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the “IP” PDP_Type is currently supported.

Example	`AT+CGQMIN=1,0,0,3,0,0`
	`OK`
	`AT+CGQMIN?`
	`+CGQMIN: 1,0,0,5,0,0`
	
	`OK`
	`AT+CGQMIN=?`
	`+CGQMIN: “IP”,(0-3),(0-4),(0-5),(0-9),(0-19,31)`
	
	`OK`

Reference	GSM 07.07; GSM 03.60

3.5.2.7.6 +CGQREQ - Quality Of Service Profile (Requested)

+CGQREQ - Quality Of Service Profile (Requested)	
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

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+CGQREQ - Quality Of Service Profile (Requested)	
	If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQREQ=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQREQ<CR>** is the same as issuing the Read command. Note: issuing **AT+CGQREQ=<CR>** returns the **OK** result code.
AT+CGQREQ?	Read command returns the current settings for each defined context in the format: **+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQREQ: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the “IP” PDP_Type is currently supported.
Example	AT+CGQREQ? +CGQREQ: 1,0,0,3,0,0 OK AT+CGQREQ=1,0,0,3,0,0 OK AT+CGQREQ=? +CGQREQ: ”IP”,(0-3),(0-4),(0-5),(0-9),(0-19,31) OK
Reference	GSM 07.07; GSM 03.60

3.5.2.7.7 +CGACT - PDP Context Activate Or Deactivate

+CGACT - PDP Context Activate Or Deactivate	
AT+CGACT[= [<state>[,<cid> [,<cid>[,…]]]]]	Execution command is used to activate or deactivate the specified PDP context(s)

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	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. Note: issuing **AT+CGACT<CR>** is the same as issuing the Read command. Note: issuing **AT+CGACT=<CR>** returns the **OK** result code.
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: **+CGACT: <cid>,<state><CR><LF>[<CR><LF>+CGACT: <cid>,<state><CR><LF>[...]]**
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: **+CGACT: (0-1)**

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

Reference	GSM 07.07

3.5.2.7.8 +CGPADDR - Show PDP Address

+CGPADDR - Show PDP Address	
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

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+CGPADDR - Show PDP Address	
	+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>**; **<PDP_addr>** is omitted if none is available
AT+CGPADDR=?	Test command returns a list of defined **<cid>**s.
Example	AT#GPRS=1 +IP: xxx.yyy.zzz.www OK AT+CGPADDR=1 +CGPADDR: 1,"xxx.yyy.zzz.www" OK AT+CGPADDR=? +CGPADDR: (1) OK
Reference	GSM 07.07

3.5.2.7.9 +CGDATA - Enter Data State

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

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+CGDATA - Enter Data State	
Reference	GSM 07.07

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3.5.2.8 Commands For Battery Charger

3.5.2.8.1 +CBC - Battery Charge

+CBC - Battery Charge	
AT+CBC	Execution command returns the current Battery Charge status in the format: **+CBC: <bcs>,<bcl>** where: **<bcs>** - battery charge status 0 - **ME** is powered by the battery 1 - **ME** has a battery connected, and charger pin is being powered 2 - **ME** does not have a battery connected 3 - Recognized power fault, calls inhibited **<bcl>** - battery charge level 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged. Note: **<bcs>=1** indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for **ME** operations is taken anyway from VBATT pins. Note: without battery/power connected on VBATT pins or during a power fault the unit is not working, therefore values **<bcs>=2** and **<bcs>=3** will never appear.
AT+CBC?	Read command has the same effect as Execution command.
AT+CBC=?	Test command returns parameter values supported as a compound value. For compatibility with previous versions, Test command returns **+CBC: (0-2),(0-100)** An enhanced version of Test command has been defined: **AT+CBC=??**, that provides the complete range of values for **<bcs>** and **<bcl>**. Note: although **+CBC** is an execution command, ETSI 07.07 requires the Test command to be defined.
AT+CBC=??	Enhanced test command returns the complete range of values for **<bcs>** and **<bcl>**: **+CBC: (0-3),(0-100)**
Example	AT+CBC +CBC: 0,75

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+CBC - Battery Charge	
	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	GSM 07.07

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3.5.3 ETSI GSM 07.05 AT Commands for SMS and CBS

3.5.3.1 General Configuration

3.5.3.1.1 +CSMS - Select Message Service

+CSMS - Select Message Service	
AT+CSMS [=<service>]	Set command selects messaging service **<service>**. It returns the types of messages supported by the **ME**: Parameter: **<service>** 0 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0 (factory default) 1 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2+. Set command returns current service setting along with the types of messages supported by the ME: **+CSMS: <service>,<mt>,<mo>,<bm>** where: **<mt>** - mobile terminated messages support 0 - type not supported 1 - type supported **<mo>** - mobile originated messages support 0 - type not supported 1 - type supported **<bm>** - broadcast type messages support 0 - type not supported 1 - type supported Note: If parameter is omitted then the behavior of Set command is the same as Read command.
AT+CSMS?	Read command reports current service setting along with supported message types in the format: **+CSMS: <service>,<mt>,<mo>,<cb>** where: **<service>** - messaging service (see above) **<mt>** - mobile terminated messages support (see above) **<mo>** - mobile originated messages support (see above) **<bm>** - broadcast type messages support (see above)
AT+CSMS=?	Test command reports a list of all services supported by the device. the

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+CSMS - Select Message Service	
	supported value of the parameter **<service>**.
Reference	GSM 07.05; GSM 03.40; GSM 03.41

3.5.3.1.2 +CPMS - Preferred Message Storage

+CPMS - Preferred Message Storage	
AT+CPMS[= <memr> [,<memw> [,<mems>]]]	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage "ME" - **ME** internal storage (read only, no delete) **<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>** **<totals>** - max number of SMS that **<mems>** can contain Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so **<memw>=<mems>="SM"**. Note: the received class 0 SMS are stored in the "ME" memory regardless the **<mems>** setting and they are automatically deleted at power off. Note: If all parameters are omitted the behavior of Set command is the same as Read command.
AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>**

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+CPMS - Preferred Message Storage	
	where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**
Example	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK *you have 5 out of 10 SMS SIM positions occupied*
Reference	GSM 07.05

3.5.3.1.3 +CMGF - Message Format

+CMGF - Message Format	
AT+CMGF[= [<mode>]]	Set command selects the format of messages used with send, list, read and write commands. Parameter: **<mode>** 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode Note: issuing **AT+CMGF<CR>** is the same as issuing the Read command. Note: issuing **AT+CMGF=<CR>** is the same as issuing the command **AT+CMGF=0<CR>**.
AT+CMGF?	Read command reports the current value of the parameter **<mode>**.
AT+CMGF=?	Test command reports the supported value of **<mode>** parameter.
Reference	GSM 07.05

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3.5.3.2 Message Configuration

3.5.3.2.1 +CSCA - Service Center Address

+CSCA - Service Center Address	
AT+CSCA[= [<number> [,<type>]]]	Set command sets the Service Center Address to be used for mobile originated SMS transmissions. Parameter: **<number>** - SC phone number in the format defined by **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed. Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the **<pdu>** parameter equals zero. Note: issuing **AT+CSCA<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCA=<CR>** causes an **OK** result code to be issued.
AT+CSCA?	Read command reports the current value of the SCA in the format: **+CSCA: <number>,<type>** Note: if SCA is not present the device reports an error message.
AT+ CSCA=?	Test command returns the **OK** result code.
Reference	GSM 07.05

3.5.3.2.2 +CSMP - Set Text Mode Parameters

+CSMP - Set Text Mode Parameters	
AT+CSMP[= [<fo> [,<vp> [,<pid> [,<dcs>]]]]]	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used **(+CMGF=1**) Parameters: **<fo>** - depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. **<vp>** - depending on SMS-SUBMIT **<fo>** setting:

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+CSMP - Set Text Mode Parameters	
	GSM 03.40 TP-Validity-Period either in integer format (default 167) or in quoted time-string format **<pid>** - GSM 03.40 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme Note: issuing **AT+CSMP<CR>** is the same as issuing the Read command. Note: issuing **AT+CSMP=<CR>** is the same as issuing the command **AT+CSMP=0<CR>**.
AT+CSMP?	Read command reports the current setting in the format: **+CSMP: < fo>,<vp>,<pid>,<dcs>**
AT+CSMP=?	Test command reports the supported range of values for **<fo>**, **<vp>**, **<pid>** and **<dcs>** parameters.
Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:* AT+CSMP=17,167,0,0 OK
Reference	GSM 07.05; GSM 03.40; GSM 03.38

3.5.3.2.3 +CSDH - Show Text Mode Parameters

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

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+CSDH - Show Text Mode Parameters	
	+CSDH: <show>
AT+CSDH=?	Test command reports the supported range of values for parameter **<show>**
Reference	GSM 07.05

3.5.3.2.4 +CSCB - Select Cell Broadcast Message Types

+CSCB -Select Cell Broadcast Message Types	
AT+CSCB[= [<mode> [,<mids> [,<dcss>]]]]	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 **<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: issuing **AT+CSCB<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCB=<CR>** is the same as issuing the command **AT+CSCB=0<CR>**.
AT+CSCB?	Read command reports the current value of parameters **<mode>**, **<mids>** and **<dcss>**.
AT+CSCB=?	Test command returns the range of values for parameter **<mode>**.
Example	AT+CSCB? +CSCB: 1,"","" OK *(all CBMs are accepted, none is rejected)* AT+CSCB=0,"0,1,300-315,450","0-3" OK
Reference	GSM 07.05, GSM 03.41, GSM 03.38.

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3.5.3.2.5 +CSAS - Save Settings

+CSAS - Save Settings	
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.
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 07.05

3.5.3.2.6 +CRES - Restore Settings

+CRES - Restore Settings	
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?	Read command has the same effect as Execution command with parameter omitted.
AT+CRES=?	Test command returns the possible range of values for the parameter **<profile>**.
Reference	GSM 07.05

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3.5.3.3 Message Receiving And Reading

3.5.3.3.1 +CNMI - New Message Indications To Terminal Equipment

+CNMI - New Message Indications To Terminal Equipment	
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>** where: **<memr>** - memory storage where the new message is stored "SM" "ME" **<index>** - location on the memory where SM is stored. 2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the **TE** using the following unsolicited result code: **(PDU Mode)** **+CMT: <alpha>,<length><CR><LF><pdu>** where: **<alpha>** - alphanumeric representation of originator/destination number corresponding to the entry found in **MT** phonebook **<length>** - PDU length **<pdu>** - PDU message **(TEXT Mode)** **+CMT:<oa>,<alpha>,<scts>*[,<tooa>,<fo>,<pid>,<dcs>,***

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+CNMI - New Message Indications To Terminal Equipment

***<sca>,<tosca>,<length>]*<CR><LF><data>** (the information written in italics will be present depending on **+CSDH** last setting)
where:
<oa> - originator address number
<alpha> - alphanumeric representation of **<oa>** or **<da>**; used character set should be the one selected with either command **+CSCS** or @**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 GSM 03.40
<pid> - Protocol Identifier
<dcs> - Data Coding Scheme
<sca> - Service Centre number
<length> - text length
<data> - TP-User-Data

Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in **<mt>=1**.
3 - Class 3 SMS-DELIVERs are routed directly to **TE** using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**.

<bm> - broadcast reporting option
0 - Cell Broadcast Messages are not sent to the **DTE**
2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code:

(PDU Mode)
+CBM: <length><CR><LF><PDU>
where:
<length> - PDU length
<PDU> - message PDU

(TEXT Mode)
+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>
where:
<sn> - message serial number
<mid> - message ID
<dcs> - Data Coding Scheme
<pag> - page number
<pags> - total number of pages of the message
<data> - CBM Content of Message

<ds> - SMS-STATUS-REPORTs reporting option
0 - status report receiving is not reported to the **DTE**

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

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+CNMI - New Message Indications To Terminal Equipment	
	An enhanced version of Test command has been defined: **AT+CNMI=??**, that provides the complete range of values for parameter **<mode>**.
AT+CNMI=??	Enhanced test command reports the supported range of values for all the **+CNMI** command parameters.
Reference	GSM 07.05
Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is inactive (**DTR** signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.

3.5.3.3.2 +CMGL - List Messages

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

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+CMGL - List Messages	
	"REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages. Each message to be listed is represented in the format (the information written in italics will be present depending on **+CSDH** last setting): **+CMGL: <index>,<stat>,<oa/da>,,*[,<tooa/toda>,<length>]*** **<CR><LF> <data>** where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination number ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") ***<length>*** - text length **<data>** - **TP-User-Data** Each message delivery confirm is represented in the format**:** **+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: **OK** result code is sent at the end of the listing. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT+CMGL?	Read command has the same effect as Execution command with parameter omitted
AT+CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode **(+CMGF=1**) the Test command output is not included in parenthesis **AT+CMGL=?** **+CMGL: "REC UNREAD","REC READ","STO UNSENT",**

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+CMGL - List Messages	
	"STO SENT","ALL"
Note	The improving command @**CMGL** has been defined
Reference	GSM 07.05

3.5.3.3.3 @CMGL - List Messages

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

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@CMGL - List Messages	
	@CMGL: <index>,<stat>,<oa/da>,,*[,<tooa/toda>,<length>]* **<CR><LF> <data>** where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination number ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") ***<length>*** - text length **<data>** - TP-User-Data Each message delivery confirm is represented in the format**:** **@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: The command differs from the **+CMGL** because at the end of the listing a **<CR><LF>** is put before the **OK** result code. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT@CMGL?	Read command has the same effect as Execution command with parameter omitted
AT@CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode **(+CMGF=1**) the Test command output is not included in parenthesis **AT@CMGL=?** **@CMGL: "REC UNREAD","REC READ","STO UNSENT",** **"STO SENT","ALL"**
Reference	GSM 07.05

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3.5.3.3.4 +CMGR - Read Message

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

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+CMGR - Read Message	
	"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 number **<da>** - Destination address number **<*sca*>** - Service Centre number **<*tooa*>,<*toda* >,<*tosca*>** - type of number **<oa>**,**<da>**,**<*sca*>** 129 - number in national format 145 - number in international format (contains the "+") **<*length*>** - text length **<data>** - TP-User_data Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT+CMGR=?	Test command returns the **OK** result code.
Note	The improving command @**CMGR** has been defined
Reference	GSM 07.05

3.5.3.3.5 @CMGR - Read Message

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

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@CMGR - Read Message	
	0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. **(Text Mode)** Output format for received messages (the information written in italics will be present depending on **+CSDH** last setting): **@CMGR: <stat>,<oa>,,<scts>** ***[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*****<CR><LF><text>** Output format for sent messages: **@CMGR: <stat>,<da>,*[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]*<CR><LF><text>** Output format for message delivery confirm: **@CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where: **<stat>** - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent ***<fo>*** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme **<oa>** - Originator address number **<da>** - Destination address number ***<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

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@CMGR - Read Message	
	Note: the command differs from the **+CMGR** because after the message **<pdu>** or **<text>** a **<CR><LF>** is put before the **OK** result code. Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT@CMGR=?	Test command has no effect; the answer is **OK**
Reference	GSM 07.05

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3.5.3.4 Message Sending And Writing

3.5.3.4.1 +CMGS - Send Message

+CMGS - Send Message	
(PDU Mode) **AT+CMGS= <length>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes. 7..164 The device responds to the command with the prompt '>' and waits for the specified number of bytes. To send the message issue **Ctrl-Z** char (0x1A hex). To exit without sending the message issue **ESC** char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
(Text Mode) **AT+CMGS=<da> [,<toda>]**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address number. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") The device responds to the command with the prompt '>' and waits for message text (max 160 characters). 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:

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+CMGS - Send Message	
	+CMGS: <mr> where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.5.3.4.2 +CMSS - Send Message From Storage

+CMSS - Send Message From Storage	
AT+CMSS= <index>[,<da> [,<toda>]]	Execution command sends to the network a message which is already stored in the **<memw>** storage (see **+CPMS**) at the location **<index>**. Parameters: **<index>** - location value in the message storage **<memw>** of the message to send **<da>** - destination address; if it is given it shall be used instead of the one stored with the message. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") If message is successfully sent to the network then the result is sent in the format: **+CMSS: <mr>** where: **<mr>** - message reference number. If message sending fails for some reason, an error code is reported: **+CMS ERROR:<err>** Note: to store a message in the **<memw>** storage see command **+CMGW**. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.

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+CMSS - Send Message From Storage	
Note	To avoid malfunctions is suggested to wait for the **+CMSS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.5.3.4.3 +CMGW - Write Message To Memory

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

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+CMGW - Write Message To Memory	
	"STO UNSENT" - message stored not yet sent (default) "STO SENT" - message stored already sent **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "+") **<stat>** - message status. The device responds to the command with the prompt '>' and waits for the message text (max 160 characters). To write the message issue **Ctrl-Z** char (0x1A hex). To exit without writing the message issue **ESC** char (0x1B hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.
Reference	GSM 07.05
Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

3.5.3.4.4 +CMGD - Delete Message

+CMGD - Delete Message	
AT+CMGD= <index> [,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent mobile originated messages, leaving unread messages untouched

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+CMGD - Delete Message	
	4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then **<index>** is ignored and ME shall follow the rules for **<delflag>** shown above. Note: if the location to be deleted is empty, an error message is reported.
AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]**
Example	AT+CMGD=? +CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4) OK
Reference	GSM 07.05

3.5.4 FAX Class 1 AT Commands

3.5.4.1General Configuration

NOTE: All the test command results are without command echo

3.5.4.1.1 +FMI - Manufacturer ID

+FMI - Manufacturer ID	
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

3.5.4.1.2 +FMM - Model ID

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

3.5.4.1.3 +FMR - Revision ID

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

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3.5.4.2Transmission/Reception Control

3.5.4.2.1 +FTS - Stop Transmission And Pause

+FTS - Stop Transmission And Pause	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.2.2 +FRS - Wait For Receive Silence

+FRS - Wait For Receive Silence	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.2.3 +FTM - Transmit Data Modulation

+FTM - Transmit Data Modulation	
AT+FTM=<mod>	Execution command causes the module to transmit facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FTM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.5.4.2.4 +FRM - Receive Data Modulation

+FRM - Receive Data Modulation	
AT+FRM=<mod>	Execution command causes the module to receive facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FRM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.2.5 +FTH - Transmit Data With HDLC Framing

+FTH - Transmit Data With HDLC Framing	
AT+FTH=<mod>	Execution command causes the module to transmit facsimile data using HDLC protocol and the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 3 - V21/300 bps
AT+FTH=?	Test command returns all supported values of the parameter **<mod>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.2.6 +FRH - Receive Data With HDLC Framing

+FRH - Receive Data Data With HDLC Framing	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.5.4.3Serial Port Control

3.5.4.3.1 +FLO - Select Flow Control Specified By Type

+FLO - Select Flow Control Specified By Type	
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>**
AT+FLO=?	Test command returns all supported values of the parameter **<type>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.3.2 +FPR - Select Serial Port Rate

+FPR - Select Serial Port Rate	
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
AT+FPR?	Read command returns the current value of parameter **<rate>**
AT+FPR=?	Test command returns all supported values of the parameters **<rate>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.5.4.3.3 +FDD - Double Escape Character Replacement Control

+FDD - Double Escape Character Replacement Control	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.5.5 Custom AT Commands

3.5.5.1 General Configuration AT Commands

3.5.5.1.1 #CGMI - Manufacturer Identification

#CGMI - Manufacturer Identification	
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

3.5.5.1.2 #CGMM - Model Identification

#CGMM - Model Identification	
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

3.5.5.1.3 #CGMR - Revision Identification

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

3.5.5.1.4 #CGSN - Product Serial Number Identification

#CGSN - Product Serial Number Identification	
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

3.5.5.1.5 #CIMI - International Mobile Subscriber Identity (IMSI)

#CIMI - International Mobile Subscriber Identity (IMSI)	
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

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3.5.5.1.6 #CAP - Change Audio Path

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

3.5.5.1.7 #SRS - Select Ringer Sound

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

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

3.5.5.1.8 #SRP -Select Ringer Path

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

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#SRP - Select Ringer Path	
	Note: issuing **AT#SRP<CR>** is the same as issuing the Read command. Note: issuing **AT#SRP=<CR>** is the same as issuing the command **AT#SRP=0<CR>**.
AT#SRP?	Read command reports the selected ringer path in the format: **#SRP: <n>**.
AT#SRP=?	Test command reports the supported values for the parameter **<n>**.
Example	AT#SRP=? #SRP: (0-3) OK AT#SRP=3 OK

3.5.5.1.9 #STM - Signaling Tones Mode

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

3.5.5.1.10 #PCT - Display PIN Counter

#PCT - Display PIN Counter	
AT#PCT	Execution command reports the PIN/PUK or PIN2/PUK2 input remaining attempts, depending on **+CPIN** requested password in the format: **#PCT: <n>**

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	where: **<n>** - remaining attempts 0 - the SIM is blocked. 1..3 - if the device is waiting either SIM PIN or SIM PIN2 to be given. 1..10 - if the device is waiting either SIM PUK or SIM PUK2 to be given.
AT#PCT?	Read command has the same behaviour as Execution command.

3.5.5.1.11 #SHDN - Software Shut Down

#SHDN - Software Shutdown	
AT#SHDN	Execution command causes device detach from the network and shut down. Before definitive shut down an **OK** response is returned. Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command. Note: to turn it on again Hardware pin ON/OFF must be tied low.
AT#SHDN?	Read command has the same behaviour as Execution command.

3.5.5.1.12 #WAKE - Wake From Alarm Mode

#WAKE - Wake From Alarm Mode	
AT#WAKE[=<opmode>]	Execution command stops any eventually present alarm activity and, if the module is in **alarm mode**, it exits the **alarm mode** and enters the **normal operating mode**. Parameter: **<opmode>** - operating mode 0 - normal operating mode; the module exits the **alarm mode**, enters the **normal operating mode**, any alarm activity is stopped (e.g. alarm tone playing) and an **OK** result code is returned. Note: if parameter is omitted, the command returns the **operating status** of the device in the format: **#WAKE: <status>** where: **<status>** 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity. Note: the **power saving** status is indicated by a **CTS - OFF** and **DSR - OFF** status. The **normal operating status** is indicated by **DSR - ON**.

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#WAKE - Wake From Alarm Mode	
	Note: during the **alarm mode** the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.
AT#WAKE?	Read command has the same effect as Execution command when parameter is omitted.

3.5.5.1.13 #QTEMP -Query Temperature Overflow

#QTEMP - Query Temperature Overflow	
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. Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command
AT#QTEMP?	Read command queries the device internal temperature sensor for over temperature and reports the result in the format: **#QTEMP: <temp>** where **<temp>** - over temperature indicator 0 - the device temperature is in the working range 1 - the device temperature is out of the working range
#QTEMP=?	Test command reports supported range of values for parameter **<mode>**.
Note	The device should not be operated out of its working temperature range; if temperature is out of range proper functioning of the device is not ensured.

3.5.5.1.14 #SGPO - Set General Purpose Output

#SGPO - Set General Purpose Output	
AT#SGPO[= [<stat>]]	Set command sets the value of the general purpose output pin **GPIO2**. Parameter: **<stat>** 0 - output pin cleared to 0 (**LOW**) 1 - output pin set to 1 (**HIGH**) Note: the **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated: **AT#SGPO=0** sets the open collector output **HIGH** **AT#SGPO=1** sets the open collector output **LOW** A pull up resistor is required on pin **GPIO2**.

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#SGPO - Set General Purpose Output	
	Note: issuing **AT#SGPO<CR>** is the same as issuing the Read command. Note: issuing **AT#SGPO=<CR>** is the same as issuing the command **AT#SGPO=0<CR>**.
AT#SGPO?	Read command reports the **#SGPO** command setting, hence the opposite status of the open collector pin in the format: **#SGPO: <stat>**.
AT#SGPO=?	Test command reports the supported range of values of parameter **<stat>**.
Note	This command is meaningful only for GM862 family

3.5.5.1.15 #GGPI - General Purpose Input

#GGPI - General Purpose Input	
AT#GGPI[=[<dir>]]	Set command sets the general purpose input pin **GPIO1**. Parameter: **<dir>** - auxiliary input GPIO1 setting 0 - the Read command **AT#GGPI?** reports the logic input level read from GPIO1 pin. Note: The device has an insulated input pin (the input goes the base of an internal decoupling transistor) which can be used as a logic general purpose input. This command sets the read behaviour for this pin, since only direct read report is supported, the issue of this command is not needed. In future uses the behavior of the read input may be more complex. Note: If parameter is omitted then the behaviour of Set command is the same as Read command
AT#GGPI?	Read command reports the read value for the input pin GPIO1, in the format: **#GGPI: <dir>,<stat>** where **<dir> -** direction setting (see **#GGPI=<dir>**) **<stat>** - logic value read from pin GPIO1 Note: Since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin.
AT#GGPI=?	Test command reports supported range of values for parameter **<dir>**.
Note	This command is meaningful only for GM862 family

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3.5.5.1.16 #GPIO - General Purpose Input/Output Pin Control

#GPIO - General Purpose Input/Output Pin Control	
AT#GPIO[=<pin>, <mode>[,<dir>]]	Execution command sets the value of the general purpose output pin **GPIO<pin>** according to **<dir>** and **<mode>** parameter. Not all configuration for the three parameters are valid. Parameters: **<pin>** - GPIO pin number; supported range is from 1 to a value that depends on the hardware, but **GPIO1** is input only and **GPIO2** is output only. **<mode>** - its meaning depends on **<dir>** setting: 0 - no meaning if **<dir>=0** - INPUT - output pin cleared to 0 (LOW) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 1 - no meaning if **<dir>=0** - INPUT - output pin set to 1 (HIGH) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 2 - Reports the read value from the input pin if **<dir>=0** - INPUT - Reports the read value from the input pin if **<dir>=1** - OUTPUT - Reports a no meaning value if **<dir>=2** - ALTERNATE FUNCTION **<dir>** - GPIO pin direction 0 - pin direction is INPUT 1 - pin direction is OUTPUT 2 - pin direction is ALTERNATE FUNCTION (see Note). Note: when **<mode>=2** (and **<dir>** is omitted) the command reports the direction and value of pin **GPIO<pin>** in the format: **#GPIO: <dir>,<stat>** where **<dir>** - current direction setting for the **GPIO<pin>** **<stat>** • logic value read from pin **GPIO<pin>** in the case the pin **<dir>** is set to input; • logic value present in output of the pin **GPIO<pin>** in the case the pin **<dir>** is currently set to output; • no meaning value for the pin **GPIO<pin>** in the case the pin **<dir>** is set to alternate function. Note: (valid only for **GPIO1**) since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the **GPIO1** input pin Note: if all parameters are omitted the command reports the read direction and value of all **GPIO** pin, int the format: **#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[…]]**

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#GPIO - General Purpose Input/Output Pin Control	
	Note: "ALTERNATE FUNCTION" value is valid only for following pins: • **GPIO5** - alternate function is “RF Transmission Monitor” • **GPIO6** - alternate function is "Alarm Output" (see **+CALA**) • **GPIO7** - alternate function is "Buzzer Output" (see **#SRP**) Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided. Note: The **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated
AT#GPIO?	Read command has the same effect as Execution command when all parameters are omitted.
AT#GPIO=?	Test command reports the supported range of values of the command parameters **<pin>**, **<mode>** and **<dir>**.
Example	AT#GPIO=3,0,1 OK AT#GPIO=3,2 #GPIO: 1,0 OK AT#GPIO=4,1,1 OK AT#GPIO=5,0,0 OK AT#GPIO=6,2 #GPIO: 0,1 OK

3.5.5.1.17 #I2S1 - Set PCM Output For Channel 1

#I2S1 - Set PCM Output For Channel 1	
AT#I2S1[= <mode> [,<clockmode>, <clockrate>]]	Set command sets the type of operation. Parameters: **<mode>** 0 - PCM1 is not enabled; audio is forwarded to the analog line; PCM pins can be used as UART1 and GPIO. 1 - PCM1 is enabled; audio is forwarded to the PCM block; PCM pin cannot be used for UART1; any service on UART1 is suspended 2 - PCM1 is enabled; audio is forwarded both to the PCM block and to the analog line; PCM pins cannot be used for UART1; any service on UART1 is suspended **<clockmode>** 0 - PCM acts as slave 1 - PCM acts as master

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#I2S1 - Set PCM Output For Channel 1	
	<clockrate> 64 - 64 kHz. 128 - 128 kHz. 256 - 256 kHz. 512 - 512 kHz 1024 - 1024 kHz 2048 - 2048 kHz Note: issuing **AT#I2S1<CR>** is the same as issuing the Read command.
AT#I2S1?	Read command reports the last setting, in the format: **#I2S1: <mode>,<clockmode>,<clockrate>**
AT#I2S1=?	Reports the range of supported values for parameters **<mode>, <clockmode>** and **<clockrate>**

3.5.5.1.18 #E2SMSRI - SMS Ring Indicator

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

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#E2SMSRI - SMS Ring Indicator	
AT#E2SMSRI=?	Reports the range of supported values for parameter **<n>**

3.5.5.1.19 #ADC - Analog/Digital Converter Input

#ADC - Analog/Digital Converter Input	
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 1 - available for GM862-QUAD, GM862-QUAD-PY, GM862-GPS, GE863-QUAD, GE863-PY,GE863-GPS, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 2 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 3 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY **<mode>** - required action 2 - query ADC value **<dir>** - direction; its interpretation is currently not implemented 0 - no effect. If all parameters are omitted the command reports all pins voltage, converted by ADC, in the format: **#ADC: <value>[<CR><LF>#ADC: <value>[...]]** Note: The command returns the last valid measure.
AT#ADC?	Read command has the same effect as Execution command when all parameters are omitted.
AT#ADC=?	Test command reports the supported range of values of the command parameters **<adc>**, **<mode>** and **<dir>**.

3.5.5.1.20 #DAC - Digital/Analog Converter Control

#DAC - Digital/Analog Converter Control	
AT#DAC[=<enable>[,<value>]]	Set command enables/disables the DAC_OUT pin. Parameters: **<enable>** - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default)

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#DAC - Digital/Analog Converter Control	
	1 - enables pin; the corresponding output is driven **<value>** - scale factor of the integrated output voltage; it must be present if **<enable>=1** 0..1023 - 10 bit precision Note: **integrated output voltage = MAX_VOLTAGE * value / 1023** Note: if all parameters are omitted then the behaviour of Set command is the same as the Read command.
AT#DAC?	Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: **#DAC: <enable>,<value>**
AT#DAC=?	Test command reports the range for the parameters **<enable>** and **<value>**.
Example	*Enable the DAC out and set its integrated output to the 50% of the max value:* AT#DAC=1,511 OK *Disable the DAC out:* AT#DAC=0 OK
Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. DAC_OUT line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the hardware user guide.

3.5.5.1.21 #VAUX - Auxiliary Voltage Pin Output

#VAUX- Auxiliary Voltage Pin Output	
AT#VAUX[=<n>, <stat>]	Set command enables/disables Auxiliary Voltage pins output. Parameters: **<n>** - VAUX pin index 1 - there is currently just one VAUX pin **<stat>** 0 - output off 1 - output on 2 - query current value of VAUX pin

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#VAUX- Auxiliary Voltage Pin Output	
	Note: when **<stat>=2** and command is successful, it returns: **#VAUX: <value>** where: **<value>** - power output status 0 - output off 1 - output on Note: If all parameters are omitted the command has the same behaviour as Read command. Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pins output is disabled while GPS or camera is powered on they'll both also be turned off.
AT#VAUX?	Read command reports the current status of all auxiliary voltage output pins, in the format: **#VAUX: <value>[<CR><LF>#VAUX: <value>[…]]**
AT#VAUX=?	Test command reports the supported range of values for parameters **<n>**, **<stat>**.

3.5.5.1.22 #CBC - Battery And Charger Status

#CBC- Battery And Charger Status	
AT#CBC	Execution command returns the current Battery and Charger state in the format: **#CBC: <ChargerState>,<BatteryVoltage>** where: **<ChargerState>** - battery charger state 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed **<BatteryVoltage>** - battery voltage in millivolt: it is the real battery voltage only if charger is not connected; if the charger is connected this value depends on the charger voltage.
AT#CBC?	Read command has the same meaning as Execution command.
AT#CBC=?	Test command returns the **OK** result code.

3.5.5.1.23 #AUTOATT - Auto-Attach Property

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

3.5.5.1.24 #MSCLASS - Multislot Class Control

#MSCLASS - Multislot Class Control	
AT#MSCLASS[= <class>, <autoattach>]	Set command sets the multislot class Parameters: **<class>** - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class **<autotattach>** 0 - the new multislot class is enabled only at the next detach/attach or after a reboot. 1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure. Note: the **<class>** range for former GM862 family products is 1..8, excluding class 7. Note: if all parameters are omitted the behaviour of set command is the same as read command.
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: **#MSCLASS: <class>**
AT#MSCLASS=?	Test command reports the range of available values for parameter **<class>**.

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3.5.5.1.25 #MONI - Cell Monitor

#MONI - Cell Monitor	
AT#MONI[= [<number>]]	Set command sets one cell out of seven, in a neighbour of the serving cell including it, from which extract GSM-related informations. Parameter: **<number>** 0..6 - it is the ordinal number of a cell, in a neighbour of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related informations from the whole set of seven cells in the neighbour of the serving cell. Note: issuing **AT#MONI<CR>** is the same as issuing the Read command. Note: issuing **AT#MONI=<CR>** is the same as issuing the command **AT#MONI=0<CR>**.
AT#MONI?	Read command reports the following GSM-related informations for selected cell and dedicated channel (if exists). a) When extracting data for the serving cell and the network name is known the format is: **#MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** b) When the network name is unknown, the format is: **#MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** c) When extracting data for an adjacent cell, the format is: **#MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm** where: **<netname>** - name of network operator **<cc>** - country code **<nc>** - network operator code **<n>** - progressive number of adjacent cell **<bsic>** - base station identification code **<qual>** - quality of reception 0..7 **<lac>** - localization area code **<id>** - cell identifier **<arfcn>** - assigned radio channel **<dBm>** - received signal strength in dBm **<timadv>** = timing advance

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#MONI - Cell Monitor	
	Note: TA: **<timadv>** is reported only for the serving cell. When the last setting done is **AT#MONI=7**, then the Read command reports the above informations for each of the cells in the neighbour of the serving cell, formatting them in a sequence of **<CR><LF>-terminated** strings.
AT#MONI=?	Test command reports the maximum number of cells, in the neighbour 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: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in the neighbour 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**. An enhanced version of the Test command has been defined: **AT#MONI=??**
AT#MONI=??	Enhanced test command reports the maximum number of cells, in a neighbour 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: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in a neighbour of the serving cell and including it, from which we can extract GSM-related informations. This value is always **7**. **<CellSet>** - the last setting done with command **#MONI**.
Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.

3.5.5.1.26 #SERVINFO - Serving Cell Information

#SERVINFO - Serving Cell Information	
AT#SERVINFO	Execution command reports informations about serving cell, in the format: **#SERVINFO: <B-ARFCN>,<dBM>,<NetNameAsc>,<NetCode>, ,<BSIC>,<LAC>,<TA>,<GPRS>[,[<PB-ARFCN>],[<NOM>], <RAC>,[PAT]]**

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#SERVINFO - Serving Cell Information	
	where: **<B-ARFCN>** - BCCH ARFCN of the serving cell **<dBM>** - received signal strength in dBm **<NetNameAsc>** - operator name, quoted string type **<NetCode>** - country code and operator code, hexadecimal representation **<BSIC>** - Base Station Identification Code **<LAC>** - Localization Area Code **<TA>** - Time Advance: it's available only if a GSM or GPRS is running **<GPRS>** - GPRS supported in the cell 0 - not supported 1 - supported The following informations will be present only if GPRS is supported in the cell **<PB-ARFCN>** - PBCCH ARFCN of the serving cell; it'll be printed only if PBCCH is supported by the cell, otherwise the label **"hopping"** will be printed **<NOM>** - Network Operation Mode .."I" "II" .."III" **<RAC>** - Routing Area Color Code **<PAT>** - Priority Access Threshold ..0 ..3..6
AT#SERVINFO?	Read command has the same effect as Execution command

3.5.5.1.27 #COPSMODE - +COPS Mode

#COPSMODE - +COPS Mode	
AT#COPSMODE [=<mode>]	Set command sets the behaviour of **+COPS** command (*see* ***+COPS***). Parameter: **<mode>** 0 - **+COPS** behaviour like former GM862 family products (default) 1 - **+COPS** behaviour compliant with ETSI format Note: The setting is saved in NVM (and available on following reboot). Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.
AT#COPSMODE?	Read command returns the current behaviour of **+COPS** command, in the format:

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#COPSMODE - +COPS Mode	
	#COPSMODE: <mode> where **<mode>** - **+COPS** behaviour as seen before.
AT#COPSMODE=?	Test command returns the range of available values for parameter **<mode>**.
Note	It's suggested to reboot the module after every **#COPSMODE** setting.

3.5.5.1.28 #QSS - Query SIM Status

#QSS - Query SIM Status	
AT#QSS[=[<mode>]]	Set command enables/disables the Query SIM Status unsolicited indication in the ME. Parameter: **<mode>** - type of notification 0 - disabled (factory default); it's possible only to query the current SIM status through Read command **AT#QSS?** 1 - enabled; the ME informs at every SIM status change through the following unsolicited indication: **#QSS: <status>** where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED Note: issuing **AT#QSS<CR>** is the same as issuing the Read command. Note: issuing **AT#QSS=<CR>** is the same as issuing the command **AT#QSS=0<CR>**.
AT#QSS?	Read command reports whether the unsolicited indication **#QSS** is currently enabled or not, along with the SIM status, in the format: **#QSS: <mode>,<status>** (**<mode>** and **<status>** are described above)
AT#QSS=?	Test command returns the supported range of values for parameter **<mode>**.

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3.5.5.1.29 #DIALMODE - ATD Dialling Mode

#DIALMODE - ATD Dialling Mode	
AT#DIALMODE[=<mode>]	Set command sets voice call **ATD** modality. Parameter: **<mode>** 0 - **OK** result code is received as soon as it starts remotely ringing (factory default) 1 - **OK** result code is received only after the called party answers. Any character typed aborts the call and **NO CARRIER** result code is received. 2 - the following custom result codes are received, monitoring step by step the call status: **DIALING** (MO in progress) **RINGING** (remote ring) **CONNECTED** (remote call accepted) **RELEASED** (after **ATH**) **DISCONNECTED** (remote hang-up) Note: The setting is saved in NVM and available on following reboot. Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.
AT#DIALMODE?	Read command returns current **ATD** dialing mode in the format: **#DIALMODE: <mode>**
AT#DIALMODE=?	Test command returns the range of values for parameter **<mode>**

3.5.5.1.30 #ACAL - Automatic Call

#ACAL - Automatic Call	
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. Note: issuing **AT#ACAL=<CR>** is the same as issuing the command

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#ACAL - Automatic Call	
	AT#ACAL=0<CR>.
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.

3.5.5.1.31 #ECAM - Extended Call Monitoring

#ECAM - Extended Call Monitoring	
AT#ECAM[= [<onoff>]]	This command enables/disables the call monitoring function in the **ME**. Parameter: **<onoff>** 0 - disables call monitoring function (factory default) 1 - enables call monitoring function; the **ME** informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited indication: **#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]** where **<ccid>** - call ID **<ccstatus>** - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy **<calltype>** - call type 1 - voice 2 - data **<number>** - called number (valid only for **<ccstatus>=1**) **<type>** - type of **<number>** 129 - national number 145 - international number Note: the unsolicited indication is sent along with usual codes (**OK**, **NO CARRIER**, **BUSY**...).

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

3.5.5.1.32 #SMOV - SMS Overflow

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

3.5.5.1.33 #CODEC - Audio Codec

#CODEC - Audio Codec	
AT#CODEC[= <codec>]	Set command sets the audio codec mode. Parameter: **<codec>** 0 - all the codec modes are enabled (factory default)

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	1..31 - value obtained as sum of the following values, each of them representing a specific codec mode: 1 - **FR**, full rate mode enabled 2 - **EFR**, enhanced full rate mode enabled 4 - **HR**, half rate mode enabled 8 - **AMR-FR**, AMR full rate mode enabled 16 - **AMR-HR**, AMR half rate mode enabled Note: the setting 0 is equivalent to the setting 31. Note: The codec setting is saved in the profile parameters. Note: if optional parameter **<codec>** is omitted the behaviour of Set command is the same as Read command.
AT#CODEC?	Read command returns current audio codec mode in the format: **#CODEC: <codec>**
AT#CODEC=?	Test command returns the range of available values for parameter **<codec>**
Example	AT#CODEC=14 OK *sets the codec modes HR (4), EFR (2) and AMR-FR (8)*

3.5.5.1.34 #SHFEC - Handsfree Echo Canceller

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

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#SHFEC - Handsfree Echo Canceller	
AT#SHFEC=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.5.1.35 #HFMICG - Handsfree Microphone Gain

#HFMICG - Handsfree Microphone Gain	
AT#HFMICG[= [<level>]]	Set command sets the handsfree microphone input gain Parameter: **<level>**: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step) Note: issuing **AT#HFMICG<CR>** is the same as issuing the Read command. Note: issuing **AT#HFMICG=<CR>** returns the **OK** result code.
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format: **#HFMICG: <level>**
AT#HFMICG=?	Test command returns the supported range of values of parameter **<level>**.

3.5.5.1.36 #HSMICG - Handset Microphone Gain

#HSMICG - Handset Microphone Gain	
AT#HSMICG[= [<level>]]	Set command sets the handset microphone input gain Parameter: **<level>**: handset microphone input gain 0..7 - handset microphone gain (+6dB/step) 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>**.

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3.5.5.1.37 #SHFSD - Set Headset Sidetone

#SHFSD - Set Headset Sidetone	
AT#SHFSD[=[<mode>]]	Set command enables/disables the sidetone on headset audio output. Parameter: **<mode>** 0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone. Note: This setting returns to default after power off. Note: issuing **AT#SHFSD<CR>** is the same as issuing the Read command. Note: issuing **AT#SHFSD=<CR>** is the same as issuing the command **AT#SHFSD=0<CR>**.
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHFSD: <mode>**
AT#SHFSD=?	Test command returns the supported range of values of parameter **<mode>**.

3.5.5.1.38 #/ - Repeat Last Command

#/ - Repeat Last Command	
AT#/	Execute command is used to execute again the last received command.

3.5.5.1.39 #NITZ - Network Timezone

#NITZ - Network Timezone	
AT#NITZ[=[<val>[,<mode>]]]	Set command enables/disables automatic date/time updating and Network Timezone unsolicited indication. Date and time information may be sent by the network after GSM registration or after GPRS attach. Parameters: **<val>** 0 - disables automatic set (factory default) 1 - enables automatic set **<mode>** 0 - disables unsolicited message (factory default)

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

3.5.5.1.40 #BND - Select Band

#BND - Select Band	
AT#BND[= [<band>]]	Set command selects the current band. Parameter **<band>**: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz 2 - GMS 850MHz + PCS 1800MHz (available only on quadri-band modules) 3 - GMS 850MHz + PCS 1900MHz (available only on quadri-band modules) Note: This setting is maintained even after power off. Note: issuing **AT#BND<CR>** is the same as issuing the Read command. Note: issuing **AT#BND=<CR>** is the same as issuing the command **AT#BND=0<CR>**.

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AT#BND?	Read command returns the current selected band in the format: **#BND: <band>**
AT#BND=?	Test command returns the supported range of values of parameter **<band>**. Note: the range of values differs between triband modules and quadric-band modules

3.5.5.1.41 #AUTOBND - Automatic Band Selection

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

3.5.5.1.42 #SKIPESC - Skip Escape Sequence

#SKIPESC - Skip Escape Sequence	
AT#SKIPESC[= [<mode>]]	Set command enables/disables skipping the escape sequence **+++** while transmitting during a data connection. Parameter: **<mode>**

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#SKIPESC - Skip Escape Sequence	
	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>**.

3.5.5.1.43 #E2ESC - Escape Sequence Guard Time

#E2ESC - Escape Sequence Guard Time	
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 - no guard time (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.

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3.5.5.1.44 #GAUTH - PPP-GPRS Connection Authentication Type

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

3.5.5.1.45 #RTCSTAT - RTC Status

#RTCSTAT - RTC Status	
AT#RTCSTAT[=<status>]	Set command resets the RTC status flag. Parameter: **<status>** 0 - Set RTC Status to **RTC HW OK** Note: the initial value of RTC status flag is **RTC HW Error** and it doesn't change until a command **AT#RTCSTAT=0** is issued. Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to **1**. It doesn't change until command **AT#RTCSTAT=0** is issued. Note: if parameter **<status>** is omitted the behaviour of Set command is the same as Read command.
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: **#RTCSTAT: <status>**
AT#RTCSTAT=?	Test command returns the range of supported values for parameter **<status>**

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3.5.5.2 FTP AT Commands

3.5.5.2.1 #FTPTO - FTP Time-Out

#FTPTO - FTP Time-Out	
AT#FTPTO[=<tout>]	Set command sets time-out for FTP operations. Parameter: **<tout>** - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100) Note: The parameter is not saved in NVM. Note: if parameter **<tout>** is omitted the behaviour of Set command is the same as Read command.
AT#FTPTO?	Read command returns the current FTP operations time-out, in the format: **#FTPTO: <tout>**
AT#FTPTO=?	Test command returns the range of supported values for parameter **<tout>**

3.5.5.2.2 #FTPOPEN - FTP Open

#FTPOPEN - FTP Open	
AT#FTPOPEN=<server:port>,<username>,<password>,<mode>	Execution command opens an FTP connection toward the FTP server. Parameters: **<server:port>** - string type, address and port of FTP server (factory default port 21). **<username>** - string type, authentication user identification string for FTP. **<password>** - string type, authentication password for FTP. **<mode>** 0 - active mode (default) 1 - passive mode

3.5.5.2.3 #FTPCLOSE - FTP Close

#FTPCLOSE - FTP Close	
AT#FTPCLOSE	Execution command closes an FTP connection.
AT#FTPCLOSE?	Read command behavior is the same as Execution command.

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3.5.5.2.4 #FTPPUT - FTP Put

#FTPPUT - FTP Put	
AT#FTPPUT=<filename>	Execution command, issued during an FTP connection, opens a data connection, in order to transfer a file to the server. If the data connection succeeds, a file with name **<filename>** and initial size 0 is created on the FTP server, a **CONNECT** indication is sent and it's possible to transfer the file; otherwise a **NO CARRIER** indication is sent. Parameter: **<filename>** - string type, name of the file to create on FTP server. 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.

3.5.5.2.5 #FTPPUTPH - FTP Put Photo

#FTPPUTPH - FTP Put Photo	
AT#FTPPUTPH=<filename>	Execution command, issued during an FTP connection, opens a data connection, in order to transfer the last photo taken issuing **AT#TPHOTO** to the FTP server. If the data connection succeeds, a file with name **<filename>** and initial size 0 is created on the FTP server, a **CONNECT** indication is sent and it starts transfer the last photo; otherwise a **NO CARRIER** indication is sent. Parameter: **<filename>** - string type, name of the file on the FTP server side. Note: the file transfer type has to be binary in order to send the photo the right way (see command **#FTPTYPE**). Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

Example	`at#gprs=1`
	`+IP: ###.###.###.###`
	
	`OK`
	`at#camon`
	`OK`
	`at#tphoto`
	`OK`
	`at#ftpopen="xxx.xxx.xxx.xxx",<usern.>,<passw.>,0`
	`OK`

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#FTPPUTPH - FTP Put Photo	
	at#ftptype=0 OK at#ftpputph="photo.jpg" OK at#ftpclose OK

3.5.5.2.6 #FTPGET - FTP Get

#FTPGET - FTP Get	
AT#FTPGET= <filename>	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server. If the data connection succeeds a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. The file is received on the serial port. Parameter: **<filename>** - file name, string type. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

3.5.5.2.7 #FTPTYPE - FTP Type

#FTPTYPE - FTP Type	
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)**

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3.5.5.2.8 #FTPMSG - FTP Read Message

#FTPMSG - FTP Read Message	
AT#FTPMSG	Execution command returns the last response from the server.
AT#FTPMSG?	Read command behaviour is the same as Execution command.

3.5.5.2.9 #FTPDELE - FTP Delete

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

3.5.5.2.10 #FTPPWD - FTP Print Working Directory

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

3.5.5.2.11 #FTPCWD - FTP Change Working Directory

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

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3.5.5.2.12 #FTPLIST - FTP List

#FTPLIST - FTP List	
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.

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3.5.5.3 Enhanced Easy GPRS® Extension AT Commands

3.5.5.3.1 #USERID - Authentication User ID

#USERID - Authentication User ID	
AT#USERID [=<user>]	Set command sets the user identification string to be used during the authentication step. Parameter: **<user>** - string type, it's the authentication User Id; the max length for this value is the output of Test command, **AT#USERID=?** (factory default is the empty string ""). Note: If parameter is omitted then the behaviour of Set command is the same of Read command.
AT#USERID?	Read command reports the current user identification string, in the format: **#USERID: <user>**.
AT#USERID=?	Test command returns the maximum allowed length of the string parameter **<user>**.
Example	AT#USERID="myName" OK AT#USERID? #USERID: "myName" OK

3.5.5.3.2 #PASSW - Authentication Password

#PASSW - Authentication Password	
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

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3.5.5.3.3 #PKTSZ - Packet Size

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

3.5.5.3.4 #DSTO - Data Sending Time-Out

#DSTO - Data Sending Time-Out	
AT#DSTO[= [<tout>]]	Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one. Parameter: **<tout>** - packet sending time-out in 100ms units (factory default is 50) 0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5.

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#DSTO - Data Sending Time-Out	
	Note: this time-out applies to data whose size is less than packet size and whose sending would have been delayed for an undefined time until new data to be sent had been received and full packet size reached. Note: issuing **AT#DSTO<CR>** is the same as issuing the Read command. Note: issuing **AT#DSTO=<CR>** is the same as issuing the command **AT#DSTO=0<CR>**.
AT#DSTO?	Read command reports the current data sending time-out value.
AT#DSTO=?	Test command returns the allowed values for the parameter **<tout>**.
Example	AT#DSTO=10 *->1 sec. time-out* OK AT#DSTO? #DSTO: 10 OK

3.5.5.3.5 #SKTTO - Socket Inactivity Time-Out

#SKTTO - Socket Inactivity Time-Out	
AT#SKTTO[= [<tout>]]	Set command sets the maximum time with no data exchanging on the socket that the module awaits before closing the socket and deactivating the GPRS context. Parameter: **<tout>** - socket inactivity time-out in seconds units 0 - no timeout. 1..65535 - time-out in sec. units (factory default is 90). Note: this time-out applies when no data is exchanged in the socket for a long time and therefore the socket connection has to be automatically closed and the GPRS context deactivated. Note: issuing **AT#SKTTO<CR>** is the same as issuing the Read command. Note: issuing **AT+#SKTTO=<CR>** is the same as issuing the command **AT+#SKTTO=0<CR>**.
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter **<tout>**.
Example	AT#SKTTO=30 *->(30 sec. time-out)* OK AT#SKTTO? #SKTTO: 30

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#SKTTO - Socket Inactivity Time-Out	
	OK

3.5.5.3.6 #SKTSET - Socket Definition

#SKTSET - Socket Definition	
AT#SKTSET[= <socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command sets the socket parameters values. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string "") **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTSET** command, then error message will be issued. Note: the DNS Query to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT#SKTSET?	Read command reports the socket parameters values, in the format: **AT#SKTSET: <socket type>,<remote port>,<remote addr>,**

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#SKTSET - Socket Definition	
	<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

3.5.5.3.7 #SKTOP - Socket Open

#SKTOP - Socket Open	
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

3.5.5.3.8 #QDNS - Query DNS

#QDNS - Query DNS	
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: **#QDNS:"<host name>",<IP address>** 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.

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#QDNS - Query DNS	
	Note: **<IP address>** is in the format: **xxx.xxx.xxx.xxx**
Note	This command requires that the authentication parameters are correctly set and that the GPRS network is present.

3.5.5.3.9 #SKTCT - Socket TCP Connection Time-Out

#SKTCT - Socket TCP Connection Time-Out	
AT#SKTCT[= <tout>]	Set command sets the TCP connection time-out for the first **CONNECT** answer from the TCP peer to be received. Parameter: **<tout>** - TCP first **CONNECT** answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600). Note: this time-out applies only to the time that the TCP stack waits for the **CONNECT** answer to its connection request. Note: The time for activate the GPRS and resolving the name with the DNS query (if the peer was specified by name and not by address) is not counted in this timeout. Note: if parameter is omitted then the behaviour of Set command is the same as Read command.
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter **<tout>**.
Example	AT#SKTCT=600 OK *socket first connection answer timeout has been set to 60 s.*

3.5.5.3.10 #SKTSAV - Socket Parameters Save

#SKTSAV - Socket Parameters Save	
AT#SKTSAV	Execution command saves the actual socket parameters in the NVM of the device. The socket parameters to store are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP)

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	- Remote Port - Remote Address - TCP Connection Time-Out
Example	AT#SKTSAV 0K *socket parameters have been saved in NVM*
Note	If some parameters have not been previously specified then a default value will be stored.

3.5.5.3.11 #SKTRST - Socket Parameters Reset

#SKTRST - Socket Parameters Reset	
AT#SKTRST	Execution command resets the actual socket parameters in the NVM of the device to the default ones. The socket parameters to reset are: - User ID - Password - Packet Size - Socket Inactivity Timeout - Data Sending Timeout - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out
Example	AT#SKTRST 0K *socket parameters have been reset*

3.5.5.3.12 #GPRS - GPRS Context Activation

#GPRS - GPRS Context Activation	
AT#GPRS[=[<mode>]]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request In the case that the GPRS context has been activated, the result code **OK** is preceded by the intermediate result code:

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	+IP: <ip_address_obtained> reporting the local IP address obtained from the network. Note: issuing **AT#GPRS<CR>** reports the current status of the GPRS context, in the format: **#GPRS: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated 2 - GPRS context activation pending. Note: issuing **AT#GPRS=<CR>** is the same as issuing the command **AT#GPRS=0<CR>**.
AT#GPRS?	Read command has the same effect as the Execution command **AT#GPRS<CR>.**
AT#GPRS=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#GPRS=1 +IP: 129.137.1.1 OK *Now GPRS Context has been activated and our IP is 129.137.1.1* AT#GPRS=0 OK *Now GPRS context has been deactivated, IP is lost.*

3.5.5.3.13 #SKTD - Socket Dial

#SKTD - Socket Dial	
AT#SKTD [=<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command opens the socket towards the peer specified in the parameters. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host**

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#SKTD - Socket Dial	
	name> (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: the resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTD** command, then an error message will be issued. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **AT+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT#SKTD?	Read command reports the socket dial parameters values, in the format: **AT#SKTD: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**
AT#SKTD=?	Test command returns the allowed values for the parameters.

Example	`AT#SKTD=0,1024,"123.255.020.001",255`
	OK
	
	`AT#SKTD=1,1024,"123.255.020.001", ,1025`
	OK
	In this way my local port 1025 is opened to the remote port 1024
	
	`AT#SKTD=0,1024,"www.telit.net", 255`
	OK

Note	The main difference between this command and the **AT#SKTOP** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **AT#SKTD** is closed the context (and hence the local IP address) is maintained.

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3.5.5.3.14 #SKTL - Socket Listen

#SKTL - Socket Listen	
AT#SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **#SKTL: ABORTED**

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#SKTL - Socket Listen	
	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: **#SKTL: <status>,<input port>,<closure type>** where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT#SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT#SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<input port>** and **<closure type>**.
Example	*Activate GPRS* AT#GPRS=1 +IP: ###.###.###.### OK *Start listening* AT#SKTL=1,0,1024 OK or AT#SKTL=1,0,1024,255 OK *Receive connection requests* +CONN FROM: 192.164.2.1 CONNECT *exchange data with the remote host* *send escape sequence* +++ NO CARRIER *Now listen is not anymore active* *to stop listening* AT#SKTL=0,0,1024, 255 OK
Note	The main difference between this command and the **#SKTD** is that **#SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **#SKTL** is closed the context (and hence the local IP address) is maintained. The improving command **@SKTL** has been defined.

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3.5.5.3.15 @SKTL - Socket Listen

@SKTL - Socket Listen	
AT@SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported:

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@SKTL - Socket Listen	
	@SKTL: ABORTED Note: if all parameters are omitted the command returns the current socket listening **status** and the last settings of parameters **<socket type>**, **<input port>** and **<closure type>**, in the format: **@SKTL: <status>,<socket type>,<input port>,<closure type>** Where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT@SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT@SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<socket type>**, **<input port>** and **<closure type>**.
Example	*Activate GPRS* AT#GPRS=1 +IP: ###.###.###.### OK *Start listening* AT@SKTL=1,0,1024 OK or AT@SKTL=1,0,1024,255 OK *Receive connection requests* +CONN FROM: 192.164.2.1 CONNECT *exchange data with the remote host* *send escape sequence* +++ NO CARRIER *Now listen is not anymore active* *to stop listening* AT@SKTL=0,0,1024, 255 OK
Note	The main difference between this command and the **#SKTD** is that **@SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **@SKTL** is closed the context (and hence the local IP address) is maintained.

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3.5.5.3.16 #E2SLRI - Socket Listen Ring Indicator

#E2SLRI - Socket Listen Ring Indicator	
AT#E2SLRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a Socket Listen connect and, if enabled, the duration of the negative going pulse generated on receipt of connect. Parameter: **<n>** - RI enabling 0 - RI disabled for Socket Listen connect (factory default) 50..1150 - RI enabled for Socket Listen connect; a negative going pulse is generated on receipt of connect and **<n>** is the duration in ms of this pulse.
AT#E2SLRI?	Read command reports whether the Ring Indicator pin response to a Socket Listen connect is currently enabled or not, in the format: **#E2SLRI: <n>**
AT#E2SLRI=?	Test command returns the allowed values for parameter **<status>.**

3.5.5.3.17 #FRWL - Firewall Setup

#FRWL - Firewall Setup	
AT#FRWL[= <action>, <ip_addr>, <net_mask>]	Execution command controls the internal firewall settings. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx **<net_mask>** - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Note: the firewall applies for incoming (listening) connections only. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>**

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#FRWL - Firewall Setup	
	If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped. Note: If all parameters are omitted the command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#FRWL: <ip_addr>,<net_mask>** **#FRWL: <ip_addr>,<net_mask>** **....** **OK**
AT#FRWL?	Read command has the same effect as Execution command when parameters are omitted.
AT#FRWL=?	Test command returns the allowed values for parameter **<action>.**
Example	*Let assume we want to accept connections only from our devices which are on the IP addresses ranging from 197.158.1.1 to 197.158.255.255* *We need to add the following chain to the firewall:* AT#FRWL=1,"197.158.1.1","255.255.0.0" OK
Note	For outgoing connections made with **#SKTOP** and **#SKTD** the remote host is dynamically inserted into the **ACCEPT** chain for all the connection duration. Therefore the **#FRWL** command shall be used only for defining either the **#SKTL** or the **@SKTL** behaviour, deciding which hosts are allowed to connect to the local device. Rules are not saved in NVM, at start-up the rules list will be empty.

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3.5.5.4Easy Camera® Management AT Commands

3.5.5.4.1 #CAMON - Camera ON

#CAMON - Camera ON	
AT#CAMON	Execution command turns the Camera **ON**.
AT#CAMON?	Read command has the same behaviour as Execution command
Example	AT#CAMON OK *camera is now powered up*

3.5.5.4.2 #CAMOFF - Camera OFF

#CAMOFF - Camera OFF	
AT#CAMOFF	Execution command turns the Camera **OFF**. Note: for the GPS product (GE863-GPS): if the camera is turned off while GPS or VAUX pin is enabled they'll both also be powered off.
AT#CAMOFF?	Read command has the same behaviour as Execution command
Example	AT#CAMOFF OK *camera is now powered down*

3.5.5.4.3 #CAMEN - Camera ON/OFF

#CAMEN - Camera ON/OFF	
AT#CAMEN[= <status>]	Execution command turns camera **ON/OFF**. Parameter: **<status>** - camera status 0 - turns camera **OFF** 1 - turns camera **ON** Note: if parameter **<status>** is omitted the Set command is the same as the Read command. Note: for the GPS product (GE863-GPS): if the camera is turned off while GPS or VAUX pin is enabled they'll both also be powered off.
AT#CAMEN?	Read command reports the current camera status and, if the camera is **ON**, the current camera model, in the format: **#CAMEN: 0** *if camera is **OFF*** **#CAMEN: 1,<cam>** *if camera is **ON***

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	Where: **<cam>** - camera model 2 - TRANSCHIP camera
AT#CAMEN=?	Test command returns the allowed values for parameter **<status>.**

3.5.5.4.4 #SELCAM - Camera Model

#SELCAM - Camera Model	
AT#SELCAM[=[<cam>]]	Set command selects current camera model Parameter: **<cam>** - camera model 0 - automatic detection (factory default) 2 - TRANSCHIP camera 3 - reserved for future use 4 - reserved for future use 5 - reserved for future use Note: issuing **AT#SELCAM<CR>** is the same as issuing the Read command. Note: issuing **AT#SELCAM=<CR>** is the same as issuing the command **AT#SELCAM=0<CR>**
AT#SELCAM?	Read command reports the current camera model in the format: **#SELCAM: <cam>**
AT#SELCAM=?	Test command returns the allowed values for parameter **<cam>**

3.5.5.4.5 #CAMRES - Camera Resolution

#CAMRES - Camera Resolution	
AT#CAMRES[=[<res>]]	Set command sets current camera resolution Parameter: **<res>** - camera resolution 0 - VGA photo output,640x480 (factory default) 1 - QVGA photo output, 320x240 2 - QQVGA photo output, 160x120 3 - reserved for future use 4 - reserved for future use Note: issuing **AT#CAMRES<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMRES=<CR>** is the same as issuing the command **AT#CAMRES=0<CR>**.

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AT#CAMRES?	Read command reports the current value of the parameter **<res>** in format: **#CAMRES:<res>**
AT#CAMRES=?	Test command returns the allowed values for parameter **<res>**.

3.5.5.4.6 #CAMCOL - Camera Colour Mode

#CAMCOL - Camera Colour Mode	
AT#CAMCOL[=[<col>]]	Set command sets current colour mode Parameter: **<col>** - camera colour mode 0 - colour mode (factory default) 1 - Black&White mode Note: issuing **AT#CAMCOL<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMCOL=<CR>** is the same as issuing the command **AT#CAMCOL=0<CR>**.
AT#CAMCOL?	Read command reports the current colour mode, in the format: **#CAMCOL: <col>**.
AT#CAMCOL=?	Test command returns the allowed values for parameter **<col>**.

3.5.5.4.7 #CAMQUA - Camera Photo Quality

#CAMQUA - Camera Photo Quality	
AT#CAMQUA[=[<qual>]]	Set command sets the quality of the photo. Parameter: **<qual>** - photo quality 0 - low quality of picture, high Jpeg compression 1 - medium quality of picture, medium Jpeg compression 2 - high quality of picture, low Jpeg compression (factory default) Note: increasing the photo quality increases its size. Note: issuing **AT#CAMQUA<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMQUA=<CR>** is the same as issuing the command **AT#CAMQUA=0<CR>**.
AT#CAMQUA?	Read command reports the current photo quality, in the format:

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	#CAMQUA: <qual>
AT#CAMQUA=?	Test command returns the allowed values for parameter **<qual>**.

3.5.5.4.8 #CMODE - Camera Exposure

#CMODE - Camera Exposure	
AT#CMODE[= [<exp>]]	Set command sets the camera exposure. Parameter: **<exp>** - camera exposure 0 - daylight mode, short exposure (factory default) 1 - nightlight mode, long exposure Note: issuing **AT#CMODE<CR>** is the same as issuing the Read command. Note: issuing **AT#CMODE=<CR>** is the same as issuing the command **AT#CMODE=0<CR>**
AT#CMODE?	Read command reports the current camera exposure in the format: **#CMODE: <exp>**
AT#CMODE=?	Test command returns the allowed values for parameter **<exp>**.

3.5.5.4.9 #CAMZOOM - Camera Zoom

#CAMZOOM - Camera Zoom	
AT#CAMZOOM[= [<zoom>]]	Set command sets current zoom. Parameter: **<zoom>** - camera zoom 0 - no zoom, x1 (factory default) 1 - zoom, x2 2 - zoom, x4 3 - reserved for future use Note: issuing **AT#CAMZOOM<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMZOOM=<CR>** is the same as issuing the command **AT#CAMZOOM=0<CR>**.
AT#CAMZOOM?	Read command reports the current zoom setting, in the format: **#CAMZOOM: <zoom>**
AT#CAMZOOM=?	Test command returns the allowed values for parameter **<zoom>**.

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3.5.5.4.10 #CAMTXT - Camera Time/Date Overprint

#CAMTXT - Camera Time/Date Overprint	
AT#CAMTXT[=[<ov>]]	Set command sets time/date overprinting. Parameter: **<ov>** - time/date overprinting mode 0 - no overprinting (factory default) 1 - time info printed at the bottom of picture 2 - date info printed at the bottom of picture 3 - time&date info printed at the bottom of picture 4 - reserved for future use Note: issuing **AT#CAMTXT<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMTXT=<CR>** is the same as issuing the command **AT#CAMTXT=0<CR>**.
AT#CAMTXT?	Read command reports the current time/date overprinting mode, in the format: **#CAMTXT: <ov>**
AT#CAMTXT=?	Test command returns the allowed values for parameter **<ov>**.

3.5.5.4.11 #TPHOTO - Camera Take Photo

#TPHOTO - Camera Take Photo	
AT#TPHOTO	Execution command is used to take the photo and to store it in the MODULE memory. Note: the photo is stored in the MODULE RAM memory, therefore after a power off it is lost. Note: there's only 1 position for the photo, every photo will overwrite the previous.
AT#TPHOTO?	Read command has the same behaviour as Execution command
Example	AT#TPHOTO OK *the camera has taken the photo and it is now stored on the MODULE memory*
Note	The photo is taken during IDLE time, if the mobile is busy on network operations, (e.g. during a call) the photo cannot be taken.

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3.5.5.4.12 #RPHOTO - Camera Read Photo

#RPHOTO - Camera Read Photo	
AT#RPHOTO	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line, ending it with the sequence: **<CR><LF>OK<CR><LF>**
AT#RPHOTO?	Read command has the same behaviour as Execution command
Example	AT#RPHOTO xxxxxxxxxxxx *(binary digits of the JPEG image)* <cr><lf>OK<cr><lf> *the photo has been flushed to the serial line*
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

3.5.5.4.13 #OBJL - Object List

#OBJL- Object List Command	
AT#OBJL[=<obj>]	Execution command reports the list of the objects stored in the MODULE memory. Parameter: **<obj>** - type of objects to be listed, string type. "IMG" - image object. Note: the behaviour of the command doesn't change even if the **<obj>** parameter is omitted The output format is: **#OBJL: <filename>,<size>** where: **<filename>** - name of the object; it is always "Snapshot" **<size>** - size of the object in bytes
AT#OBJL?	Read command has the same behaviour as Execution command
AT#OBJL=?	Test command has the same behaviour as Execution command
Example	AT#OBJL="IMG" #OBJL: Snapshot,47224 OK

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3.5.5.4.14 #OBJR - Object Read

#OBJR - Object Read	
AT#OBJR=<obj>, "Snapshot"	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line. The difference between this command and **#RPHOTO** is that **#OBJR** output ends without the sequence: **<CR><LF>OK<CR><LF>** Parameter: **<obj>** - type of objects to be listed, string type “IMG” - Image object Note: **"Snapshot"** is the only name of the object.
Example	AT#OBJR="IMG","Snapshot" xxxxxxxxxxxx *binary digits of the JPEG image* *… the photo has been flushed to the serial line.*
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

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3.5.5.5E-mail Management AT Commands

3.5.5.5.1 #ESMTP - E-mail SMTP Server

#ESMTP - E-mail SMTP Server	
AT#ESMTP [=<smtp>]	Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name. Parameter: **<smtp>** - SMTP server address, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) Note: the max length for **<smtp>** is the output of Test command. Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: **#ESMTP: <smtp>**
AT#ESMTP=?	Test command returns the max length for the parameter **<smtp>.**
Example	AT#ESMTP="smtp.mydomain.com" OK
Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the email.

3.5.5.5.2 #EADDR - E-mail Sender Address

#EADDR - E-mail Sender Address	
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>**

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#EADDR - E-mail Sender Address	
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter **<e-addr>.**
Example	AT#EADDR="me@email.box.com" OK AT#EADDR? #EADDR: "me@email.box.com" OK

3.5.5.5.3 #EUSER - E-mail Authentication User Name

#EUSER - E-mail Authentication User Name	
AT#EUSER [=<e-user>]	Set command sets the user identification string to be used during the authentication step of the SMTP. Parameter: **<e-user>** - email authentication User ID, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-user>** parameter shall be empty "". Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#EUSER?	Read command reports the current user identification string, in the format: **#EUSER: <e-user>**
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter **<e-user>**.
Example	AT#EUSER="myE-Name" OK AT#EUSER? #EUSER: "myE-Name" OK
Note	It is a different user field than the one used for GPRS authentication (see **#USERID**).

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3.5.5.5.4 #EPASSW - E-mail Authentication Password

#EPASSW - E-mail Authentication Password	
AT#EPASSW= <e-pwd>	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: **<e-pwd>** - email 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**).

3.5.5.5.5 #SEMAIL - E-mail Sending With GPRS Context Activation

#SEMAIL - E-mail Sending With GPRS Context Activation	
AT#SEMAIL= <da>,<subj>, <att>[,<filename>]	Execution command activates a GPRS context, if not previously activated by **#EMAILACT**, and sends an e-mail message. The GPRS context is deactivated when the e-mail is sent. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type. **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt **'>'** and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution,

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#SEMAIL - E-mail Sending With GPRS Context Activation	
	no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: if GPRS context was previously activated by **#GPRS** it's not possible to successfully send the e-mail message and the response is the result code **activation failed**. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.

Example	`AT#SEMAIL="me@myaddress.com","subject of the mail",1`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	`..wait..`
	`OK`
	
	`Message has been sent.`

3.5.5.5.6 #EMAILACT - E-mail GPRS Context Activation

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

#EMAILACT - E-mail GPRS Context Ativation	
	AT#EMAILACT<CR>.
AT#EMAILACT=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#EMAILACT=1 OK *Now GPRS Context has been activated* AT# EMAILACT=0 OK *Now GPRS context has been deactivated.*

3.5.5.5.7 #EMAILD - E-mail Sending

#EMAILD - E-mail Sending	
AT#EMAILD= <da>,<subj>, <att>[,<filename>]	Execution command sends an e-mail message if GPRS context has already been activated with **AT#EMAILACT=1**. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.
Example	AT#EMAILD=”me@myaddress.com”,”subject of the mail”,1 >message body… this is the text of the mail message… CTRL-Z

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#EMAILD - E-mail Sending	
	..wait.. OK *Message has been sent.*
Note	The only difference between this command and the **#SEMAIL** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#EMAILACT** setting, thus, when the connection made with **#EMAILD** is closed, the context status is maintained.

3.5.5.5.8 #ESAV - Email Parameters Save

#ESAV - Email Parameters Save	
AT#ESAV	Execution command saves the actual e-mail parameters in the NVM of the device. The values stored 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.

3.5.5.5.9 #ERST - E-mail Parameters Reset

#ERST - E-mail Parameters Reset	
AT#ERST	Execution command resets the actual e-mail parameters in the NVM of the device to the default ones. The values reset are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server

3.5.5.5.10 #EMAILMSG -SMTP Read Message

#EMAILMSG - SMTP Read Message	
AT#EMAILMSG	Execution command returns the last response from SMTP server.
AT#EMAILMSG?	Read command has the same behaviour as Execution command.

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3.5.5.6 Easy Scan® Extension AT Commands

3.5.5.6.1 #CSURV - Network Survey

#CSURV - Network Survey	
AT#CSURV [=<s>,<e>] **AT*CSURV [=<s>,<e>]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. If parameters are omitted, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..CELL_SUITABLE - C0 is a suitable cell. CELL_LOW_PRIORITY - the cell is low priority based on the received system information. CELL_FORBIDDEN - the cell is forbidden. CELL_BARRED - the cell is barred based on the received system

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#CSURV - Network Survey	
	information. CELL_LOW_LEVEL - the cell **<rxLev>** is low. CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available…etc. **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last #**CSURVEXT** setting: 1. if #**CSURVEXT=0** this information is displayed only for serving cell 2. if #**CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last #**CSURVEXT** setting: 1. if #**CSURVEXT=0** this information is displayed only for serving cell 2. if #**CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. 3. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch> -** 0 1 **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value

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#CSURV - Network Survey	
	<alpha> - alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **arfcn: <arfcn> rxLev: <rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm) The output ends with the string: **Network survey ended**
AT#CSURV? **AT*CSURV?**	Read command has the same behaviour as Execution command with parameters omitted.
Example	AT#CSURV Network survey started… arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281 cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48 numChannels: 5 array: 14 19 22 48 82 arfcn: 14 rxLev: 8 Network survey ended OK
Note	The command is executed within max. 2 minutes.

3.5.5.6.2 #CSURVC - Network Survey (Numeric Format)

#CSURVC - Network Survey (Numeric Format)	
AT#CSURVC [=<s>,<e>] **AT*CSURVC [=<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.

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#CSURVC - Network Survey (Numeric Format)	
(both syntax are possible)	Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **<arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,** **<cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]]** **[,<numChannels>[,<ba1> ..[<ba32>]] [<pbcch> [<nom> <rac> <spgc> <pat> <nco> <t3168> <t3192> <drxmax> <ctrlAck> <bsCVmax> <alpha> <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..0 - C0 is a suitable cell (CELL_SUITABLE). 1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY). 2 - the cell is forbidden (CELL_FORBIDDEN). 3 - the cell is barred based on the received system information (CELL_BARRED). 4 - the cell **<rxLev>** is low (CELL_LOW_LEVEL). 5 - none of the above e.g. exclusion timer running, no BCCH available…etc.. (CELL_OTHER). **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for

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#CSURVC - Network Survey (Numeric Format)	
	serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. **<ban>** - arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 1. if **#CSURVEXT=0** this information is displayed only for serving cell 2. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch> -** 0 1 **<nom**> - network operation mode 1 2 3 **<rac**> - routing area code 0..255 - **<spgc**> - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **<arfcn>,<rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm)

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#CSURVC - Network Survey (Numeric Format)	
	The output ends with the string: **Network survey ended**
AT#CSURVC? **AT*CSURVC?**	Read command has the same behaviour as the Execution command with parameters omitted
Example	AT#CSURVC Network survey started… 48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82 14,8 Network survey ended OK
Note	The command is executed within max. 2 minute. The information provided by **#CSURVC** is the same as that provided by **#CSURV**. The difference is that the output of **#CSURVC** is in numeric format only.

3.5.5.6.3 #CSURVU - Network Survey Of User Defined Channels

#CSURVU - Network Survey Of User Defined Channels	
AT#CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURV**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order. Note: issuing **AT#CSURVU=<CR>** is the same as issuing the command **AT#CSURVU=0<CR>**.
Example	AT#CSURVU=59,110 Network survey started…

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	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.

3.5.5.6.4 #CSURVUC - Network Survey Of User Defined Channels (Numeric Format)

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	
AT#CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURVC**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order. 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

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#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	
	0K
Note	The command is executed within max. 2 minute. The information provided by **#CSURVUC** is the same as that provided by **#CSURVU**. The difference is that the output of **#CSURVUC** is in numeric format only.

3.5.5.6.5 #CSURVB - BCCH Network Survey

#CSURVB - BCCH Network Survey	
AT#CSURVB=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result format is like command **#CSURV**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVB=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

3.5.5.6.6 #CSURVBC - BCCH Network Survey (Numeric Format)

#CSURVBC - BCCH Network Survey (Numeric Format)	
AT#CSURVBC=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVBC=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)**

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	where **M** is the maximum number of available frequencies depending on last selected band.

3.5.5.6.7 #CSURVF - Network Survey Format

#CSURVF - Network Survey Format	
AT#CSURVF[= [<format>]]	Set command controls the format of the numbers output by all the Easy Scan® Parameter: **<format>** - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text Note: issuing **AT#CSURVF<CR>** is the same as issuing the Read command. Note: issuing **AT#CSURVF=<CR>** is the same as issuing the command **AT#CSURVF=0<CR>**.
AT#CSURVF?	Read command reports the current number format, as follows: **#CSURVF: <format>**
AT#CSURVF=?	Test command reports the supported range of values for the parameter **<format>**.

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

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family	
AT#CSURVNLF [=<value>]	Set command enables/disables the automatic **<CR><LF>** removing from each information text line. Parameter: **<value>** 0 - disables **<CR><LF>** removing; they'll be present in the information text (factory default) 1 - remove **<CR><LF>** from imformation text Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVNLF?	Read command reports whether automatic **<CR><LF>** removing is currently enabled or not, in the format: **<value>**
AT#CSURVNLF=?	Test command reports the range of values for parameter **<value>.**

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3.5.5.6.9 #CSURVEXT - Extended Network Survey

#CSURVEXT - Extended Network Survey	
AT#CSURVEXT [=<value>]	Set command enables/disables extended network survey. Parameter: **<value>** 0 - disables extended network survey (factory default) 1 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier 2 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier and, if GPRS is supported in the cell, they report some GPRS informations carried by the System Information 13 of the BCCh Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format: **<value>**
AT#CSURVEXT=?	Test command reports the range of values for parameter **<value>.**

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3.5.5.7 Jammed Detect & Report AT Commands

3.5.5.7.1 #JDR - Jammed Detect & Report

#JDR - Jammed Detect & Report	
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. The MODULE can also report to the network the Jammed status condition, even if normal communications are inhibited by the Jammer, by using a unique message. Parameters: **<mode>** - behaviour mode of the Jammed Detect & Report 0 - disables Jammed Detect & Report (factory default) 1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR GPIO2/JDR **LOW** - Normal Operating Condition GPIO2/JDR **HIGH** - Jammed Condition. 2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 3 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=2**. 4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 5 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=4**. **<MNPL>** - Maximum Noise Power Level 0..127

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#JDR - Jammed Detect & Report	
	<DCMN> - Disturbed Channel Minimum Number 0..254 Note: issuing **AT#JDR<CR>** is the same as issuing the Read command. Note: issuing **AT#JDR=<CR>** is the same as issuing the command **AT#JDR=0<CR>**.
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format: **#JDR: <mode>,<MNPL>,<DCMN>**
AT#JDR=?	Test command reports the supported range of values for the parameters **<mode>**,**<MNPL>** and **<DCMN>**
Example	AT#JDR=2 OK *…jammer enters in the range…* #JDR: JAMMED *…jammer exits the range…* #JDR: OPERATIVE
Note	It is suggested not to change the default setting for Maximum Noise Power Level and Disturbed Channel Minimum Number. If the device is installed in a particular environment where the default values are not satisfactory the two parameters **<MNPL>** and **<DCMN>** permit to adapt the detection to all conditions.

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3.5.5.8 Easy Script® Extension - Python6 Interpreter, AT Commands

3.5.5.8.1 #WSCRIPT - Write Script

#WSCRIPT - Write Script	
AT#WSCRIPT= <script_name>, <size> [,<hidden>]	Execution command inserts a script text and save it with the name **<script_name>** in the NVM of the module supporting the Python extension. The script text should be sent using Raw Ascii file transfer. It is important to set properly the port settings. In particular: **Baud rate: 115200 bps** **Flow control: hardware.** Parameters: **<script_name>** - file name, string type (max 16 chars, case sensitive). **<size>** - file size in bytes **<hidden>** - file hidden attribute 0 - file content is readable with **#RSCRIPT** (default). 1 - file content is hidden, **#RSCRIPT** command will report empty file. The device responds to the command with the prompt '**>>>**' and waits for the script file text for **<size>** bytes. The operations completes when all the bytes are received. If script writing ends successfully, the response is **OK**; otherwise an error code is reported Note: The script name should be passed between quotes and all Executable Scripts files must have **.py** extension - Script names are Case sensitive. Note: When sending the script be sure that the line terminator is **<CR><LF>** and that your terminal program does not change it. Note: with the hidden attribute it is possible to protect your script 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 script file contains.

Example	`AT#WSCRIPT="First.py ",54,0`
	`>>> here receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then type or send the script, sized 54 bytes`
	`OK`

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

#WSCRIPT - Write Script	
	`Script has been stored.`
Note	This command can also be used to write any text file in the MODULE-PYTHON memory (not script files only), for example application data or settings files with a different extension than **.py**.

3.5.5.8.2 #ESCRIPT - Select Active Script

#ESCRIPT - Select Active Script	
AT#ESCRIPT[= [<script_name>]]	Set command selects the name of the script that will be executed by the Easy Script® interpreter at the start-up. The script will be executed at start-up only if the DTR line is found LOW during initial start-up (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the module supporting the Python extension will behave normally answering only to AT commands on the serial port. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive). Note: all script files must have **.py** extension. Note: The **<script_name>** must match with a file name written with the **#WSCRIPT** in order to have it run. Note: the command does not check whether the script **<script_name>** does exist in the NVM of the module supporting the Python extension or not. If the file **<script_name>** is not present at the start-up then the Script Interpreter will not execute. Note: issuing **AT#ESCRIPT<CR>** is the same as issuing the Read command. Note: issuing **AT#ESCRIPT=<CR>** is the same as issuing the command **AT#ESCRIPT=””<CR>**.
AT#ESCRIPT?	Read command reports the name of the script that will be executed by the Easy Script® interpreter at the start-up.

Example	`AT#ESCRIPT="First.py "`
	`OK`
	
	`Script First.py will be executed at the next start-ups if DTR is found LOW.`

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3.5.5.8.3 #RSCRIPT - Read Script

#RSCRIPT - Read Script	
AT#RSCRIPT= <script_name>	Execution command reports the content of script file **<script_name>**. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive). The device responds to the command with the prompt '**<<<**', followed by the script file text. 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.

Example	`AT#RSCRIPT="First.py "`
	`hereafter receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then the script is displayed, immediately after the prompt`
	`<<<import MDM`
	
	`MDM.send('AT\r',10)`
	`Ans=MDM.receive(20)`
	`OK`

Note	Executable scripts files must have **.py** extension.

3.5.5.8.4 #LSCRIPT - List Script Names

#LSCRIPT - List Script Names	
AT#LSCRIPT	Execution command reports the list of script files names currently saved into the NVM and the available free NVM memory in the format: **[#LSCRIPT: <script_name1> <size1>…** **[<CR><LF><CR><LF>#LSCRIPT: <script_name*n*> <size*n*>]]** **<CR><LF><CR><LF>#LSCRIPT: free bytes: <free_NVM>** where: **<script-name*n*>** - file name, string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<free_NVM>** - size of available NVM memory in bytes
AT#LSCRIPT?	Read command has the same behavior of Execution command.

Example	`AT#LSCRIPT`
	`#LSCRIPT: First.py 51`
	
	`#LSCRIPT: Second.py 178`

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#LSCRIPT - List Script Names	
	#LSCRIPT: Third.py 95 #LSCRIPT: free bytes: 20000 OK

3.5.5.8.5 #DSCRIPT - Delete Script

#DSCRIPT - Delete Script	
AT#DSCRIPT= <script_name>	Execution command deletes a script file from NVM memory. Parameter: **<script_name>** - name of the script file to delete, string type (max 16 chars, case sensitive) Note: if the file **<script_name>** is not present an error code is reported.
Example	AT#DSCRIPT="Third.py" OK

3.5.5.8.6 #REBOOT - Reboot

#REBOOT - Reboot	
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running.
AT#REBOOT?	Read command has the same behavior of Execution command.
Example	AT#REBOOT …. Module Reboots …
Note	This command does not return result codes.

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3.5.5.9 GPS AT Commands Set

3.5.5.9.1 $GPSP - GPS controller power management

$GPSP - GPS controller power management	
AT$GPSP=<status>	Execution command allows to manage power-up or down of the GPS controller Parameter: **<status>** 0 - GPS controller is powered down 1 - GPS controller is powered up (default) Note: for the GPS product (GE863-GPS): if the GPS controller is powered down while camera or VAUX pin is enabled they'll both also be powered off.
AT$GPSP?	Read command reports return the current status
AT$GPSP=?	Test command returns the range of values accepted (0-1)
Example	AT$GPSP=0 0K
Note	If a camera is used with the module and it is powered on, the command will be not executed due to the fact the supply voltage is in common between the 2 devices.

3.5.5.9.2 $GPSR - GPS Reset

$GPSR - GPS Reset	
AT$GPSR=<reset type>	Execution command allows to manage allows to reset the GPS controller. Parameter: **<reset type>** 0 - Hardware reset: The GPS receiver is reset and restarts by using the values stored in the internal memory of the GPS receiver. 1 - Coldstart (No Almanac, No Ephemeris) (1: 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 2 - Warmstart (No ephemeris) (1: 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. 3 - Hotstart (with stored Almanac and Ephemeris) (1: The GPS receiver restarts by using the values stored in the internal memory of

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$GPSR - GPS Reset	
	the GPS receiver; validated ephemeris and almanac.
AT$GPSR=?	Read command that provides the range of accepted values (0-3)
Example	AT$GPSR=0 OK
Note	(1 Available only in Controlled mode. (SW reset)

3.5.5.9.3 $GPSD - GPS Device Type Set

$GPSD - GPS Device Type Set	
AT$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 (Serial port not connected to GPS device) 2 - Controlled Mode (Modem serial port connected to GPS serial port – default) (1
AT$GPSD?	Read command that returns the current status
AT$GPSD=?	Test command that provides the range of accepted values for the parameter **<device type>** (0-3)
Example AT$GPSD=0	AT$GPSD=0 OK
Note	(1 AT$GPSSAV must be executed after to store this setting in memory (the new functionality will be available after the next power_on)

3.5.5.9.4 $GPSSW - GPS Software Version

$GPSSW - GPS Software Version	
AT$GPSSW	Execution command provides GPS Module software version in the format: **$GPSSW: <sw version>**
Example	AT$GPSSW $GPSSW: GSW3.1.1_3.1.00.07-C23P1.00 OK

3.5.5.9.5 $GPSAT – GPS Antenna Type Definition

$GPSAT – Configure GPS Antenna Type	
AT$GPSAT=<type>	Set command selects the GPS antenna used. Parameter:

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$GPSAT – Configure GPS Antenna Type	
	<type> 0 - GPS Antenna not supplied by the module 1 - GPS Antenna supplied by the module (default)
AT$GPSAT?	Read command returns the current status
AT$GPSAT=?	Test command provides the range of accepted values (0-1)
Example	AT$GPSAT=1 OK
Note	*AT$GPSSAV must be executed to save this configuration* *If set to 0 the Antenna current and Voltage readout are not available.* *Refer to the HW user guide for the compatible GPS antennas*

3.5.5.9.6 $GPSAV – GPS Antenna Supply Voltage Readout

$GPSAV – GPS Antenna Readout Voltage	
AT$GPSAV?	Read command returns the measured GPS antenna's supply voltage in mV
AT$GPSAV?	AT$GPSAV? $GPSAV:3800 OK
Note	Not available if antenna Type set to 0

3.5.5.9.7 $GPSAI – GPS Antenna Current Readout

$GPSAI - GPS Antenna Current Monitor	
AT$GPSAI?	Read command reports the GPS antenna's current consumption in the format: **$GPSAI:<value>[,<status>]**(1 where: **<value>** - the measured current in mA **<status>** - (1 0 - GPS antenna OK 1 - GPS antenna consumption out of the limits
Example	AT$GPSAI? $GPSAI:040,0 OK
Note	(1 Available only if antenna protection is activated (see $GPSAP)

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3.5.5.9.8 $GPSAP – GPS Antenna Protection

$GPSAP - GPS Antenna Protection	
AT$GPSAP=<set>[,<value>]	Write command that allows to activate an automatic protection in case of high current consumption of GPS antenna. The protection disables the GPS antenna supply voltage. Parameters: **<set>** 0 - deactivate current antenna protection (default) 1 - activate current antenna protection **<value>** - the antenna current limit value in mA (000-200) If parameter **<set>=0** parameter **<value>** is omitted
AT$GPSAP?** **AT$GPSAP=? Example	Read command that returns the current antenna limit value in the format: **$GPSAP:<set>,<value>** Test command that returns the available ranges for **<set>** and **<value>** AT$GPSAP=0 OK *Note : no SW control on antenna status (HW current limitation only)* AT$GPSAP=1,25 (1 OK *activate current antenna protection with related current limit* AT$GPSAP? (1 $GPSAP:1,050 OK *Antenna protection activated with 50mA limit*
Note	(1 *AT$GPSSAV must be executed to save this configuration* *The module is already provided of an Hardware protection for the high current consumption that is automatically activated if the consumption exceeds 50mA*

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3.5.5.9.9 $GPSNMUN – Unsolicited NMEA Data Configuration

$GPSNMUN – Unsolicited NMEA Data Configuration	
AT$GPSNMUN=<enable>[,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >](1	Set command permits to activate an Unsolicited streaming of GPS data (in NMEA format) through the standard GSM serial port (AT) and defines which NMEA sentences will be available Parameters: **<enable>** 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated 2 - NMEA data stream activated with the following unsolicited response syntax: **<NMEA SENTENCE> <CR>** 3 - dedicated NMEA data stream; it is not possible to send AT commands; with the escape sequence '+++' the user can return to command mode **<GGA>** - Global Positioning System Fix Data 0 - disable 1 - enable **<GLL>** - Geographical Position - Latitude/Longitude 0 - disable 1 - enable **<GSA>** - GPS DOP and Active Satellites 0 - disable 1 - enable **<GSV>** - GPS Satellites in View 0 - disable 1 - enable **<RMC>** - recommended Minimum Specific GPS Data 0 - disable 1 - enable **<VTG>** - Course Over Ground and Ground Speed 0 - disable 1 - enable **DEFAULT:** <0,0,0,0,0,0> The unsolicited response syntax for **<enable>=1** is: **$GPSNMUN: <CR>** **<NMEA SENTENCE> <CR>** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command
AT$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:

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$GPSNMUN – Unsolicited NMEA Data Configuration	
	$GPSNMUN:<enable>,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >
AT$GPSNMUN=?	Test command returns the supported range of values for parameters **<enable>, <GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >**
Example	AT$GPSNMUN=1,0,0,1,0,0,0 OK *These sets the GSA as available sentence in the unsolicited message* AT$GPSNMUN=0 OK *Turn-off the unsolicited mode* AT$GPSNMUN? $GPSNMUN: 1,0,0,1,0,0,0 OK *Give the current frame selected (GSA)* The unsolicited message will be: $GPSNMUN: $GPGSA,A,3,23,20,24,07,13,04,02,,,,,,2.4,1.6,1.8*3C
Reference	NMEA 01803 Specifications
Note	(1 *AT$GPSSAV must be executed to save this configuration* *The command is available in "Controlled Mode" only* *The available NMEA Sentences are depending on the GPS receiver used* *In GE863-GPS and GM862-GPS the fields PDOP and VDOP are not available* *Use NMEA serial port instead if full DOP info are needed*

3.5.5.9.10 $GPSACP – Get Acquired Position

$GPSACP - Get Acquired position information	
AT$GPSACP	Read command returns information about the last GPS position in the format: **$GPSACP: <UTC>,<latitude>,<longitude>,<hdop>,<altitude>, <fix>,<cog>, <spkm>,<spkn>,<date>,<nsat>** where: **<UTC>** - UTC time (hhmmss) referred to GGA sentence **<latitude>** - ddmm.mmmm N/S (referred to GGA sentence) Values:

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$GPSACP - Get Acquired position information	
	dd (degrees) 00 to 90 mm.mmmm (minutes) 00,0000 to 59.9999 N/S: North / South **<longitude>** - dddmm.mmmm E/W (referred to GGA sentence) Values: ddd (degrees) 00 to 180 mm.mmmm (minutes) 00,0000 to 59.9999 E/W: East / West **<hdop>** - x.x - Horizontal Diluition of Precision (referred to GGA sentence) **<altitude>** - xxxx.x Altitude - mean-sea-level (geoid) in meters (referred to GGA sentence) **<fix>** - referred to GSA sentence 1 - Invalid Fix 2 - 2D fix 3 - 3D fix **<cog>** - ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) Values: ddd: 000 to 360 degrees mm 00 to 59 minutes **<spkm>** - xxxx.x Speed over ground (Km/hr) (referred to VTG sentence) **<spkn>** - xxxx.x- Speed over ground (knots) (referred to VTG sentence) **<date>** - ddmmyy Date of Fix (referred to RMC sentence) Values: dd (day) 01 to 31 mm (month) 01 to 12 yy (year) 00 to 99 (2000 to 2099) **<nsat>** - nn - Total number of satellites in view (referred to GSV sentence)
Example	AT$GPSACP $GPSACP:080220,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09 OK

3.5.5.9.11 $GPSSAV – Save GPS Parameters Configuration

$GPSSAV – Save GPS Parameters	
AT$GPSSAV	Execution command saves the current configuration in the non volatile EEPROM memory of the module.
Example	AT$GPSSAV

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$GPSSAV – Save GPS Parameters	
	0K
Note	*The module must be restarted to use the new configuration*

3.5.5.9.12 $GPSRST – Restore to Default GPS Parameters

$GPSRST – Restore all GPS Parameters	
AT$GPSRST	Execution command restores the GPS parameters to “Factory Default” configuration and stores them in the non volatile EEPROM memory of the module.
Example	AT$GPSRST 0K
Note	*The module must be restarted to use the new configuration*

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3.6 SELINT 1

3.6.1 Hayes Compliant AT Commands

3.6.1.1 Generic Modem Control

3.6.1.1.1 &F - Set To Factory-Defined Configuration

&F - Set To Factory-Defined Configuration	
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.

3.6.1.1.2 Z - Soft Reset

Z - Soft Reset	
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**.
Reference	V25ter.

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3.6.1.1.3 +FCLASS - Select Active Service Class

+FCLASS - Select Active Service Class	
AT+FCLASS=<n>	Set command sets the wireless module in specified connection mode (data, fax, voice), hence all the calls done afterwards will be data or voice. Parameter: **<n>** 0 - data 1 - fax class 1 8 - voice
AT+FCLASS?	Read command returns the current configuration value of the parameter **<n>**.
AT+FCLASS=?	Test command returns all supported values of the parameters **<n>**.
Reference	GSM 07.07

3.6.1.1.4 &Y - Designate A Default Reset Basic Profile

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

3.6.1.1.5 &P - Designate A Default Reset Full Profile

&P - Designate A Default Reset Full Profile	
AT&P[<n>]	Execution command defines which full profile will be loaded on startup. Parameter: **<n>** 0..1 – profile number: the wireless module is able to store 2 full configurations (see command **&W**).

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	Note: differently from command **Z<n>**, which loads just once the desired profile, the one chosen through command **&P** will be loaded on every startup. Note: if parameter is omitted, the command has the same behaviour as **AT&P0**
Reference	Telit Specifications

3.6.1.1.6 &W - Store Current Configuration

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

3.6.1.1.7 &Z - Store Telephone Number In The Module Internal Phonebook

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

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3.6.1.1.8 &N - Display Internal Phonebook Stored Numbers

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

3.6.1.1.9 +GMI - Manufacturer Identification

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

3.6.1.1.10 +GMM - Model Identification

+GMM - Model Identification	
AT+GMM	Execution command returns the model identification.
Reference	V.25ter

+GMR - Revision Identification

+GMR - Revision Identification	
AT+GMR	Execution command returns the software revision identification.
Reference	V.25ter

3.6.1.1.11 +GCAP - Capabilities List

+GCAP - Capabilities List	
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

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3.6.1.1.12 +GSN - Serial Number

+GSN - Serial Number	
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

3.6.1.1.13 &V - Display Current Configuration & Profile

&V - Display Current Configuration & Profile	
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.

3.6.1.1.14 &V0 - Display Current Configuration & Profile

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

3.6.1.1.15 &V1 - Display S Registers Values

&V1 - Display S Registers Values	
AT&V1	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0><dec> <hex>** **<reg1><dec> <hex>** ... where **<reg*n*>** - **S** register number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

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3.6.1.1.16 &V3 - Display S Registers Values

&V3 - Display S Registers Values	
AT&V3	Execution command returns the value of the **S** registers in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0><dec> <hex>** **<reg1><dec> <hex>** ... where **<reg*n*>** - **S** register number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

3.6.1.1.17 &V2 - Display Last Connection Statistics

&V2 - Display Last Connection Statistics	
AT&V2	Execution command returns the last connection statistics & connection failure reason.

3.6.1.1.18 \V - Single Line Connect Message

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

3.6.1.1.19 +GCI - Country Of Installation

+GCI - Country Of Installation	
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.

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Reference	V25ter.

3.6.1.1.20 %L - Line Signal Level

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

3.6.1.1.21 %Q - Line Quality

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

3.6.1.1.22 L - Speaker Loudness

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

3.6.1.1.23 M - Speaker Mode

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

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3.6.1.2 DTE - Modem Interface Control

3.6.1.2.1 E - Command Echo

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

3.6.1.2.2 Q - Quiet Result Codes

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

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3.6.1.2.3 V - Response Format

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

3.6.1.2.4 X - Extended Result Codes

X - Extended Result Codes	
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>** 0 - send only **OK**, **CONNECT**, **RING**, **NO CARRIER**, **ERROR**, **NO ANSWER** results. Busy tones reporting is disabled. 1..4 - reports all messages (factory default is 1).

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	Note: If parameter is omitted, the command has the same behaviour as **ATX0**
Note	For complete control on **CONNECT** response message see also **+DR** command.
Reference	V25ter

3.6.1.2.5 I - Identification Information

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

3.6.1.2.6 &C - Data Carrier Detect (DCD) Control

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

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3.6.1.2.7 &D - Data Terminal Ready (DTR) Control

&D - Data Terminal Ready (DTR) Control	
AT&D[<n>]	Set command controls the Module behaviour to the RS232 **DTR** transitions. Parameter: **<n>** 0 - **DTR** transitions are ignored. (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 - **C108/1** operation is enabled 4 - **C108/1** operation is disabled Note: if **AT&D2** has been issued and the **DTR** has been tied **low**, autoanswering is inhibited and it is possible to answer only issuing command **ATA**. Note: if parameter is omitted, the command has the same behaviour as **AT&D0**
Reference	V25ter

3.6.1.2.8 \Q - Standard Flow Control

\Q - Standard Flow Control	
AT\Q[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - software bi-directional with filtering (**XON/XOFF**) 2 - hardware mono-directional flow control (only **CTS** active) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) Note: if parameter is omitted, the command has the same behaviour as **AT\Q0** Note: **\Q's** settings are functionally a subset of **&K's** ones.
Reference	V25ter

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3.6.1.2.9 &K - Flow Control

&K - Flow Control	
AT&K[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - hardware mono-directional flow control (only **CTS** active) 2 - software mono-directional flow control (**XON/XOFF**) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) 4 - software bi-directional with filtering (**XON/XOFF**) 5 - pass through: software bi-directional without filtering (**XON/XOFF**) 6 - both hardware bi-directional flow control (both **RTS/CTS** active) and software bi-directional flow control (**XON/XOFF**) with filtering Note: if parameter is omitted, the command has the same behaviour as **AT&K0** Note: **&K** has no Read Command. To verify the current setting of **&K**, simply check the settings of the active profile with **AT&V**.

3.6.1.2.10 &S - Data Set Ready (DSR) Control

&S - Data Set Ready (DSR) Control	
AT&S[<n>]	Set command controls the RS232 **DSR** pin behaviour. Parameter: **<n>** 0 - always **ON** 1 - follows the GSM traffic channel indication. 2 - **ON** when connected 3 - **ON** when device is ready to receive commands (factory default). Note: if option 1 is selected then **DSR** is tied up when the device receives from the network the GSM traffic channel indication. Note: if parameter is omitted, the command has the same behaviour as **AT&S0**

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3.6.1.2.11 \R - Ring (RI) Control

\R - Ring (RI) Control	
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 as **AT\R0**

3.6.1.2.12 +IPR - Fixed DTE Interface Rate

+IPR - Fixed DTE Interface Rate	
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 or 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.
AT+IPR?	Read command returns the current value of **+IPR** parameter.
AT+IPR=?	Test command returns the supported serial port speed list.
Reference	V25ter

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3.6.1.2.13 +IFC - DTE-Modem Local Flow Control

+IFC - DTE-Modem Local Flow Control	
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>**) Parameter: **<by_te>** - flow control option for the data received by **DTE** 0 - flow control None 1 - **XON/XOFF** filtered 2 - **C105 (RTS)** (factory default) 3 - **XON/XOFF** not filtered **<by_ta>** - flow control option for the data sent by **modem** 0 - flow control None 1 - **XON/XOFF** 2 - **C106 (CTS)** (factory default) Note: This command is equivalent to **&K** command.
AT+IFC?	Read command returns active flow control settings.
AT+IFC=?	Test command returns all supported values of the parameters **<by_te>** and **<by_ta>**.
Reference	V25ter

3.6.1.2.14 +ILRR - DTE-Modem Local Rate Reporting

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

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3.6.1.2.15 +ICF - DTE-Modem Character Framing

+ICF - DTE-Modem Character Framing	
AT+ICF=<format> [,<parity>]	Set command defines the asynchronous character framing to be used when autobauding is disabled. Parameters: **<format>** - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. 0 - autodetection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 4 - 7 Data, 2 Stop 5 - 7 Data, 1 Parity, 1 Stop **<parity>** - determines how the parity bit is generated and checked, if present 0 - Odd 1 - Even
AT+ICF?	Read command returns current settings for subparameters **<format>** and **<parity>**.
AT+ICF=?	Test command returns the ranges of values for the parameters **<format>** and **<parity>**
Reference	V25ter

Example	`AT+ICF = 0 - auto detect`
	`AT+ICF = 1 - 8N2`
	`AT+ICF = 2,0 - 8O1`
	`AT+ICF = 2,1 - 8E1`
	`AT+ICF = 3 - 8N1 (default)`
	`AT+ICF = 5,0 - 7O1`
	`AT+ICF = 5,1 - 7E1`

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3.6.1.3 Call Control

3.6.1.3.1 D - Dial

D - Dial	
ATD<number>[;]	Execution command starts a call to the phone number given as parameter. If ";" is present, a VOICE call to the given number is performed, regardless of the current value of the connection mode set by **+FCLASS** command. Parameter: **<number>** - phone number to be dialed Note: type of call (data, fax or voice) depends on last **+FCLASS** setting. Note: the numbers accepted are 0-9 and *,#,"A", "B", "C", "D","+". Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD><str>[;]	Issues a call to phone number which corresponding alphanumeric field is **<str>**; all available memories will be searched for the correct entry. If ";" is present a VOICE call is performed. Parameter: **<str>** - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks. Note: used character set should be the one selected with either command Select TE character set **+CSCS** or @**CSCS**.
ATD><mem><n>[;]	Issues a call to phone number in phonebook memory storage **<mem>**, entry location **<n>** (available memories may be queried with **AT+CPBS=?**). If "**;**" is present a **voice** call is performed. Parameters: **<mem>** - phonebook memory storage; it must not be enclosed in quotation marks. SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list **<n>** - entry location; it should be in the range of locations available in the memory used.
ATD><n>[;]	Issues a call to phone number in entry location **<n>** of the active

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D - Dial	
	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 Other values are reserved and will result in an **ERROR** response to the Set command. **<cid>** - a digit which specifies a particular PDP context definition (see **+CGDCONT** command).
Example	*To dial a number in SIM phonebook entry 6:* ATD>SM6

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

3.6.1.3.2 T - Tone Dial

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

3.6.1.3.3 P - Pulse Dial

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

3.6.1.3.4 A - Answer

A - Answer	
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.

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3.6.1.3.5 H - Disconnect

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

3.6.1.3.6 O - Return To On Line Mode

O - Return To On Line Mode	
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.

3.6.1.3.7 &G - Guard Tone

&G - Guard Tone	
AT&G	Set command has no effect is included only for backward compatibility with landline modems.

3.6.1.3.8 &Q - Sync/Async Mode

&Q - Sync/Async Mode	
AT&Q	Set command has no effect is included only for backward compatibility with landline modems.

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3.6.1.4 Modulation Control

3.6.1.4.1 +MS - Modulation Selection

+MS - Modulation Selection	
AT+MS= <carrier>[, <automode>[, <min_rate>[, <max_rate>]]]	Set command has no effect is included only for backward compatibility with landline modems. Parameter: **<carrier>** - a string which specifies the preferred modem carrier to use in originating or answering a connection V21 V22 V22B V23C V32 V34 **<automode>** - it enables/disables automatic modulation negotiation. 0 - disabled 1 - enabled. It has effect only if it is defined for the associated modulation. **<min_rate>** - it specifies the lowest value at which the **DCE** may establish a connection. 0 - unspecified **<max_rate>** - it specifies the highest value at which the **DCE** may establish a connection. 0 - unspecified 300..14400 - rate in bps Note: to change modulation requested use **+CBST** command.
AT+MS?	Read command returns the current value of **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.
AT+MS=?	Test command returns all supported values of the **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.

3.6.1.4.2 %E - Line Quality Monitor And Auto Retrain Or Fallback/Fallforward

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

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3.6.1.5 Compression Control

3.6.1.5.1 +DS - Data Compression

+DS - Data Compression	
AT+DS=<n>	Set command sets the V42 compression parameter. Parameter: **<n>** 0 - no compression, it is currently the only supported value
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

3.6.1.5.2 +DR - Data Compression Reporting

+DR - Data Compression Reporting	
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. 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

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3.6.1.6Break Control

3.6.1.6.1 \B - Transmit Break To Remote

\B - Transmit Break To Remote	
AT\B	Execution command has no effect and is included only for backward compatibility with landline modems

3.6.1.6.2 \K - Break Handling

\K - Break Handling	
AT\K<n>	Execution command has no effect and is included only for backward compatibility with landline modems Parameter: **<n>** 1..5

3.6.1.6.3 \N - Operating Mode

\N - Operating Mode	
AT\N	Execution command has no effect and is included only for backward compatibility with landline modems

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3.6.1.7S 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**:

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

3.6.1.7.1 S0 - Number Of Rings To Auto Answer

S0 - Number Of Rings To Auto Answer	
ATS0[=<n>]	Set command sets the number of rings required before device automatically answers an incoming call. Parameter: **<n>** - number of rings 0 - auto answer disabled (factory default) 1..255 - number of rings required before automatic answer.
ATS0?	Read command returns the current value of **S0** parameter.
ATS0=?	Test command returns the range for **<n>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

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3.6.1.7.2 S1 - Ring Counter

S1 - Ring Counter	
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

3.6.1.7.3 S2 - Escape Character

S2 - Escape Character	
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

3.6.1.7.4 S3 - Command Line Termination Character

S3 - Command Line Termination Character	
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

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	of **S3** (as set during the processing of the command line).
ATS3?	Read command returns the current value of **S3** parameter.
ATS3=?	Test command returns the range for **<char>** without command echo and parenthesis.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.6.1.7.5 S4 - Response Formatting Character

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

3.6.1.7.6 S5 - Command Line Editing Character

S5 - Command Line Editing Character	
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

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3.6.1.7.7 S7 - Connection Completion Time-Out

S7 - Connection Completion Time-Out	
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

3.6.1.7.8 S12 - Escape Prompt Delay

S12 - Escape Prompt Delay	
ATS12[=<time>]	Set command sets the period, before and after an escape sequence, during which no character has to be detected in order to accept the escape sequence as a valid one. Parameter: **<time>** - expressed in fiftieth of a second 20..255 - factory default value is 50.
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

3.6.1.7.9 S25 - Delay To DTR Off

S25 - Delay To DTR Off	
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

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	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

3.6.1.7.10 S30 - Disconnect Inactivity Timer

S30 - Disconnect Inactivity Timer	
ATS30[=<tout>]	Set command defines the inactivity timeout 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 timeout value.
ATS30?	Read command returns the current value of **S30** parameter.
ATS30=?	Test command returns the range for **<tout>** without command echo and parenthesis. Note: the output depends on the choice made through **#SELINT** command.
Note	For either Read and Test command the format of the numbers in output is always 3 digits, left-filled with 0s

3.6.1.7.11 S38 - Delay Before Forced Hang Up

S38 -Delay Before Forced Hang Up	
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 20). 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

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3.6.2 ETSI GSM 07.07 AT Commands

3.6.2.1 General

3.6.2.1.1 +CGMI - Request Manufacturer Identification

+CGMI - Request Manufacturer Identification	
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	GSM 07.07

3.6.2.1.2 +CGMM - Request Model Identification

+CGMM - Request Model Identification	
AT+CGMM	Execution command returns the device model identification code without command echo.
Reference	GSM 07.07

3.6.2.1.3 +CGMR - Request Revision Identification

+CGMR - Request Revision Identification	
AT+CGMR	Execution command returns device software revision number without command echo.
AT+CGMR?	Read command has the same behaviour as Execution command
Reference	GSM 07.07

3.6.2.1.4 +CGSN - Request Product Serial Number Identification

+CGSN - Request Product Serial Number Identification	
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	GSM 07.07

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3.6.2.1.5 +CSCS - Select TE Character Set

+CSCS - Select TE Character Set	
AT+CSCS [=<chset>]	Set command sets the current character set used by the device. Parameter: **<chset>** - character set "IRA" - ITU-T.50 "8859-1" - ISO 8859 Latin 1 "PCCP437" - PC character set Code Page 437. "UCS2" - 16-bit universal multiple-octet coded character set (ISO/IEC10646) Note: If parameter is omitted then the behaviour of Set command is the same as Read command.
AT+CSCS?	Read command returns the current value of the active character set.
AT+CSCS=?	Test command returns the supported values of the parameter **<chset>**. For compatibility with previous versions, Test command returns **+CSCS: ("IRA")** An enhanced version of Test command has been defined: **AT+CSCS=??**, that provides the complete range of values for **<chset>**.
AT+CSCS=??	Enhanced test command returns the supported values of the parameter **<chset>**
Reference	GSM 07.07

3.6.2.1.6 +CIMI - Request International Mobile Subscriber Identity (IMSI)

+CIMI - Request International Mobile Subscriber Identify (IMSI)	
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	GSM 07.07

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3.6.2.2 Call Control

3.6.2.2.1 +CHUP - Hang Up Call

+CHUP - Hang Up Call	
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	GSM 07.07

3.6.2.2.2 +CBST - Select Bearer Service Type

+CBST - Select Bearer Service Type	
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. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer **+CSNS**). Parameters: The default values of the subparameters are manufacturer specific since they depend on the purpose of the device and data services provided by it. Not all combinations of these subparameters are supported. The supported values are: **<speed>** 0 - autobauding (automatic selection of the speed, factory default) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) **<name>** 0 - data circuit asynchronous (factory default) **<ce>** 0 - transparent 1 - non transparent (default)

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+CBST - Select Bearer Service Type	
	Note: the settings **AT+CBST=0,0,0** **AT+CBST=14,0,0** **AT+CBST=75,0,0** are not supported. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
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	GSM 07.07

3.6.2.2.3 +CRLP - Radio Link Protocol

+CRLP - Radio Link Protocol	
AT+CRLP=<iws>[,<mws>[,<T1>[,<N2>[,<ver>]]]]	Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls are originated Parameters: **<iws>** - IWF window Dimension 1..61 - factory default value is 61 **<mws>** - MS window Dimension 1..61 - default value is 61 **<T1>** - acknowledge timer (10 ms units). 39..255 - default value is 78 **<N2>** - retransmission attempts 1..255 - default value is 6 **<ver>** - protocol version 0
AT+CRLP?	Read command returns the current value of the RLP protocol parameters.
AT+CRLP=?	Test command returns supported range of values of the RLP protocol parameters.
Reference	GSM 07.07

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3.6.2.2.4 +CR - Service Reporting Control

+CR - Service Reporting Control	
AT+CR=<mode>	Set command controls whether or not intermediate result code **+CR: <serv>** is returned from the **TA** to the **TE**, where **<serv>** ASYNC - asynchronous transparent SYNC - synchronous transparent REL ASYNC - asynchronous non-transparent REL SYNC - synchronous non-transparent If enabled, 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. Parameter: **<mode>** 0 - disables intermediate result code report (factory default) 1 - enables intermediate result code report. 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 current intermediate report setting
AT+CR=?	Test command returns the supported range of values of parameter **<mode>**.
Reference	GSM 07.07

3.6.2.2.5 +CEER - Extended Error Report

+CEER - Extended Error Report	
AT+CEER	Execution command returns one or more lines of information text **<report>** in the format: **+CEER: <report>** This report regards some error condition that may occur: - the failure in the last unsuccessful call setup (originating or answering) - the last call release - the last unsuccessful GPRS attach or unsuccessful PDP context activation,

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+CEER - Extended Error Report	
	- the last GPRS detach or PDP context deactivation. Note: if none of this condition has occurred since power up then No Error condition is reported
AT+CEER?	Read command reports a information text regarding some error condition that may occur
AT+CEER=?	Test command returns **OK** result code.
Reference	GSM 07.07

3.6.2.2.6 +CRC - Cellular Result Codes

+CRC - Cellular Result Codes	
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: 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	GSM 07.07

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3.6.2.2.7 +CSNS - Single Numbering Scheme

+CSNS - Single Numbering Scheme	
AT+CSNS= <mode>	Set command selects the bearer or teleservice to be used when mobile terminated single numbering scheme call is established. Parameter values set with **+CBST** command shall be used when **<mode>** equals to a data service. Parameter: **<mode>** 0 - voice (factory default) 2 - fax (TS 62) 4 - data Note: if **+CBST** parameter is set to a value that is not applicable to single numbering calls, ME/TA shall map the value to the closest valid one. E.g. if user has set **<speed>=71**, **<name>=0** and **<ce>=1** (non-trasparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-trasparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.
AT+CSNS?	Read command returns current value of the parameter **<mode>**.
AT+CSNS=?	Test command returns supported values of the parameter **<mode>**.
Reference	GSM 07.07

3.6.2.2.8 +CVHU - Voice Hang Up Control

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

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3.6.2.3Network Service Handling

3.6.2.3.1 +CNUM - Subscriber Number

+CNUM - Subscriber Number	
AT+CNUM	Execution command returns the subscriber number i.e. the phone number of the device that is stored in the SIM card. Note: the returned number format is: **+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	GSM 07.07

3.6.2.3.2 +COPN - Read Operator Names

+COPN - Read Operator Names	
AT+COPN	Execution command returns the list of operator names from the **ME**. The output depends on the choice made through **#SELINT** command.
Reference	GSM 07.07

3.6.2.3.3 +CREG - Network Registration Report

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

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

+CREG - Network Registration Report	
	+CREG: 0,2 OK at+creg? +CREG: 0,1 *(the MODULE is registered)* OK at+creg? +CREG: 0,1 OK
Reference	GSM 07.07

3.6.2.3.4 +COPS - Operator Selection

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

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+COPS - Operator Selection	
	<oper>: network operator in format defined by **<format>** parameter. **(#COPSMODE=1)** Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (default) 1 - manual choice **(<oper>** field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1** or **4** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic **(<oper>** field shall be present); if manual selection fails, automatic mode **(<mode>=0**) is entered **<format>** 0 - alphanumeric long form (max length 16 digits) 2 - numeric 5 digits [country code (3) + network code (2)] **<oper>**: network operator in format defined by **<format>** parameter. Note: **<mode>** parameter setting is stored in NVM and available at next reboot. If **<mode>=1** or **4**, the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted) Note: issuing **AT+COPS<CR>** is the same as issuing the Read command. Note: issuing **AT+COPS=<CR>** is the same as issuing the command **AT+COPS=0<CR>**.
AT+COPS?	Read command returns current value of **<mode>,<format>** and **<oper>** in format **<format>**; if no operator is selected, **<format>** and **<oper>** are omitted **+COPS: <mode>[, <format>, <oper>]**
AT+COPS=?	Test command returns a list of quadruplets, each representing an operator present in the network. The behaviour of Test command depends on the last **#COPSMODE** setting. **(#COPSMODE=0)** The command outputs as many rows as the number of quadruplets, each of them in the format: **+COPS: (<stat> ,<oper (in <format>=0)>,"",** **<oper (in <format>=2)>)**

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+COPS - Operator Selection	
	where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden **(#COPSMODE=1)** The quadruplets in the list are separated by commas: **+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,, <oper (in <format>=2)>)s][,,(list of supported <mode>s), (list of supported<format>s)]** where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden Note: since with this command a network scan is done, this command may require some seconds before the output is given. Note: The value of parameter **<oper>** (in **<format>=0**) is the same as the recent GM862 family products.
Reference	GSM 07.07

3.6.2.3.5 +CLCK - Facility Lock/ Unlock

+CLCK - Facility Lock/Unlock	
AT+CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home

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+CLCK - Facility Lock/Unlock	
	country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD** **<class>** - represents the class of information of the facility as sum of bits (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **+CLCK: <status>** where **<status>** - current status of the facility 0 - not active 1 - active
AT+CLCK=?	Test command reports all the facility supported by the device.
Reference	GSM 07.07
Note	The improving command @**CLCK** has been defined.

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3.6.2.3.6 @CLCK - Facility Lock/ Unlock

@CLCK - Facility Lock/Unlock	
AT@CLCK= <fac>,<mode> [,<passwd> [,<class>]]	Execution command is used to lock or unlock a **ME** o a network facility. Parameters: **<fac>** - facility "SC" - SIM (PIN request) (device asks SIM password at power-up and when this lock command issued) "AO"- BAOC (Barr All Outgoing Calls) "OI" - BOIC (Barr Outgoing International Calls) "OX" - BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" - BAIC (Barr All Incoming Calls) "IR" - BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" - All Barring services (applicable only for **<mode>=0**) "AG" - All outGoing barring services (applicable only for **<mode>=0**) "AC" - All inComing barring services (applicable only for **<mode>=0**) "FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as **<passwd>**) "PN" - network Personalisation "PU" - network subset Personalisation **<mode>** - defines the operation to be done on the facility 0 - unlock facility 1 - lock facility 2 - query status **<passwd>** - shall be the same as password specified for the facility from the **DTE** user interface or with command Change Password **+CPWD** **<class>** - represents the class of information of the facility as sum of bits (default is 7) 1- voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **@CLCK: <status>,<class1>** **[<CR><LF>@CLCK: <status>,<class2>[...]]**

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@CLCK - Facility Lock/Unlock	
	where **<status>** - the current status of the facility 0 - not active 1 - active **<class*n*>** - class of information of the facility
AT@CLCK=?	Test command reports all the facilities supported by the device.
Reference	GSM 07.07
Example	*Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:* AT@CLCK =”A0”,2 @CLCK: <status>,1 @CLCK: <status>,2 @CLCK: <status>,4 OK

3.6.2.3.7 +CPWD - Change Facility Password

+CPWD - Change Facility Password	
AT+CPWD=<fac>, <oldpwd>, <newpwd>	Execution command changes the password for the facility lock function defined by command Facility Lock **+CLCK**. Parameters: **<fac>** - facility “SC” - SIM (PIN request) “AB” - All barring services “P2” - SIM PIN2 **<oldpwd>** - string type, it shall be the same as password specified for the facility from the ME user interface or with command **+CPWD**. **<newpwd>** - string type, it is the new password Note: parameter **<oldpwd>** is the old password while **<newpwd>** is the new one.
AT+CPWD=?	Test command returns a list of pairs **(<fac>,<pwdlength>)** which presents the available facilities and the maximum length of their password (**<pwdlength>**)
Reference	GSM 07.07

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3.6.2.3.8 +CLIP - Calling Line Identification Presentation

+CLIP - Calling Line Identification Presentation	
AT+CLIP[=[<n>]]	Set command enables/disables the presentation of the CLI (Calling Line Identity) at the **TE**. This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call. Parameters: **<n>** 0 - disables CLI indication (factory default) 1 - enables CLI indication If enabled the device reports after each **RING** the response: **+CLIP:<number>,<type>,<subaddress>,<satype>,<alpha>** **,<CLI_validity>** where: **<number>** - calling line number **<type>** - type of address octet in integer format 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme **<subaddress>** - string type subaddress of format specified by **<satype>** **<satype>** - type of subaddress octet in integer format **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected either with command Select **TE** character set **+CSCS** or **@CSCS**. **<CLI_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator. 2 - CLI is not available due to interworking problems or limitation or originating network. Note: issuing **AT+CLIP<CR>** is the same as issuing the Read command. Note: issuing **AT+CLIP=<CR>** is the same as issuing the command **AT+CLIP=0<CR>**.
AT+CLIP?	Read command returns the presentation status of the CLI in the format: **+CLIP: <n>, <m>** where: **<n>** 0 - CLI presentation disabled

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+CLIP - Calling Line Identification Presentation	
	1 - CLI presentation enabled **<m>** - status of the CLIP service on the GSM network 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) Note: This command issues a status request to the network, hence it may take a few seconds to give the answer due to the time needed to exchange data with it.
AT+CLIP=?	Test command returns the supported values of the parameter **<n>**
Reference	GSM 07.07
Note	The command changes only the report behaviour of the device, it does not change CLI supplementary service setting on the network.

3.6.2.3.9 +CLIR - Calling Line Identification Restriction

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

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+CLIR - Calling Line Identification Restriction	
	<m> - facility status on the Network 0 - CLIR service not provisioned 1 - CLIR service provisioned permanently 2 - unknown (e.g. no network present, etc.) 3 - CLI temporary mode presentation restricted 4 - CLI temporary mode presentation allowed
AT+CLIR=?	Test command reports the supported values of parameter **<n>**.
Reference	GSM 07.07
Note	This command sets the default behaviour of the device in outgoing calls.

3.6.2.3.10 +CCFC - Call Forwarding Number And Conditions

+CCFC - Call Forwarding Number And Condition	
AT+CCFC=<reason>,<cmd>[,<number>[,<type>[,<class>[,,,<time>]]]	Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported. Parameters: **<reason>** 0 - unconditional 1 - mobile busy 2 - no reply 3 - not reachable 4 - all calls (not with query command) 5 - all conditional calls (not with query command) **<cmd>** 0 - disable 1 - enable 2 - query status 3 - registration 4 - erasure **<number>** - phone number of forwarding address in format specified by **<type>** parameter **<type>** - type of address byte in integer format : 145 - international numbering scheme (contains the character "+") 129 - national numbering scheme **<class>** - sum of integers each representing a class of information which the command refers to; default 7 (voice + data + fax) 1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service

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+CCFC - Call Forwarding Number And Condition	
	16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access **<time>** - the time in seconds after which the call is diverted if "no reply" reason is chosen. Valid only for "no reply" reason. Note: when **<cmd>=2** and command successful, it returns: **+CCFC: <status>,<class>[,<number>[,<type>[,<time>]]]** where: **<status>** - current status of the network service 0 - not active 1 - active **<time>** - time in *seconds* to wait before call is forwarded when "no reply" option for **<reason>** is enabled or queried 1..30 - default value is 20. The other parameters are as seen before.
AT+CCFC=?	Test command reports supported values for the parameter **<reason>**.
Reference	GSM 07.07
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>**.

3.6.2.3.11 +CCWA - Call Waiting

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

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

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+CCWA - Call Waiting	
	waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party. Note: The command **AT+CCWA=1,0** has no effect a non sense and must not be issued. Note: issuing **AT+CCWA<CR>** is the same as issuing the Read command. Note: issuing **AT+CCWA=<CR>** is the same as issuing the command **AT+CCWA=0<CR>**.
AT+CCWA?	Read command reports the current value of the parameter **<n>**.
AT+CCWA=?	Test command reports the supported values for the parameter **<n>**.
Reference	GSM 07.07

3.6.2.3.12 +CHLD - Call Holding Services

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

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	+CHLD: (0,1,2,3) Note: consider what has been written about the Set command relating the actions on a specific call (X).
Reference	GSM 07.07
Note	ONLY for VOICE calls

3.6.2.3.13 +CUSD - Unstructured Supplementary Service Data

+CUSD - Unstructured Supplementary Service Data	
AT+CUSD[= [<n>[,<str> [,<dcs>]]]]	Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]). Parameters: **<n>** - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the **DTA** 1 - enable the result code presentation in the **DTA** **<str>** - USSD-string (when **<str>** parameter is not given, network is not interrogated) - If **<dcs>** indicates that GSM338 default alphabet is used **ME/TA** converts GSM alphabet into current TE character set (see **+CSCS**). - If **<dcs>** indicates that 8-bit data coding scheme is used: **ME/TA** converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to **TE** as two characters 2A (IRA 50 and 65). **<dcs>** - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0). Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CUSD: <m>[,<str>,<dcs>]** to the **TE** where: **<m>**: 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported

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+CUSD - Unstructured Supplementary Service Data	
	5 - network time out Note: in case of successful mobile initiated operation, **DTA** waits the USSD response from the network and sends it to the **DTE** before the final result code. This will block the AT command interface for the period of the operation. Note: issuing **AT+CUSD<CR>** is the same as issuing the Read command. Note: issuing **AT+CUSD=<CR>** is the same as issuing the command **AT+CUSD=0<CR>**.
AT+CUSD?	Read command reports the current value of the parameter **<n>**
AT+CUSD=?	Test command reports the supported values for the parameter **<n>**
Reference	GSM 07.07
Note	Only mobile initiated operations are supported

3.6.2.3.14 +CAOC - Advice Of Charge

+CAOC - Advice Of Charge	
AT+CAOC[= [<mode>]]	Set command refers to the Advice of Charge supplementary service; the command also includes the possibility to enable an unsolicited event reporting of the CCM (Call Cost Meter) information. Parameter: **<mode>** 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting Note: the unsolicited result code enabled by parameter **<mode>** is in the format: **+CCCM: <ccm>** where: **<ccm>** - call cost meter value hexadecimal representation (3 bytes) Note: the unsolicited result code **+CCCM** is issued when the CCM value changes, but not more than every 10 seconds. Note: issuing **AT+CAOC<CR>** is the same as issuing the Read command. Note: issuing **AT+CAOC=<CR>** is the same as issuing the command **AT+CAOC=0<CR>**.
AT+CAOC?	Read command reports the value of parameter **<mode>** in the format:

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+CAOC - Advice Of Charge	
	+CAOC: <mode>
AT+CAOC=?	Test command reports the supported values for **<mode>** parameter. Note: the representation format doesn't match the v.25ter§5.7.3 "Information text formats for test commands". The output is: **+CAOC: 0, 1, 2**
Reference	GSM 07.07
Note	**+CAOC** command uses the CCM of the device internal memory, not the CCM stored in the SIM. The difference is that the internal memory CCM is reset at power up, while the SIM CCM is reset only on user request. Advice of Charge values stored in the SIM (ACM, ACMmax, PUCT) can be accessed with commands **+CACM**, **+CAMM** and **+CPUC**.

3.6.2.3.15 +CLCC - List Current Calls

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

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+CLCC - List Current Calls	
	9 - unknown **<mpty>** - multiparty call flag 0 - call is not one of multiparty (conference) call parties **<number>** - phone number in format specified by **<type>** **<type>** - type of phone number byte in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: If no call is active then only **OK** message is sent. This command is useful in conjunction with command **+CHLD** to know the various call status for call holding.
Reference	GSM 07.07

3.6.2.3.16 +CSSN - SS Notification

+CSSN - SS Notification	
AT+CSSN[=[<n>[,<m>]]]	It refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from **TA** to **TE**. Parameters: **<n>** - sets the **+CSSI** result code presentation status 0 - disable 1 - enable **<m>** - sets the **+CSSU** result code presentation status 0 - disable 1 - enable When **<n>=1** and a supplementary service notification is received after a mobile originated call setup, an unsolicited code: **+CSSI: <code1>** is sent to **TE** before any other **MO** call setup result codes, where: **<code1>**: 1 - some of the conditional call forwardings are active 2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred

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+CSSN - SS Notification	
	When **<m>=1** and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code **+CSSU: <code2>** is sent to **TE**, where: **<code2>**: 0 - this is a forwarded call (**MT** call setup) 2 - call has been put on hold (during a voice call) 3 - call has been retrieved (during a voice call) Note: issuing **AT+CSSN<CR>** is the same as issuing the Read command. Note: issuing **AT+CSSN=<CR>** is the same as issuing the command **AT+CSSN=0<CR>**.
AT+CSSN?	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters **<n>**, **<m>**.
Reference	GSM 07.07

3.6.2.3.17 +CCUG - Closed User Group Supplementary Service Control

+CCUG - Closed User Group Supplementary Service Control	
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

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	Note: issuing **AT+CCUG<CR>** is the same as issuing the Read command. Note: issuing **AT+CCUG=<CR>** is the same as issuing the command **AT+CCUG=0<CR>**.
AT+CCUG?	Read command reports the current value of the parameters
AT+CCUG=?	Test command reports the supported range of values for the parameters **<n>**, **<index>**, **<info>**
Reference	GSM 07.07

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3.6.2.4 Mobile Equipment Control

3.6.2.4.1 +CPAS - Phone Activity Status

+CPAS - Phone Activity Status	
AT+CPAS	Execution command reports the device status in the form: **+CPAS: <pas>** Where: **<pas>** - phone activity status 0 - ready (device allows commands from **TA/TE**) 1 - unavailable (device does not allow commands from **TA/TE**) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from **TA/TE**, but the ringer is active) 4 - call in progress (device is ready for commands from **TA/TE**, but a call is in progress)
AT+CPAS?	Read command has the same effect as Execution command.
AT+CPAS=?	Test command reports the supported range of values for **<pas>**. Note: although **+CPAS** is an execution command, ETSI 07.07 requires the Test command to be defined.
Example	ATD03282131321; OK AT+CPAS +CPAS: 3 *the called phone is ringing* OK AT+CPAS +CPAS: 4 *the called phone has answered to your call* OK ATH OK
Reference	GSM 07.07

3.6.2.4.2 +CFUN - Set Phone Functionality

+CFUN - Set Phone Functionality	
AT+CFUN=<fun>	Set command selects the level of functionality in the **ME**. Parameter: **<fun>** - is the power saving function mode 0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible. Consequently, once you have set **<fun>** level

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	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 stops power saving and takes the ME back to full functionality level **<fun>=1**. 1 - mobile full functionality with power saving disabled (factory default) 2 - disable TX 4 - disable either TX and RX 5 - mobile full functionality with power saving enabled Note: if power saving enabled, it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity. Note: to place the telephone 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 telephone is really in power saving condition. During the power saving condition, before sending any AT command on the serial line, the **DTR** must be enabled and it must be waited for the **CTS** (RS232) line to go in **ON** status. Until the **DTR** line is **ON**, the telephone will not return back in the power saving condition. Note: the power saving function does not affect the network behavior of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call arrives during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code
AT+CFUN?	Read command reports the current level of functionality.
AT+CFUN=?	Test command returns the list of supported values for **<fun>** For compatibility with previous versions, Test command returns **+CFUN: (1, 5)** An enhanced version of Test command has been defined: **AT+CFUN=??**, that provides the complete range of values for **<fun>**.
AT+CFUN=??	Enhanced test command returns the list of supported values for **<fun>**
Reference	GSM 07.07

3.6.2.4.3 +CPIN - Enter PIN

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

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

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+CPIN - Enter PIN

Note: Pin pending status at startup depends on PIN facility setting, to change or query the default power up setting use either the **AT+CLCK=SC,<mode>, <pin>** command or the **AT@CLCK=SC,<mode>, <pin>** command.

Example

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

OK
```

Note

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

A	**#SRP**	**#CAMOFF**	**+IPR**
D	**#CAP**	**#CAMEN**	**+ICF**
H	**#CODEC**	**#TPHOTO**	**+IFC**
O	**#CBC**	**#RPHOTO**	**+CMUX**
E	**#I2S1**	**#SELCAM**	**+CNMI**
I	**#STM**	**#CAMQUA**	**+CPAS**
L	**#SHFEC**	**#CMODE**	**+CCLK**
M	**#SHFSD**	**#CAMRES**	**+CALA**
P	**#HFMICG**	**#CAMTXT**	**+CRSM**
Q	**#HSMICG**	**#CAMZOOM**	**+CLIP**
S	**#GPIO**	**#CAMCOL**	**+DR**
T	**#SGPO**	**#OBJL**	**+DS**
V	**#GGPI**	**#OBJR**	**+MS**
X	**#ADC**	**#COPSMODE**	**+GCAP**
Z	**#QTEMP**	**#DIALMODE**	**+GCI**
&C	**#DAC**	**#SEMAIL**	**+ILRR**
&D	**#F26M**	**#EMAILD**	**+CALM**
&F	**#RTCSTAT**	**#EUSER**	**+CHUP**
&K	**#ACAL**	**#EPASSW**	**+FCLASS**
&N	**#PCT**	**#ESMTP**	**+FMI**
&P	**#WAKE**	**#EADDR**	**+FMM**
&S	**#SHDN**	**#EMAILMSG**	**+FMR**
&V	**#JDR**	**#ESAV**	**+FTS**
&W	**#CSURV**	**#ERST**	**+FRS**
&Y	**#CSURVC**	**#QSS**	**+FTM**
&Z	**#CSURVU**	**#SSCTRACE**	**+FRM**
%E	**#CSURVUC**	**+CFUN**	**+FRH**
%L	**#CSURVF**	**+CGMI**	**+FTH**

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+CPIN - Enter PIN	

%Q	#CSURVNLF	+CGMM	+FLO
\K	#CSURVB	+CGMR	+FPR
\Q	#CSURVBC	+GMI	+FDD
\R	#PASSW	+GMM	+CSNS
\V	#PKTSZ	+GMR	+CRLP
#BND	#SKTSAV	+CGSN	+CR
#AUTOBND	#SKTSET	+GSN	+CREG
#CGMI	#SKTOP	+CRC	+CGREG
#CGMM	#SKTTO	+CMEE	+COPS
#CGMR	#USERID	+CPIN	+CBC
#CGSN	#DSTO	+CSQ	+CIND
#MONI	#SKTCT	+CSDH	+CMER
#SERVINFO	#SKTRST	+CRSL	
#SELINT	#FTPPUTPH	+CLVL	
#SRS	#CAMON	+CMUT	

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

Reference	GSM 07.07

3.6.2.4.4 +CSQ - Signal Quality

+CSQ - Signal Quality	
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%

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+CSQ - Signal Quality	
	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, ETSI 07.07 requires the Test command to be defined.
Reference	GSM 07.07

3.6.2.4.5 +CIND - Indicator Control

+CIND - Indicator Control	
AT+CIND[= [<state> [,<state>[,…]]]]	Set command is used to control the registration / deregistration of ME indicators, in order to automatically send the **+CIEV URC**, whenever the value of the associated indicator changes. The supported indicators (**<descr>**) and their order appear from test command **AT+CIND=?** Parameter: **<state>** - registration / deregistration state 0 - the indicator is deregistered; it cannot be presented as unsolicited result code (**+CIEV URC**), but can be directly queried with **AT+CIND?** 1 - indicator is registered: indicator event report is allowed; this is the factory default for every indicator Note: issuing **AT+CIND<CR>** causes the read command to be executed Note: issuing **AT+CIND=<CR>** causes all the indicators to be registered, as the command **AT+CIND=1,1,1,1,1,1,1,1,1** was issued.
AT+CIND?	Read command returns the current value status of ME indicators, in the format: **+CIND: <ind>[,<ind>[,…]]** Note: the order of the values **<ind>s** is the same as that in which appear the supported indicators from test command **AT+CIND=?**
AT+CIND=?	Test command returns pairs, where string value **<descr>** is a description (max. 16 chars) of the indicator and compound value is the supported values for the indicator, in the format: **+CIND: (<descr>, (list of supported <ind>s))[,(<descr>, (list of supported <ind>s))[,…]]**

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	where: **<descr>** - indicator names as follows (along with their **<ind>** ranges) “battchg” - battery charge level **<ind>** - battery charge level indicator range 0..5 99 - not measurable “signal” - signal quality **<ind>** - signal quality indicator range 0..7 99 - not measurable “service” - service availability **<ind>** - service availability indicator range 0 - not registered to any network 1 - registered to home network “sounder” - sounder activity **<ind>** - sounder activity indicator range 0 - there’s no any sound activity 1 - there’s some sound activity “message” - message received **<ind>** - message received indicator range 0 - there is no unread short message at memory location “SM” 1 - unread short message at memory location “SM” “call” - call in progress **<ind>** - call in progress indicator range 0 - there’s no calls in progress 1 - at least a call has been established “roam” - roaming **<ind>** - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network “smsfull” - a short message memory storage in the MT has become full (1), or memory locations are available (0) **<ind>** - short message memory storage indicator range 0 - memory locations are available 1 - a short message memory storage in the MT has become full. “rssi” - received signal (field) strength **<ind>** - received signal strength level indicator range 0 - signal strength ≤ 112 dBm 1..4 - signal strength in 15 dBm steps

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	5 - signal strength ≥ 51 dBm 99 - not measurable
Example	*Next command causes all the indicators to be registered* AT+CIND=1,1,1,1,1,1,1,1,1 *Next command causes all the indicators to be de-registered* AT+CIND=0,0,0,0,0,0,0,0,0 *Next command to query the current value of all indicators* AT+CIND? CIND: 4,0,1,0,0,0,0,0,2 OK
Note	See command **+CMER**
Reference	GSM 07.07

3.6.2.4.6 +CMER - Mobile Equipment Event Reporting

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

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+CMER - Mobile Equipment Event Reporting	
	Note: issuing **AT+CMER<CR>** causes the read command to be executed Note: issuing **AT+CMER=<CR>** causes the command **AT+CMER=0,0,0,0,0** to be issued.
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	GSM 07.07

3.6.2.4.7 +CPBS - Select Phonebook Memory Storage

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

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	<storage>. Note: the presentation format of the Test command output is the set of available values for **<storage>**, each of them enclosed in parenthesis: **+CPBS: ("SM"),("FD"),("LD"),("MC"),("RC")**
Reference	GSM 07.07

3.6.2.4.8 +CPBR - Read Phonebook Entries

+CPBR - Read Phonebook Entries	
AT+CPBR= <index1> [,<index2>]	Execution command returns phonebook entries in location number range **<index1>**..**<index2>** from the current phonebook memory storage selected with **+CPBS**. If **<index2>** is omitted, only location **<index1>** is returned. Parameters: **<index1>** - integer type value in the range of location numbers of phonebook memory **<index2>** - integer type value in the range of location numbers of phonebook memory The response format is: **+CPBR: <index>,<number>,<type>,<text>** where: **<index>** - the current position number of the PB index (to see the range of values use **+CPBR=?**) **<number>** - the phone number stored in the format **<type>** **<type>** - type of phone number byte 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 either command **+CSCS** or **@CSCS**. Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an **ME** error, **+CME ERROR: <err>** is returned.
AT+CPBR=?	Test command returns the supported range of values of the parameters in the form: **+CPBR: (<minIndex> - <maxIndex>),<nlength>,<tlength>** where: **<minIndex>** - the minimum **<index>** number, integer type

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	<maxIndex> - the maximum **<index>** number, integer type **<nlength>** - maximum **<number>** field length, integer type **<tlength>** - maximum **<name>** field length, integer type
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.6.2.4.9 +CPBF - Find Phonebook Entries

+CPBF - Find Phonebook Entries	
AT+CPBF= <findtext>	Execution command issues a search for the phonebook records that have the **<findtext>** sub-string at the start of the **<text>** field Parameter: **<findtext>** - string type, it is NOT case sensitive; used character set should be the one selected with either command **+CSCS** or **@CSCS**. The command returns a report in the form: **+CPBF: <index1>,<number>,<type>,<text>[[...]<CR><LF>** **+CPBF: <index*n*>,<number>,<type>,<text>]** where **<index*n*>**, **<number>**, **<type>**, and **<text>** have the same meaning as in the command **+CPBR** report. Note: if no PB records satisfy the search criteria then an **ERROR** message is reported.
AT+CPBF=?	Test command reports the maximum lengths of fields **<number>** and **<name>** in the PB entry in the form: **+CPBF: [<max_number_length>],[<max_text_length>]**
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.6.2.4.10 +CPBW - Write Phonebook Entry

+CPBW - Write Phonebook Entry	
AT+CPBW= [<index>] [,<number>	Execution command stores at the position **<index>** a phonebook record defined by **<number>**, **<type>** and **<text>** parameters

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[,<type> [,<text>]]]	Parameters: **<index>** - record position **<number>** - string type, phone number in the format **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") **<text>** - the text associated to the number, string type; used character set should be the one selected with either command **+CSCS** or **@CSCS**. Note: If record number **<index>** already exists, it will be overwritten. Note: if only **<index>** is given, the record number **<index>** is deleted. Note: if **<index>** is omitted, the number **<number>** is stored in the first free phonebook location. Note: omission of all the subparameters causes an **ERROR** result code.
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of **<number>** field supported number format of the storage and maximum length of **<name>** field. The format is: **+CPBW: (list of supported <index>s),[<nlength>],** **(list of supported <type>s),[<tlength>]** where: **<nlength>** - integer type value indicating the maximum length of field **<number>** **<tlength>** - integer type value indicating the maximum length of field **<text>**
Reference	GSM 07.07
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.

3.6.2.4.11 +CCLK - Clock Management

+CCLK - Clock Management	
AT+CCLK [=<time>]	Set command sets the real-time clock of the ME. Parameter:

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	<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), range is 01..31 (if the month MM has less than 31 days, the clock will be set for the next month) hh - hour (two last digits are mandatory), range is 00..23 mm - minute (two last digits are mandatory), range is 00..59 ss - seconds (two last digits are mandatory), range is 00..59 ±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48 Note: If the parameter is omitted the behaviour of Set command is the same as Read command.
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: the three last characters of **<time>** are not returned by **+CCLK?** because the **ME** doesn't support time zone information.
AT+CCLK=?	Test command returns the **OK** result code.
Example	AT+CCLK="02/09/07,22:30:00+00" OK AT+CCLK? +CCLK: 02/09/07,22:30:25 OK
Reference	GSM 07.07

3.6.2.4.12 +CALA - Alarm Management

+CALA - Alarm Management	
AT+CALA[=<time>[,<n>[,<type>[,<text>]]]]	Set command stores in the internal Real Time Clock the current alarm time and settings defined by the parameters **<time>**, **<n>**, **<type>**, and **<text>**. 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. Parameter: **<time>** - current alarm time as quoted string in the same format as defined for **+CCLK** command: "yy/MM/dd,hh:mm:ss±zz" **<n>** - index of the alarm 0 - The only value supported is 0. **<type>** - alarm behaviour type 0 - reserved for other equipment use.

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+CALA - Alarm Management	
	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. 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: **+ALARM: <text>** where **<text>** is the **+CALA** optional parameter previously set. The device keeps on sending the unsolicited code every 3s until a **#WAKE** or **#SHDN** command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down. (default) 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 90s timeout 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 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down. 5 - the MODULE will make both the actions as for **<type>=2** and **<type>=3**. 6 - the MODULE will make both the actions as for **<type>=2** and **<type>=4**. 7 - the MODULE will make both the actions as for **<type>=3** and **<type>=4**. **<text>** - unsolicited alarm code text string. It has meaning only if **<type>** is equal to 2 or 5 or 6. Note: The "alarm mode" is indicated by hardware pin **CTS** to the **ON** status and **DSR** to the **OFF** status, while the "power saving" status is indicated by a **CTS** - **OFF** and **DSR** - **OFF** status. The normal operating status is indicated by **DSR** - **ON**. 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.

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+CALA - Alarm Management	
	Note: If the parameter is omitted the behaviour of Set command is the same as Read command.
AT+CALA?	Read command reports the current alarm time stored in the internal Real Time Clock, if present, in the format: **+CALA: <time>,<n>,<type>[,<text>]** Note: if no alarm is present a **<CR><LF>** is issued.
AT+CALA=?	Test command reports the list of supported **<n>s**, the list of supported **<type>s**, and **<text>** maximum length
Example	AT+CALA="02/09/07,23:30:00+00" OK
Reference	GSM 07.07

3.6.2.4.13 +CRSM - Restricted SIM Access

+CRSM - Restricted SIM Access	
AT+CRSM=<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>]]]	Execution command transmits to the **ME** the SIM **<command>** and its required parameters. **ME** handles internally all **SIM-ME** interface locking and file selection routines. As response to the command, **ME** sends the actual SIM information parameters and response data. Parameters: **<command>** - command passed on by the **ME** to the SIM 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS **<fileid>** - identifier of an elementary datafile on SIM. Mandatory for every command except STATUS. **<P1>**,**<P2>**,**<P3>** - parameter passed on by the **ME** to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0..255 **<data>** - information to be read/written to the SIM (hexadecimal character format). The response of the command is in the format: **+CRSM: <sw1>,<sw2>[,<response>]**

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+CRSM - Restricted SIM Access	
	where: **<sw1>**,**<sw2>** - information from the SIM about the execution of the actual command either on successful or on failed execution. **<response>** - on a successful completion of the command previously issued it gives the requested data (hexadecimal character format). It's not returned after a successful UPDATE BINARY or UPDATE RECORD command. Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files. Note: use only decimal numbers for parameters **<command>**, **<fileid>**, **<P1>**, **<P2>** and **<P3>**.
AT+CRSM=?	Test command returns the **OK** result code
Reference	GSM 07.07, GSM 11.11

3.6.2.4.14 +CALM - Alert Sound Mode

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

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AT+CALM=??	Enhanced test command returns the complete range of values for the parameter **<mode>** as compound value: **+CALM: (0-2)**
Reference	GSM 07.07

3.6.2.4.15 +CRSL - Ringer Sound Level

+CRSL - Ringer Sound Level	
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	GSM 07.07

3.6.2.4.16 +CLVL - Loudspeaker Volume Level

+CLVL - Loudspeaker Volume Level	
AT+CLVL[= <level>]	Set command is used to select the volume of the internal loudspeaker audio output of the device.

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	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	GSM 07.07

3.6.2.4.17 +CMUT - Microphone Mute Control

+CMUT - Microphone Mute Control	
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	GSM 07.07

3.6.2.4.18 +CACM - Accumulated Call Meter

+CACM - Accumulated Call Meter

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AT+CACM[= <pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter in SIM (ACM). Internal memory CCM remains unchanged. Parameter: **<pwd>** - to access this command PIN2 password is required Note: If the parameter is omitted the behaviour 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>** Note: the value **<acm>** is in units whose price and currency is defined with command **+CPUC**
Reference	GSM 07.07

3.6.2.4.19 +CAMM - Accumulated Call Meter Maximum

+CAMM - Accumulated Call Meter Maximum	
AT+CAMM[= <acmmax>, <pwd>]	Set command sets the Advice of Charge related Accumulated Call Meter ACM maximum value in SIM (see also **+CACM** command). 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. SIM PIN2 is required to set the value. Parameter: **<acmmax>** - maximum number of units allowed to be consumed **<pwd>** - PIN2 password Note: The **<acmmax>=0** value disables the feature. Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CAMM?	Read command reports the maximum value of ACM stored in SIM in the format: **+CAMM : <acmmax>**
Reference	GSM 07.07

3.6.2.4.20 +CPUC - Price Per Unit And Currency Table

+CPUC - Price Per Unit And Currency Table	
AT+CPUC[= <currency>,	Set command sets the values of Advice of Charge related price per unit and currency table in SIM. The price per unit currency table information can be

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<ppu>,<pwd>]	used to convert the home units (as used in commands **+CAOC**, **+CACM** and **+CAMM**) into currency units. Parameters: **<currency>** - string type; three-character currency code (e.g. LIT, USD, DEM etc..); used character set should be the one selected with either command **+CSCS** or **@CSCS**. **<ppu>** - price per unit string (dot is used as decimal separator) e.g. 1989.27 **<pwd>** - SIM PIN2 is usually required to set the values Note: if the parameters are omitted the behavior of Set command is the same as Read command.
AT+CPUC?	Read command reports the current values of **<currency>** and **<ppu>** parameters in the format: **+CACM : <currency>,<ppu>**
Reference	GSM 07.07

3.6.2.4.21 +CCID - Read ICCID (Integrated Circuit Card Identification)

+CCID - Read ICCID (Integrated Circuit Card Identification)	
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**.

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3.6.2.5 Mobile Equipment Errors

3.6.2.5.1 +CMEE - Report Mobile Equipment Error

+CMEE - Report Mobile Equipment Error	
AT+CMEE[=[<n>]]	Set command enables/disables the report of result code: **+CME ERROR: <err>** as an indication of an error relating to the **+Cxxx** commands issued. When enabled, device related errors cause the **+CME ERROR: <err>** final result code instead of the default **ERROR** final result code. **ERROR** is anyway returned normally when the error message is related to syntax, invalid parameters, or **DTE** functionality. Parameter: **<n>** - enable flag 0 - disable **+CME ERROR:<err>** reports, use only **ERROR** report. 1 - enable **+CME ERROR:<err>** reports, with **<err>** in numeric format 2 - enable **+CME ERROR: <err>** reports, with **<err>** in verbose format Note: issuing **AT+CMEE<CR>** is the same as issuing the Read command. Note: issuing **AT+CMEE=<CR>** is the same as issuing the command **AT+CMEE=0<CR>**.
AT+CMEE?	Read command returns the current value of subparameter **<n>** **+CMEE: <n>**
AT+CMEE=?	Test command returns the range of values for subparameter **<n>** in the format: **+CMEE: 0, 1, 2** Note: the representation format of the Test command output is not included in parenthesis.
Reference	GSM 07.07

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3.6.2.6 Voice Control

3.6.2.6.1 +VTS - DTMF Tones Transmission

+VTS - DTMF Tones Transmission	
AT+VTS= <dtmfstring> [,duration]	Execution command allows the transmission of DTMF tones. Parameters: **<dtmfstring>** - string of **<dtmf>s,** i.e. ASCII characters in the set **(0-9), #,*,(A-D)**; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through **+VTD** command. **<duration>** - duration of a tone in 1/100 sec..; this parameter can be specified only if the length of first parameter is just one ASCII character 0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current **+VTD** setting is. 1..255 - a single DTMF tone will be transmitted for a time **<duration>** (in 10 ms multiples), no matter what the current **+VTD** setting is. Note: this commands operates in voice mode only (see **+FCLASS**).
AT+VTS=?	For compatibility with previous versions, Test command returns **+VTS: (),(),()** An enhanced version of Test command has been defined: **AT+VTS=??**, that provides the correct range of values for **<DTMF>**.
AT+VTS=??	Test command provides the list of supported **<dtmf>s** and the list of supported **<duration>s** in the format: **(list of supported <dtmf>s)[,(list of supported <duration>s)]**
Reference	GSM 07.07 and TIA IS-101

3.6.2.6.2 +VTD - Tone Duration

+VTD - Tone Duration	
AT+VTD[= <duration>]	Set command sets the length of tones transmitted with **+VTS** command. Parameter: **<duration>** - duration of a tone 0 - the duration of every single tone is dependent on the network (factory default) 1..255 - duration of every single tone in 1/10 sec. Note: If parameter is omitted the behaviour of Set command is the same as Read command.
AT+VTD?	Read command reports the current Tone Duration, in the format: **<duration>**
AT+VTD=?	Test command provides the list of supported <duration>s in the format: (list of supported <duration>s)
Reference	GSM 07.07 and TIA IS-101

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3.6.2.7 Commands For GPRS

3.6.2.7.1 +CGCLASS - GPRS Mobile Station Class

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

3.6.2.7.2 +CGATT - GPRS Attach Or Detach

+CGATT - GPRS Attach Or Detach	
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 behaviour 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

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+CGATT - GPRS Attach Or Detach	
	0K
Reference	GSM 07.07

3.6.2.7.3 +CGREG - GPRS Network Registration Status

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

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+CGREG - GPRS Network Registration Status	
	AT+CGREG=0<CR>.
AT+CGREG?	Read command returns the status of result code presentation mode **<n>** and the integer **<stat>** which shows whether the network has currently indicated the registration of the terminal in the format: **+CGREG:<n>,<stat>**.
AT+CGREG=?	Test command returns supported values for parameter **<n>**
Reference	GSM 07.07

3.6.2.7.4 +CGDCONT - Define PDP Context

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

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+CGDCONT - Define PDP Context	
	Note: issuing **AT+CGDCONT=<CR>** returns the **OK** result code.
AT+CGDCONT?	Read command returns the current settings for each defined context in the format: **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>, <h_comp>[,<pd1>[,...[,pdN]]]<CR><LF>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp> [,<pd1>[,...[,pdN]]]<CR><LF>[...]]**
AT+CGDCONT=?	Test command returns values supported as a compound value
Example	AT+CGDCONT=1,"IP","*APN*","10.10.10.10",0,0 OK AT+CGDCONT? +CGDCONT: 1,"IP","*APN*","10.10.10.10",0,0 OK AT+CGDCONT=? +CGDCONT: (1-5),"IP",,,(0-1),(0-1) OK
Reference	GSM 07.07

3.6.2.7.5 +CGQMIN - Quality Of Service Profile (Minimum Acceptable)

+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	
AT+CGQMIN[= [<cid> [,<precedence> [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]]	Set command allows to specify a minimum acceptable profile which is checked by the terminal against the negotiated profile returned in the Activate PDP Context Accept message. Parameters: **<cid>** - PDP context identification (see **+CGDCONT** command). **<precedence>** - precedence class **<delay>** - delay class **<reliability>** - reliability class **<peak>** - peak throughput class **<mean>** - mean throughput class If a value is omitted for a particular class then this class is not checked. Note: a special form of the Set command, **+CGQMIN=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQMIN<CR>** is the same as issuing the Read command. Note: issuing **AT+CGQMIN=<CR>** returns the **OK** result code.
AT+CGQMIN?	Read command returns the current settings for each defined context in the

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+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	
	format: **+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQMIN: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQMIN: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the "IP" PDP_Type is currently supported.
Example	AT+CGQMIN=1,0,0,3,0,0 OK AT+CGQMIN? +CGQMIN: 1,0,0,5,0,0 OK AT+CGQMIN=? +CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-19,31) OK
Reference	GSM 07.07; GSM 03.60

3.6.2.7.6 +CGQREQ - Quality Of Service Profile (Requested)

+CGQREQ - Quality Of Service Profile (Requested)	
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.

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+CGQREQ - Quality Of Service Profile (Requested)	
	Note: a special form of the Set command, **+CGQREQ=<cid>** causes the requested profile for context number **<cid>** to become undefined. Note: issuing **AT+CGQREQ<CR>** is the same as issuing the Read command. Note: issuing **AT+CGQREQ=<CR>** returns the **OK** result code.
AT+CGQREQ?	Read command returns the current settings for each defined context in the format: **+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>, <mean><CR><LF>[<CR><LF>+CGQREQ: <cid>,<precedence>, <delay>,<reliability>,<peak>,<mean><CR><LF>[…]]** If no PDP context has been defined, it has no effect and **OK** result code is returned.
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format: **+CGQREQ: <PDP_Type>,(list of supported <precedence>s), (list of supported <delay>s),(list of supported <reliability>s), (list of supported <peak>s),(list of supported <mean>s)** Note: only the "IP" PDP_Type is currently supported.

Example	AT+CGQREQ?
	`+CGQREQ: 1,0,0,3,0,0`
	
	OK
	`AT+CGQREQ=1,0,0,3,0,0`
	OK
	AT+CGQREQ=?
	`+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-19,31)`
	
	OK

Reference	GSM 07.07; GSM 03.60

3.6.2.7.7 +CGACT - PDP Context Activate Or Deactivate

+CGACT - PDP Context Activate Or Deactivate	
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

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	<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. Note: issuing **AT+CGACT<CR>** is the same as issuing the Read command. Note: issuing **AT+CGACT=<CR>** returns the **OK** result code.
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format: **+CGACT: <cid>,<state><CR><LF>[<CR><LF>+CGACT: <cid>,<state><CR><LF>[…]]**
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format: **+CGACT: (0-1)**

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

Reference	GSM 07.07

3.6.2.7.8 +CGPADDR - Show PDP Address

+CGPADDR - Show PDP Address	
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>**; **<PDP_addr>** is omitted if none is

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+CGPADDR - Show PDP Address	
	available
AT+CGPADDR=?	Test command returns a list of defined **<cid>**s.
Example	AT#GPRS=1 +IP: xxx.yyy.zzz.www OK AT+CGPADDR=1 +CGPADDR: 1,"xxx.yyy.zzz.www" OK AT+CGPADDR=? +CGPADDR: (1) OK
Reference	GSM 07.07

3.6.2.7.9 +CGDATA - Enter Data State

+CGDATA - Enter Data State	
AT+CGDATA=[<L2P>,[<cid>[,<cid>[,...]]]]	Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types. Parameters: **<L2P>** - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol **<cid>** - numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). Note: if parameter **<L2P>** is omitted, the layer 2 protocol is unspecified
AT+CGDATA=?	Test command reports information on the supported layer 2 protocols. Note: the representation format of the Test command output is not included in parenthesis
Example	AT+CGDATA=? +CGDATA: "PPP" OK AT+CGDATA="PPP",1 OK
Reference	GSM 07.07

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3.6.2.8 Commands For Battery Charger

3.6.2.8.1 +CBC - Battery Charge

+CBC - Battery Charge	
AT+CBC	Execution command returns the current Battery Charge status in the format: **+CBC: <bcs>,<bcl>** where: **<bcs>** - battery charge status 0 - **ME** is powered by the battery 1 - **ME** has a battery connected, and charger pin is being powered 2 - **ME** does not have a battery connected 3 - Recognized power fault, calls inhibited **<bcl>** - battery charge level 0 - battery is exhausted, or ME does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged. Note: **<bcs>=1** indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for **ME** operations is taken anyway from VBATT pins. Note: without battery/power connected on VBATT pins or during a power fault the unit is not working, therefore values **<bcs>=2** and **<bcs>=3** will never appear.
AT+CBC?	Read command has the same effect as Execution command.
AT+CBC=?	Test command returns the complete range of values for **<bcs>** and **<bcl>**, in the format: **+CBC: (0-3),(0-100)** Note: an enhanced version of Test command has been defined: **AT+CBC=??**. Note: although **+CBC** is an execution command, ETSI 07.07 requires the Test command to be defined.
AT+CBC=??	Enhanced test command returns the complete range of values for **<bcs>** and **<bcl>**: **+CBC: (0-3),(0-100)**
Example	AT+CBC +CBC: 0,75 OK

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+CBC - Battery Charge	
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	GSM 07.07

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3.6.3 ETSI GSM 07.05 AT Commands for SMS and CBS

3.6.3.1 General Configuration

3.6.3.1.1 +CSMS - Select Message Service

+CSMS - Select Message Service	
AT+CSMS [=<service>]	Set command selects messaging service **<service>**. It returns the types of messages supported by the **ME**: Parameter: **<service>** 0 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0 (factory default) 1 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2+. Set command returns current service setting along with the types of messages supported by the ME: **+CSMS: <service>,<mt>,<mo>,<bm>** where: **<mt>** - mobile terminated messages support 0 - type not supported 1 - type supported **<mo>** - mobile originated messages support 0 - type not supported 1 - type supported **<bm>** - broadcast type messages support 0 - type not supported 1 - type supported Note: If parameter is omitted then the behavior of Set command is the same as Read command.
AT+CSMS?	Read command reports current service setting along with supported message types in the format: **+CSMS: <service>,<mt>,<mo>,<cb>** where: **<service>** - messaging service (see above) **<mt>** - mobile terminated messages support (see above) **<mo>** - mobile originated messages support (see above) **<bm>** - broadcast type messages support (see above)
AT+CSMS=?	Test command reports a list of all services supported by the device. the

+CSMS - Select Message Service	
	supported value of the parameter **<service>**.
Reference	GSM 07.05; GSM 03.40; GSM 03.41

3.6.3.1.2 +CPMS - Preferred Message Storage

+CPMS - Preferred Message Storage	
AT+CPMS[= <memr> [,<memw> [,<mems>]]]	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage "ME" - **ME** internal storage (read only, no delete) **<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>** **<totals>** - max number of SMS that **<mems>** can contain Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so **<memw>=<mems>="SM"**. Note: the received class 0 SMS are stored in the "ME" memory regardless the **<mems>** setting and they are automatically deleted at power off. Note: If all parameters are omitted the behavior of Set command is the same as Read command.
AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>**

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+CPMS - Preferred Message Storage	
	where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**
Example	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK *you have 5 out of 10 SMS SIM positions occupied*
Reference	GSM 07.05

3.6.3.1.3 +CMGF - Message Format

+CMGF - Message Format	
AT+CMGF[= [<mode>]]	Set command selects the format of messages used with send, list, read and write commands. Parameter: **<mode>** 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode Note: issuing **AT+CMGF<CR>** is the same as issuing the Read command. Note: issuing **AT+CMGF=<CR>** is the same as issuing the command **AT+CMGF=0<CR>**.
AT+CMGF?	Read command reports the current value of the parameter **<mode>**.
AT+CMGF=?	Test command reports the supported value of **<mode>** parameter.
Reference	GSM 07.05

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3.6.3.2 Message Configuration

3.6.3.2.1 +CSCA - Service Center Address

+CSCA - Service Center Address	
AT+CSCA[= [<number> [,<type>]]]	Set command sets the Service Center Address to be used for mobile originated SMS transmissions. Parameter: **<number>** - SC phone number in the format defined by **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "+") Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed. Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the **<pdu>** parameter equals zero. Note: issuing **AT+CSCA<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCA=<CR>** causes an **OK** result code to be issued.
AT+CSCA?	Read command reports the current value of the SCA in the format: **+CSCA: <number>,<type>** Note: if SCA is not present the device reports an error message.
AT+ CSCA=?	Test command returns the **OK** result code.
Reference	GSM 07.05

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3.6.3.2.2 +CSMP - Set Text Mode Parameters

+CSMP - Set Text Mode Parameters	
AT+CSMP[= **[<fo>** **[,<vp>** **[,<pid>** **[,<dcs>]]]]]**	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used **(+CMGF=1**) Parameters: **<fo>** - depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. **<vp>** - depending on SMS-SUBMIT **<fo>** setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format **<pid>** - GSM 03.40 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme Note: issuing **AT+CSMP<CR>** is the same as issuing the Read command. Note: issuing **AT+CSMP=<CR>** is the same as issuing the command **AT+CSMP=0<CR>**.
AT+CSMP?	Read command reports the current setting in the format: **+CSMP: < fo>,<vp>,<pid>,<dcs>**
AT+CSMP=?	Test command reports the supported range of values for **<fo>**, **<vp>**, **<pid>** and **<dcs>** parameters.
Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:* AT+CSMP=17,167,0,0 OK
Reference	GSM 07.05; GSM 03.40; GSM 03.38

3.6.3.2.3 +CSDH - Show Text Mode Parameters

+CSDH - Show Text Mode Parameters	
AT+CSDH[= **[<show>]]**	Set command controls whether detailed header information is shown in text mode **(+CMGF=1**) result codes. Parameter: **<show>** 0 - do not show header values defined in commands +CSCA and +CSMP (**<sca>**, **<tosca>**, **<fo>**, **<vp>**, **<pid>** and **<dcs>**) nor **<length>**, **<toda>**

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+CSDH - Show Text Mode Parameters	
	or **<tooa>** in **+CMT**, **+CMGL**, **+CMGR** result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in **+CMGR** result code do not show **<pid>**, **<mn>**, **<da>**, **<toda>**, **<length>** or **<cdata>** 1 - show the values in result codes Note: issuing **AT+CSDH<CR>** is the same as issuing the Read command. Note: issuing **AT+CSDH=<CR>** is the same as issuing the command **AT+CSDH=0<CR>**.
AT+CSDH?	Read command reports the current setting in the format: **+CSDH: <show>**
AT+CSDH=?	Test command reports the supported range of values for parameter **<show>**
Reference	GSM 07.05

3.6.3.2.4 +CSCB - Select Cell Broadcast Message Types

+CSCB -Select Cell Broadcast Message Types	
AT+CSCB[= [<mode> [,<mids> [,<dcss>]]]]	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 **<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: issuing **AT+CSCB<CR>** is the same as issuing the Read command. Note: issuing **AT+CSCB=<CR>** is the same as issuing the command **AT+CSCB=0<CR>**.
AT+CSCB?	Read command reports the current value of parameters **<mode>**, **<mids>** and **<dcss>**.
AT+CSCB=?	Test command returns the range of values for parameter **<mode>**.
Example	AT+CSCB?

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+CSCB -Select Cell Broadcast Message Types	
	+CSCB: 1,"",""" OK *(all CBMs are accepted, none is rejected)* AT+CSCB=0,"0,1,300-315,450","0-3" OK
Reference	GSM 07.05, GSM 03.41, GSM 03.38.

3.6.3.2.5 +CSAS - Save Settings

+CSAS - Save Settings	
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.
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 07.05

3.6.3.2.6 +CRES - Restore Settings

+CRES - Restore Settings	
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

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+CRES - Restore Settings	
	are always restored from NVM, regardless the value of **<profile>**. Note: If parameter is omitted the command restores message service settings from NVM.
AT+CRES?	Read command has the same effect as Execution command with parameter omitted.
AT+CRES=?	Test command returns the possible range of values for the parameter **<profile>**.
Reference	GSM 07.05

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3.6.3.3 Message Receiving And Reading

3.6.3.3.1 +CNMI - New Message Indications To Terminal Equipment

+CNMI - New Message Indications To Terminal Equipment	
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>** where: **<memr>** - memory storage where the new message is stored "SM" "ME" **<index>** - location on the memory where SM is stored. 2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the **TE** using the following unsolicited result code: **(PDU Mode)** **+CMT: [<alpha>],<length><CR><LF><pdu>** where: **<alpha>** - alphanumeric representation of originator/destination number corresponding to the entry found in **MT** phonebook **<length>** - PDU length **<pdu>** - PDU message **(TEXT Mode)** **+CMT:<oa>,<alpha>,<scts>*[,<tooa>,<fo>,<pid>,<dcs>,***

+CNMI - New Message Indications To Terminal Equipment	
	<sca>,<tosca>,<length>]**<CR><LF><data>** (the information written in italics will be present depending on **+CSDH** last setting) where: **<oa>** - originator address number **<alpha>** - alphanumeric representation of **<oa>** or **<da>** **<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 GSM 03.40 ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme ***<sca>*** - Service Centre number ***<length>*** - text length **<data>** - TP-User-Data Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in **<mt>=1**. 3 - Class 3 SMS-DELIVERs are routed directly to **TE** using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**. **<bm>** - broadcast reporting option 0 - Cell Broadcast Messages are not sent to the **DTE** 2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code: **(PDU Mode)** **+CBM: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU **(TEXT Mode)** **+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>** where: **<sn>** - message serial number **<mid>** - message ID **<dcs>** - Data Coding Scheme **<pag>** - page number **<pags>** - total number of pages of the message **<data>** - CBM Content of Message **<ds>** - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the **DTE** 1 - the status report is sent to the **DTE** with the following unsolicited result code:

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

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+CNMI - New Message Indications To Terminal Equipment	
	that provides the complete range of values for parameter **<mode>**.
AT+CNMI=??	Enhanced test command reports the supported range of values for all the **+CNMI** command parameters.
Reference	GSM 07.05
Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is inactive (**DTR** signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.

3.6.3.3.2 +CMGL - List Messages

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

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+CMGL - List Messages	
	"STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages. Each message to be listed is represented in the format (the information written in italics will be present depending on **+CSDH** last setting): **+CMGL: <index>,<stat>,<oa/da>,,*[,<tooa/toda>,<length>]*** **<CR><LF> <data>** where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination number ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") ***<length>*** - text length **<data>** - TP-User-Data Each message delivery confirm is represented in the format**:** **+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: **OK** result code is sent at the end of the listing. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT+CMGL?	Read command has the same effect as Execution command with parameter omitted
AT+CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode **(+CMGF=1**) the Test command output is not included in parenthesis **AT+CMGL=?** **+CMGL: "REC UNREAD","REC READ","STO UNSENT",** **"STO SENT","ALL"**

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+CMGL - List Messages	
Note	The improving command @**CMGL** has been defined
Reference	GSM 07.05

3.6.3.3.3 @CMGL - List Messages

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

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@CMGL - List Messages	
	where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination number **<tooa/toda>** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "+") **<length>** - text length **<data>** - TP-User-Data Each message delivery confirm is represented in the format**:** **@CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: The command differs from the **+CMGL** because at the end of the listing a **<CR><LF>** is put before the **OK** result code. Note: If parameter is omitted the command returns the list of sms with “REC UNREAD” status.
AT@CMGL?	Read command has the same effect as Execution command with parameter omitted
AT@CMGL=?	Test command returns a list of supported **<stat>s**
Note	If Text Mode **(+CMGF=1**) the Test command output is not included in parenthesis **AT@CMGL=?** **@CMGL: "REC UNREAD","REC READ","STO UNSENT",** **"STO SENT","ALL"**
Reference	GSM 07.05

3.6.3.3.4 +CMGR - Read Message

+CMGR - Read Message	
AT+CMGR= <index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and

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+CMGR - Read Message	
	delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** The output has the following format: **+CMGR: <stat>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. **(Text Mode)** Output format for received messages: **+CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>, <tosca>,<length>]<CR><LF><text>** Output format for sent 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

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+CMGR - Read Message	
	<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 number **<da>** - Destination address number **<sca>** - Service Centre number **<tooa>**,**<toda >**,**<tosca>** - type of number **<oa>**,**<da>**,**<sca>** 129 - number in national format 145 - number in international format (contains the "+") **<length>** - text length **<data>** - TP-User_data Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT+CMGR=?	Test command returns the **OK** result code.
Note	The improving command @**CMGR** has been defined
Reference	GSM 07.05

3.6.3.3.5 @CMGR - Read Message

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

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@CMGR - Read Message	
	<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 sent messages: **@CMGR: <stat>,<da>[,,<toda>,<fo>,<pid>,<dcs>,, <sca>,<tosca>,<length>]<CR><LF><text>** Output format for message delivery confirm: **@CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where: **<stat>** - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU **<pid>** - Protocol Identifier **<dcs>** - Data Coding Scheme **<oa>** - Originator address number **<da>** - Destination address number **<sca>** - Service Centre number **<tooa>**,**<toda >**,**<tosca>** - type of number **<oa>**,**<da>**,**<sca>** 129 - number in national format 145 - number in international format (contains the "+") **<length>** - text length **<text>** - message text Note: the command differs from the **+CMGR** because after the message **<pdu>** or **<text>** a **<CR><LF>** is put before the **OK** result code. Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.

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@CMGR - Read Message	
	Note: an error result code is sent on empty record **<index>**.
AT@CMGR=?	Test command has no effect; the answer is **OK**
Reference	GSM 07.05

3.6.3.4 Message Sending And Writing

3.6.3.4.1 +CMGS - Send Message

+CMGS - Send Message	
(PDU Mode) **AT+CMGS= <length>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes. 7..164 The device responds to the command with the prompt '>' and waits for the specified number of bytes. To send the message issue **Ctrl-Z** char (0x1A hex). To exit without sending the message issue **ESC** char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
(Text Mode) **AT+CMGS=<da> [,<toda>]**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address number. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") The device responds to the command with the prompt '>' and waits for message text (max 160 characters). To send the message issue **Ctrl-Z** char (0x1A hex).

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+CMGS - Send Message	
	To exit without sending the message issue **ESC** char (0x1B hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.6.3.4.2 +CMSS - Send Message From Storage

+CMSS - Send Message From Storage	
AT+CMSS= <index>[,<da> [,<toda>]]	Execution command sends to the network a message which is already stored in the **<memw>** storage (see **+CPMS**) at the location **<index>**. Parameters: **<index>** - location value in the message storage **<memw>** of the message to send **<da>** - destination address; if it is given it shall be used instead of the one stored with the message. **<toda>** - type of destination address 129 - number in national format 145 - number in international format (contains the "+") If message is successfully sent to the network then the result is sent in the format: **+CMSS: <mr>** where: **<mr>** - message reference number. If message sending fails for some reason, an error code is reported: **+CMS ERROR:<err>** Note: to store a message in the **<memw>** storage see command **+CMGW**. Note: care must be taken to ensure that during the command execution,

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+CMSS - Send Message From Storage	
	which may take several seconds, no other SIM interacting commands are issued.
Note	To avoid malfunctions is suggested to wait for the **+CMSS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.6.3.4.3 +CMGW - Write Message To Memory

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

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+CMGW - Write Message To Memory	
	"STO UNSENT" - message stored not yet sent (default) "STO SENT" - message stored already sent **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "+") **<stat>** - message status. The device responds to the command with the prompt '>' and waits for the message text (max 160 characters). To write the message issue **Ctrl-Z** char (0x1A hex). To exit without writing the message issue **ESC** char (0x1B hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.
Reference	GSM 07.05
Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

3.6.3.4.4 +CMGD - Delete Message

+CMGD - Delete Message	
AT+CMGD= <index> [,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent mobile originated messages, leaving unread messages untouched

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+CMGD - Delete Message	
	4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then **<index>** is ignored and ME shall follow the rules for **<delflag>** shown above. Note: if the location to be deleted is empty, an error message is reported.
AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]**
Example	AT+CMGD=? +CMGD: (1,2,3,6,7,17,18,19,20,37,38,39,47),(0-4) OK
Reference	GSM 07.05

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3.6.4 FAX Class 1 AT Commands

3.6.4.1 General Configuration

NOTE: All the test command results are without command echo

3.6.4.1.1 +FMI - Manufacturer ID

+FMI - Manufacturer ID	
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

3.6.4.1.2 +FMM - Model ID

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

3.6.4.1.3 +FMR - Revision ID

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

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3.6.4.2 Transmission/Reception Control

3.6.4.2.1 +FTS - Stop Transmission And Pause

+FTS - Stop Transmission And Pause	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.2.2 +FRS - Wait For Receive Silence

+FRS - Wait For Receive Silence	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.2.3 +FTM - Transmit Data Modulation

+FTM - Transmit Data Modulation	
AT+FTM=<mod>	Execution command causes the module to transmit facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FTM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.6.4.2.4 +FRM - Receive Data Modulation

+FRM - Receive Data Modulation	
AT+FRM=<mod>	Execution command causes the module to receive facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FRM=?	Test command returns all supported values of the parameter **<mod>**. Note: the output is not bracketed
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.2.5 +FTH - Transmit Data With HDLC Framing

+FTH - Transmit Data With HDLC Framing	
AT+FTH=<mod>	Execution command causes the module to transmit facsimile data using HDLC protocol and the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 3 - V21/300 bps
AT+FTH=?	Test command returns all supported values of the parameter **<mod>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.2.6 +FRH - Receive Data With HDLC Framing

+FRH - Receive Data Data With HDLC Framing	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.6.4.3Serial Port Control

3.6.4.3.1 +FLO - Select Flow Control Specified By Type

+FLO - Select Flow Control Specified By Type	
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>**
AT+FLO=?	Test command returns all supported values of the parameter **<type>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.3.2 +FPR - Select Serial Port Rate

+FPR - Select Serial Port Rate	
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
AT+FPR?	Read command returns the current value of parameter **<rate>**
AT+FPR=?	Test command returns all supported values of the parameters **<rate>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.6.4.3.3 +FDD - Double Escape Character Replacement Control

+FDD - Double Escape Character Replacement Control	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.6.5 Custom AT Commands

3.6.5.1 General Configuration AT Commands

3.6.5.1.1 #CGMI - Manufacturer Identification

#CGMI - Manufacturer Identification	
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

3.6.5.1.2 #CGMM - Model Identification

#CGMM - Model Identification	
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

3.6.5.1.3 #CGMR - Revision Identification

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

3.6.5.1.4 #CGSN - Product Serial Number Identification

#CGSN - Product Serial Number Identification	
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

3.6.5.1.5 #CIMI - International Mobile Subscriber Identity (IMSI)

#CIMI - International Mobile Subscriber Identity (IMSI)	
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

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3.6.5.1.6 #CAP - Change Audio Path

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

3.6.5.1.7 #SRS - Select Ringer Sound

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

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

3.6.5.1.8 #SRP -Select Ringer Path

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

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#SRP - Select Ringer Path	
	Note: issuing **AT#SRP<CR>** is the same as issuing the Read command. Note: issuing **AT#SRP=<CR>** is the same as issuing the command **AT#SRP=0<CR>**.
AT#SRP?	Read command reports the selected ringer path in the format: **#SRP: <n>**.
AT#SRP=?	Test command reports the supported values for the parameter **<n>**.
Example	AT#SRP=? #SRP: (0-3) OK AT#SRP=3 OK

3.6.5.1.9 #STM - Signaling Tones Mode

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

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3.6.5.1.10 #PCT - Display PIN Counter

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

3.6.5.1.11 #SHDN - Software Shut Down

#SHDN - Software Shutdown	
AT#SHDN	Execution command causes device detach from the network and shut down. Before definitive shut down an **OK** response is returned. Note: after the issuing of this command any previous activity is terminated and the device will not respond to any further command. Note: to turn it on again Hardware pin ON/OFF must be tied low.
AT#SHDN?	Read command has the same behaviour as Execution command.

3.6.5.1.12 #WAKE - Wake From Alarm Mode

#WAKE - Wake From Alarm Mode	
AT#WAKE[= <opmode>]	Execution command stops any eventually present alarm activity and, if the module is in **alarm mode**, it exits the **alarm mode** and enters the **normal operating mode**. Parameter: **<opmode>** - operating mode 0 - normal operating mode; the module exits the **alarm mode**, enters the **normal operating mode**, any alarm activity is stopped (e.g. alarm tone playing) and an **OK** result code is returned. Note: if parameter is omitted, the command returns the **operating status** of the device in the format: **#WAKE: <status>** where:

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#WAKE - Wake From Alarm Mode	
	<status> 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity. Note: the **power saving** status is indicated by a **CTS - OFF** and **DSR - OFF** status. The **normal operating status** is indicated by **DSR - ON**. Note: during the **alarm mode** the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.
AT#WAKE?	Read command has the same effect as Execution command when parameter is omitted.

3.6.5.1.13 #QTEMP -Query Temperature Overflow

#QTEMP - Query Temperature Overflow	
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. Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command
AT#QTEMP?	Read command queries the device internal temperature sensor for over temperature and reports the result in the format: **#QTEMP: <temp>** where **<temp>** - over temperature indicator 0 - the device temperature is in the working range 1 - the device temperature is out of the working range
#QTEMP=?	Test command reports supported range of values for parameter **<mode>**.
Note	The device should not be operated out of its working temperature range; if temperature is out of range proper functioning of the device is not ensured.

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3.6.5.1.14 #SGPO - Set General Purpose Output

#SGPO - Set General Purpose Output	
AT#SGPO[=[<stat>]]	Set command sets the value of the general purpose output pin **GPIO2**. Parameter: **<stat>** 0 - output pin cleared to 0 (**LOW**) 1 - output pin set to 1 (**HIGH**) Note: the **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated: **AT#SGPO=0** sets the open collector output **HIGH** **AT#SGPO=1** sets the open collector output **LOW** A pull up resistor is required on pin **GPIO2**. Note: issuing **AT#SGPO<CR>** is the same as issuing the Read command. Note: issuing **AT#SGPO=<CR>** is the same as issuing the command **AT#SGPO=0<CR>**.
AT#SGPO?	Read command reports the **#SGPO** command setting, hence the opposite status of the open collector pin in the format: **#SGPO: <stat>**.
AT#SGPO=?	Test command reports the supported range of values of parameter **<stat>**.
Note	This command is meaningful only for GM862 family

3.6.5.1.15 #GGPI - General Purpose Input

#GGPI - General Purpose Input	
AT#GGPI[=[<dir>]]	Set command sets the general purpose input pin **GPIO1**. Parameter: **<dir>** - auxiliary input GPIO1 setting 0 - the Read command **AT#GGPI?** reports the logic input level read from GPIO1 pin. Note: The device has an insulated input pin (the input goes the base of an internal decoupling transistor) which can be used as a logic general purpose input. This command sets the read behaviour for this pin, since only direct read report is supported, the issue of this command is not needed. In future uses the behavior of the read input may be more complex. Note: If parameter is omitted then the behaviour of Set command is the same as Read command

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#GGPI - General Purpose Input	
AT#GGPI?	Read command reports the read value for the input pin GPIO1, in the format: **#GGPI: <dir>,<stat>** where **<dir> -** direction setting (see **#GGPI=<dir>**) **<stat>** - logic value read from pin GPIO1 Note: Since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the GPIO1 input pin.
AT#GGPI=?	Test command reports supported range of values for parameter **<dir>**.
Note	This command is meaningful only for GM862 family

3.6.5.1.16 #GPIO - General Purpose Input/Output Pin Control

#GPIO - General Purpose Input/Output Pin Control	
AT#GPIO[=<pin>, <mode>[,<dir>]]	Execution command sets the value of the general purpose output pin **GPIO<pin>** according to **<dir>** and **<mode>** parameter. Not all configuration for the three parameters are valid. Parameters: **<pin>** - GPIO pin number; supported range is from 1 to a value that depends on the hardware, but **GPIO1** is input only and **GPIO2** is output only. **<mode>** - its meaning depends on **<dir>** setting: 0 - no meaning if **<dir>=0** - INPUT - output pin cleared to 0 (LOW) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 1 - no meaning if **<dir>=0** - INPUT - output pin set to 1 (HIGH) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 2 - Reports the read value from the input pin if **<dir>=0** - INPUT - Reports the read value from the input pin if **<dir>=1** - OUTPUT - Reports a no meaning value if **<dir>=2** - ALTERNATE FUNCTION **<dir>** - GPIO pin direction 0 - pin direction is INPUT 1 - pin direction is OUTPUT 2 - pin direction is ALTERNATE FUNCTION (see Note). Note: when **<mode>=2** (and **<dir>** is omitted) the command reports the direction and value of pin **GPIO<pin>** in the format: **#GPIO: <dir>,<stat>** where

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#GPIO - General Purpose Input/Output Pin Control	
	<dir> - current direction setting for the **GPIO<pin>** **<stat>** • logic value read from pin **GPIO<pin>** in the case the pin **<dir>** is set to input; • logic value present in output of the pin **GPIO<pin>** in the case the pin **<dir>** is currently set to output; • no meaning value for the pin **GPIO<pin>** in the case the pin **<dir>** is set to alternate function. Note: (valid only for **GPIO1**) since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the **GPIO1** input pin Note: if all parameters are omitted the command reports the read direction and value of all **GPIO** pin, int the format: **#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[…]]** Note: "ALTERNATE FUNCTION" value is valid only for following pins: • **GPIO5** - alternate function is “RF Transmission Monitor” • **GPIO6** - alternate function is "Alarm Output" (see **+CALA**) • **GPIO7** - alternate function is "Buzzer Output" (see **#SRP**) Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided. Note: The **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated
AT#GPIO?	Read command has the same effect as Execution command when all parameters are omitted.
AT#GPIO=?	Test command reports the supported range of values of the command parameters **<pin>**, **<mode>** and **<dir>**.
Example	AT#GPIO=3,0,1 OK AT#GPIO=3,2 #GPIO: 1,0 OK AT#GPIO=4,1,1 OK AT#GPIO=5,0,0 OK AT#GPIO=6,2 #GPIO: 0,1 OK

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3.6.5.1.17 #I2S1 - Set PCM Output For Channel 1

#I2S1 - Set PCM Output For Channel 1	
AT#I2S1[= <mode> [,<clockmode>, <clockrate>]]	Set command sets the type of operation. Parameters: **<mode>** 0 - PCM1 is not enabled; audio is forwarded to the analog line; PCM pins can be used as UART1 and GPIO. 1 - PCM1 is enabled; audio is forwarded to the PCM block; PCM pin cannot be used for UART1; any service on UART1 is suspended 2 - PCM1 is enabled; audio is forwarded both to the PCM block and to the analog line; PCM pins cannot be used for UART1; any service on UART1 is suspended **<clockmode>** 0 - PCM acts as slave 1 - PCM acts as master **<clockrate>** 64 - 64 kHz. 128 - 128 kHz. 256 - 256 kHz. 512 - 512 kHz 1024 - 1024 kHz 2048 - 2048 kHz Note: issuing **AT#I2S1<CR>** is the same as issuing the Read command.
AT#I2S1?	Read command reports the last setting, in the format: **#I2S1: <mode>,<clockmode>,<clockrate>**
AT#I2S1=?	Reports the range of supported values for parameters **<mode>, <clockmode>** and **<clockrate>**

3.6.5.1.18 #E2SMSRI - SMS Ring Indicator

#E2SMSRI - SMS Ring Indicator	
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.

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#E2SMSRI - SMS Ring Indicator	
	Note: if **+CNMI=3,1** command is issued and the module is in a GPRS connection, a 100 ms break signal is sent and a 1 sec. pulse is generated on RI pin, no matter if the RI pin response is either enabled or not. Note: issuing **AT#E2SMSRI<CR>** is the same as issuing the Read command. Note: issuing **AT#E2SMSRI=<CR>** returns the **OK** result code.
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>**

3.6.5.1.19 #ADC - Analog/Digital Converter Input

#ADC - Analog/Digital Converter Input	
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 1 - available for GM862-QUAD, GM862-QUAD-PY, GM862-GPS, GE863-QUAD, GE863-PY, GE863-GPS, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 2 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 3 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY **<mode>** - required action 2 - query ADC value **<dir>** - direction; its interpretation is currently not implemented 0 - no effect. If all parameters are omitted the command reports all pins voltage, converted by ADC, in the format:

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	#ADC: <value>[<CR><LF>#ADC: <value>[...]] Note: The command returns the last valid measure.
AT#ADC?	Read command has the same effect as Execution command when all parameters are omitted.
AT#ADC=?	Test command reports the supported range of values of the command parameters **<adc>**, **<mode>** and **<dir>**.

3.6.5.1.20 #DAC - Digital/Analog Converter Control

#DAC - Digital/Analog Converter Control	
AT#DAC[= <enable> [,<value>]]	Set command enables/disables the DAC_OUT pin. Parameters: **<enable>** - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven **<value>** - scale factor of the integrated output voltage; it must be present if **<enable>=1** 0..1023 - 10 bit precision Note: **integrated output voltage = MAX_VOLTAGE * value / 1023** Note: if all parameters are omitted then the behaviour of Set command is the same as the Read command.
AT#DAC?	Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: **#DAC: <enable>,<value>**
AT#DAC=?	Test command reports the range for the parameters **<enable>** and **<value>**.
Example	*Enable the DAC out and set its integrated output to the 50% of the max value:* AT#DAC=1,511 OK *Disable the DAC out:* AT#DAC=0 OK
Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. DAC_OUT line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the hardware

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#DAC - Digital/Analog Converter Control	
	user guide.

3.6.5.1.21 #VAUX - Auxiliary Voltage Pin Output

#VAUX- Auxiliary Voltage Pin Output	
AT#VAUX[=<n>, <stat>]	Set command enables/disables Auxiliary Voltage pins output. Parameters: **<n>** - VAUX pin index 1 - there is currently just one VAUX pin **<stat>** 0 - output off 1 - output on 2 - query current value of VAUX pin Note: when **<stat>=2** and command is successful, it returns: **#VAUX: <value>** where: **<value>** - power output status 0 - output off 1 - output on Note: If all parameters are omitted the command has the same behaviour as Read command. Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pins output is disabled while GPS or camera is powered on they'll both also be turned off.
AT#VAUX?	Read command reports the current status of all auxiliary voltage output pins, in the format: **#VAUX: <value>[<CR><LF>#VAUX: <value>[…]]**
AT#VAUX=?	Test command reports the supported range of values for parameters **<n>**, **<stat>**.

3.6.5.1.22 #CBC - Battery And Charger Status

#CBC- Battery And Charger Status	
AT#CBC	Execution command returns the current Battery and Charger state in the format:

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#CBC- Battery And Charger Status	
	#CBC: <ChargerState>,<BatteryVoltage> where: **<ChargerState>** - battery charger state 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed **<BatteryVoltage>** - battery voltage in millivolt: it is the real battery voltage only if charger is not connected; if the charger is connected this value depends on the charger voltage.
AT#CBC?	Read command has the same meaning as Execution command.
AT#CBC=?	Test command returns the **OK** result code.

3.6.5.1.23 #AUTOATT - Auto-Attach Property

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

3.6.5.1.24 #MSCLASS - Multislot Class Control

#MSCLASS - Multislot Class Control	
AT#MSCLASS[= <class>, <autoattach>]	Set command sets the multislot class Parameters: **<class>** - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class

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#MSCLASS - Multislot Class Control	
	<autotattach> 0 - the new multislot class is enabled only at the next detach/attach or after a reboot. 1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure. Note: the **<class>** range for former GM862 family products is 1..8, excluding class 7. Note: if all parameters are omitted the behaviour of set command is the same as read command.
AT#MSCLASS?	Read command reports the current value of the multislot class in the format: **#MSCLASS: <class>**
AT#MSCLASS=?	Test command reports the range of available values for parameter **<class>**.

3.6.5.1.25 #MONI - Cell Monitor

#MONI - Cell Monitor	
AT#MONI[=[<number>]]	Set command sets one cell out of seven, in a neighbour of the serving cell including it, from which extract GSM-related informations. Parameter: **<number>** 0..6 - it is the ordinal number of a cell, in a neighbour of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related informations from the whole set of seven cells in the neighbour of the serving cell. Note: issuing **AT#MONI<CR>** is the same as issuing the Read command. Note: issuing **AT#MONI=<CR>** is the same as issuing the command **AT#MONI=0<CR>**.
AT#MONI?	Read command reports the following GSM-related informations for selected cell and dedicated channel (if exists). d) When extracting data for the serving cell and the network name is known the format is: **#MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** e) When the network name is unknown, the format is:

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#MONI - Cell Monitor	
	#MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv> f) When extracting data for an adjacent cell, the format is: **#MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm** where: **<netname>** - name of network operator **<cc>** - country code **<nc>** - network operator code **<n>** - progressive number of adjacent cell **<bsic>** - base station identification code **<qual>** - quality of reception 0..7 **<lac>** - localization area code **<id>** - cell identifier **<arfcn>** - assigned radio channel **<dBm>** - received signal strength in dBm **<timadv>** = timing advance Note: TA: **<timadv>** is reported only for the serving cell. When the last setting done is **AT#MONI=7**, then the Read command reports the above informations for each of the cells in the neighbour of the serving cell, formatting them in a sequence of **<CR><LF>-terminated** strings.
AT#MONI=?	Test command reports the maximum number of cells, in the neighbour 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: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in the neighbour of the serving cell, from which we can extract GSM-related informations (for compatibility with previous versions of code this value is always **6**). **<CellSet>** - the last setting done with command **#MONI**. An enhanced version of the Test command has been defined: **AT#MONI=??**
AT#MONI=??	Enhanced test command reports the maximum number of cells, in a neighbour 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:

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#MONI - Cell Monitor	
	#MONI: (<MaxCellNo>,<CellSet>) where: **<MaxCellNo>** - maximum number of cells, in a neighbour of the serving cell and including it, from which we can extract GSM-related informations. This value is always **7**. **<CellSet>** - the last setting done with command **#MONI**.
Note	The refresh time of the measures is preset to 3 sec. The timing advance value is meaningful only during calls or GPRS transfers active.

3.6.5.1.26 #SERVINFO - Serving Cell Information

#SERVINFO - Serving Cell Information	
AT#SERVINFO	Execution command reports informations about serving cell, in the format: **#SERVINFO: <B-ARFCN>,<dBM>,<NetNameAsc>,<NetCode>, ,<BSIC>,<LAC>,<TA>,<GPRS>[,[<PB-ARFCN>],[<NOM>], <RAC>,[PAT]]** where: **<B-ARFCN>** - BCCH ARFCN of the serving cell **<dBM>** - received signal strength in dBm **<NetNameAsc>** - operator name, quoted string type **<NetCode>** - country code and operator code, hexadecimal representation **<BSIC>** - Base Station Identification Code **<LAC>** - Localization Area Code **<TA>** - Time Advance: it's available only if a GSM or GPRS is running **<GPRS>** - GPRS supported in the cell 0 - not supported 1 - supported The following informations will be present only if GPRS is supported in the cell **<PB-ARFCN>** - PBCCH ARFCN of the serving cell; it'll be printed only if PBCCH is supported by the cell, otherwise the label **"hopping"** will be printed **<NOM>** - Network Operation Mode .."I" "II" .."III" **<RAC>** - Routing Area Color Code **<PAT>** - Priority Access Threshold ..0

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#SERVINFO - Serving Cell Information	
	..3..6
AT#SERVINFO?	Read command has the same effect as Execution command

3.6.5.1.27 #COPSMODE - +COPS Mode

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

3.6.5.1.28 #QSS - Query SIM Status

#QSS - Query SIM Status	
AT#QSS[= [<mode>]]	Set command enables/disables the Query SIM Status unsolicited indication in the ME. Parameter: **<mode>** - type of notification 0 - disabled (factory default); it's possible only to query the current SIM status through Read command **AT#QSS?** 1 - enabled; the ME informs at every SIM status change through the following unsolicited indication: **#QSS: <status>**

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#QSS - Query SIM Status	
	where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED Note: issuing **AT#QSS<CR>** is the same as issuing the Read command. Note: issuing **AT#QSS=<CR>** is the same as issuing the command **AT#QSS=0<CR>**.
AT#QSS?	Read command reports whether the unsolicited indication **#QSS** is currently enabled or not, along with the SIM status, in the format: **#QSS: <mode>,<status>** (**<mode>** and **<status>** are described above)
AT#QSS=?	Test command returns the supported range of values for parameter **<mode>**.

3.6.5.1.29 #DIALMODE - ATD Dialling Mode

#DIALMODE - ATD Dialling Mode	
AT#DIALMODE[=<mode>]	Set command sets voice call **ATD** modality. Parameter: **<mode>** 0 - **OK** result code is received as soon as it starts remotely ringing (factory default) 1 - **OK** result code is received only after the called party answers. Any character typed aborts the call and **NO CARRIER** result code is received. 2 - the following custom result codes are received, monitoring step by step the call status: **DIALING** (MO in progress) **RINGING** (remote ring) **CONNECTED** (remote call accepted) **RELEASED** (after **ATH**) **DISCONNECTED** (remote hang-up) Note: The setting is saved in NVM and available on following reboot. Note: if parameter **<mode>** is omitted the behaviour of Set command is the same as Read command.
AT#DIALMODE?	Read command returns current **ATD** dialing mode in the format: **#DIALMODE: <mode>**
AT#DIALMODE=?	Test command returns the range of values for parameter **<mode>**

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3.6.5.1.30 #ACAL - Automatic Call

#ACAL - Automatic Call	
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. Note: issuing **AT#ACAL=<CR>** is the same as issuing the command **AT#ACAL=0<CR>**.
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.

3.6.5.1.31 #ECAM - Extended Call Monitoring

#ECAM - Extended Call Monitoring	
AT#ECAM[= [<onoff>]]	This command enables/disables the call monitoring function in the **ME**. Parameter: **<onoff>** 0 - disables call monitoring function (factory default) 1 - enables call monitoring function; the **ME** informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited indication: **#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]** where **<ccid>** - call ID **<ccstatus>** - call status 0 - idle

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#ECAM - Extended Call Monitoring	
	1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy **<calltype>** - call type 1 - voice 2 - data **<number>** - called number (valid only for **<ccstatus>=1**) **<type>** - type of **<number>** 129 - national number 145 - international number Note: the unsolicited indication is sent along with usual codes (**OK**, **NO CARRIER**, **BUSY**...). Note: issuing **AT#ECAM<CR>** is the same as issuing the Read command. Note: issuing **AT#ECAM=<CR>** returns the **OK** result code.
AT#ECAM?	Read command reports whether the extended call monitoring function is currently enabled or not, in the format: **#ECAM: <onoff>**
AT#ECAM=?	Test command returns the list of supported values for **<onoff>**

3.6.5.1.32 #SMOV - SMS Overflow

#SMOV - SMS Overflow	
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 reached, the following network initiated notification is send: **#USMO: <memo>** 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

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	AT#SMOV=0<CR>.
AT#SMOV?	Read command reports whether the SMS overflow signaling function is currently enabled or not, in the format: **#SMOV: <mode>**
AT#SMOV=?	Test command returns the supported range of values of parameter **<mode>**.

3.6.5.1.33 #CODEC - Audio Codec

#CODEC - Audio Codec	
AT#CODEC[= <codec>]	Set command sets the audio codec mode. Parameter: **<codec>** 0 - all the codec modes are enabled (factory default) 1..31 - value obtained as sum of the following values, each of them representing a specific codec mode: 1 - **FR**, full rate mode enabled 2 - **EFR**, enhanced full rate mode enabled 4 - **HR**, half rate mode enabled 8 - **AMR-FR**, AMR full rate mode enabled 16 - **AMR-HR**, AMR half rate mode enabled Note: the setting 0 is equivalent to the setting 31. Note: The codec setting is saved in the profile parameters. Note: if optional parameter **<codec>** is omitted the behavior of Set command is the same as Read command.
AT#CODEC?	Read command returns current audio codec mode in the format: **#CODEC: <codec>**
AT#CODEC=?	Test command returns the range of available values for parameter **<codec>**
Example	AT#CODEC=14 OK *sets the codec modes HR (4), EFR (2) and AMR-FR (8)*

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3.6.5.1.34 #SHFEC - Handsfree Echo Canceller

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

3.6.5.1.35 #HFMICG - Handsfree Microphone Gain

#HFMICG - Handsfree Microphone Gain	
AT#HFMICG[= [<level>]]	Set command sets the handsfree microphone input gain Parameter: **<level>**: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step) Note: issuing **AT#HFMICG<CR>** is the same as issuing the Read command. Note: issuing **AT#HFMICG=<CR>** returns the **OK** result code.
AT#HFMICG?	Read command returns the current handsfree microphone input gain, in the format: **#HFMICG: <level>**
AT#HFMICG=?	Test command returns the supported range of values of parameter **<level>**.

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3.6.5.1.36 #HSMICG - Handset Microphone Gain

#HSMICG - Handset Microphone Gain	
AT#HSMICG[= [<level>]]	Set command sets the handset microphone input gain Parameter: **<level>**: handset microphone input gain 0..7 - handset microphone gain (+6dB/step) 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>**.

3.6.5.1.37 #SHFSD - Set Headset Sidetone

#SHFSD - Set Headset Sidetone	
AT#SHFSD[= [<mode>]]	Set command enables/disables the sidetone on headset audio output. Parameter: **<mode>** 0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone. Note: This setting returns to default after power off. Note: issuing **AT#SHFSD<CR>** is the same as issuing the Read command. Note: issuing **AT#SHFSD=<CR>** is the same as issuing the command **AT#SHFSD=0<CR>**.
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHFSD: <mode>**
AT#SHFSD=?	Test command returns the supported range of values of parameter **<mode>**.

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3.6.5.1.38 #/ - Repeat Last Command

#/ - Repeat Last Command	
AT#/	Execute command is used to execute again the last received command.

3.6.5.1.39 #NITZ - Network Timezone

#NITZ - Network Timezone	
AT#NITZ[= [<val> [,<mode>]]]	Set command enables/disables automatic date/time updating and Network Timezone unsolicited indication. Date and time information may be sent by the network after GSM registration or after GPRS attach. Parameters: **<val>** 0 - disables automatic set (factory default) 1 - enables automatic set **<mode>** 0 - disables unsolicited message (factory default) 1 - enables unsolicited message; after date and time updating the following unsolicited indication is sent: **#NITZ: "yy/MM/dd,hh:mm:ss"** where: **yy** - year **MM** - month (in digits) **dd** - day **hh** - hour **mm** - minute **ss** - second Note: issuing **AT#NITZ<CR>** is the same as issuing the Read command. Note: issuing **AT#NITZ=<CR>** is the same as issuing the command **AT#NITZ=0<CR>**.
AT#NITZ?	Read command reports whether automatic date/time updating is currently enabled or not, and whether Network Timezone unsolicited indication is enabled or not, in the format: **#NITZ: <val>,<mode>**
AT#NITZ=?	Test command returns supported values of parameters **<val>** and **<mode>**.

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3.6.5.1.40 #BND - Select Band

#BND - Select Band	
AT#BND[= [<band>]]	Set command selects the current band. Parameter **<band>**: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz 2 - GMS 850MHz + PCS 1800MHz (available only on quadri-band modules) 3 - GMS 850MHz + PCS 1900MHz (available only on quadri-band modules) Note: This setting is maintained even after power off. Note: issuing **AT#BND<CR>** is the same as issuing the Read command. Note: issuing **AT#BND=<CR>** is the same as issuing the command **AT#BND=0<CR>**.
AT#BND?	Read command returns the current selected band in the format: **#BND: <band>**
AT#BND=?	Test command returns the supported range of values of parameter **<band>**. Note: the range of values differs between triband modules and quadric-band modules

3.6.5.1.41 #AUTOBND - Automatic Band Selection

#AUTOBND - Automatic Band Selection	
AT#AUTOBND[= <value>]	Set command enables/disables the automatic band selection at power-on. Parameter: **<value>**: 0 - disables automatic band selection at power-on (factory default) 1 - enables automatic band selection at power-on; **+COPS=0** is necessary condition to effectively have automatic band selection at next power-on; the automatic band selection stops as soon as a GSM cell is found. Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found. Note: if parameter **<value>** is omitted the behaviour of Set command is the same as Read command.

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#AUTOBND - Automatic Band Selection	
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>**.

3.6.5.1.42 #SKIPESC - Skip Escape Sequence

#SKIPESC - Skip Escape Sequence	
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>**.

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3.6.5.1.43 #E2ESC - Escape Sequence Guard Time

#E2ESC - Escape Sequence Guard Time	
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 - no guard time (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.

3.6.5.1.44 #GAUTH - PPP-GPRS Connection Authentication Type

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

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3.6.5.1.45 #RTCSTAT - RTC Status

#RTCSTAT - RTC Status	
AT#RTCSTAT[= <status>]	Set command resets the RTC status flag. Parameter: **<status>** 0 - Set RTC Status to **RTC HW OK** Note: the initial value of RTC status flag is **RTC HW Error** and it doesn't change until a command **AT#RTCSTAT=0** is issued. Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to **1**. It doesn't change until command **AT#RTCSTAT=0** is issued. Note: if parameter **<status>** is omitted the behaviour of Set command is the same as Read command.
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: **#RTCSTAT: <status>**
AT#RTCSTAT=?	Test command returns the range of supported values for parameter **<status>**

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3.6.5.2 FTP AT Commands

3.6.5.2.1 #FTPTO - FTP Time-Out

#FTPTO - FTP Time-Out	
AT#FTPTO[=<tout>]	Set command sets time-out for FTP operations. Parameter: **<tout>** - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100) Note: The parameter is not saved in NVM. Note: if parameter **<tout>** is omitted the behaviour of Set command is the same as Read command.
AT#FTPTO?	Read command returns the current FTP operations time-out, in the format: **#FTPTO: <tout>**
AT#FTPTO=?	Test command returns the range of supported values for parameter **<tout>**

3.6.5.2.2 #FTPOPEN - FTP Open

#FTPOPEN - FTP Open	
AT#FTPOPEN=<server:port>,<username>,<password>,<mode>	Execution command opens an FTP connection toward the FTP server. Parameters: **<server:port>** - string type, address and port of FTP server (factory default port 21). **<username>** - string type, authentication user identification string for FTP. **<password>** - string type, authentication password for FTP. **<mode>** 0 - active mode (default) 1 - passive mode

3.6.5.2.3 #FTPCLOSE - FTP Close

#FTPCLOSE - FTP Close	
AT#FTPCLOSE	Execution command closes an FTP connection.
AT#FTPCLOSE?	Read command behavior is the same as Execution command.

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3.6.5.2.4 #FTPPUT - FTP Put

#FTPPUT - FTP Put	
AT#FTPPUT=<filename>	Execution command, issued during an FTP connection, opens a data connection and starts sending **<filename>** file to the FTP server. If the data connection succeeds, a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. 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.

3.6.5.2.5 #FTPPUTPH - FTP Put Photo

#FTPPUTPH - FTP Put Photo	
AT#FTPPUTPH=<filename>	Execution command, issued during an FTP connection, opens a data connection and starts sending to the FTP server the last photo taken issuing **AT#TPHOTO**. Parameter: **<filename>** - string type, name of the file on the FTP server side. Note: the file transfer type has to be binary in order to send the photo the right way (see command **#FTPTYPE**). Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

Example	`at#gprs=1`
	`+IP: ###.###.###.###`
	
	`OK`
	`at#camon`
	`OK`
	`at#tphoto`
	`OK`
	`at#ftpopen="xxx.xxx.xxx.xxx",<usern.>,<passw.>,0`
	`OK`
	`at#ftptype=0`
	`OK`
	`at#ftpputph="photo.jpg"`

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#FTPPUTPH - FTP Put Photo	
	OK at#ftpclose OK

3.6.5.2.6 #FTPGET - FTP Get

#FTPGET - FTP Get	
AT#FTPGET= <filename>	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server. If the data connection succeeds a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. The file is received on the serial port. Parameter: **<filename>** - file name, string type. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.

3.6.5.2.7 #FTPTYPE - FTP Type

#FTPTYPE - FTP Type	
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)**

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3.6.5.2.8 #FTPMSG - FTP Read Message

#FTPMSG - FTP Read Message	
AT#FTPMSG	Execution command returns the last response from the server.
AT#FTPMSG?	Read command behaviour is the same as Execution command.

3.6.5.2.9 #FTPDELE - FTP Delete

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

3.6.5.2.10 #FTPPWD - FTP Print Working Directory

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

3.6.5.2.11 #FTPCWD - FTP Change Working Directory

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

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3.6.5.2.12 #FTPLIST - FTP List

#FTPLIST - FTP List	
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.

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3.6.5.3 Enhanced Easy GPRS® Extension AT Commands

3.6.5.3.1 #USERID - Authentication User ID

#USERID - Authentication User ID	
AT#USERID [=<user>]	Set command sets the user identification string to be used during the authentication step. Parameter: **<user>** - string type, it's the authentication User Id; the max length for this value is the output of Test command, **AT#USERID=?** (factory default is the empty string ""). Note: If parameter is omitted then the behaviour of Set command is the same of Read command.
AT#USERID?	Read command reports the current user identification string, in the format: **#USERID: <user>**.
AT#USERID=?	Test command returns the maximum allowed length of the string parameter **<user>**.

Example	`AT#USERID="myName"`
	`OK`
	`AT#USERID?`
	`#USERID: "myName"`
	
	`OK`

3.6.5.3.2 #PASSW - Authentication Password

#PASSW - Authentication Password	
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`

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3.6.5.3.3 #PKTSZ - Packet Size

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

3.6.5.3.4 #DSTO - Data Sending Time-Out

#DSTO - Data Sending Time-Out	
AT#DSTO[= [<tout>]]	Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one. Parameter: **<tout>** - packet sending time-out in 100ms units (factory default is 50) 0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5.

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#DSTO - Data Sending Time-Out	
	Note: this time-out applies to data whose size is less than packet size and whose sending would have been delayed for an undefined time until new data to be sent had been received and full packet size reached. Note: issuing **AT#DSTO<CR>** is the same as issuing the Read command. Note: issuing **AT#DSTO=<CR>** is the same as issuing the command **AT#DSTO=0<CR>**.
AT#DSTO?	Read command reports the current data sending time-out value.
AT#DSTO=?	Test command returns the allowed values for the parameter **<tout>**.
Example	AT#DSTO=10 *->1 sec. time-out* OK AT#DSTO? #DSTO: 10 OK

3.6.5.3.5 #SKTTO - Socket Inactivity Time-Out

#SKTTO - Socket Inactivity Time-Out	
AT#SKTTO[=[<tout>]]	Set command sets the maximum time with no data exchanging on the socket that the module awaits before closing the socket and deactivating the GPRS context. Parameter: **<tout>** - socket inactivity time-out in seconds units 0 - no timeout. 1..65535 - time-out in sec. units (factory default is 90). Note: this time-out applies when no data is exchanged in the socket for a long time and therefore the socket connection has to be automatically closed and the GPRS context deactivated. Note: issuing **AT#SKTTO<CR>** is the same as issuing the Read command. Note: issuing **AT+#SKTTO=<CR>** is the same as issuing the command **AT+#SKTTO=0<CR>**.
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter **<tout>**.
Example	AT#SKTTO=30 *->(30 sec. time-out)* OK AT#SKTTO? #SKTTO: 30

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#SKTTO - Socket Inactivity Time-Out	
	OK

3.6.5.3.6 #SKTSET - Socket Definition

#SKTSET - Socket Definition	
AT#SKTSET[= <socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command sets the socket parameters values. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string "") **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTSET** command, then error message will be issued. Note: the DNS Query to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection. Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT#SKTSET?	Read command reports the socket parameters values, in the format: **AT#SKTSET: <socket type>,<remote port>,<remote addr>,**

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#SKTSET - Socket Definition	
	<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

3.6.5.3.7 #SKTOP - Socket Open

#SKTOP - Socket Open	
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

3.6.5.3.8 #QDNS - Query DNS

#QDNS - Query DNS	
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: **#QDNS:"<host name>",<IP address>** 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.

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#QDNS - Query DNS	
	Note: **<IP address>** is in the format: **xxx.xxx.xxx.xxx**
Note	This command requires that the authentication parameters are correctly set and that the GPRS network is present.

3.6.5.3.9 #SKTCT - Socket TCP Connection Time-Out

#SKTCT - Socket TCP Connection Time-Out	
AT#SKTCT[=<tout>]	Set command sets the TCP connection time-out for the first **CONNECT** answer from the TCP peer to be received. Parameter: **<tout>** - TCP first **CONNECT** answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600). Note: this time-out applies only to the time that the TCP stack waits for the **CONNECT** answer to its connection request. Note: The time for activate the GPRS and resolving the name with the DNS query (if the peer was specified by name and not by address) is not counted in this timeout. Note: if parameter is omitted then the behaviour of Set command is the same as Read command.
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter **<tout>**.

Example	`AT#SKTCT=600`
	`OK`
	`socket first connection answer timeout has been set to 60 s.`

3.6.5.3.10 #SKTSAV - Socket Parameters Save

#SKTSAV - Socket Parameters Save	
AT#SKTSAV	Execution command saves the actual socket parameters in the NVM of the device. The socket parameters to store are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) - Remote Port

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	- Remote Address - TCP Connection Time-Out
Example	AT#SKTSAV 0K *socket parameters have been saved in NVM*
Note	If some parameters have not been previously specified then a default value will be stored.

3.6.5.3.11 #SKTRST - Socket Parameters Reset

#SKTRST - Socket Parameters Reset	
AT#SKTRST	Execution command resets the actual socket parameters in the NVM of the device to the default ones. The socket parameters to reset are: - User ID - Password - Packet Size - Socket Inactivity Timeout - Data Sending Timeout - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out
Example	AT#SKTRST 0K *socket parameters have been reset*

3.6.5.3.12 #GPRS - GPRS Context Activation

#GPRS - GPRS Context Activation	
AT#GPRS[=[<mode>]]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request In the case that the GPRS context has been activated, the result code **OK** is preceded by the intermediate result code: **+IP: <ip_address_obtained>**

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	reporting the local IP address obtained from the network. Note: issuing **AT#GPRS<CR>** reports the current status of the GPRS context, in the format: **#GPRS: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated 2 - GPRS context activation pending. Note: issuing **AT#GPRS=<CR>** is the same as issuing the command **AT#GPRS=0<CR>**.
AT#GPRS?	Read command has the same effect as the Execution command **AT#GPRS<CR>.**
AT#GPRS=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#GPRS=1 +IP: 129.137.1.1 OK *Now GPRS Context has been activated and our IP is 129.137.1.1* AT#GPRS=0 OK *Now GPRS context has been deactivated, IP is lost.*

3.6.5.3.13 #SKTD - Socket Dial

#SKTD - Socket Dial	
AT#SKTD [=<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command opens the socket towards the peer specified in the parameters. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>**

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#SKTD - Socket Dial	
	(factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: the resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTD** command, then an error message will be issued. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **AT+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.
AT#SKTD?	Read command reports the socket dial parameters values, in the format: **AT#SKTD: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**
AT#SKTD=?	Test command returns the allowed values for the parameters.

Example	`AT#SKTD=0,1024,"123.255.020.001",255`
	`OK`
	
	`AT#SKTD=1,1024,"123.255.020.001", ,1025`
	`OK`
	`In this way my local port 1025 is opened to the remote port 1024`
	
	`AT#SKTD=0,1024,"www.telit.net", 255`
	`OK`

Note	The main difference between this command and the **AT#SKTOP** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **AT#SKTD** is closed the context (and hence the local IP address) is maintained.

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3.6.5.3.14 #SKTL - Socket Listen

#SKTL - Socket Listen	
AT#SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **#SKTL: ABORTED** Note: if all parameters are omitted the command returns the current socket

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#SKTL - Socket Listen	
	listening **status** and the last settings of parameters **<input port>** and **<closure type>**, in the format: **#SKTL: <status>,<input port>,<closure type>** where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT#SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT#SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<input port>** and **<closure type>**.
Example	*Activate GPRS* AT#GPRS=1 +IP: ###.###.###.### OK *Start listening* AT#SKTL=1,0,1024 OK or AT#SKTL=1,0,1024,255 OK *Receive connection requests* +CONN FROM: 192.164.2.1 CONNECT *exchange data with the remote host* *send escape sequence* +++ NO CARRIER *Now listen is not anymore active* *to stop listening* AT#SKTL=0,0,1024, 255 OK
Note	The main difference between this command and the **#SKTD** is that **#SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **#SKTL** is closed the context (and hence the local IP address) is maintained. The improving command **@SKTL** has been defined.

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3.6.5.3.15 @SKTL - Socket Listen

@SKTL - Socket Listen	
AT@SKTL [=<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **@SKTL: ABORTED**

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@SKTL - Socket Listen	
	Note: if all parameters are omitted the command returns the current socket listening **status** and the last settings of parameters **<socket type>**, **<input port>** and **<closure type>**, in the format: **@SKTL: <status>,<socket type>,<input port>,<closure type>** Where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT@SKTL?	Read command has the same effect as Execution command when parameters are omitted.
AT@SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<socket type>**, **<input port>** and **<closure type>**.
Example	*Activate GPRS* AT#GPRS=1 +IP: ###.###.###.### OK *Start listening* AT@SKTL=1,0,1024 OK or AT@SKTL=1,0,1024,255 OK *Receive connection requests* +CONN FROM: 192.164.2.1 CONNECT *exchange data with the remote host* *send escape sequence* +++ NO CARRIER *Now listen is not anymore active* *to stop listening* AT@SKTL=0,0,1024, 255 OK
Note	The main difference between this command and the **#SKTD** is that **@SKTL** does not contact any peer, nor does any interaction with the GPRS context status, leaving it **ON** or **OFF** according to the **#GPRS** setting, therefore when the connection made with **@SKTL** is closed the context (and hence the local IP address) is maintained.

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3.6.5.3.16 #E2SLRI - Socket Listen Ring Indicator

#E2SLRI - Socket Listen Ring Indicator	
AT#E2SLRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a Socket Listen connect and, if enabled, the duration of the negative going pulse generated on receipt of connect. Parameter: **<n>** - RI enabling 0 - RI disabled for Socket Listen connect (factory default) 50..1150 - RI enabled for Socket Listen connect; a negative going pulse is generated on receipt of connect and **<n>** is the duration in ms of this pulse.
AT#E2SLRI?	Read command reports whether the Ring Indicator pin response to a Socket Listen connect is currently enabled or not, in the format: **#E2SLRI: <n>**
AT#E2SLRI=?	Test command returns the allowed values for parameter **<status>.**

3.6.5.3.17 #FRWL - Firewall Setup

#FRWL - Firewall Setup	
AT#FRWL[= <action>, <ip_addr>, <net_mask>]	Execution command controls the internal firewall settings. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain 2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx **<net_mask>** - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Note: the firewall applies for incoming (listening) connections only. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>**

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#FRWL - Firewall Setup	
	If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped. Note: If all parameters are omitted the command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#FRWL: <ip_addr>,<net_mask>** **#FRWL: <ip_addr>,<net_mask>** **....** **OK**
AT#FRWL?	Read command has the same effect as Execution command when parameters are omitted.
AT#FRWL=?	Test command returns the allowed values for parameter **<action>.**
Example	*Let assume we want to accept connections only from our devices which are on the IP addresses ranging from 197.158.1.1 to 197.158.255.255* *We need to add the following chain to the firewall:* AT#FRWL=1,"197.158.1.1","255.255.0.0" OK
Note	For outgoing connections made with **#SKTOP** and **#SKTD** the remote host is dynamically inserted into the **ACCEPT** chain for all the connection duration. Therefore the **#FRWL** command shall be used only for defining either the **#SKTL** or the **@SKTL** behaviour, deciding which hosts are allowed to connect to the local device. Rules are not saved in NVM, at start-up the rules list will be empty.

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3.6.5.4 Easy Camera® Management AT Commands

3.6.5.4.1 #CAMON - Camera ON

#CAMON - Camera ON	
AT#CAMON	Execution command turns the Camera **ON**.
AT#CAMON?	Read command has the same behaviour as Execution command
Example	AT#CAMON OK *camera is now powered up*

3.6.5.4.2 #CAMOFF - Camera OFF

#CAMOFF - Camera OFF	
AT#CAMOFF	Execution command turns the Camera **OFF**. Note: for the GPS product (GE863-GPS): if the camera is turned off while GPS or VAUX pin is enabled they'll both also be powered off.
AT#CAMOFF?	Read command has the same behaviour as Execution command
Example	AT#CAMOFF OK *camera is now powered down*

3.6.5.4.3 #CAMEN - Camera ON/OFF

#CAMEN - Camera ON/OFF	
AT#CAMEN[= <status>]	Execution command turns camera **ON/OFF**. Parameter: **<status>** - camera status 0 - turns camera **OFF** 1 - turns camera **ON** Note: if parameter **<status>** is omitted the Set command is the same as the Read command. Note: for the GPS product (GE863-GPS): if the camera is turned off while GPS or VAUX pin is enabled they'll both also be powered off.
AT#CAMEN?	Read command reports the current camera status and, if the camera is **ON**, the current camera model, in the format: **#CAMEN: 0** *if camera is **OFF*** **#CAMEN: 1,<cam>** *if camera is **ON***

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	Where: **<cam>** - camera model 2 - TRANSCHIP camera
AT#CAMEN=?	Test command returns the allowed values for parameter **<status>.**

3.6.5.4.4 #SELCAM - Camera Model

#SELCAM - Camera Model	
AT#SELCAM[=[<cam>]]	Set command selects current camera model Parameter: **<cam>** - camera model 0 - automatic detection (factory default) 2 - TRANSCHIP camera 3 - reserved for future use 4 - reserved for future use 5 - reserved for future use Note: issuing **AT#SELCAM<CR>** is the same as issuing the Read command. Note: issuing **AT#SELCAM=<CR>** is the same as issuing the command **AT#SELCAM=0<CR>**
AT#SELCAM?	Read command reports the current camera model in the format: **#SELCAM: <cam>**
AT#SELCAM=?	Test command returns the allowed values for parameter **<cam>**

3.6.5.4.5 #CAMRES - Camera Resolution

#CAMRES - Camera Resolution	
AT#CAMRES[=[<res>]]	Set command sets current camera resolution Parameter: **<res>** - camera resolution 0 - VGA photo output,640x480 (factory default) 1 - QVGA photo output, 320x240 2 - QQVGA photo output, 160x120 3 - reserved for future use 4 - reserved for future use Note: issuing **AT#CAMRES<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMRES=<CR>** is the same as issuing the command **AT#CAMRES=0<CR>**.

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AT#CAMRES?	Read command reports the current value of the parameter **<res>** in format: **#CAMRES:<res>**
AT#CAMRES=?	Test command returns the allowed values for parameter **<res>**.

3.6.5.4.6 #CAMCOL - Camera Colour Mode

#CAMCOL - Camera Colour Mode	
AT#CAMCOL[=[<col>]]	Set command sets current colour mode Parameter: **<col>** - camera colour mode 0 - colour mode (factory default) 1 - Black&White mode Note: issuing **AT#CAMCOL<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMCOL=<CR>** is the same as issuing the command **AT#CAMCOL=0<CR>**.
AT#CAMCOL?	Read command reports the current colour mode, in the format: **#CAMCOL: <col>**.
AT#CAMCOL=?	Test command returns the allowed values for parameter **<col>**.

3.6.5.4.7 #CAMQUA - Camera Photo Quality

#CAMQUA - Camera Photo Quality	
AT#CAMQUA[=[<qual>]]	Set command sets the quality of the photo. Parameter: **<qual>** - photo quality 0 - low quality of picture, high Jpeg compression 1 - medium quality of picture, medium Jpeg compression 2 - high quality of picture, low Jpeg compression (factory default) Note: increasing the photo quality increases its size. Note: issuing **AT#CAMQUA<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMQUA=<CR>** is the same as issuing the command **AT#CAMQUA=0<CR>**.
AT#CAMQUA?	Read command reports the current photo quality, in the format:

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	#CAMQUA: <qual>
AT#CAMQUA=?	Test command returns the allowed values for parameter **<qual>**.

3.6.5.4.8 #CMODE - Camera Exposure

#CMODE - Camera Exposure	
AT#CMODE[= [<exp>]]	Set command sets the camera exposure. Parameter: **<exp>** - camera exposure 0 - daylight mode, short exposure (factory default) 1 - nightlight mode, long exposure Note: issuing **AT#CMODE<CR>** is the same as issuing the Read command. Note: issuing **AT#CMODE=<CR>** is the same as issuing the command **AT#CMODE=0<CR>**
AT#CMODE?	Read command reports the current camera exposure in the format: **#CMODE: <exp>**
AT#CMODE=?	Test command returns the allowed values for parameter **<exp>**.

3.6.5.4.9 #CAMZOOM - Camera Zoom

#CAMZOOM - Camera Zoom	
AT#CAMZOOM[= [<zoom>]]	Set command sets current zoom. Parameter: **<zoom>** - camera zoom 0 - no zoom, x1 (factory default) 1 - zoom, x2 2 - zoom, x4 3 - reserved for future use Note: issuing **AT#CAMZOOM<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMZOOM=<CR>** is the same as issuing the command **AT#CAMZOOM=0<CR>**.
AT#CAMZOOM?	Read command reports the current zoom setting, in the format: **#CAMZOOM: <zoom>**
AT#CAMZOOM=?	Test command returns the allowed values for parameter **<zoom>**.

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3.6.5.4.10 #CAMTXT - Camera Time/Date Overprint

#CAMTXT - Camera Time/Date Overprint	
AT#CAMTXT[=[<ov>]]	Set command sets time/date overprinting. Parameter: **<ov>** - time/date overprinting mode 0 - no overprinting (factory default) 1 - time info printed at the bottom of picture 2 - date info printed at the bottom of picture 3 - time&date info printed at the bottom of picture 4 - reserved for future use Note: issuing **AT#CAMTXT<CR>** is the same as issuing the Read command. Note: issuing **AT#CAMTXT=<CR>** is the same as issuing the command **AT#CAMTXT=0<CR>**.
AT#CAMTXT?	Read command reports the current time/date overprinting mode, in the format: **#CAMTXT: <ov>**
AT#CAMTXT=?	Test command returns the allowed values for parameter **<ov>**.

3.6.5.4.11 #TPHOTO - Camera Take Photo

#TPHOTO - Camera Take Photo	
AT#TPHOTO	Execution command is used to take the photo and to store it in the MODULE memory. Note: the photo is stored in the MODULE RAM memory, therefore after a power off it is lost. Note: there's only 1 position for the photo, every photo will overwrite the previous.
AT#TPHOTO?	Read command has the same behaviour as Execution command
Example	AT#TPHOTO OK *the camera has taken the photo and it is now stored on the MODULE memory*
Note	The photo is taken during IDLE time, if the mobile is busy on network operations, (e.g. during a call) the photo cannot be taken.

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3.6.5.4.12 #RPHOTO - Camera Read Photo

#RPHOTO - Camera Read Photo	
AT#RPHOTO	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line, ending it with the sequence: **<CR><LF>OK<CR><LF>**
AT#RPHOTO?	Read command has the same behaviour as Execution command
Example	AT#RPHOTO xxxxxxxxxxxx *(binary digits of the JPEG image)* <cr><lf>OK<cr><lf> *the photo has been flushed to the serial line*
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

3.6.5.4.13 #OBJL - Object List

#OBJL- Object List Command	
AT#OBJL[=<obj>]	Execution command reports the list of the objects stored in the MODULE memory. Parameter: **<obj>** - type of objects to be listed, string type. "IMG" - image object. Note: the behaviour of the command doesn't change even if the **<obj>** parameter is omitted The output format is: **#OBJL: <filename>,<size>** where: **<filename>** - name of the object; it is always "Snapshot" **<size>** - size of the object in bytes
AT#OBJL?	Read command has the same behaviour as Execution command
AT#OBJL=?	Test command has the same behaviour as Execution command
Example	AT#OBJL="IMG" #OBJL: Snapshot,47224 OK

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3.6.5.4.14 #OBJR - Object Read

#OBJR - Object Read	
AT#OBJR=<obj>, "Snapshot"	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line. The difference between this command and **#RPHOTO** is that **#OBJR** output ends without the sequence: **<CR><LF>OK<CR><LF>** Parameter: **<obj>** - type of objects to be listed, string type “IMG” - Image object Note: **"Snapshot"** is the only name of the object.
Example	`AT#OBJR="IMG","Snapshot"` `xxxxxxxxxxxx` *`binary digits of the JPEG image`* *`… the photo has been flushed to the serial line.`*
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

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3.6.5.5 E-mail Management AT Commands

3.6.5.5.1 #ESMTP - E-mail SMTP Server

#ESMTP - E-mail SMTP Server	
AT#ESMTP [=<smtp>]	Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name. Parameter: **<smtp>** - SMTP server address, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) Note: the max length for **<smtp>** is the output of Test command. Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: **#ESMTP: <smtp>**
AT#ESMTP=?	Test command returns the max length for the parameter **<smtp>.**
Example	AT#ESMTP="smtp.mydomain.com" OK
Note	The SMTP server used shall be inside the APN space (the smtp server provided by the network operator) or it must allow the Relay, otherwise it will refuse to send the email.

3.6.5.5.2 #EADDR - E-mail Sender Address

#EADDR - E-mail Sender Address	
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>**

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#EADDR - E-mail Sender Address	
AT#EADDR=?	Test command returns the maximum allowed length of the string parameter **<e-addr>.**
Example	AT#EADDR="me@email.box.com" OK AT#EADDR? #EADDR: "me@email.box.com" OK

3.6.5.5.3 #EUSER - E-mail Authentication User Name

#EUSER - E-mail Authentication User Name	
AT#EUSER [=<e-user>]	Set command sets the user identification string to be used during the authentication step of the SMTP. Parameter: **<e-user>** - email authentication User ID, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-user>** parameter shall be empty "". Note: If parameter is omitted then the behaviour of Set command is the same of Read command
AT#EUSER?	Read command reports the current user identification string, in the format: **#EUSER: <e-user>**
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter **<e-user>**.
Example	AT#EUSER="myE-Name" OK AT#EUSER? #EUSER: "myE-Name" OK
Note	It is a different user field than the one used for GPRS authentication (see **#USERID**).

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3.6.5.5.4 #EPASSW - E-mail Authentication Password

#EPASSW - E-mail Authentication Password	
AT#EPASSW= <e-pwd>	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: **<e-pwd>** - email 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**).

3.6.5.5.5 #SEMAIL - E-mail Sending With GPRS Context Activation

#SEMAIL - E-mail Sending With GPRS Context Activation	
AT#SEMAIL= <da>,<subj>, <att>[,<filename>]	Execution command activates a GPRS context, if not previously activated by **#EMAILACT**, and sends an e-mail message. The GPRS context is deactivated when the e-mail is sent. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type. **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt **'>'** and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution,

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#SEMAIL - E-mail Sending With GPRS Context Activation	
	no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: if GPRS context was previously activated by **#GPRS** it's not possible to successfully send the e-mail message and the response is the result code **activation failed**. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.

Example	`AT#SEMAIL="me@myaddress.com","subject of the mail",1`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	`..wait..`
	`OK`
	
	`Message has been sent.`

3.6.5.5.6 #EMAILACT - E-mail GPRS Context Activation

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

#EMAILACT - E-mail GPRS Context Ativation	
	AT#EMAILACT<CR>.
AT#EMAILACT=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#EMAILACT=1 OK *Now GPRS Context has been activated* AT# EMAILACT=0 OK *Now GPRS context has been deactivated.*

3.6.5.5.7 #EMAILD - E-mail Sending

#EMAILD - E-mail Sending	
AT#EMAILD= <da>,<subj>, <att>[,<filename>]	Execution command sends an e-mail message if GPRS context has already been activated with **AT#EMAILACT=1**. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.
Example	AT#EMAILD=”me@myaddress.com”,”subject of the mail”,1 >message body… this is the text of the mail message… CTRL-Z

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#EMAILD - E-mail Sending	
	..wait.. OK *Message has been sent.*
Note	The only difference between this command and the **#SEMAIL** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#EMAILACT** setting, thus, when the connection made with **#EMAILD** is closed, the context status is maintained.

3.6.5.5.8 #ESAV - Email Parameters Save

#ESAV - Email Parameters Save	
AT#ESAV	Execution command saves the actual e-mail parameters in the NVM of the device. The values stored 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.

3.6.5.5.9 #ERST - E-mail Parameters Reset

#ERST - E-mail Parameters Reset	
AT#ERST	Execution command resets the actual e-mail parameters in the NVM of the device to the default ones. The values reset are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server

3.6.5.5.10 #EMAILMSG -SMTP Read Message

#EMAILMSG - SMTP Read Message	
AT#EMAILMSG	Execution command returns the last response from SMTP server.
AT#EMAILMSG?	Read command has the same behaviour as Execution command.

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3.6.5.6 Easy Scan® Extension AT Commands

3.6.5.6.1 #CSURV - Network Survey

#CSURV - Network Survey	
AT#CSURV [=<s>,<e>] **AT*CSURV [=<s>,<e>]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. If parameters are omitted, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..CELL_SUITABLE - C0 is a suitable cell. CELL_LOW_PRIORITY - the cell is low priority based on the received system information. CELL_FORBIDDEN - the cell is forbidden. CELL_BARRED - the cell is barred based on the received system information.

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#CSURV - Network Survey	
	CELL_LOW_LEVEL - the cell **<rxLev>** is low. CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available…etc. **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 3. if **#CSURVEXT=0** this information is displayed only for serving cell 4. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 3. if **#CSURVEXT=0** this information is displayed only for serving cell 4. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier. 5. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch> -** 0 1 **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control

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#CSURV - Network Survey	
	<pcMeasCh> - type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **arfcn: <arfcn> rxLev: <rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm) The output ends with the string: **Network survey ended**
AT#CSURV? **AT*CSURV?**	Read command has the same behaviour as Execution command with parameters omitted.

Example	AT#CSURV
	
	`Network survey started…`
	
	`arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281 cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48 numChannels: 5 array: 14 19 22 48 82`
	
	`arfcn: 14 rxLev: 8`
	
	`Network survey ended`
	
	OK

Note	The command is executed within max. 2 minutes.

3.6.5.6.2 #CSURVC - Network Survey (Numeric Format)

#CSURVC - Network Survey (Numeric Format)	
AT#CSURVC [=<s>,<e>] **AT*CSURVC [=<s>,<e>]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. If parameters are omitted, a full band scan is performed. Parameters: **<s>** - starting channel

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#CSURVC - Network Survey (Numeric Format)	
	<e> - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **<arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,** **<cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]]** **[,<numChannels>[,<ba1> ..[<ba32>]] [<pbcch> [<nom> <rac> <spgc> <pat> <nco> <t3168> <t3192> <drxmax> <ctrlAck> <bsCVmax> <alpha> <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code **<rxLev>** - receiption level (in dBm) **<ber>** - bit error rate (in %) **<mcc>** - mobile country code **<mnc>** - mobile network code **<lac>** - location area code **<cellId>** - cell identifier **<cellStatus>** - cell status ..0 - C0 is a suitable cell (CELL_SUITABLE). 1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY). 2 - the cell is forbidden (CELL_FORBIDDEN). 3 - the cell is barred based on the received system information (CELL_BARRED). 4 - the cell **<rxLev>** is low (CELL_LOW_LEVEL). 5 - none of the above e.g. exclusion timer running, no BCCH available…etc.. (CELL_OTHER). **<numArfcn>** - number of valid channels in the Cell Channel Description **<arfcn*n*>** - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 5. if **#CSURVEXT=0** this information is displayed only for serving cell 6. if **#CSURVEXT=1 or 2** this information is displayed also for

#CSURVC - Network Survey (Numeric Format)	
	every valid scanned BCCH carrier. **<ban>** - arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting: 6. if **#CSURVEXT=0** this information is displayed only for serving cell 7. if **#CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch> -** 0 1 **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 - **<nco>** - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **<arfcn>,<rxLev>** where: **<arfcn>** - RF channel **<rxLev>** - receiption level (in dBm)

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#CSURVC - Network Survey (Numeric Format)	
	The output ends with the string: **Network survey ended**
AT#CSURVC? **AT*CSURVC?**	Read command has the same behaviour as the Execution command with parameters omitted
Example	AT#CSURVC Network survey started… 48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82 14,8 Network survey ended OK
Note	The command is executed within max. 2 minute. The information provided by **#CSURVC** is the same as that provided by **#CSURV**. The difference is that the output of **#CSURVC** is in numeric format only.

3.6.5.6.3 #CSURVU - Network Survey Of User Defined Channels

#CSURVU - Network Survey Of User Defined Channels	
AT#CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURV**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order. Note: issuing **AT#CSURVU=<CR>** is the same as issuing the command **AT#CSURVU=0<CR>**.
Example	AT#CSURVU=59,110

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	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.

3.6.5.6.4 #CSURVUC - Network Survey Of User Defined Channels (Numeric Format)

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	
AT#CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURVC**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order. 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.

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#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	
	The information provided by **#CSURVUC** is the same as that provided by **#CSURVU**. The difference is that the output of **#CSURVUC** is in numeric format only.

3.6.5.6.5 #CSURVB - BCCH Network Survey

#CSURVB - BCCH Network Survey	
AT#CSURVB=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result format is like command **#CSURV**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVB=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

3.6.5.6.6 #CSURVBC - BCCH Network Survey (Numeric Format)

#CSURVBC - BCCH Network Survey (Numeric Format)	
AT#CSURVBC=<n>	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVBC=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

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3.6.5.6.7 #CSURVF - Network Survey Format

#CSURVF - Network Survey Format	
AT#CSURVF[= [<format>]]	Set command controls the format of the numbers output by all the Easy Scan® Parameter: **<format>** - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text Note: issuing **AT#CSURVF<CR>** is the same as issuing the Read command. Note: issuing **AT#CSURVF=<CR>** is the same as issuing the command **AT#CSURVF=0<CR>**.
AT#CSURVF?	Read command reports the current number format, as follows: **#CSURVF: <format>**
AT#CSURVF=?	Test command reports the supported range of values for the parameter **<format>**.

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

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family	
AT#CSURVNLF [=<value>]	Set command enables/disables the automatic **<CR><LF>** removing from each information text line. Parameter: **<value>** 0 - disables **<CR><LF>** removing; they'll be present in the information text (factory default) 1 - remove **<CR><LF>** from imformation text Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVNLF?	Read command reports whether automatic **<CR><LF>** removing is currently enabled or not, in the format: **<value>**
AT#CSURVNLF=?	Test command reports the range of values for parameter **<value>.**

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3.6.5.6.9 #CSURVEXT - Extended Network Survey

#CSURVEXT - Extended Network Survey	
AT#CSURVEXT [=<value>]	Set command enables/disables extended network survey. Parameter: **<value>** 0 - disables extended network survey (factory default) 1 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier 2 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier and, if GPRS is supported in the cell, they report some GPRS informations carried by the System Information 13 of the BCCh Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format: **<value>**
AT#CSURVEXT=?	Test command reports the range of values for parameter **<value>.**

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3.6.5.7 Jammed Detect & Report AT Commands

3.6.5.7.1 #JDR - Jammed Detect & Report

#JDR - Jammed Detect & Report	
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. The MODULE can also report to the network the Jammed status condition, even if normal communications are inhibited by the Jammer, by using a unique message. Parameters: **<mode>** - behaviour mode of the Jammed Detect & Report 0 - disables Jammed Detect & Report (factory default) 1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR GPIO2/JDR **LOW** - Normal Operating Condition GPIO2/JDR **HIGH** - Jammed Condition. 2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 3 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=2**. 4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 5 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=4**. **<MNPL>** - Maximum Noise Power Level 0..127

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#JDR - Jammed Detect & Report	
	<DCMN> - Disturbed Channel Minimum Number 0..254 Note: issuing **AT#JDR<CR>** is the same as issuing the Read command. Note: issuing **AT#JDR=<CR>** is the same as issuing the command **AT#JDR=0<CR>**.
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format: **#JDR: <mode>,<MNPL>,<DCMN>**
AT#JDR=?	Test command reports the supported range of values for the parameters **<mode>**,**<MNPL>** and **<DCMN>**
Example	AT#JDR=2 OK *…jammer enters in the range…* #JDR: JAMMED *…jammer exits the range…* #JDR: OPERATIVE
Note	It is suggested not to change the default setting for Maximum Noise Power Level and Disturbed Channel Minimum Number. If the device is installed in a particular environment where the default values are not satisfactory the two parameters **<MNPL>** and **<DCMN>** permit to adapt the detection to all conditions.

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3.6.5.8 Easy Script® Extension - Python7 Interpreter, AT Commands

3.6.5.8.1 #WSCRIPT - Write Script

#WSCRIPT - Write Script	
AT#WSCRIPT= <script_name>, <size> [,<hidden>]	Execution command inserts a script text and save it with the name **<script_name>** in the NVM of the module supporting the Python extension. The script text should be sent using Raw Ascii file transfer. It is important to set properly the port settings. In particular: **Baud rate: 115200 bps** **Flow control: hardware.** Parameters: **<script_name>** - file name, string type (max 16 chars, case sensitive). **<size>** - file size in bytes **<hidden>** - file hidden attribute 0 - file content is readable with **#RSCRIPT** (default). 1 - file content is hidden, **#RSCRIPT** command will report empty file. The device responds to the command with the prompt '**>>>**' and waits for the script file text for **<size>** bytes. The operations completes when all the bytes are received. If script writing ends successfully, the response is **OK**; otherwise an error code is reported Note: The script name should be passed between quotes and all Executable Scripts files must have **.py** extension - Script names are Case sensitive. Note: When sending the script be sure that the line terminator is **<CR><LF>** and that your terminal program does not change it. Note: with the hidden attribute it is possible to protect your script 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 script file contains.

Example	`AT#WSCRIPT="First.py ",54,0`
	`>>> here receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then type or send the script, sized 54 bytes`
	`OK`

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

#WSCRIPT - Write Script	
	`Script has been stored.`
Note	This command can also be used to write any text file in the MODULE-PYTHON memory (not script files only), for example application data or settings files with a different extension than **.py**.

3.6.5.8.2 #ESCRIPT - Select Active Script

#ESCRIPT - Select Active Script	
AT#ESCRIPT[= [<script_name>]]	Set command selects the name of the script that will be executed by the Easy Script® interpreter at the start-up. The script will be executed at start-up only if the DTR line is found LOW during initial start-up (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the module with Python extension will behave normally answering only to AT commands on the serial port. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive). Note: all script files must have **.py** extension. Note: The **<script_name>** must match with a file name written with the **#WSCRIPT** in order to have it run. Note: the command does not check whether the script **<script_name>** does exist in the NVM of the module supporting the Python extension or not. If the file **<script_name>** is not present at the start-up then the Script Interpreter will not execute. Note: issuing **AT#ESCRIPT<CR>** is the same as issuing the Read command. Note: issuing **AT#ESCRIPT=<CR>** is the same as issuing the command **AT#ESCRIPT=””<CR>**.
AT#ESCRIPT?	Read command reports the name of the script that will be executed by the Easy Script® interpreter at the start-up.

Example	`AT#ESCRIPT="First.py "`
	`OK`
	
	`Script First.py will be executed at the next start-ups if DTR is found LOW.`

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3.6.5.8.3 #RSCRIPT - Read Script

#RSCRIPT - Read Script	
AT#RSCRIPT= <script_name>	Execution command reports the content of script file **<script_name>**. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive). The device responds to the command with the prompt '**<<<**', followed by the script file text. 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.

Example	`AT#RSCRIPT="First.py "`
	`hereafter receive the prompt: depending on your editor settings it's possible that the prompt overrides the above line; then the script is displayed, immediately after the prompt`
	`<<<import MDM`
	
	`MDM.send('AT\r',10)`
	`Ans=MDM.receive(20)`
	`OK`

Note	Executable scripts files must have **.py** extension.

3.6.5.8.4 #LSCRIPT - List Script Names

#LSCRIPT - List Script Names	
AT#LSCRIPT	Execution command reports the list of script files names currently saved into the NVM and the available free NVM memory in the format: **[#LSCRIPT: <script_name1> <size1>…** **[<CR><LF><CR><LF>#LSCRIPT: <script_name*n*> <size*n*>]]** **<CR><LF><CR><LF>#LSCRIPT: free bytes: <free_NVM>** where: **<script-name*n*>** - file name, string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<free_NVM>** - size of available NVM memory in bytes
AT#LSCRIPT?	Read command has the same behavior of Execution command.

Example	`AT#LSCRIPT`
	`#LSCRIPT: First.py 51`
	
	`#LSCRIPT: Second.py 178`

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#LSCRIPT - List Script Names	
	#LSCRIPT: Third.py 95 #LSCRIPT: free bytes: 20000 OK

3.6.5.8.5 #DSCRIPT - Delete Script

#DSCRIPT - Delete Script	
AT#DSCRIPT= <script_name>	Execution command deletes a script file from NVM memory. Parameter: **<script_name>** - name of the script file to delete, string type (max 16 chars, case sensitive) Note: if the file **<script_name>** is not present an error code is reported.
Example	AT#DSCRIPT="Third.py" OK

3.6.5.8.6 #REBOOT - Reboot

#REBOOT - Reboot	
AT#REBOOT	Execution command reboots immediately the unit. It can be used to reboot the system after a remote update of the script in order to have the new one running.
AT#REBOOT?	Read command has the same behavior of Execution command.
Example	AT#REBOOT …. Module Reboots …
Note	This command does not return result codes.

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3.6.5.9 GPS AT Commands Set

3.6.5.9.1 $GPSP - GPS controller power management

$GPSP - GPS controller power management	
AT$GPSP=<status>	Execution command allows to manage power-up or down of the GPS controller Parameter: **<status>** 0 - GPS controller is powered down 1 - GPS controller is powered up (default) Note: for the GPS product (GE863-GPS): if the GPS controller is powered down while camera or VAUX pin is enabled they'll both also be also powered off.
AT$GPSP?	Read command reports return the current status
AT$GPSP=?	Test command returns the range of values accepted (0-1)
Example	AT$GPSP=0 0K
Note	If a camera is used with the module and it is powered on, the command will be not executed due to the fact the supply voltage is in common between the 2 devices.

3.6.5.9.2 $GPSR - GPS Reset

$GPSR - GPS Reset	
AT$GPSR=<reset type>	Execution command allows to manage allows to reset the GPS controller. Parameter: **<reset type>** 0 - Hardware reset: The GPS receiver is reset and restarts by using the values stored in the internal memory of the GPS receiver. 1 - Coldstart (No Almanac, No Ephemeris) (1: 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 2 - Warmstart (No ephemeris) (1: 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. 3 - Hotstart (with stored Almanac and Ephemeris) (1: The GPS receiver restarts by using the values stored in the internal memory of

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$GPSR - GPS Reset	
	the GPS receiver; validated ephemeris and almanac.
AT$GPSR=?	Read command that provides the range of accepted values (0-3)
Example	AT$GPSR=0 OK
Note	(1 Available only in Controlled mode. (SW reset)

3.6.5.9.3 $GPSD - GPS Device Type Set

$GPSD - GPS Device Type Set	
AT$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 (Serial port not connected to GPS device) 2 - Controlled Mode (Modem serial port connected to GPS serial port – default) (1
AT$GPSD?	Read command that returns the current status
AT$GPSD=?	Test command that provides the range of accepted values for the parameter **<device type>** (0-3)
Example AT$GPSD=0	AT$GPSD=0 OK
Note	(1 AT$GPSSAV must be executed after to store this setting in memory (the new functionality will be available after the next power_on)

3.6.5.9.4 $GPSSW - GPS Software Version

$GPSSW - GPS Software Version	
AT$GPSSW	Execution command provides GPS Module software version in the format: **$GPSSW: <sw version>**
Example	AT$GPSSW $GPSSW: GSW3.1.1_3.1.00.07-C23P1.00 OK

3.6.5.9.5 $GPSAT – GPS Antenna Type Definition

$GPSAT – Configure GPS Antenna Type	
AT$GPSAT=<type>	Set command selects the GPS antenna used. Parameter:

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$GPSAT – Configure GPS Antenna Type	
	<type> 0 - GPS Antenna not supplied by the module 1 - GPS Antenna supplied by the module (default)
AT$GPSAT?	Read command returns the current status
AT$GPSAT=?	Test command provides the range of accepted values (0-1)
Example	AT$GPSAT=1 OK
Note	*AT$GPSSAV must be executed to save this configuration* *If set to 0 the Antenna current and Voltage readout are not available.* *Refer to the HW user guide for the compatible GPS antennas*

3.6.5.9.6 $GPSAV – GPS Antenna Supply Voltage Readout

$GPSAV – GPS Antenna Readout Voltage	
AT$GPSAV?	Read command returns the measured GPS antenna's supply voltage in mV
AT$GPSAV?	AT$GPSAV? $GPSAV:3800 OK
Note	Not available if antenna Type set to 0

3.6.5.9.7 $GPSAI – GPS Antenna Current Readout

$GPSAI - GPS Antenna Current Monitor	
AT$GPSAI?	Read command reports the GPS antenna's current consumption in the format: **$GPSAI:<value>[,<status>]**(1 where: **<value>** - the measured current in mA <status> - (1 0 - GPS antenna OK 1 - GPS antenna consumption out of the limits
Example	AT$GPSAI? $GPSAI:040,0 OK
Note	(1 Available only if antenna protection is activated (see $GPSAP)

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3.6.5.9.8 $GPSAP – GPS Antenna Protection

$GPSAP - GPS Antenna Protection	
AT$GPSAP=<set>[,<value>]	Write command that allows to activate an automatic protection in case of high current consumption of GPS antenna. The protection disables the GPS antenna supply voltage. Parameters: **<set>** 0 - deactivate current antenna protection (default) 1 - activate current antenna protection **<value>** - the antenna current limit value in mA (000-200) If parameter **<set>=0** parameter **<value>** is omitted
AT$GPSAP?** **AT$GPSAP=? Example	Read command that returns the current antenna limit value in the format: **$GPSAP:<set>,<value>** Test command that returns the available ranges for **<set>** and **<value>** AT$GPSAP=0 OK *Note : no SW control on antenna status (HW current limitation only)* AT$GPSAP=1,25 (1 OK *activate current antenna protection with related current limit* AT$GPSAP? (1 $GPSAP:1,050 OK *Antenna protection activated with 50mA limit*
Note	(1 *AT$GPSSAV must be executed to save this configuration* *The module is already provided of an Hardware protection for the high current consumption that is automatically activated if the consumption exceeds 50mA*

3.6.5.9.9 $GPSNMUN – Unsolicited NMEA Data Configuration

$GPSNMUN – Unsolicited NMEA Data Configuration	
AT$GPSNMUN=<enable>[,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >](1	Set command permits to activate an Unsolicited streaming of GPS data (in NMEA format) through the standard GSM serial port (AT) and defines which NMEA sentences will be available

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$GPSNMUN – Unsolicited NMEA Data Configuration	
	Parameters: **<enable>** 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated 2 - NMEA data stream activated with the following unsolicited response syntax: **<NMEA SENTENCE> <CR>** 3 - dedicated NMEA data stream; it is not possible to send AT commands; with the escape sequence '+++' the user can return to command mode **<GGA>** - Global Positioning System Fix Data 0 - disable 1 - enable **<GLL>** - Geographical Position - Latitude/Longitude 0 - disable 1 - enable **<GSA>** - GPS DOP and Active Satellites 0 - disable 1 - enable **<GSV>** - GPS Satellites in View 0 - disable 1 - enable **<RMC>** - recommended Minimum Specific GPS Data 0 - disable 1 - enable **<VTG>** - Course Over Ground and Ground Speed 0 - disable 1 - enable **DEFAULT:** <0,0,0,0,0,0> The unsolicited response sintax for **<enable>=1** is: **$GPSNMUN: <CR>** **<NMEA SENTENCE> <CR>** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command
AT$GPSNMUN?	Read command returns whether the unsolicited GPS NMEA data streaming is currently enabled or not, along with the NMEA sentences availability status, in the format: **$GPSNMUN:<enable>,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >**
AT$GPSNMUN=?	Test command returns the supported range of values for parameters **<enable>, <GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >**
Example	`AT$GPSNMUN=1,0,0,1,0,0,0`

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$GPSNMUN – Unsolicited NMEA Data Configuration	
	OK *These sets the GSA as available sentence in the unsolicited message* AT$GPSNMUN=0 OK *Turn-off the unsolicited mode* AT$GPSNMUN? $GPSNMUN: 1,0,0,1,0,0,0 OK *Give the current frame selected (GSA)* The unsolicited message will be: $GPSNMUN: $GPGSA,A,3,23,20,24,07,13,04,02,,,,,,2.4,1.6,1.8*3C
Reference	NMEA 01803 Specifications
Note	(1 *AT$GPSSAV must be executed to save this configuration* *The command is available in "Controlled Mode" only* *The available NMEA Sentences are depending on the GPS receiver used* *In GE863-GPS and GM862-GPS the fields PDOP and VDOP are not available* *Use NMEA serial port instead if full DOP info are needed*

3.6.5.9.10 $GPSACP – Get Acquired Position

$GPSACP - Get Acquired position information	
AT$GPSACP	Read command returns information about the last GPS position in the format: **$GPSACP: <UTC>,<latitude>,<longitude>,<hdop>,<altitude>, <fix>,<cog>, <spkm>,<spkn>,<date>,<nsat>** where: **<UTC>** - UTC time (hhmmss) referred to GGA sentence **<latitude>** - ddmm.mmmm N/S (referred to GGA sentence) Values: dd (degrees) 00 to 90 mm.mmmm (minutes) 00,0000 to 59.9999 N/S: North / South **<longitude>** - dddmm.mmmm E/W (referred to GGA sentence)

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$GPSACP - Get Acquired position information	
	Values: ddd (degrees) 00 to 180 mm.mmmm (minutes) 00,0000 to 59.9999 E/W: East / West **<hdop>** - x.x - Horizontal Diluition of Precision (referred to GGA sentence) **<altitude>** - xxxx.x Altitude - mean-sea-level (geoid) in meters (referred to GGA sentence) **<fix>** - referred to GSA sentence 1 - Invalid Fix 2 - 2D fix 3 - 3D fix **<cog>** - ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) Values: ddd: 000 to 360 degrees mm 00 to 59 minutes **<spkm>** - xxxx.x Speed over ground (Km/hr) (referred to VTG sentence) **<spkn>** - xxxx.x- Speed over ground (knots) (referred to VTG sentence) **<date>** - ddmmyy Date of Fix (referred to RMC sentence) Values: dd (day) 01 to 31 mm (month) 01 to 12 yy (year) 00 to 99 (2000 to 2099) **<nsat>** - nn - Total number of satellites in view (referred to GSV sentence)
Example	AT$GPSACP $GPSACP:080220,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09 OK

3.6.5.9.11 $GPSSAV – Save GPS Parameters Configuration

$GPSSAV – Save GPS Parameters	
AT$GPSSAV	Execution command saves the current configuration in the non volatile EEPROM memory of the module.
Example Note	AT$GPSSAV 0K *The module must be restarted to use the new configuration*

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3.6.5.9.12 $GPSRST – Restore to Default GPS Parameters

$GPSRST – Restore all GPS Parameters	
AT$GPSRST	Execution command restores the GPS parameters to “Factory Default” configuration and stores them in the non volatile EEPROM memory of the module.
Example	AT$GPSRST 0K
Note	*The module must be restarted to use the new configuration*

3.7 SELINT 2

3.7.1 Hayes Compliant AT Commands

3.7.1.1 Generic Modem Control

3.7.1.1.1 &F - Set To Factory-Defined Configuration

&F - Set To Factory-Defined Configuration	
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.

3.7.1.1.2 Z - Soft Reset

Z - Soft Reset	
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**.
Reference	V25ter.

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3.7.1.1.3 +FCLASS - Select Active Service Class

+FCLASS - Select Active Service Class	
AT+FCLASS=<n>	Set command sets the wireless module in specified connection mode (data, fax, voice), hence all the calls done afterwards will be data or voice. Parameter: **<n>** 0 - data 1 - fax class 1 8 - voice
AT+FCLASS?	Read command returns the current configuration value of the parameter **<n>**.
AT+FCLASS=?	Test command returns all supported values of the parameters **<n>**.
Reference	GSM 07.07

3.7.1.1.4 &Y - Designate A Default Reset Basic Profile

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

3.7.1.1.5 &P - Designate A Default Reset Full Profile

&P - Designate A Default Reset Full Profile	
AT&P[<n>]	Execution command defines which full profile will be loaded on startup. Parameter: **<n>** 0..1 – profile number: the wireless module is able to store 2 full configurations (see command **&W**).

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	Note: differently from command **Z<n>**, which loads just once the desired profile, the one chosen through command **&P** will be loaded on every startup. Note: if parameter is omitted, the command has the same behaviour as **AT&P0**
Reference	Telit Specifications

3.7.1.1.6 &W - Store Current Configuration

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

3.7.1.1.7 &Z - Store Telephone Number In The Module Internal Phonebook

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

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3.7.1.1.8 &N - Display Internal Phonebook Stored Numbers

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

3.7.1.1.9 +GMI - Manufacturer Identification

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

3.7.1.1.10 +GMM - Model Identification

+GMM - Model Identification	
AT+GMM	Execution command returns the model identification.
Reference	V.25ter

3.7.1.1.11 +GMR - Revision Identification

+GMR - Revision Identification	
AT+GMR	Execution command returns the software revision identification.
Reference	V.25ter

3.7.1.1.12 +GCAP - Capabilities List

+GCAP - Capabilities List	
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

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3.7.1.1.13 +GSN - Serial Number

+GSN - Serial Number	
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

3.7.1.1.14 &V - Display Current Configuration & Profile

&V - Display Current Configuration & Profile	
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.

3.7.1.1.15 &V0 - Display Current Configuration & Profile

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

3.7.1.1.16 &V1 - Display S Registers Values

&V1 - Display S Registers Values	
AT&V1	Execution command returns the value of the **S registers** in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0><dec> <hex>** **<reg1><dec> <hex>** ... where **<reg*n*>** - **S register** number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

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3.7.1.1.17 &V3 - Display S Registers Values

&V3 - Display S Registers Values	
AT&V3	Execution command returns the value of the **S registers** in decimal and hexadecimal value in the format: **REG DEC HEX** **<reg0><dec> <hex>** **<reg1><dec> <hex>** ... where **<reg*n*>** - **S register** number (0..38) **<dec>** - current value in decimal notation **<hex>** - current value in hexadecimal notation

3.7.1.1.18 &V2 - Display Last Connection Statistics

&V2 - Display Last Connection Statistics	
AT&V2	Execution command returns the last connection statistics and connection failure reason.

3.7.1.1.19 \V - Single Line Connect Message

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

3.7.1.1.20 +GCI - Country Of Installation

+GCI - Country Of Installation	
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.

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3.7.1.1.21 %L - Line Signal Level

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

3.7.1.1.22 %Q - Line Quality

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

3.7.1.1.23 L - Speaker Loudness

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

3.7.1.1.24 M - Speaker Mode

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

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3.7.1.2 DTE - Modem Interface Control

3.7.1.2.1 E - Command Echo

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

3.7.1.2.2 Q - Quiet Result Codes

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

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3.7.1.2.3 V - Response Format

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

3.7.1.2.4 X - Extended Result Codes

X - Extended Result Codes	
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>** 0 - send only **OK**, **CONNECT**, **RING**, **NO CARRIER**, **ERROR**, **NO ANSWER** results. Busy tones reporting is disabled. 1..4 - reports all messages (factory default is 1).

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	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

3.7.1.2.5 I - Identification Information

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

3.7.1.2.6 &C - Data Carrier Detect (DCD) Control

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

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3.7.1.2.7 &D - Data Terminal Ready (DTR) Control

&D - Data Terminal Ready (DTR) Control	
AT&D[<n>]	Set command controls the Module behaviour to the RS232 **DTR** transitions. Parameter: **<n>** 0 - **DTR** transitions are ignored. (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 - **C108/1** operation is enabled. 4 - **C108/1** operation is disabled. Note: if **AT&D2** has been issued and the **DTR** has been tied **low**, autoanswering is inhibited and it is possible to answer only issuing command **ATA**. Note: if parameter is omitted, the command has the same behaviour of **AT&D0**
Reference	V25ter

3.7.1.2.8 \Q - Standard Flow Control

\Q - Standard Flow Control	
AT\Q[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - software bi-directional with filtering (**XON/XOFF**) 2 - hardware mono-directional flow control (only **CTS** active) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) Note: if parameter is omitted, the command has the same behaviour as **AT\Q0** Note: **\Q's** settings are functionally a subset of **&K's** ones.
Reference	V25ter

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3.7.1.2.9 &K - Flow Control

&K - Flow Control	
AT&K[<n>]	Set command controls the RS232 flow control behaviour. Parameter: **<n>** 0 - no flow control 1 - hardware mono-directional flow control (only **CTS** active) 2 - software mono-directional flow control (**XON/XOFF**) 3 - hardware bi-directional flow control (both **RTS/CTS** active) (factory default) 4 - software bi-directional with filtering (**XON/XOFF**) 5 - pass through: software bi-directional without filtering (**XON/XOFF**) 6 - both hardware bi-directional flow control (both **RTS/CTS** active) and software bi-directional flow control (**XON/XOFF**) with filtering Note: if parameter is omitted, the command has the same behaviour as **AT&K0** Note: **&K** has no Read Command. To verify the current setting of **&K**, simply check the settings of the active profile with **AT&V**.

3.7.1.2.10 &S - Data Set Ready (DSR) Control

&S - Data Set Ready (DSR) Control	
AT&S[<n>]	Set command controls the RS232 **DSR** pin behaviour. Parameter: **<n>** 0 - always **ON** 1 - follows the GSM traffic channel indication. 2 - **ON** when connected 3 - **ON** when device is ready to receive commands (factory default). Note: if option 1 is selected then **DSR** is tied up when the device receives from the network the GSM traffic channel indication. Note: if parameter is omitted, the command has the same behaviour of **AT&S0**

3.7.1.2.11 \R - Ring (RI) Control

\R - Ring (RI) Control	
AT\R[<n>]	Set command controls the **RING** output pin behaviour. Parameter:

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	<n> 0 - **RING** on during ringing and further connection 1 - **RING** on during ringing (factory default) 2 - **RING** follows the ring signal Note: to check the ring option status use the **&V** command. Note: if parameter is omitted, the command has the same behaviour of **AT\R0**

3.7.1.2.12 +IPR - Fixed DTE Interface Rate

+IPR - Fixed DTE Interface Rate	
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.
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

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3.7.1.2.13 +IFC - DTE-Modem Local Flow Control

+IFC - DTE-Modem Local Flow Control	
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>**) Parameter: **<by_te>** - flow control option for the data received by **DTE** 0 - flow control None 1 - **XON/XOFF** filtered 2 - **C105** (**RTS**) (factory default) 3 - **XON/XOFF** not filtered **<by_ta>** - flow control option for the data sent by **modem** 0 - flow control None 1 - **XON/XOFF** 2 - **C106** (**CTS**) (factory default) Note: This command is equivalent to **&K** command.
AT+IFC?	Read command returns active flow control settings.
AT+IFC=?	Test command returns all supported values of the parameters **<by_te>** and **<by_ta>**.
Reference	V25ter

3.7.1.2.14 +ILRR - DTE-Modem Local Rate Reporting

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

3.7.1.2.15 +ICF - DTE-Modem Character Framing

+ICF - DTE-Modem Character Framing	
AT+ICF=<format> [,<parity>]	Set command defines the asynchronous character framing to be used when autobauding is disabled.

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	Parameters: **<format>** - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame. 0 - autodetection 1 - 8 Data, 2 Stop 2 - 8 Data, 1 Parity, 1 Stop 3 - 8 Data, 1 Stop 4 - 7 Data, 2 Stop 5 - 7 Data, 1 Parity, 1 Stop **<parity>** - determines how the parity bit is generated and checked, if present 0 - Odd 1 - Even
AT+ICF?	Read command returns current settings for subparameters **<format>** and **<parity>**.
AT+ICF=?	Test command returns the ranges of values for the parameters **<format>** and **<parity>**
Reference	V25ter

Example	`AT+ICF = 0 - auto detect`
	`AT+ICF = 1 - 8N2`
	`AT+ICF = 2,0 - 8O1`
	`AT+ICF = 2,1 - 8E1`
	`AT+ICF = 3 - 8N1 (default)`
	`AT+ICF = 5,0 - 7O1`
	`AT+ICF = 5,1 - 7E1`

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3.7.1.3 Call Control

3.7.1.3.1 D - Dial

D - Dial	
ATD<number>[;]	Execution command starts a call to the phone number given as parameter. If "**;**" is present, a **voice** call to the given number is performed, regardless of the current value of the connection mode set by **+FCLASS** command. Parameter: **<number>** - phone number to be dialed Note: type of call (**data**, **fax** or **voice**) depends on last **+FCLASS** setting. Note: the numbers accepted are 0-9 and *,#,"A", "B", "C", "D","+". Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD><str>[;]	Issues a call to phone number which corresponding alphanumeric field is **<str>**; all available memories will be searched for the correct entry. If "**;**" is present a **voice** call is performed. Parameter: **<str>** - alphanumeric field corresponding to phone number; it must be enclosed in quotation marks. Note: used character set should be the one selected with **+CSCS**.
ATD><mem><n>[;]	Issues a call to phone number in phonebook memory storage **<mem>**, entry location **<n>** (available memories may be queried with **AT+CPBS=?**). If "**;**" is present a **voice** call is performed. Parameters: **<mem>** - phonebook memory storage; it must not be enclosed in quotation marks. SM - SIM phonebook FD - SIM fixed dialling-phonebook LD - SIM last-dialling-phonebook MC - device missed (unanswered received) calls list RC - ME received calls list **<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**).

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D - Dial	
	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 Other values are reserved and will result in an **ERROR** response to the Set command. **<cid>** - a digit which specifies a particular **PDP** context definition (see **+CGDCONT** command).
Example	*To dial a number in SIM phonebook entry 6:* ATD>SM6 OK

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D - Dial	
	To have a voice call to the 6-th entry of active phonebook: ATD>6; OK *To call the entry with alphanumeric field "Name":* ATD>"Name"; OK
Reference	V25ter.

3.7.1.3.2 T - Tone Dial

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

3.7.1.3.3 P - Pulse Dial

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

3.7.1.3.4 A - Answer

A - Answer	
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.

3.7.1.3.5 H - Disconnect

H - Disconnect	
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

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H - Disconnect	
	conversation is active the device is in on-line mode (commands are not sensed and characters are sent to the other party), hence escape sequence (see **register S2**) is required before issuing this command, otherwise if **&D1** option is active, **DTR** pin has to be tied low to return in command mode.
Reference	V25ter.

3.7.1.3.6 O - Return To On Line Mode

O - Return To On Line Mode	
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.

3.7.1.3.7 &G - Guard Tone

&G - Guard Tone	
AT&G	Set command has no effect is included only for backward compatibility with landline modems.

3.7.1.3.8 &Q - Sync/Async Mode

&Q - Sync/Async Mode	
AT&Q	Set command has no effect is included only for backward compatibility with landline modems.

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3.7.1.4 Modulation Control

3.7.1.4.1 +MS - Modulation Selection

+MS - Modulation Selection	
AT+MS= <carrier> [,<automode> [,<min_rate> [,<max_rate>]]]	Set command has no effect is included only for backward compatibility with landline modems. Parameter: **<carrier>** - a string which specifies the preferred modem carrier to use in originating or answering a connection V21 V22 V22B V23C V32 V34 **<automode>** - it enables/disables automatic modulation negotiation. 0 - disabled 1 - enabled. It has effect only if it is defined for the associated modulation. **<min_rate>** - it specifies the lowest value at which the DCE may establish a connection. 0 - unspecified **<max_rate>** - it specifies the highest value at which the DCE may establish a connection. 0 - unspecified 300..14400 - rate in bps Note: to change modulation requested use **+CBST** command.
AT+MS?	Read command returns the current value of **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.
AT+MS=?	Test command returns all supported values of the **<carrier>**, **<automode>**, **<min_rate>**, **<max_rate>** parameters.

3.7.1.4.2 %E - Line Quality Monitor And Auto Retrain Or Fallback/Fallforward

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

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3.7.1.5 Compression Control

3.7.1.5.1 +DS - Data Compression

+DS - Data Compression	
AT+DS=<n>	Set command sets the V42 compression parameter. Parameter: **<n>** 0 - no compression, it is currently the only supported value
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

3.7.1.5.2 +DR - Data Compression Reporting

+DR - Data Compression Reporting	
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. 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

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3.7.1.6 Break Control

3.7.1.6.1 \B - Transmit Break To Remote

\B - Transmit Break To Remote	
AT\B	Execution command has no effect and is included only for backward compatibility with landline modems

3.7.1.6.2 \K - Break Handling

\K - Break Handling	
AT\K<n>	Execution command has no effect and is included only for backward compatibility with landline modems Parameter: **<n>** 1..5

3.7.1.6.3 \N - Operating Mode

\N - Operating Mode	
AT\N	Execution command has no effect and is included only for backward compatibility with landline modems

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3.7.1.7 S Parameters

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

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

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

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

Example:

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

3.7.1.7.1 S0 - Number Of Rings To Auto Answer

S0 - Number Of Rings To Auto Answer	
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

3.7.1.7.2 S1 - Ring Counter

S1 - Ring Counter	
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.

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	Note: the form **ATS1** has no effect.
ATS1?	Read command returns the value of this parameter.

3.7.1.7.3 S2 - Escape Character

S2 - Escape Character	
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

3.7.1.7.4 S3 - Command Line Termination Character

S3 - Command Line Termination Character	
ATS3=[<char>]	Set command sets the value of the character either recognized by the device as command line terminator and generated by the device as part of the header, trailer, and terminator for result codes and information text, along with **S4 parameter**. Parameter: **<char>** - command line termination character (decimal ASCII) 0..127 - factory default value is 13 (ASCII **CR**) Note: the "previous" value of **S3** is used to determine the command line termination character for entering the command line containing the **S3** setting command. However the result code issued shall use the "new" value of **S3** (as set during the processing of the command line)
ATS3?	Read command returns the current value of **S3 parameter**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

3.7.1.7.5 S4 - Response Formatting Character

S4 - Response Formatting Character	
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

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	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

3.7.1.7.6 S5 - Command Line Editing Character

S5 - Command Line Editing Character	
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

3.7.1.7.7 S7 - Connection Completion Time-Out

S7 - Connection Completion Time-Out	
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

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3.7.1.7.8 S12 - Escape Prompt Delay

S12 - Escape Prompt Delay	
ATS12=[<time>]	Set command sets the period, before and after an escape sequence, during which no character has to be detected in order to accept the escape sequence as a valid one. Parameter: **<time>** - expressed in fiftieth of a second 20..255 - factory default value is 50.
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

3.7.1.7.9 S25 - Delay To DTR Off

S25 -Delay To DTR Off	
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

3.7.1.7.10 S30 - Disconnect Inactivity Timer

S30 -Disconnect Inactivity Timer	
ATS30=[<tout>]	Set command defines the inactivity timeout 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 timeout 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

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3.7.1.7.11 S38 - Delay Before Forced Hang Up

S38 -Delay Before Forced Hang Up	
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 20). 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**. Note: the format of the numbers in output is always 3 digits, left-filled with 0s

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3.7.2 ETSI GSM 07.07 AT Commands

3.7.2.1 General

3.7.2.1.1 +CGMI - Request Manufacturer Identification

+CGMI - Request Manufacturer Identification	
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	GSM 07.07

3.7.2.1.2 +CGMM - Request Model Identification

+CGMM - Request Model Identification	
AT+CGMM	Execution command returns the device model identification code without command echo.
AT+CGMM=?	Test command returns **OK** result code.
Reference	GSM 07.07

3.7.2.1.3 +CGMR - Request Revision Identification

+CGMR - Request Revision Identification	
AT+CGMR	Execution command returns device software revision number without command echo.
AT+CGMR=?	Test command returns **OK** result code.
Reference	GSM 07.07

3.7.2.1.4 +CGSN - Request Product Serial Number Identification

+CGSN - Request Product Serial Number Identification	
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	GSM 07.07

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3.7.2.1.5 +CSCS - Select TE Character Set

+CSCS - Select TE Character Set	
AT+CSCS= **[<chset>]**	Set command sets the current character set used by the device. Parameter: **<chset>** - character set "IRA" - ITU-T.50 "8859-1" - ISO 8859 Latin 1 "PCCP437" - PC character set Code Page 437 "UCS2" - 16-bit universal multiple-octet coded character set (ISO/IEC10646)
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	GSM 07.07

3.7.2.1.6 +CIMI - Request International Mobile Subscriber Identity (IMSI)

+CIMI - Request International Mobile Subscriber Identify (IMSI)	
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	GSM 07.07

3.7.2.1.7 +CMUX - Multiplexing Mode

+CMUX – Multiplexing Mode	
AT+CMUX= **<mode>** **[,<subset>]**	Set command is used to enter the Multiplexed Mode. Parameters: **<mode>** 0 - basic option; it is currently the only supported value. **<subset>** 0 - UIH frames used only; it is currently the only supported value. Note: after entering the Multiplexed Mode a timeout of five seconds start. If no CMUX control channel is established the engine returns to AT Command Mode Note: all the CMUX protocol parameter are fixed as defined in GSM07.10 and cannot be changed. Note: the maximum frame size is fixed: **N1=31**
AT+CMUX?	Read command returns the current value of multiplexed mode commmand.

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AT+CMUX=?	Test command returns all supported values enter multiplexed mode commane.
Reference	GSM 07.07

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3.7.2.2 Call Control

3.7.2.2.1 +CHUP - Hang Up Call

+CHUP - Hang Up Call	
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	GSM 07.07

3.7.2.2.2 +CBST - Select Bearer Service Type

+CBST - Select Bearer Service Type	
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. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer **+CSNS**). Parameters: The default values of the subparameters are manufacturer specific since they depend on the purpose of the device and data services provided by it. Not all combinations of these subparameters are supported. The supported values are: **<speed>** 0 - autobauding (automatic selection of the speed, factory default) 1 - 300 bps (V.21) 2 - 1200 bps (V.22) 3 - 1200/75 bps (V.23) 4 - 2400 bps (V.22bis) 6 - 4800 bps (V.32) 7 - 9600 bps (V.32) 14 - 14400 bps (V.34) 65 - 300 bps (V.110) 66 - 1200 bps (V.110) 68 - 2400 bps (V.110 or X.31 flag stuffing) 70 - 4800 bps (V.110 or X.31 flag stuffing) 71 - 9600 bps (V.110 or X.31 flag stuffing) 75 - 14400 bps (V110 or X.31 flag stuffing) **<name>** 0 - data circuit asynchronous (factory default) **<ce>** 0 - transparent 1 - non transparent (default)

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+CBST - Select Bearer Service Type	
	Note: the settings **AT+CBST=0,0,0** **AT+CBST=14,0,0** **AT+CBST=75,0,0** are not supported.
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	GSM 07.07

3.7.2.2.3 +CRLP - Radio Link Protocol

+CRLP - Radio Link Protocol	
AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>]]]]]	Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls are originated Parameters: **<iws>** - IWF window Dimension 1..61 - factory default value is 61 **<mws>** - MS window Dimension 1..61 - default value is 61 **<T1>** - acknowledge timer (10 ms units). 39..255 - default value is 78 **<N2>** - retransmission attempts 1..255 - default value is 6 **<ver>** - protocol version 0
AT+CRLP?	Read command returns the current value of the RLP protocol parameters.
AT+CRLP=?	Test command returns supported range of values of the RLP protocol parameters.
Reference	GSM 07.07

3.7.2.2.4 +CR - Service Reporting Control

+CR - Service Reporting Control	
AT+CR=[<mode>]	Set command controls whether or not intermediate result code **+CR: <serv>** is returned from the **TA** to the **TE**, where: **<serv>** ASYNC - asynchronous transparent SYNC - synchronous transparent

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	REL ASYNC - asynchronous non-transparent REL SYNC - synchronous non-transparent. If enabled, 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. Parameter: **<mode>** 0 - disables intermediate result code report (factory default) 1 - enables intermediate result code report. 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 current intermediate report setting
AT+CR=?	Test command returns the supported range of values of parameter **<mode>**.
Reference	GSM 07.07

3.7.2.2.5 +CEER - Extended Error Report

+CEER - Extended Error Report	
AT+CEER	Execution command returns one or more lines of information text **<report>** in the format: **+CEER: <report>** This report regards some error condition that may occur: - the failure in the last unsuccessful call setup (originating or answering) - the last call release - the last unsuccessful GPRS attach or unsuccessful PDP context activation, - the last GPRS detach or PDP context deactivation. Note: if none of this condition has occurred since power up then No Error condition is reported
AT+CEER=?	Test command returns **OK** result code.
Reference	GSM 07.07

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3.7.2.2.6 +CRC - Cellular Result Codes

+CRC - Cellular Result Codes	
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	GSM 07.07

3.7.2.2.7 +CSNS - Single Numbering Scheme

+CSNS - Single Numbering Scheme	
AT+CSNS= [<mode>]	Set command selects the bearer or teleservice to be used when mobile terminated single numbering scheme call is established. Parameter values set with **+CBST** command shall be used when **<mode>** equals to a data service. Parameter: **<mode>** 0 - voice (factory default) 2 - fax (TS 62) 4 - data Note: if **+CBST** parameter is set to a value that is not applicable to single numbering calls, ME/TA shall map the value to the closest valid one. E.g. if

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	user has set **<speed>=71**, **<name>=0** and **<ce>=1** (non-trasparent asynchronous 9600 bps V.110 ISDN connection) for mobile originated calls, ME/TA shall map the values into non-trasparent asynchronous 9600 bps V.32 modem connection when single numbering scheme call is answered.
AT+CSNS?	Read command returns current value of the parameter **<mode>**.
AT+CSNS=?	Test command returns supported values of parameter **<mode>**.
Reference	GSM 07.07

3.7.2.2.8 +CVHU - Voice Hang Up Control

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

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3.7.2.3 Network Service Handling

3.7.2.3.1 +CNUM - Subscriber Number

+CNUM - Subscriber Number	
AT+CNUM	Execution command returns the subscriber number i.e. the phone number of the device that is stored in the SIM card. Note: the returned number format is: **+CNUM: <alpha>,<number>,<type>** where **<alpha>** - alphanumeric string associated to **<number>**; used character set should be the one selected with either **+CSCS**. **<number>** - string containing the phone number in the format **<type>** **<type>** - type of number: 129 - national numbering scheme 145 - international numbering scheme (contains the character "+").
AT+CNUM=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.3.2 +COPN - Read Operator Names

+COPN - Read Operator Names	
AT+COPN	Execution command returns the list of operator names from the **ME**. The output depends on the choice made through **#SELINT** command.
AT+COPN=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.3.3 +CREG - Network Registration Report

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

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+CREG - Network Registration Report	
	+CREG: <stat> where **<stat>** 0 - not registered, ME is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but ME is currently searching a new operator to register to 3 - registration denied 4 -unknown 5 - registered, roaming If **<mode>=2**, network registration result code reports: **+CREG: <stat>[**,**<Lac>**,**<Ci>**] where: **<Lac>** - Local Area Code for the currently registered on cell **<Ci>** - Cell Id for the currently registered on cell Note: **<Lac>** and **<Ci>** are reported only if **<mode>=2** and the mobile is registered on some network cell.
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 (the MODULE is in network searching state) OK at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,2 OK

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+CREG - Network Registration Report	
	at+creg? +CREG: 0,2 OK at+creg? +CREG: 0,1 (the MODULE is registered) OK at+creg? +CREG: 0,1 OK
Reference	GSM 07.07

3.7.2.3.4 +COPS - Operator Selection

+COPS - Operator Selection	
AT+COPS= [<mode> [,<format> [,<oper>]]]	Set command forces an attempt to select and register the GSM network operator. **<mode>** parameter defines whether the operator selection is done automatically or it is forced by this command to operator **<oper>**. The operator **<oper>** shall be given in format **<format>**. Parameters: **<mode>** 0 - automatic choice (the parameter **<oper>** will be ignored) (factory default) 1 - manual choice (**<oper>** field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a **+COPS** with **<mode>=0, 1** or **4** is issued 3 - set only **<format>** parameter (the parameter **<oper>** will be ignored) 4 - manual/automatic (**<oper>** field shall be present); if manual selection fails, automatic mode (**<mode>=0**) is entered **<format>** 0 - alphanumeric long form (max length 16 digits) 2 - numeric 5 digits [country code (3) + network code (2)] **<oper>**: network operator in format defined by **<format>** parameter. Note: **<mode>** parameter setting is stored in NVM and available at next reboot. 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)
AT+COPS?	Read command returns current value of **<mode>**,**<format>** and **<oper>** in format **<format>**; if no operator is selected, **<format>** and **<oper>** are

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+COPS - Operator Selection	
	omitted **+COPS: <mode>**[, **<format>**, **<oper>**]
AT+COPS=?	Test command returns a list of quadruplets, each representing an operator present in the network. The quadruplets in the list are separated by commas: **+COPS: [list of supported (<stat> ,<oper (in <format>=0)>,, <oper (in <format>=2)>)s][,,(list of supported <mode>s), (list of supported<format>s)]** where **<stat>** - operator availability 0 - unknown 1 - available 2 - current 3 - forbidden Note: since with this command a network scan is done, this command may require some seconds before the output is given.
Reference	GSM 07.07

3.7.2.3.5 +CLCK - Facility Lock/Unlock

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

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+CLCK - Facility Lock/Unlock	
	<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>** - represents the class of information of the facility as sum of bits (default is 7) 1 - voice (telephony) 2 - data (refers to all bearer services) 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync 32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: when **<mode>=2** and command successful, it returns: **+CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2> [...]]** where **<status>** - the current status of the facility 0 - not active 1 - active **<class*n*>** - class of information of the facility
AT+CLCK=?	Test command reports all the facilities supported by the device.
Reference	GSM 07.07
Example	*Querying such a facility returns an output on three rows, the first for voice, the second for data, the third for fax:* AT+CLCK =”AO”,2 +CLCK: <status>,1 +CLCK: <status>,2 +CLCK: <status>,4

3.7.2.3.6 +CPWD - Change Facility Password

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

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	<fac> - facility “SC” - SIM (PIN request) “AB” - All barring services “P2” - SIM PIN2 **<oldpwd>** - string type, it shall be the same as password specified for the facility from the **ME** user interface or with command **+CPWD**. **<newpwd>** - string type, it is the new password Note: parameter **<oldpwd>** is the old password while **<newpwd>** is the new one.
AT+CPWD=?	Test command returns a list of pairs (**<fac>**,**<pwdlength>**) which presents the available facilities and the maximum length of their password (**<pwdlength>**)
Reference	GSM 07.07

3.7.2.3.7 +CLIP - Calling Line Identification Presentation

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

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+CLIP - Calling Line Identification Presentation	
	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.
AT+CLIP?	Read command returns the presentation status of the CLI in the format: **+CLIP: <n>**, **<m>** where: **<n>** 0 - CLI presentation disabled 1 - CLI presentation enabled **<m>** - status of the CLIP service on the GSM network 0 - CLIP not provisioned 1 - CLIP provisioned 2 - unknown (e.g. no network is present) Note: This command issues a status request to the network, hence it may take a few seconds to give the answer due to the time needed to exchange data with it.
AT+CLIP=?	Test command returns the supported values of parameter **<n>**
Reference	GSM 07.07
Note	The command changes only the report behaviour of the device, it does not change CLI supplementary service setting on the network.

3.7.2.3.8 +CLIR - Calling Line Identification Restriction

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

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	1 - CLIR facility active (CLI not sent) 2 - CLIR facility not active (CLI sent) **<m>** - facility status on the Network 0 - CLIR service not provisioned 1 - CLIR service provisioned permanently 2 - unknown (e.g. no network present, etc.) 3 - CLI temporary mode presentation restricted 4 - CLI temporary mode presentation allowed
AT+CLIR=?	Test command reports the supported values of parameter **<n>**.
Reference	GSM 07.07
Note	This command sets the default behaviour of the device in outgoing calls.

3.7.2.3.9 +CCFC - Call Forwarding Number And Conditions

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

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+CCFC - Call Forwarding Number And Condition	
	64 - dedicated packet access 128 - dedicated PAD access **<time>** - the time in seconds after which the call is diverted if "no reply" reason is chosen. Valid only for "no reply" reason. Note: when **<cmd>**=2 and command successful, it returns: **+CCFC: <status>,<class>[,<number>[,<type>[,<time>]]]** where: **<status>** - current status of the network service 0 - not active 1 - active **<time>** - time in *seconds* to wait before call is forwarded when "no reply" option for **<reason>** is enabled or queried 1..30 - default value is 20. The other parameters are as seen before.
AT+CCFC=?	Test command reports supported values for the parameter **<reason>**.
Reference	GSM 07.07
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>**.

3.7.2.3.10 +CCWA - Call Waiting

+CCWA - Call Waiting	
AT+CCWA=[<n>[,<cmd>[,<class>]]]	Set command allows the control of the call waiting supplementary service. Activation, deactivation, and status query are supported. Parameters: **<n>** - enables/disables the presentation of an unsolicited result code: 0 - disable 1 - enable **<cmd>** - enables/disables or queries the service at network level: 0 - disable 1 - enable 2 - query status **<class>** - is a sum of integers each representing a class of information which the command refers to; default is 7 (**voice + data + fax**) 1 - voice (telephony) 2 - data 4 - fax (facsimile services) 8 - short message service 16 - data circuit sync

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+CCWA - Call Waiting	
	32 - data circuit async 64 - dedicated packet access 128 - dedicated PAD access Note: the response to the query command is in the format: **+CCWA:<status>,<class>** where: **<status>** represents the status of the service: 0 - inactive 1 - active **<class>** - class of calls the service status refers to. Note: the unsolicited result code enabled by parameter **<n>** is in the format:: **+CCWA: <number>,<type>,<class>,[<alpha>[,<cli_validity>]]** where: **<number>** - string type phone number of calling address in format specified by **<type>** **<type>** - type of address in integer format **<class>** - see before **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with **+CSCS**. **<cli_validity>** 0 - CLI valid 1 - CLI has been withheld by the originator 2 - CLI is not available due to interworking problems or limitations of originating network Note: if parameter **<cmd>** is omitted then network is not interrogated. Note: in the query command the class parameter must not be issued. Note: the difference between call waiting report disabling (**AT+CCWA = 0,1,7**) and call waiting service disabling (**AT+CCWA = 0,0,7**) is that in the first case the call waiting indication is sent to the device by network but this last one does not report it to the **DTE**; instead in the second case the call waiting indication is not generated by the network. Hence the device results busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party. Note: The command **AT+CCWA=1,0** has no effect a non sense and must not be issued..

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+CCWA - Call Waiting	
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	GSM 07.07

3.7.2.3.11 +CHLD - Call Holding Services

+CHLD - Call Holding Services	
AT+CHLD=[<n>]	Execution command controls the network call hold service. With this service it is possible to disconnect temporarily a call and keep it suspended while it is retained by the network, contemporary it is possible to connect another party or make a multiparty connection. Parameter: **<n>** 0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. (only from version D) 1 - releases all active calls (if any exist), and accepts the other (held or waiting) call 1X - releases a specific active call X 2 - places all active calls (if any exist) on hold and accepts the other (held or waiting) call. 2X - places all active calls on hold except call X with which communication shall be supported (only from version D). 3 - adds an held call to the conversation Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until they are released. New calls take the lowest available number. Note: where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation.
AT+CHLD=?	Test command returns the list of supported **<n>s**. **+CHLD: (0,1,1X,2,2X,3)**
Reference	GSM 07.07
Note	ONLY for VOICE calls

3.7.2.3.12 +CUSD - Unstructured Supplementary Service Data

+CUSD - Unstructured Supplementary Service Data	
AT+CUSD=[<n>[,<str>	Set command allows control of the Unstructured Supplementary Service Data (USSD [GSM 02.90]).

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+CUSD - Unstructured Supplementary Service Data	
[,<dcs>]]]	Parameters: **<n>** - is used to disable/enable the presentation of an unsolicited result code. 0 - disable the result code presentation in the **DTA** 1 - enable the result code presentation in the **DTA** **<str>** - USSD-string (when **<str>** parameter is not given, network is not interrogated) - If **<dcs>** indicates that GSM338 default alphabet is used **ME/TA** converts GSM alphabet into current TE character set (see **+CSCS**). - If **<dcs>** indicates that 8-bit data coding scheme is used: **ME/TA** converts each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65). **<dcs>** - GSM 3.38 Cell Broadcast Data Coding Scheme in integer format (default is 0). Note: the unsolicited result code enabled by parameter **<n>** is in the format: **+CUSD: <m>[,<str>,<dcs>]** to the TE where: **<m>**: 0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation). 1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 - USSD terminated by the network 3 - other local client has responded 4 - operation not supported 5 - network time out Note: in case of successful mobile initiated operation, **DTA** waits the USSD response from the network and sends it to the **DTE** before the final result code. This will block the **AT** command interface for the period of the operation.
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	GSM 07.07
Note	Only mobile initiated operations are supported

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3.7.2.3.13 +CAOC - Advice Of Charge

+CAOC - Advice Of Charge	
AT+CAOC= <mode>	Set command refers to the Advice of Charge supplementary service; the command also includes the possibility to enable an unsolicited event reporting of the CCM (Call Cost Meter) information. Parameter: **<mode>** 0 - query CCM value 1 - disables unsolicited CCM reporting 2 - enables unsolicited CCM reporting Note: the unsolicited result code enabled by parameter **<mode>** is in the format: **+CCCM: <ccm>** where: **<ccm>** - call cost meter value hexadecimal representation (3 bytes) Note: the unsolicited result code **+CCCM** is issued when the CCM value changes, but not more than every 10 seconds.
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	GSM 07.07
Note	**+CAOC** command uses the CCM of the device internal memory, not the CCM stored in the SIM. The difference is that the internal memory CCM is reset at power up, while the SIM CCM is reset only on user request. Advice of Charge values stored in the SIM (ACM, ACMmax, PUCT) can be accessed with commands **+CACM**, **+CAMM** and **+CPUC**.

3.7.2.3.14 +CLCC - List Current Calls

+CLCC - List Current Calls	
AT+CLCC	Execution command returns the list of current calls and their characteristics in the format: **[+CLCC:<id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>** **,<alpha>[<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,** **<mpty>,<number>,<type>,<alpha>[…]]]** where: **<id*n*>** - call identification number **<dir>** - call direction

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+CLCC - List Current Calls	
	0 - mobile originated call 1 - mobile terminated call **<stat>** - state of the call 0 - active 1 - held 2 - dialing (**MO** call) 3 - alerting (**MO** call) 4 - incoming (**MT** call) 5 - waiting (**MT** call) **<mode>** - call type 0 - voice 1 - data 2 - fax 9 - unknown **<mpty>** - multiparty call flag 0 - call is not one of multiparty (conference) call parties **<number>** - phone number in format specified by **<type>** **<type>** - type of phone number byte in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<alpha>** - string type; alphanumeric representation of **<number>** corresponding to the entry found in phonebook; used character set should be the one selected with **+CSCS**. Note: If no call is active then only **OK** message is sent. This command is useful in conjunction with command **+CHLD** to know the various call status for call holding.
AT+CLCC=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.3.15 +CSSN - SS Notification

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

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+CSSN - SS Notification	
	When **<n>**=1 and a supplementary service notification is received after a mobile originated call setup, an unsolicited code: **+CSSI: <code1>** is sent to **TE** before any other **MO** call setup result codes, where: **<code1>**: 1 - some of the conditional call forwardings are active 2 - call has been forwarded 3 - call is waiting 5 - outgoing calls are barred 6 - incoming calls are barred When **<m>=1** and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code: **+CSSU: <code2>** is sent to **TE**, where: **<code2>**: 0 - this is a forwarded call (**MT** call setup) 2 - call has been put on hold (during a voice call) 3 - call has been retrieved (during a voice call).
AT+CSSN?	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters **<n>**, **<m>**.
Reference	GSM 07.07

3.7.2.3.16 +CCUG - Closed User Group Supplementary Service Control

+CCUG - Closed User Group Supplementary Service Control	
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>**

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	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	GSM 07.07

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3.7.2.4 Mobile Equipment Control

3.7.2.4.1 +CPAS - Phone Activity Status

+CPAS - Phone Activity Status	
AT+CPAS	Execution command reports the device status in the form: **+CPAS: <pas>** Where: **<pas>** - phone activity status 0 - ready (device allows commands from **TA/TE**) 1 - unavailable (device does not allow commands from **TA/TE**) 2 - unknown (device is not guaranteed to respond to instructions) 3 - ringing (device is ready for commands from **TA/TE**, but the ringer is active) 4 - call in progress (device is ready for commands from **TA/TE**, but a call is in progress)
AT+CPAS=?	Test command reports the supported range of values for **<pas>**. Note: although **+CPAS** is an execution command, ETSI 07.07 requires the Test command to be defined.
Example	ATD03282131321; OK AT+CPAS +CPAS: 3 *the called phone is ringing* OK AT+CPAS +CPAS: 4 *the called phone has answered to your call* OK ATH OK
Reference	GSM 07.07

3.7.2.4.2 +CFUN - Set Phone Functionality

+CFUN - Set Phone Functionality	
AT+CFUN= **[<fun>[,<rst>]]**	Set command selects the level of functionality in the ME. Parameters: **<fun>** - is the power saving function mode 0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible. Consequently, once you have set **<fun>** level

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+CFUN - Set Phone Functionality	
	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 stops power saving and takes the ME back to full functionality level **<fun>=1**. 1 - mobile full functionality with power saving disabled (factory default) 2 - disable TX 4 - disable either TX and RX 5 - mobile full functionality with power saving enabled **<rst>** - reset flag 0 - do not reset the ME before setting it to **<fun>** functionality level Note: if power saving enabled, it reduces the power consumption during the idle time, thus allowing a longer standby time with a given battery capacity. Note: to place the telephone 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 telephone is really in power saving condition. During the power saving condition, before sending any **AT** command on the serial line, the **DTR** must be enabled and it must be waited for the **CTS** (RS232) line to go in **ON** status. Until the **DTR** line is **ON**, the telephone will not return back in the power saving condition. Note: the power saving function does not affect the network behavior of the MODULE, even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call incomes during the power save, then the module will wake up and proceed normally with the unsolicited incoming call code
AT+CFUN?	Read command reports the current setting of **<fun>**.
AT+CFUN=?	Test command returns the list of supported values for **<fun>** and **<rst>**.
Reference	GSM 07.07

3.7.2.4.3 +CPIN - Enter PIN

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

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

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+CPIN - Enter PIN

Example

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

OK
```

Note

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

A	**#SRP**	**#CAMOFF**	**+IPR**
D	**#CAP**	**#CAMEN**	**+ICF**
H	**#CODEC**	**#TPHOTO**	**+IFC**
O	**#CBC**	**#RPHOTO**	**+CMUX**
E	**#I2S1**	**#SELCAM**	**+CNMI**
I	**#STM**	**#CAMQUA**	**+CPAS**
L	**#SHFEC**	**#CMODE**	**+CCLK**
M	**#SHFSD**	**#CAMRES**	**+CALA**
P	**#HFMICG**	**#CAMTXT**	**+CRSM**
Q	**#HSMICG**	**#CAMZOOM**	**+CLIP**
S	**#GPIO**	**#CAMCOL**	**+DR**
T	**#SGPO**	**#OBJL**	**+DS**
V	**#GGPI**	**#OBJR**	**+MS**
X	**#ADC**	**#DIALMODE**	**+GCAP**
Z	**#QTEMP**	**#SEMAIL**	**+GCI**
&C	**#DAC**	**#EMAILD**	**+ILRR**
&D	**#F26M**	**#EUSER**	**+CALM**
&F	**#RTCSTAT**	**#EPASSW**	**+CHUP**
&K	**#ACAL**	**#ESMTP**	**+FCLASS**
&N	**#PCT**	**#EADDR**	**+FMI**
&P	**#WAKE**	**#EMAILMSG**	**+FMM**
&S	**#SHDN**	**#ESAV**	**+FMR**
&V	**#JDR**	**#ERST**	**+FTS**
&W	**#CSURV**	**#QSS**	**+FRS**
&Y	**#CSURVC**	**#SSCTRACE**	**+FTM**
&Z	**#CSURVU**	**+CFUN**	**+FRM**
%E	**#CSURVUC**	**+CGMI**	**+FRH**
%L	**#CSURVF**	**+CGMM**	**+FTH**
%Q	**#CSURVNLF**	**+CGMR**	**+FLO**
\K	**#CSURVB**	**+GMI**	**+FPR**
\Q	**#CSURVBC**	**+GMM**	**+FDD**
\R	**#PASSW**	**+GMR**	**+CSNS**
\V	**#PKTSZ**	**+CGSN**	**+CRLP**

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+CPIN - Enter PIN	
	<table><tr><td>#BND</td><td>#SKTSAV</td><td>+GSN</td><td>+CR</td></tr><tr><td>#AUTOBND</td><td>#SKTSET</td><td>+CRC</td><td>+CREG</td></tr><tr><td>#CGMI</td><td>#SKTOP</td><td>+CMEE</td><td>+CGREG</td></tr><tr><td>#CGMM</td><td>#SKTTO</td><td>+CPIN</td><td>+COPS</td></tr><tr><td>#CGMR</td><td>#USERID</td><td>+CSQ</td><td>+CBC</td></tr><tr><td>#CGSN</td><td>#DSTO</td><td>+CSDH</td><td>+CIND</td></tr><tr><td>#MONI</td><td>#SKTCT</td><td>+CRSL</td><td>+CMER</td></tr><tr><td>#SERVINFO</td><td>#SKTRST</td><td>+CLVL</td><td></td></tr><tr><td>#SELINT</td><td>#FTPPUTPH</td><td>+CMUT</td><td></td></tr><tr><td>#SRS</td><td>#CAMON</td><td></td><td></td></tr></table> All the above commands, but the ones in the grayed cells, can be issued even if the SIM card is not inserted yet.
Reference	GSM 07.07

3.7.2.4.4 +CSQ - Signal Quality

+CSQ - Signal Quality	
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

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	<rssi> and **<ber>**. Note: although **+CSQ** is an execution command, ETSI 07.07 requires the Test command to be defined.
Reference	GSM 07.07

3.7.2.4.5 +CIND - Indicator Control

+CIND - Indicator Control	
AT+CIND= [<state> [,<state>[,…]]]	Set command is used to control the registration / deregistration of ME indicators, in order to automatically send the **+CIEV URC**, whenever the value of the associated indicator changes. The supported indicators (**<descr>**) and their order appear from test command **AT+CIND=?** Parameter: **<state>** - registration / deregistration state 0 - the indicator is deregistered; it cannot be presented as unsolicited result code (**+CIEV URC**), but can be directly queried with **AT+CIND?** 1 - indicator is registered: indicator event report is allowed; this is the factory default for every indicator
AT+CIND?	Read command returns the current value status of ME indicators, in the format: **+CIND: <ind>[,<ind>[,…]]** Note: the order of the values **<ind>s** is the same as that in which appear the supported indicators from test command **AT+CIND=?**
AT+CIND=?	Test command returns pairs, where string value **<descr>** is a description (max. 16 chars) of the indicator and compound value is the supported values for the indicator, in the format: **+CIND: (<descr>, (list of supported <ind>s))[,(<descr>, (list of supported <ind>s))[,…]]** where: **<descr>** - indicator names as follows (along with their **<ind>** ranges) “battchg” - battery charge level **<ind>** - battery charge level indicator range 0..5 99 - not measurable “signal” - signal quality **<ind>** - signal quality indicator range 0..7 99 - not measurable “service” - service availability

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+CIND - Indicator Control	
	<ind> - service availability indicator range 0 - not registered to any network 1 - registered to home network “sounder” - sounder activity **<ind>** - sounder activity indicator range 0 - there’s no any sound activity 1 - there’s some sound activity “message” - message received **<ind>** - message received indicator range 0 - there is no unread short message at memory location “SM” 1 - unread short message at memory location “SM” “call” - call in progress **<ind>** - call in progress indicator range 0 - there’s no calls in progress 1 - at least a call has been established “roam” - roaming **<ind>** - roaming indicator range 0 - registered to home network or not registered 1 - registered to other network “smsfull” - a short message memory storage in the MT has become full (1), or memory locations are available (0) **<ind>** - short message memory storage indicator range 0 - memory locations are available 1 - a short message memory storage in the MT has become full. “rssi” - received signal (field) strength **<ind>** - received signal strength level indicator range 0 - signal strength ≤ 112 dBm 1..4 - signal strength in 15 dBm steps 5 - signal strength ≥ 51 dBm 99 - not measurable
Example	*Next command causes all the indicators to be registered* AT+CIND=1,1,1,1,1,1,1,1,1,1 *Next command causes all the indicators to be de-registered* AT+CIND=0,0,0,0,0,0,0,0,0,0 *Next command to query the current value of all indicators* AT+CIND? CIND: 4,0,1,0,0,0,0,0,2 OK

+CIND - Indicator Control	
Note	See command **+CMER**
Reference	GSM 07.07

3.7.2.4.6 +CMER - Mobile Equipment Event Reporting

+CMER - Mobile Equipment Event Reporting	
AT+CMER= **[<mode>** **[,<keyp>** **[,<disp>** **[,<ind>** **[,<bfr>]]]]]**	Set command enables/disables sending of unsolicited result codes from TA to TE in the case of indicator state changes (n.b.: sending of URCs in the case of key pressings or display changes are currently not implemented). Parameters: **<mode>** - controls the processing of unsolicited result codes 0 - discard **+CIEV Unsolicited Result Codes**. 1 - discard **+CIEV Unsolicited Result Codes** when TA-TE link is reserved (e.g. on-line data mode); otherwise forward them directly to the TE. 2 - buffer **+CIEV Unsolicited Result Codes** in the TA when TA-TE link is reserved (e.g. on-line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE. 3 - forward **+CIEV Unsolicited Result Codes** directly to the TE; when TA is in on-line data mode each **+CIEV URC** is replaced with a **Break** (100 ms), and is stored in a buffer; onche the ME goes into command mode (after **+++** was entered), all URCs stored in the buffer will be output. **<keyp>** - keypad event reporting 0 - no keypad event reporting **<disp>** - display event reporting 0 - no display event reporting **<ind>** - indicator event reporting 0 - no indicator event reporting 1 - indicator event reporting
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	GSM 07.07

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3.7.2.4.7 +CPBS - Select Phonebook Memory Storage

+CPBS - Select Phonebook Memory Storage	
AT+CPBS=<storage>	Set command selects phonebook memory storage **<storage>**, which will be used by other phonebook commands. Parameter: **<storage>** "SM" - SIM phonebook "FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM) "LD" - SIM last-dialling-phonebook **(+CPBW** and **+CPBF** are not applicable for this storage) "MC" - device missed (unanswered received) calls list **(+CPBW** and **+CPBF** are not applicable for this storage) "RC" - ME received calls list **(+CPBW** and **+CPBF** are not applicable for this storage).
AT+CPBS?	Read command returns the actual values of the parameter **<storage>**, the number of occupied records **<used>** and the maximum index number **<total>**, in the format: **+CPBS: <storage>,<used>,<total>** Note: For **<storage>="MC"**: if there are more than one missed calls from the same number the read command will return only the last call
AT+CPBS=?	Test command returns the supported range of values for the parameters **<storage>**.
Reference	GSM 07.07

3.7.2.4.8 +CPBR - Read Phonebook Entries

+CPBR - Read Phonebook Entries	
AT+CPBR=<index1>[,<index2>]	Execution command returns phonebook entries in location number range **<index1>..<index2>** from the current phonebook memory storage selected with **+CPBS**. If **<index2>** is omitted, only location **<index1>** is returned. Parameters: **<index1>** - integer type value in the range of location numbers of phonebook memory **<index2>** - integer type value in the range of location numbers of phonebook memory The response format is: **+CPBR: <index>,<number>,<type>,<text>** where: **<index>** - the current position number of the PB index (to see the range of values use **+CPBR=?**)

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	<number> - the phone number stored in the format **<type>** **<type>** - type of phone number byte in integer format 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the alphanumeric text associated to the number; used character set should be the one selected with command **+CSCS.** Note: If all queried locations are empty (but available), no information text lines will be returned, while if listing fails in an **ME** error, **+CME ERROR: <err>** is returned.
AT+CPBR=?	Test command returns the supported range of values of the parameters in the form: **+CPBR: (<minIndex>** - **<maxIndex>**),**<nlength>**,**<tlength>** where: **<minIndex>** - the minimum **<index>** number, integer type **<maxIndex>**- the maximum **<index>** number, integer type **<nlength>** - maximum **<number>** field length, integer type **<tlength>** - maximum **<name>** field length, integer type
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.7.2.4.9 +CPBF - Find Phonebook Entries

+CPBF - Find Phonebook Entries	
AT+CPBF=<findtext>	Execution command issues a search for the phonebook records that have the **<findtext>** sub-string at the start of the **<text>** field Parameter: **<findtext>** - string type; used character set should be the one selected with command **+CSCS.** The command returns a report in the form: **+CPBF: <index1>,<number>,<type>,<text>[[...]<CR><LF>** **+CPBF: <index*n*>,<number>,<type>,<text>]** where **<index*n*>,<number>**,**<type>**, and **<text>** have the same meaning as in the command **+CPBR** report. Note: if **<findtext>=""** the command returns all the phonebook records. Note: if no PB records satisfy the search criteria then an **ERROR** message is reported.

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AT+CPBF=?	Test command reports the maximum lengths of fields **<number>** and **<text>** in the PB entry in the form: **+CPBF: [<max_number_length>],[<max_text_length>]**
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.
Reference	GSM 07.07

3.7.2.4.10 +CPBW - Write Phonebook Entry

+CPBW - Write Phonebook Entry	
AT+CPBW= **[<index>]** **[,<number>** **[,<type>** **[,<text>]]]**	Execution command stores at the position **<index>** a phonebook record defined by **<number>**,**<type>** and **<text>** parameters Parameters: **<index>** - record position **<number>** - string type, phone number in the format **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") **<text>** - the text associated to the number, string type; used character set should be the one selected with command **+CSCS**. Note: If record number **<index>** already exists, it will be overwritten. Note: if only **<index>** is given, the record number **<index>** is deleted. Note: if **<index>** is omitted, the number **<number>** is stored in the first free phonebook location.
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of **<number>** field supported number format of the storage and maximum length of **<name>** field. The format is: **+CPBW: (list of supported <index>s),[<nlength>],** **(list of supported <type>s),[<tlength>]** where: **<nlength>** - integer type value indicating the maximum length of field **<number>** **<tlength>** - integer type value indicating the maximum length of field **<text>**
Reference	GSM 07.07
Note	Remember to select the PB storage with **+CPBS** command before issuing PB commands.

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3.7.2.4.11 +CCLK - Clock Management

+CCLK - Clock Management	
AT+CCLK=<time>	Set command sets the real-time clock of the **ME**. Parameter: **<time>** - current time as quoted string in the format: "yy/MM/dd,hh:mm:ss±zz" yy - year (two last digits are mandatory), range is 00..99 MM - month (two last digits are mandatory), range is 01..12 dd - day (two last digits are mandatory), range is 01..31 (if the month MM has less than 31 days, the clock will be set for the next month) hh - hour (two last digits are mandatory), range is 00..23 mm - minute (two last digits are mandatory), range is 00..59 ss - seconds (two last digits are mandatory), range is 00..59 ±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two last digits are mandatory), range is -47..+48
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format **<time>**. Note: the three last characters of **<time>** are not returned by **+CCLK?** because the **ME** doesn't support time zone information.
AT+CCLK=?	Test command returns the **OK** result code.
Example	AT+CCLK="02/09/07,22:30:00+00" OK AT+CCLK? +CCLK: 02/09/07,22:30:25 OK
Reference	GSM 07.07

3.7.2.4.12 +CALA - Alarm Management

+CALA - Alarm Management	
AT+CALA=<time>[,<n>[,<type>[,<text>]]]	Set command stores in the internal Real Time Clock the current alarm time and settings defined by the parameters **<time>**, **<n>**, **<type>**, and **<text>**. 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. Parameter: **<time>** - current alarm time as quoted string in the same format as defined for **+CCLK** command: "yy/MM/dd,hh:mm:ss±zz"

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+CALA - Alarm Management

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

The device keeps on sending the unsolicited code every 3s until a **#WAKE** or **#SHDN** command is received or a 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down. (default)
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 90s timeout 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 90s timeout occurs. If the device is in "alarm mode" and it does not receive the **#WAKE** command within 90s then it shuts down.
5 - the MODULE will make both the actions as for type=2 and **<type>=3**.
6 - the MODULE will make both the actions as for type=2 and **<type>=4**.
7 - the MODULE will make both the actions as for type=3 and **<type>=4**.

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

Note: The "alarm mode" is indicated by hardware pin **CTS** to the **ON** status and **DSR** to the **OFF** status, while the "power saving" status is indicated by a **CTS** - **OFF** and **DSR** - **OFF** status. The normal operating status is indicated by **DSR** - **ON**.
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

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+CALA - Alarm Management	
	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.
AT+CALA?	Read command reports the current alarm time stored in the internal Real Time Clock, if present, in the format: **+CALA: <time>,<n>,<type>**[,**<text>**]
AT+CALA=?	Test command reports the list of supported **<n>**s, the list of supported **<type>**s, and **<text>** maximum length
Example	`AT+CALA="02/09/07,23:30:00+00"` OK
Reference	GSM 07.07

3.7.2.4.13 +CRSM - Restricted SIM Access

+CRSM - Restricted SIM access	
AT+CRSM=<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>]]]	Execution command transmits to the **ME** the SIM **<command>** and its required parameters. **ME** handles internally all **SIM-ME** interface locking and file selection routines. As response to the command, **ME** sends the actual SIM information parameters and response data. Parameters: **<command>** - command passed on by the **ME** to the SIM 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS **<fileid>** - identifier of an elementary data file on SIM. Mandatory for every command except STATUS. **<P1>**,**<P2>**,**<P3>** - parameter passed on by the **ME** to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0..255 **<data>** - information to be read/written to the SIM (hexadecimal character format). The response of the command is in the format: **+CRSM: <sw1>,<sw2>[,<response>]** where: **<sw1>**,**<sw2>** - information from the SIM about the execution of the

+CRSM - Restricted SIM access	
	actual command either on successful or on failed execution. **<response>** - on a successful completion of the command previously issued it gives the requested data (hexadecimal character format). It's not returned after a successful UPDATE BINARY or UPDATE RECORD command. Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files. Note: use only decimal numbers for parameters **<command>**, **<fileid>**, **<P1>**, **<P2>** and **<P3>**.
AT+CRSM=?	Test command returns the **OK** result code
Reference	GSM 07.07, GSM 11.11

3.7.2.4.14 +CALM - Alert Sound Mode

+CALM - Alert Sound Mode	
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	GSM 07.07

3.7.2.4.15 +CRSL - Ringer Sound Level

+CRSL - Ringer Sound Level

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+CRSL - Ringer Sound Level	
AT+CRSL=<level>	Set command is used to select the incoming call ringer sound level of the device. Parameter: **<level>** - ringer sound level 0 - Off 1 - low 2 - middle 3 - high 4 - progressive
AT+CRSL?	Read command reports the current **<level>** setting of the call ringer in the format: **+CRSL: <level>**
AT+CRSL=?	Test command reports **<level>** supported values as compound value. **+CRSL: (0-4)**
Reference	GSM 07.07

3.7.2.4.16 +CLVL - Loudspeaker Volume Level

+CLVL - Loudspeaker Volume Level	
AT+CLVL=<level>	Set command is used to select the volume of the internal loudspeaker audio output of the device. Parameter: **<level>** - loudspeaker volume 0..*max* - the value of *max* can be read by issuing the Test command **AT+CLVL=?**
AT+CLVL?	Read command reports the current **<level>** setting of the loudspeaker volume in the format: **+CLVL: <level>**
AT+CLVL=?	Test command reports **<level>** supported values range in the format: **+CLVL: (0-*max*)**
Reference	GSM 07.07

3.7.2.4.17 +CMUT - Microphone Mute Control

+CMUT - Microphone Mute Control	
AT+CMUT=<n>	Set command enables/disables the muting of the microphone audio line during a voice call. Parameter: **<n>**

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	0 - mute off, microphone active (factory default) 1 - mute on, microphone muted. Note: this command mutes/activates both microphone audio paths, internal mic and external mic.
AT+CMUT?	Read command reports whether the muting of the microphone audio line during a voice call is enabled or not, in the format: **+CMUT: <n>**
AT+CMUT=?	Test command reports the supported values for **<n>** parameter.
Reference	GSM 07.07

3.7.2.4.18 +CACM - Accumulated Call Meter

+CACM - Accumulated Call Meter	
AT+CACM= [<pwd>]	Set command resets the Advice of Charge related Accumulated Call Meter in SIM (ACM). Internal memory CCM remains unchanged. Parameter: **<pwd>** - to access this command PIN2 password is required
AT+CACM?	Read command reports the current value of the SIM ACM in the format: **+CACM: <acm>** Note: the value **<acm>** is in units whose price and currency is defined with command **+CPUC**
AT+CACM=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.4.19 +CAMM - Accumulated Call Meter Maximum

+CAMM - Accumulated Call Meter Maximum	
AT+CAMM= [<acmmax>, <pwd>]	Set command sets the Advice of Charge related Accumulated Call Meter ACM maximum value in SIM (see also **+CACM** command). 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. SIM PIN2 is required to set the value. Parameter: **<acmmax>**- maximum number of units allowed to be consumed **<pwd>**- PIN2 password Note: The **<acmmax>** = 0 value disables the feature.
AT+CAMM?	Read command reports the maximum value of ACM stored in SIM in the format: **+CAMM : <acmmax>**

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AT+CAMM=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.4.20 +CPUC - Price Per Unit And Currency Table

+CPUC - Price Per Unit And Currency Table	
AT+CPUC= <currency>, <ppu>,<pwd>	Set command sets the values of Advice of Charge related price per unit and currency table in SIM. The price per unit currency table information can be used to convert the home units (as used in commands **+CAOC**, **+CACM** and **+CAMM**) into currency units. Parameters: **<currency>** - string type; three-character currency code (e.g. “LIT”, “L. “, “USD”, “DEM” etc..); used character set should be the one selected with command **+CSCS**. **<ppu>** - price per unit string (dot is used as decimal separator) e.g. 1989.27 **<pwd>** - SIM PIN2 is usually required to set the values
AT+CPUC?	Read command reports the current values of **<currency>** and **<ppu>** parameters in the format: **+CACM : <currency>,<ppu>**
AT+CPUC=?	Test command returns the **OK** result code
Reference	GSM 07.07

3.7.2.4.21 +CLAC - Available AT Commands

+CLAC - Available AT Commands	
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>[...]]**
AT+CLAC=?	Test command returns **ERROR** result code
Reference	GSM 07.07

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3.7.2.5 Mobile Equipment Errors

3.7.2.5.1 +CMEE - Report Mobile Equipment Error

+CMEE - Report Mobile Equipment Error	
AT+CMEE=[<n>]	Set command enables/disables the report of result code: **+CME ERROR: <err>** as an indication of an error relating to the +**Cxxx** commands issued. When enabled, device related errors cause the **+CME ERROR: <err>** final result code instead of the default ERROR final result code. **ERROR** is anyway returned normally when the error message is related to syntax, invalid parameters, or **DTE** functionality. Parameter: **<n>** - enable flag 0 - disable **+CME ERROR:<err>** reports, use only **ERROR** report. 1 - enable **+CME ERROR:<err>** reports, with **<err>** in numeric format 2 - enable **+CME ERROR: <err>** reports, with **<err>** in verbose format
AT+CMEE?	Read command returns the current value of subparameter **<n>**: **+CMEE: <n>**
AT+CMEE=?	Test command returns the range of values for subparameter **<n>**
Reference	GSM 07.07

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3.7.2.6 Voice Control

3.7.2.6.1 +VTS - DTMF Tones Transmission

+VTS - DTMF Tones Transmission	
AT+VTS= <dtmfstring> [,duration]	Execution command allows the transmission of DTMF tones. Parameters: **<dtmfstring>** - string of **<dtmf>s,** i.e. ASCII characters in the set **(0-9), #,*,(A-D)**; it allows the user to send a sequence of DTMF tones, each of them with a duration that was defined through **+VTD** command. **<duration>** - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character 0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current **+VTD** setting is. 1..255 - a single DTMF tone will be transmitted for a time **<duration>** (in 10 ms multiples), no matter what the current **+VTD** setting is. Note: this commands operates in voice mode only (see **+FCLASS**).
AT+VTS=?	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	GSM 07.07 and TIA IS-101

3.7.2.6.2 +VTD - Tone Duration

+VTD - Tone Duration	
AT+VTD= <duration>	Set command sets the length of tones transmitted with **+VTS** command. Parameter: **<duration>** - duration of a tone 0 - the duration of every single tone is dependent on the network (factory default) 1..255 - duration of every single tone in 1/10 sec.
AT+VTD?	Read command reports the current Tone Duration, in the format: **<duration>**
AT+VTD=?	Test command provides the list of supported **<duration>s** in the format: **(list of supported <duration>s)**
Reference	GSM 07.07 and TIA IS-101

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3.7.2.7 Commands For GPRS

3.7.2.7.1 +CGCLASS - GPRS Mobile Station Class

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

3.7.2.7.2 +CGATT - GPRS Attach Or Detach

+CGATT - GPRS Attach Or Detach	
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	GSM 07.07

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3.7.2.7.3 +CGREG - GPRS Network Registration Status

+CGREG - GPRS Network Registration Status	
AT+CGREG=[<n>]	Set command controls the presentation of an unsolicited result code **+CGREG: (see format below)**. Parameter: **<n>** - result code presentation mode 0 - disable network registration unsolicited result code 1 - enable network registration unsolicited result code; if there is a change in the terminal GPRS network registration status, it is issued the unsolicited result code: **+CGREG: <stat>** where: **<stat>** - registration status 0 - not registered, terminal is not currently searching a new operator to register to 1 - registered, home network 2 - not registered, but terminal is currently searching a new operator to register to 3 - registration denied 4 - unknown 5 - registered, roaming 2 - enable network registration and location information unsolicited result code; if there is a change of the network cell, it is issued the unsolicited result code: **+CGREG: <stat>[,<lac>,<ci>]** where: **<stat>** - registration status (see above for values) **<lac>** - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>** - cell ID in hexadecimal format.
AT+CGREG?	Read command returns the status of result code presentation mode **<n>** and the integer **<stat>** which shows whether the network has currently indicated the registration of the terminal in the format: **+CGREG: <n>,<stat>**
AT+CGREG=?	Test command returns supported values for parameter **<n>**
Reference	GSM 07.07

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3.7.2.7.4 +CGDCONT - Define PDP Context

+CGDCONT - Define PDP Context	
AT+CGDCONT= **[<cid>** **[,<PDP_type>** **[,<APN>** **[,<PDP_addr>** **[,<d_comp>** **[,<h_comp>** **[,<pd1>** **[,…[,pdN]]]]]]]]**	Set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, **<cid>** Parameters: **<cid>** - (PDP Context Identifier) numeric parameter which specifies a particular PDP context definition. 1..*max* - where the value of *max* is returned by the Test command **<PDP_type>** - (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol "IP" - Internet Protocol "PPP" - Point to Point 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 null or omitted, then the subscription value will be requested. **<PDP_addr>** - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be read using the **+CGPADDR** command. **<d_comp>** - numeric parameter that controls PDP data compression 0 - off (default if value is omitted) 1 - on **<h_comp>** - numeric parameter that controls PDP header compression 0 - off (default if value is omitted) 1 - on **<pd1>**, …, **<pdN>** - zero to N string parameters whose meanings are specific to the **<PDP_type>** Note: a special form of the Set command, **+CGDCONT=<cid>**, causes the values for context number **<cid>** to become undefined.
AT+CGDCONT?	Read command returns the current settings for each defined context in the format: **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>, <h_comp>[,<pd1>[,…[,pdN]]][<CR><LF>+CGDCONT: <cid>, <PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp> [,<pd1>[,…[,pdN]]][…]]**
AT+CGDCONT=?	Test command returns values supported as a compound value

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

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+CGDCONT - Define PDP Context	
	OK
Reference	GSM 07.07

3.7.2.7.5 +CGQMIN - Quality Of Service Profile (Minimum Acceptable)

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

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

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+CGQMIN - Quality Of Service Profile (Minimum Acceptable)	
	OK AT+CGQMIN=? +CGQMIN: “IP”,(0-3),(0-4),(0-5),(0-9),(0-19,31) OK
Reference	GSM 07.07; GSM 03.60

3.7.2.7.6 +CGQREQ - Quality Of Service Profile (Requested)

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

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+CGQREQ - Quality Of Service Profile (Requested)	
	+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
Reference	GSM 07.07; GSM 03.60

3.7.2.7.7 +CGACT - PDP Context Activate Or Deactivate

+CGACT - PDP Context Activate Or Deactivate	
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	GSM 07.07

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3.7.2.7.8 +CGPADDR - Show PDP Address

+CGPADDR - Show PDP Address	
AT+CGPADDR=[<cid>[,<cid>[,…]]]	Execution command returns a list of PDP addresses for the specified context identifiers in the format: **+CGPADDR: <cid>,<PDP_addr>[<CR><LF>+CGPADDR: <cid>, <PDP_addr>[…]]** Parameters: **<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>**; **<PDP_addr>** is omitted if none is available
AT+CGPADDR=?	Test command returns a list of defined **<cid>**s.
Example	AT#GPRS=1 +IP: xxx.yyy.zzz.www OK AT+CGPADDR=1 +CGPADDR: 1,"xxx.yyy.zzz.www" OK AT+CGPADDR=? +CGPADDR: (1) OK
Reference	GSM 07.07

3.7.2.7.9 +CGDATA - Enter Data State

+CGDATA - Enter Data State	
AT+CGDATA=[<L2P>,[<cid>[,<cid>[,…]]]]	Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types. Parameters: **<L2P>** - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol

+CGDATA - Enter Data State	
	<cid> - numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** command). Note: if parameter **<L2P>** is omitted, the layer 2 protocol is unspecified
AT+CGDATA=?	Test command reports information on the supported layer 2 protocols.
Example	AT+CGDATA=? +CGDATA: (”PPP”) OK AT+CGDATA=”PPP”,1 OK
Reference	GSM 07.07

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3.7.2.8 Commands For Battery Charger

3.7.2.8.1 +CBC - Battery Charge

+CBC - Battery Charge	
AT+CBC	Execution command returns the current Battery Charge status in the format: **+CBC: <bcs>,<bcl>** where: **<bcs>** - battery status 0 - **ME** is powered by the battery 1 - **ME** has a battery connected, and charger pin is being powered 2 - **ME** does not have a battery connected 3 - Recognized power fault, calls inhibited **<bcl>** - battery charge level 0 - battery is exhausted, or **ME** does not have a battery connected 25 - battery charge remained is estimated to be 25% 50 - battery charge remained is estimated to be 50% 75 - battery charge remained is estimated to be 75% 100 - battery is fully charged. Note: **<bcs>**=1 indicates that the battery charger supply is inserted and the battery is being recharged if necessary with it. Supply for **ME** operations is taken anyway from **VBATT** pins. Note: without battery/power connected on **VBATT** pins or during a power fault the unit is not working, therefore values **<bcs>=2** and **<bcs>=3** will never appear.
AT+CBC=?	Test command returns parameter values supported as a compound value. **+CBC: (0-3),(0-100)** Note: although **+CBC** is an execution command, ETSI 07.07 requires the Test command to be defined.
Example	AT+CBC +CBC: 0,75 OK
Note	The **ME** does not make differences between being powered by a battery or by a power supply on the **VBATT** pins, so it is not possible to distinguish between these two cases.
Reference	GSM 07.07

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3.7.3 ETSI GSM 07.05 AT Commands for SMS and CB services

3.7.3.1 General Configuration

3.7.3.1.1 +CSMS - Select Message Service

+CSMS - Select Message Service	
AT+CSMS= <service>	Set command selects messaging service **<service>**. It returns the types of messages supported by the **ME**: Parameter: **<service>** 0 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0 (factory default) 1 - The syntax of SMS AT commands is compatible with GSM 07.05 Phase 2+. Set command returns the types of messages supported by the **ME**: **+CSMS: <mt>,<mo>,<bm>** where: **<mt>** - mobile terminated messages support 0 - type not supported 1 - type supported **<mo>** - mobile originated messages support 0 - type not supported 1 - type supported **<bm>** - broadcast type messages support 0 - type not supported 1 - type supported
AT+CSMS?	Read command reports current service setting along with supported message types in the format: **+CSMS: <service>,<mt>,<mo>,<cb>** where: **<service>** - messaging service (see above) **<mt>** - mobile terminated messages support (see above) **<mo>** - mobile originated messages support (see above) **<bm>** - broadcast type messages support (see above)
AT+CSMS=?	Test command reports the supported value of the parameter **<service>**.
Reference	GSM 07.05; GSM 03.40; GSM 03.41

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3.7.3.1.2 +CPMS - Preferred Message Storage

+CPMS - Preferred Message Storage	
AT+CPMS= <memr> [,<memw> [,<mems>]]	Set command selects memory storages **<memr>**, **<memw>** and **<mems>** to be used for reading, writing, sending and storing SMs. Parameters: **<memr>** - memory from which messages are read and deleted "SM" - SIM SMS memory storage "ME" - **ME** internal storage (read only, no delete) **<memw>** - memory to which writing and sending operations are made "SM" - SIM SMS memory storage **<mems>** - memory to which received SMs are preferred to be stored "SM" - SIM SMS memory storage The command returns the memory storage status in the format: **+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals>** where: **<usedr>** - number of SMs stored into **<memr>** **<totalr>** - max number of SMs that **<memr>** can contain **<usedw>** - number of SMs stored into **<memw>** **<totalw>** max number of SMs that **<memw>** can contain **<useds>** - number of SMs stored into **<mems>** **<totals>** - max number of SMS that **<mems>** can contain Note: The only supported memory storage for writing and sending SMs is the SIM internal memory "SM", so **<memw>=<mems>="SM"**. Note: the received class 0 SMS are stored in the "ME" memory regardless the **<mems>** setting and they are automatically deleted at power off.
AT+CPMS?	Read command reports the message storage status in the format: **+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>, <mems>,<useds>,<totals>** where **<memr>**, **<memw>** and **<mems>** are the selected storage memories for reading, writing and storing respectively.
AT+CPMS=?	Test command reports the supported values for parameters **<memr>**, **<memw>** and **<mems>**
Example	AT+CPMS? +CPMS: "SM",5,10,"SM",5,10,"SM",5,10 OK (you have 5 out of 10 SMS SIM positions occupied)
Reference	GSM 07.05

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3.7.3.1.3 +CMGF - Message Format

+CMGF - Message Format	
AT+CMGF= [<mode>]	Set command selects the format of messages used with send, list, read and write commands. Parameter: **<mode>** 0 - PDU mode, as defined in GSM 3.40 and GSM 3.41 (factory default) 1 - text mode
AT+CMGF?	Read command reports the current value of the parameter **<mode>**.
AT+CMGF=?	Test command reports the supported value of **<mode>** parameter.
Reference	GSM 07.05

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3.7.3.2 Message Configuration

3.7.3.2.1 +CSCA - Service Center Address

+CSCA -Service Center Address	
AT+CSCA= <number> [,<type>]	Set command sets the Service Center Address to be used for mobile originated SMS transmissions. Parameter: **<number>** - SC phone number in the format defined by **<type>** **<type>** - the type of number 129 - national numbering scheme 145 - international numbering scheme (contains the character "**+**") Note: to use the SM service, is mandatory to set a Service Center Address at which service requests will be directed. Note: in Text mode, this setting is used by send and write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the **<pdu>** parameter equals zero.
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 07.05

3.7.3.2.2 +CSMP - Set Text Mode Parameters

+CSMP - Set Text Mode Parameters	
AT+CSMP= [<fo> [,<vp> [,<pid> [,<dcs>]]]]	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (**AT+CMGF=1**) Parameters: **<fo>** - depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. **<vp>** - depending on SMS-SUBMIT **<fo>** setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in quoted time-string format **<pid>** - GSM 03.40 TP-Protocol-Identifier in integer format. **<dcs>** - depending on the command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell

+CSMP - Set Text Mode Parameters	
	Broadcast Data Coding Scheme
AT+CSMP?	Read command reports the current setting in the format: **+CSMP: < fo>,<vp>,<pid>,<dcs>**
AT+CSMP=?	Test command returns the **OK** result code.
Example	*Set the parameters for an outgoing message with 24 hours of validity period and default properties:* AT+CSMP=17,167,0,0 OK
Reference	GSM 07.05; GSM 03.40; GSM 03.38

3.7.3.2.3 +CSDH - Show Text Mode Parameters

+CSDH - Show Text Mode Parameters	
AT+CSDH= **[<show>]**	Set command controls whether detailed header information is shown in text mode (**AT+CMGF=1**) result codes. Parameter: **<show>** 0 - do not show header values defined in commands **+CSCA** and **+CSMP** (**<sca>**, **<tosca>**, **<fo>**, **<vp>**, **<pid>** and **<dcs>**) nor **<length>**, **<toda>** or **<tooa>** in **+CMT**, **+CMGL**, **+CMGR** result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in **+CMGR** result code do not show **<pid>**, **<mn>**, **<da>**, **<toda>**, **<length>** or **<cdata>** 1 - show the values in result codes
AT+CSDH?	Read command reports the current setting in the format: **+CSDH: <show>**
AT+CSDH=?	Test command reports the supported range of values for parameter **<show>**
Reference	GSM 07.05

3.7.3.2.4 +CSCB - Select Cell Broadcast Message Types

+CSCB -Select Cell Broadcast Message Types	
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)

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+CSCB -Select Cell Broadcast Message Types	
	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 (“”).
AT+CSCB?	Read command reports the current value of parameters **<mode>**, **<mids>** and **<dcss>**.
AT+CSCB=?	Test command returns the range of values for parameter **<mode>**.
Example	AT+CSCB? +CSCB: 1,"","" OK *(all CBMs are accepted, none is rejected)* AT+CSCB=0,"0,1,300-315,450","0-3" OK
Reference	GSM 07.05, GSM 03.41, GSM 03.38.

3.7.3.2.5 +CSAS - Save Settings

+CSAS - Save Settings	
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.
AT+CSAS=?	Test command returns the possible range of values for the parameter **<profile>**.
Reference	GSM 07.05

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3.7.3.2.6 +CRES - Restore Settings

+CRES - Restore Settings	
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 07.05

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3.7.3.3 Message Receiving And Reading

3.7.3.3.1 +CNMI - New Message Indications To Terminal Equipment

+CNMI - New Message Indications To Terminal Equipment	
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>** where: **<memr>** - memory storage where the new message is stored "SM" "ME" **<index>** - location on the memory where SMS is stored. 2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the TE using the following unsolicited result code: **(PDU Mode)** **+CMT: [<alpha>],<length><CR><LF><pdu>** where: **<alpha>** - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook; used character set should be the one selected with command **+CSCS**. **<length>** - PDU length **<pdu>** - PDU message

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+CNMI - New Message Indications To Terminal Equipment

(TEXT Mode)

+CMT:<oa>,<alpha>,<scts>*[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*<CR><LF><data> (the information written in italics will be present depending on **+CSDH** last setting)

where:

<oa> - originator address number, represented in the currently selected character set (see **+CSCS**)

<alpha> - alphanumeric representation of **<oa>** or **<da>**; used character set should be the one selected with command **+CSCS**.

<scts> - arrival time of the message to the SC

<tooa>, ***<tosca>*** - type of number **<oa>** or ***<sca>***:

129 - number in national format

145 - number in international format (contains the "**+**")

<fo> - first octet of GSM 03.40

<pid> - Protocol Identifier

<dcs> - Data Coding Scheme

<sca> - Service Centre number

<length> - text length

<data> - TP-User-Data

- If **<dcs>** indicates that GSM03.38 default alphabet is used and **<fo>** indicates that GSM03.40 TP-User-Data-Header-Indication is not set (bit 6 of **<fo>** is 0), each character of GSM alphabet will be converted into current TE character set (see **+CSCS**)
- If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used or **<fo>** indicates that GSM03.40 TP-User-Data-Header-Indication is set (bit 6 of **<fo>** is 1), each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)

Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in **<mt>=1**.

3 - Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in **<mt>=2**. Messages of other data coding schemes result in indication as defined in **<mt>=1**.

<bm> - broadcast reporting option

0 - Cell Broadcast Messages are not sent to the **DTE**

2 - New Cell Broadcast Messages are sent to the **DTE** with the unsolicited result code:

(PDU Mode)

+CBM: <length><CR><LF><PDU>

where:

<length> - PDU length

<PDU> - message PDU

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+CNMI - New Message Indications To Terminal Equipment	
	(TEXT Mode) **+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data>** where: **<sn>** - message serial number **<mid>** - message ID **<dcs>** - Data Coding Scheme **<pag>** - page number **<pags>** - total number of pages of the message **<data>** - CBM Content of Message • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) **<ds>** - SMS-STATUS-REPORTs reporting option 0 - status report receiving is not reported to the **DTE** 1 - the status report is sent to the **DTE** with the following unsolicited result code: **(PDU Mode)** **+CDS: <length><CR><LF><PDU>** where: **<length>** - PDU length **<PDU>** - message PDU **(TEXT Mode)** **+CDS: <fo>,<mr>,,,<scts>,<dt>,<st>** where: **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU 2 - if a status report is stored, then the following unsolicited result code is sent: **+CDSI: <memr>,<index>** where: **<memr>** - memory storage where the new message is stored "SM" **<index>** - location on the memory where SMS is stored **<bfr>** - buffered result codes handling method:

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+CNMI - New Message Indications To Terminal Equipment	
	0 - **TA** buffer of unsolicited result codes defined within this command is flushed to the **TE** when **<mode>=1..3** is entered (**OK** response shall be given before flushing the codes) 1 - **TA** buffer of unsolicited result codes defined within this command is cleared when **<mode>=1..3** is entered.
AT+CNMI?	Read command returns the current parameter settings for **+CNMI** command in the form: **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>**
AT+CNMI=?	Test command reports the supported range of values for the **+CNMI** command parameters.
Reference	GSM 07.05
Note	**DTR** signal is ignored, hence the indication is sent even if the **DTE** is inactive (**DTR** signal is **Low**). In this case the unsolicited result code may be lost so if MODULE remains active while **DTE** is not, at **DTE** startup is suggested to check whether new messages have reached the device meanwhile with command **AT+CMGL=0** that lists the new messages received.

3.7.3.3.2 +CMGL - List Messages

+CMGL - List Messages	
AT+CMGL [=<stat>]	Execution command reports the list of all the messages with status value **<stat>** stored into **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). The parameter type and the command output depend on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** Parameter: **<stat>** 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent 4 - all messages. Each message to be listed is represented in the format: **+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>** where: **<index>** - message position in the memory storage list. **<stat>** - status of the message

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+CMGL - List Messages	
	<alpha> - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. **<length>** - length of the PDU in bytes **<pdu>** - message in PDU format according to GSM 3.40 **(Text Mode)** Parameter: **<stat>** "REC UNREAD" - new message "REC READ" - read message "STO UNSENT" - stored message not yet sent "STO SENT" - stored message already sent "ALL" - all messages. Each message to be listed is represented in the format (the information written in italics will be present depending on **+CSDH** last setting): **+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>*[,<tooa/toda>,<length>]*<CR><LF> <data>** where **<index>** - message position in the storage **<stat>** - message status **<oa/da>** - originator/destination number, represented in the currently selected character set (see **+CSCS**) **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used character set is the one selected with command **+CSCS**. **<scts>** - TP-Service Centre Time Stamp in Time String Format ***<tooa/toda>*** - type of number **<oa/da>** 129 - number in national format 145 - number in international format (contains the "**+**") ***<length>*** - text length **<data>** - TP-User-Data • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Each message delivery confirm is represented in the format**:**

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+CMGL - List Messages	
	+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st> where **<index>** - message position in the storage **<stat>** - message status **<fo>** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU Note: **OK** result code is sent at the end of the listing. Note: If parameter is omitted the command returns the list of sms with "**REC UNREAD**" status.
AT+CMGL=?	Test command returns a list of supported **<stat>**s
Reference	GSM 07.05

3.7.3.3.3 +CMGR - Read Message

+CMGR - Read Message	
AT+CMGR= <index>	Execution command reports the message with location value **<index>** from **<memr>** message storage (**<memr>** is the message storage for read and delete SMs as last settings of command **+CPMS**). Parameter: **<index>** - message index. The output depends on the last settings of command **+CMGF** (message format to be used) **(PDU Mode)** The output has the following format: **+CMGR: <stat>,<alpha>,<length><CR><LF><pdu>** where **<stat>** - status of the message 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent **<alpha>** - string type alphanumeric representation of **<da>** or **<oa>**, corresponding to an entry found in the phonebook; used

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+CMGR - Read Message	
	character set is the one selected with command **+CSCS**. **<length>** - length of the PDU in bytes. **<pdu>** - message in PDU format according to GSM 3.40. The status of the message and entire message data unit **<pdu>** is returned. **(Text Mode)** *Output format for received messages* (the information written in italics will be present depending on **+CSDH** last setting)*:* **+CMGR: <stat>,<oa>,<alpha>,<scts>*[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*<CR><LF><data>** *Output format for sent messages:* **+CMGR: <stat>,<da>,<alpha>*[,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]*<CR><LF><data>** *Output format for message delivery confirm:* **+CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st>** where: **<stat>** - status of the message "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent ***<fo>*** - first octet of the message PDU **<mr>** - message reference number **<scts>** - arrival time of the message to the SC **<dt>** - sending time of the message **<st>** - message status as coded in the PDU ***<pid>*** - Protocol Identifier ***<dcs>*** - Data Coding Scheme **<oa>** - Originator address number, represented in the currently selected character set (see **+CSCS**) **<da>** - Destination address number, 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**. *NB: this optional field is currently not supported.* ***<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

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+CMGR - Read Message	
	<data> - TP-User_data • If **<dcs>** indicates that GSM03.38 default alphabet is used , each character of GSM alphabet will be converted into current TE character set (see **+CSCS**) • If **<dcs>** indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41) Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'. Note: an error result code is sent on empty record **<index>**.
AT+CMGR=?	Test command returns the **OK** result code
Reference	GSM 07.05

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3.7.3.4 Message Sending And Writing

3.7.3.4.1 +CMGS - Send Message

+CMGS - Send Message	
(PDU Mode) **AT+CMGS= <length>**	**(PDU Mode)** Execution command sends to the network a message. Parameter: **<length>** - length of the PDU to be sent in bytes. 7..164 The device responds to the command with the prompt '>' and waits for the specified number of bytes. To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex). If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
(Text Mode) **AT+CMGS=<da> [,<toda>]**	**(Text Mode)** Execution command sends to the network a message. Parameters: **<da>** - destination address number, 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 "**+**") The device responds to the command with the prompt '**>**' and waits for message text (max 160 characters). To send the message issue **Ctrl-Z** char (**0x1A** hex). To exit without sending the message issue **ESC** char (**0x1B** hex).

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+CMGS - Send Message	
	If message is successfully sent to the network, then the result is sent in the format: **+CMGS: <mr>** where **<mr>** - message reference number. Note: if message sending fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
AT+CMGS=?	Test command resturns the **OK** result code.
Note	To avoid malfunctions is suggested to wait for the **+CMGS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.7.3.4.2 +CMSS - Send Message From Storage

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

+CMSS - Send Message From Storage	
	Note: to store a message in the **<memw>** storage see command **+CMGW.** Note: care must be taken to ensure that during the command execution, which may take several seconds, no other **SIM** interacting commands are issued.
AT+CMSS=?	Test command resturns the **OK** result code.
Note	To avoid malfunctions is suggested to wait for the **+CMSS: <mr>** or **+CMS ERROR: <err>** response before issuing further commands.
Reference	GSM 07.05

3.7.3.4.3 +CMGW - Write Message To Memory

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

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+CMGW - Write Message To Memory	
AT+CMGW[=<da> [,<toda> [,<stat>]]]	Execution command writes in the **<memw>** memory storage a new message. Parameters: **<da>** - destination address number, represented in the currently selected character set (see **+CSCS**). **<toda>** - type of destination address. 129 - number in national format 145 - number in international format (contains the "**+**") **<stat>** - message status. "REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent (default) "STO SENT" - message stored already sent The device responds to the command with the prompt '**>**' and waits for the message text (max 160 characters). To write the message issue **Ctrl-Z** char (**0x1A** hex). To exit without writing the message issue **ESC** char (**0x1B** hex). If message is successfully written in the memory, then the result is sent in the format: **+CMGW: <index>** where: **<index>** - message location index in the memory **<memw>**. If message storing fails for some reason, an error code is reported. Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.
AT+CMGW=?	Test command returns the **OK** result code.
Reference	GSM 07.05
Note	To avoid malfunctions is suggested to wait for the **+CMGW: <index>** or **+CMS ERROR: <err>** response before issuing further commands.

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3.7.3.4.4 +CMGD - Delete Message

+CMGD - Delete Message	
AT+CMGD= <index> [,<delflag>]	Execution command deletes from memory **<memr>** the message(s). Parameter: **<index>** - message index in the selected storage **<memr>** **<delflag>** - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in **<index>** 1 - delete all read messages from **<memr>** storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 - delete all read messages from **<memr>** storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 - delete all read messages from **<memr>** storage, sent and unsent mobile originated messages, leaving unread messages untouched 4 - delete all messages from **<memr>** storage. Note: if **<delflag>** is present and not set to 0 then **<index>** is ignored and ME shall follow the rules for **<delflag>** shown above. Note: if the location to be deleted is empty, an error message is reported.
AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of **<delflag>**. **+CMGD: (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 07.05

3.7.4 FAX Class 1 AT Commands

3.7.4.1 General Configuration

NOTE: All the test command results are without command echo

3.7.4.1.1 +FMI - Manufacturer ID

+FMI - Manufacturer ID	
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

3.7.4.1.2 +FMM - Model Id

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

3.7.4.1.3 +FMR - Revision ID

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

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3.7.4.2 Transmission/Reception Control

3.7.4.2.1 +FTS - Stop Transmission And Pause

+FTS - Stop Transmission And Pause	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.2.2 +FRS - Wait For Receive Silence

+FRS - Wait For Receive Silence	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.2.3 +FTM - Transmit Data Modulation

+FTM - Transmit Data	
AT+FTM=<mod>	Execution command causes the module to transmit facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FTM=?	Test command returns all supported values of the parameter **<mod>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.7.4.2.4 +FRM - Receive Data Modulation

+FRM - Receive Data Modulation	
AT+FRM=<mod>	Execution command causes the module to receive facsimile data using the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 24 - V27ter/2400 bps 48 - V27ter/4800 bps 72 - V29/7200 bps 96 - V29/9600 bps
AT+FRM=?	Test command returns all supported values of the parameter **<mod>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.2.5 +FTH - Transmit Data With HDLC Framing

+FTH - Transmit Data With HDLC Framing	
AT+FTH=<mod>	Execution command causes the module to transmit facsimile data using HDLC protocol and the modulation defined by the parameter **<mod>**. Parameter: **<mod>** - carrier modulation 3 - V21/300 bps
AT+FTH=?	Test command returns all supported values of the parameter **<mod>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.2.6 +FRH - Receive Data With HDLC Framing

+FRH - Receive Data Data With HDLC Framing	
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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.7.4.3 Serial Port Control

3.7.4.3.1 +FLO - Select Flow Control Specified By Type

+FLO - Select Flow Control Specified By Type	
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>**
AT+FLO=?	Test command returns all supported values of the parameter **<type>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.3.2 +FPR - Select Serial Port Rate

+FPR - Select Serial Port Rate	
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
AT+FPR?	Read command returns the current value of parameter **<rate>**
AT+FPR=?	Test command returns all supported values of the parameters **<rate>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

3.7.4.3.3 +FDD - Double Escape Character Replacement Control

+FDD - Double Escape Character Replacement Control	
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

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+FDD - Double Escape Character Replacement Control	
	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>**.
Reference	ITU T.31 and TIA/EIA-578-A specifications

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3.7.5 Custom AT Commands

3.7.5.1 General Configuration AT Commands

3.7.5.1.1 #CGMI - Manufacturer Identification

#CGMI - Manufacturer Identification	
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.

3.7.5.1.2 #CGMM - Model Identification

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

3.7.5.1.3 #CGMR - Revision Identification

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

3.7.5.1.4 #CGSN - Product Serial Number Identification

#CGSN - Product Serial Number Identification	
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.

3.7.5.1.5 #CIMI - International Mobile Subscriber Identity (IMSI)

#CIMI - International Mobile Subscriber Identity (IMSI)	
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.

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3.7.5.1.6 #CCID - Read ICCID (Integrated Circuit Card Identification)

#CCID - Read ICCID	
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.

3.7.5.1.7 #CAP - Change Audio Path

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

3.7.5.1.8 #SRS - Select Ringer Sound

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

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

3.7.5.1.9 #SRP -Select Ringer Path

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

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	added to drive it properly from the GPIO7 pin, furthermore the GPIO7 pin direction must be set to Buzzer output (Alternate function); see command **#GPIO**.
AT#SRP?	Read command reports the selected ringer path in the format: **#SRP: <n>**.
AT#SRP=?	Test command reports the supported values for the parameter **<n>**.
Example	AT#SRP=? #SRP: (0-3) OK AT#SRP=3 OK

3.7.5.1.10 #STM - Signalling Tones Mode

#STM - Signalling Tones Mode	
AT#STM= [<mode>]	Set command enables/disables the signalling tones output on the audio path selected with **#SRP** command Parameter: **<mode>** - signalling tones status 0 - signalling tones disabled 1 - signalling tones enabled Note: **AT#STM=0** has the same effect as **AT+CALM=2**; **AT#STM=1** has the same effect as **AT+CALM=0**.
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>**.

3.7.5.1.11 #PCT - Display PIN Counter

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

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

3.7.5.1.12 #SHDN - Software Shut Down

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

3.7.5.1.13 #WAKE - Wake From Alarm Mode

#WAKE - Wake From Alarm Mode	
AT#WAKE=[<opmode>]	Execution command stops any eventually present alarm activity and, if the module is in **alarm mode**, it exits the **alarm mode** and enters the **normal operating mode**. Parameter: **<opmode>** - operating mode 0 - normal operating mode; the module exits the **alarm mode**, enters the **normal operating mode**, any alarm activity is stopped (e.g. alarm tone playing) and an **OK** result code is returned. Note: the **power saving** status is indicated by a **CTS - OFF** and **DSR - OFF** status. The **normal operating status** is indicated by **DSR - ON**. Note: during the **alarm mode** the device will not make any network scan and will not register to any network and therefore is not able to dial or receive any call or SM, the only commands that can be issued to the MODULE in this state are the **#WAKE** and **#SHDN**, every other command must not be issued during this state.
AT#WAKE?	Read command returns the **operating status** of the device in the format: **#WAKE: <status>** where: **<status>** 0 - normal operating mode 1 - alarm mode or normal operating mode with some alarm activity.

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3.7.5.1.14 #QTEMP -Query Temperature Overflow

#QTEMP - Query Temperature Overflow	
AT#QTEMP=[<mode>]	Set command has currently no effect. The interpretation of parameter **<mode>** is currently not implemented: any value assigned to it will simply have no effect.
AT#QTEMP?	Read command queries the device internal temperature sensor for over temperature and reports the result in the format: **#QTEMP: <temp>** where **<temp>** - over temperature indicator 0 - the device temperature is in the working range 1 - the device temperature is out of the working range
#QTEMP=?	Test command reports supported range of values for parameter **<mode>**.
Note	The device should not be operated out of its working temperature range, elsewhere proper functioning of the device is not ensured.

3.7.5.1.15 #GPIO - General Purpose Input/Output Pin Control

#GPIO - General Purpose Input/Output Pin Control	
AT#GPIO=[<pin>,<mode>[,<dir>]]	Execution command sets the value of the general purpose output pin **GPIO<pin>** according to **<dir>** and **<mode>** parameter. Not all configuration for the three parameters are valid. Parameters: **<pin>** - GPIO pin number; supported range is from 1 to a value that depends on the hardware, but **GPIO1** is input only and **GPIO2** is output only. **<mode>** - its meaning depends on **<dir>** setting: 0 - no meaning if **<dir>=0** - INPUT - output pin cleared to 0 (LOW) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 1 - no meaning if **<dir>=0** - INPUT - output pin set to 1 (HIGH) if **<dir>=1** - OUTPUT - no meaning if **<dir>=2** - ALTERNATE FUNCTION 2 - Reports the read value from the input pin if **<dir>=0** - INPUT - Reports the read value from the input pin if **<dir>=1** - OUTPUT - Reports a no meaning value if **<dir>=2** - ALTERNATE FUNCTION **<dir>** - GPIO pin direction 0 - pin direction is INPUT 1 - pin direction is OUTPUT 2 - pin direction is ALTERNATE FUNCTION (see Note). Note: when **<mode>=2** (and **<dir>** is omitted) the command reports the

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#GPIO - General Purpose Input/Output Pin Control	
	direction and value of pin **GPIO<pin>** in the format: **#GPIO: <dir>,<stat>** where **<dir>** - current direction setting for the **GPIO<pin>** **<stat>** • logic value read from pin **GPIO<pin>** in the case the pin **<dir>** is set to input; • logic value present in output of the pin **GPIO<pin>** in the case the pin **<dir>** is currently set to output; • no meaning value for the pin **GPIO<pin>** in the case the pin **<dir>** is set to alternate function. Note: (valid only for **GPIO1**) since the reading is done after the insulating transistor, the reported value is the opposite of the logic status of the **GPIO1** input pin Note: "ALTERNATE FUNCTION" value is valid only for following pins: • **GPIO5** - alternate function is “RF Transmission Monitor” • **GPIO6** - alternate function is "Alarm Output" (see **+CALA**) • **GPIO7** - alternate function is "Buzzer Output" (see **#SRP**) Note: while using the pins in the alternate function, the GPIO read/write access to that pin is not accessible and shall be avoided. Note: The **GPIO2** is an OPEN COLLECTOR output, the command sets the transistor base level, hence the open collector output is negated
AT#GPIO?	Read command reports the read direction and value of all **GPIO** pins, in the format: **#GPIO: <dir>,<stat>[<CR><LF>#GPIO: <dir>,<stat>[…]]** where **<dir>** - as seen before **<stat>** - as seen before
AT#GPIO=?	Test command reports the supported range of values of the command parameters **<pin>**, **<mode>** and **<dir>**.

Example	`AT#GPIO=3,0,1`
	`OK`
	`AT#GPIO=3,2`
	`#GPIO: 1,0`
	`OK`
	`AT#GPIO=4,1,1`
	`OK`
	`AT#GPIO=5,0,0`
	`OK`
	`AT#GPIO=6,2`

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#GPIO - General Purpose Input/Output Pin Control	
	#GPIO: 0,1 OK

3.7.5.1.16 #I2S1 - Set PCM Output For Channel 1

#I2S1 - Set PCM Output For Channel 1	
AT#I2S1= [<mode> [,<clockmode>, <clockrate>]]	Set command sets the type of operation. Parameters: **<mode>** 0 - PCM1 is not enabled; audio is forwarded to the analog line; PCM pins can be used as UART1 and GPIO. 1 - PCM1 is enabled; audio is forwarded to the PCM block; PCM pin cannot be used for UART1; any service on UART1 is suspended 2 - PCM1 is enabled; audio is forwarded both to the PCM block and to the analog line; PCM pins cannot be used for UART1; any service on UART1 is suspended **<clockmode>** 0 - PCM acts as slave 1 - PCM acts as master **<clockrate>** 64 - 64 kHz. 128 - 128 kHz. 256 - 256 kHz. 512 - 512 kHz 1024 - 1024 kHz 2048 - 2048 kHz
AT#I2S1?	Read command reports the last setting, in the format: **#I2S1: <mode>,<clockmode>,<clockrate>**
AT#I2S1=?	Reports the range of supported values for parameters **<mode>, <clockmode>** and **<clockrate>**

3.7.5.1.17 #E2SMSRI - SMS Ring Indicator

#E2SMSRI - SMS Ring Indicator	
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)

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#E2SMSRI - SMS Ring Indicator	
	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>**

3.7.5.1.18 #ADC - Read Analog/Digital Converter input

#ADC - Read Analog/Digital Converter input	
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 1 - available for GM862-QUAD, GM862-QUAD-PY, GM862-GPS, GE863-QUAD, GE863-PY, GE863-GPS, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 2 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY 3 - available only for GE863-QUAD, GE863-PY, GE864-QUAD, GE864-PY, GC864-QUAD and GC864-PY **<mode>** - required action 2 - query ADC value **<dir>** - direction; its interpretation is currently not implemented 0 - no effect. Note: The command returns the last valid measure.
AT#ADC?	Read command reports all pins voltage, converted by ADC, in the format:

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	#ADC: <value>[<CR><LF>#ADC: <value>[...]]
AT#ADC=?	Test command reports the supported range of values of the command parameters **<adc>**, **<mode>** and **<dir>**.

3.7.5.1.19 #DAC - Digital/Analog Converter control

#DAC - Digital/Analog Converter control	
AT#DAC= [<enable> [,<value>]]	Set command enables/disables the DAC_OUT pin. Parameters: **<enable>** - enables/disables DAC output. 0 - disables pin; it is in high impedance status (factory default) 1 - enables pin; the corresponding output is driven **<value>** - scale factor of the integrated output voltage; it must be present if **<enable>=1** 0..1023 - 10 bit precision Note: **integrated output voltage = MAX_VOLTAGE * value / 1023**
AT#DAC?	Read command reports whether the DAC_OUT pin is currently enabled or not, along with the integrated output voltage scale factor, in the format: **#DAC: <enable>,<value>**
AT#DAC=?	Test command reports the range for the parameters **<enable>** and **<value>**.
Example	*Enable the DAC out and set its integrated output to the 50% of the max value:* AT#DAC=1,511 OK *Disable the DAC out:* AT#DAC=0 OK
Note	With this command the DAC frequency is selected internally. D/A converter must not be used during POWERSAVING. DAC_OUT line must be integrated (for example with a low band pass filter) in order to obtain an analog voltage. For a more in depth description of the integration filter refer to the hardware user guide.

3.7.5.1.20 #VAUX - Auxiliary Voltage Output Control

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#VAUX- Auxiliary Voltage Output Control	
AT#VAUX= [<n>,<stat>]	Set command enables/disables Auxiliary Voltage pins output. Parameters: **<n>** - VAUX pin index 1 - there is currently just one VAUX pin **<stat>** 0 - output off 1 - output on 2 - query current value of VAUX pin Note: when **<stat>=2** and command is successful, it returns: **#VAUX: <value>** where: **<value>** - power output status 0 - output off 1 - output on Note: for the GPS product (GE863-GPS): if the Auxiliary Voltage pins output is disabled while GPS or camera is powered on they'll both also be turned off.
AT#VAUX?	Read command reports the current status of all auxiliary voltage output pins, in the format: **#VAUX: <value>[<CR><LF>#VAUX: <value>[…]]**
AT#VAUX=?	Test command reports the supported range of values for parameters **<n>**, **<stat>**.

3.7.5.1.21 #CBC - Battery And Charger Status

#CBC- Battery And Charger Status	
AT#CBC	Execution command returns the current Battery and Charger state in the format: **#CBC: <ChargerState>,<BatteryVoltage>** where: **<ChargerState>** - battery charger state 0 - charger not connected 1 - charger connected and charging 2 - charger connected and charge completed **<BatteryVoltage>** - battery voltage in millivolt: it is the real battery voltage only if charger is not connected; if the charger is connected this value depends on the charger voltage.

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

3.7.5.1.22 #AUTOATT - Auto-Attach Property

#AUTOATT - Auto-Attach Property	
AT#AUTOATT= [<auto>]	Set command enables/disables the TE auto-attach property. Parameter: **<auto>** 0 - disables auto attach property 1 - enables auto attach property (factory default)
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>**.

3.7.5.1.23 #MSCLASS - Multislot Class Control

#MSCLASS - Multislot Class Control	
AT#MSCLASS= [<class>, <autoattach>]	Set command sets the multislot class Parameters: **<class>** - multislot class; take care: class 7 is not supported. 1..6 - GPRS class 8..10 - GPRS class **<autotattach>** 0 - the new multislot class is enabled only at the next detach/attach or after a reboot. 1 - the new multislot class is enabled immediately, automatically forcing a detach / attach procedure. Note: the **<class>** range for former GM862 family products is 1..8, excluding class 7.
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>**.

3.7.5.1.24 #MONI - Cell Monitor

#MONI - Cell Monitor

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#MONI - Cell Monitor	
AT#MONI[= [<number>]]	Set command sets one cell out of seven, in a neighbour of the serving cell including it, from which extract GSM-related informations. Parameter: **<number>** 0..6 - it is the ordinal number of the cell, in a neighbour of the serving cell (default 0, serving cell). 7 - it is a special request to obtain GSM-related informations from the whole set of seven cells in the neighbour of the serving cell. Note: issuing **AT#MONI<CR>** reports the following GSM-related informations for selected cell and dedicated channel (if exists). a) When extracting data for the serving cell and the network name is known the format is: **#MONI: <netname> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** b) When the network name is unknown, the format is: **#MONI: Cc:<cc> Nc:<nc> BSIC:<bsic> RxQual:<qual> LAC:<lac> Id:<id> ARFCN:<arfcn> PWR:<dBm> dBm TA: <timadv>** c) When extracting data for an adjacent cell, the format is: **#MONI: Adj Cell<n> [LAC:<lac> Id:<id>] ARFCN:<arfcn> PWR:<dBm> dBm** where: **<netname>** - name of network operator **<cc>** - country code **<nc>** - network operator code **<n>** - progressive number of adjacent cell **<bsic>** - base station identification code **<qual>** - quality of reception 0..7 **<lac>** - localization area code **<id>** - cell identifier **<arfcn>** - assigned radio channel **<dBm>** - received signal strength in dBm **<timadv>** = timing advance Note: TA: **<timadv>** is reported only for the serving cell. When the last setting done is **AT#MONI=7**, then the Read command reports the above informations for each of the cells in the neighbour of the serving cell, formatting them in a sequence of **<CR><LF>-terminated** strings.
AT#MONI=?	Test command reports the maximum number of cells, in a neighbour of the

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#MONI - Cell Monitor	
	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: **#MONI: (<MaxCellNo>,<CellSet>)** where: **<MaxCellNo>** - maximum number of cells, in a neighbour 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**.
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.

3.7.5.1.25 #SERVINFO - Serving Cell Information

#SERVINFO - Serving Cell Information	
AT#SERVINFO	Execution command reports informations about serving cell, in the format: **#SERVINFO: <B-ARFCN>,<dBM>,<NetNameAsc>,<NetCode>, ,<BSIC>,<LAC>,<TA>,<GPRS>[,[<PB-ARFCN>],[<NOM>], <RAC>,[PAT]]** where: **<B-ARFCN>** - BCCH ARFCN of the serving cell **<dBM>** - received signal strength in dBm **<NetNameAsc>** - operator name, quoted string type **<NetCode>** - country code and operator code, hexadecimal representation **<BSIC>** - Base Station Identification Code **<LAC>** - Localization Area Code **<TA>** - Time Advance: it's available only if a GSM or GPRS is running **<GPRS>** - GPRS supported in the cell 0 - not supported 1 - supported The following informations will be present only if GPRS is supported in the cell **<PB-ARFCN>** - PBCCH ARFCN of the serving cell; it'll be printed only if PBCCH is supported by the cell, otherwise the label **"hopping"** will be printed **<NOM>** - Network Operation Mode .."I"

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#SERVINFO - Serving Cell Information	
	"II" .."III" **<RAC>** - Routing Area Color Code **<PAT>** - Priority Access Threshold ..0 ..3..6

3.7.5.1.26 #QSS - Query SIM Status

#QSS - Query SIM Status	
AT#QSS= [<mode>]	Set command enables/disables the Query SIM Status unsolicited indication in the ME. Parameter: **<mode>** - type of notification 0 - disabled (factory default); it's possible only to query the current SIM status through Read command **AT#QSS?** 1 - enabled; the ME informs at every SIM status change through the following unsolicited indication: **#QSS: <status>** where: **<status>** - current SIM status 0 - SIM NOT INSERTED 1 - SIM INSERTED Note: issuing **AT#QSS<CR>** is the same as issuing the Read command. Note: issuing **AT#QSS=<CR>** is the same as issuing the command **AT#QSS=0<CR>**.
AT#QSS?	Read command reports whether the unsolicited indication **#QSS** is currently enabled or not, along with the SIM status, in the format: **#QSS: <mode>,<status>** (**<mode>** and **<status>** are described above)
AT#QSS=?	Test command returns the supported range of values for parameter **<mode>**.

3.7.5.1.27 #DIALMODE - ATD Dialling Mode

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#DIALMODE - ATD Dialling Mode	
AT#DIALMODE= [<mode>]	Set command sets voice call **ATD** modality. Parameter: **<mode>** 0 - **OK** result code is received as soon as it starts remotely ringing (factory default) 1 - **OK** result code is received only after the called party answers. Any character typed aborts the call and **NO CARRIER** result code is received. 2 - the following custom result codes are received, monitoring step by step the call status: **DIALING** (MO in progress) **RINGING** (remote ring) **CONNECTED** (remote call accepted) **RELEASED** (after **ATH**) **DISCONNECTED** (remote hang-up) Note: The setting is saved in NVM and available on following reboot.
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>**

3.7.5.1.28 #ACAL - Automatic Call

#ACAL - Automatic Call	
AT#ACAL= [<mode>]	Set command enables/disables the automatic call function. Parameter: **<mode>** 0 - disables the automatic call function (factory default) 1 - enables the automatic call function. If enabled (and **&D2** has been issued), the transition **OFF/ON** of **DTR** causes an automatic call to the first number (position 0) stored in the internal phonebook. Note: type of call depends on the last issue of command **+FCLASS**.
AT#ACAL?	Read command reports whether the automatic call function is currently enabled or not, in the format: **#ACAL: <mode>**
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.

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3.7.5.1.29 #ECAM - Extended Call Monitoring

#ECAM - Extended Call Monitoring	
AT#ECAM=[<onoff>]	This command enables/disables the call monitoring function in the ME. Parameter: **<onoff>** 0 - disables call monitoring function (factory default) 1 - enables call monitoring function; the ME informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited indication: **#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]** where **<ccid>** - call ID **<ccstatus>** - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy **<calltype>** - call type 1 - voice 2 - data **<number>** - called number (valid only for **<ccstatus>=1**) **<type>** - type of **<number>** 129 - national number 145 - international number Note: the unsolicited indication is sent along with usual codes (**OK**, **NO CARRIER**, **BUSY**...).
AT#ECAM?	Read command reports whether the extended call monitoring function is currently enabled or not, in the format: **#ECAM: <onoff>**
AT#ECAM=?	Test command returns the list of supported values for **<onoff>**

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3.7.5.1.30 #SMOV - SMS Overflow

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

3.7.5.1.31 #CODEC - Audio Codec

#CODEC - Audio Codec	
AT#CODEC=[<codec>]	Set command sets the audio codec mode. Parameter: **<codec>** 0 - all the codec modes are enabled (factory default) 1..31 - value obtained as sum of the following values, each of them representing a specific codec mode: 1 - **FR**, full rate mode enabled 2 - **EFR**, enhanced full rate mode enabled 4 - **HR**, half rate mode enabled 8 - **AMR-FR**, AMR full rate mode enabled 16 - **AMR-HR**, AMR half rate mode enabled Note: the setting 0 is equivalent to the setting 31. Note: The codec setting is saved in the profile parameters.

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AT#CODEC?	Read command returns current audio codec mode in the format: **#CODEC: <codec>**
AT#CODEC=?	Test command returns the range of available values for parameter **<codec>**
Example	AT#CODEC=14 OK *sets the codec modes HR (4), EFR (2) and AMR-FR (8)*

3.7.5.1.32 #SHFEC - Handsfree Echo Canceller

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

3.7.5.1.33 #HFMICG - Handsfree Microphone Gain

#HFMICG - Handsfree Microphone Gain	
AT#HFMICG= [<level>]	Set command sets the handsfree microphone input gain Parameter: **<level>**: handsfree microphone input gain 0..7 - handsfree microphone gain (+6dB/step)
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>**.

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3.7.5.1.34 #HSMICG - Handset Microphone Gain

#HSMICG - Handset Microphone Gain	
AT#HSMICG= [<level>]	Set command sets the handset microphone input gain Parameter: **<level>**: handset microphone input gain 0..7 - handset microphone gain (+6dB/step)
AT#HSMICG?	Read command returns the current handset microphone input gain, in the format: **#HSMICG: <level>**
AT#HSMICG=?	Test command returns the supported range of values of parameter **<level>**.

3.7.5.1.35 #SHFSD - Set Headset Sidetone

#SHFSD - Set Headset Sidetone	
AT#SHFSD= [<mode>]	Set command enables/disables the sidetone on headset audio output. Parameter: **<mode>** 0 - disables the headset sidetone (factory default) 1 - enables the headset sidetone. Note: This setting returns to default after power off.
AT#SHFSD?	Read command reports whether the headset sidetone is currently enabled or not, in the format: **#SHFSD: <mode>**
AT#SHFSD=?	Test command returns the supported range of values of parameter **<mode>**.

3.7.5.1.36 #/ - Repeat Last Command

#/ - Repeat Last Command	
AT#/	Execute command is used to execute again the last received command.

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3.7.5.1.37 #NITZ - Network Timezone

#NITZ - Network Timezone	
AT#NITZ= [<val> [,<mode>]]	Set command enables/disables automatic date/time updating and Network Timezone unsolicited indication. Date and time information may be sent by the network after GSM registration or after GPRS attach. Parameters: **<val>** 0 - disables automatic set (factory default) 1 - enables automatic set **<mode>** 0 - disables unsolicited message (factory default) 1 - enables unsolicited message; after date and time updating the following unsolicited indication is sent: **#NITZ: "yy/MM/dd,hh:mm:ss"** where: **yy** - year **MM** - month (in digits) **dd** - day **hh** - hour **mm** - minute **ss** - second
AT#NITZ?	Read command reports whether automatic date/time updating is currently enabled or not, and whether Network Timezone unsolicited indication is enabled or not, in the format: **#NITZ: <val>,<mode>**
AT#NITZ=?	Test command returns supported values of parameters **<val>** and **<mode>**.

3.7.5.1.38 #BND - Select Band

#BND - Select Band	
AT#BND= [<band>]	Set command selects the current band. Parameter **<band>**: 0 - GSM 900MHz + DCS 1800MHz 1 - GSM 900MHz + PCS 1900MHz 2 - GMS 850MHz + PCS 1800MHz (available only on quadri-band modules) 3 - GMS 850MHz + PCS 1900MHz (available only on quadri-band modules)

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	Note: This setting is maintained even after power off.
AT#BND?	Read command returns the current selected band in the format: **#BND: <band>**
AT#BND=?	Test command returns the supported range of values of parameter **<band>**. Note: the range of values differs between triband modules and quadric-band modules

3.7.5.1.39 #AUTOBND - Automatic Band Selection

#AUTOBND - Automatic Band Selection	
AT#AUTOBND= [<value>]	Set command enables/disables the automatic band selection at power-on. Parameter: **<value>**: 0 - disables automatic band selection at power-on (factory default) 1 - enables automatic band selection at power-on; **+COPS=0** is necessary condition to effectively have automatic band selection at next power-on; the automatic band selection stops as soon as a GSM cell is found. Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found.
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>**.

3.7.5.1.40 #SKIPESC - Skip Escape Sequence

#SKIPESC - Skip Escape Sequence	
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

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	transmitted, regardless of the command setting.
AT#SKIPESC?	Read command reports whether escape sequence skipping is currently enabled or not, in the format: **#SKIPESC: <mode>**
AT#SKIPESC=?	Test command reports supported range of values for parameter **<mode>**.

3.7.5.1.41 #E2ESC - Escape Sequence Guard Time

#E2ESC - Escape Sequence Guard Time	
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 - no guard time (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 **OK** result code.

3.7.5.1.42 #GAUTH - PPP-GPRS Connection Authentication Type

#GAUTH - PPP-GPRS Connection Authentication Type	
AT#GAUTH=[<type>]	Set command sets the PPP-GPRS connection authentication type. Parameter **<type>** 0 - no authentication 1 - PAP authentication (factory default) 2 - CHAP authentication Note: for GSM connection **<type>** is fixed to PAP
AT#GAUTH?	Read command reports the current PPP-GPRS connection authentication type, in the format: **#GAUTH: <type>**
AT#GAUTH=?	Test command returns the range of supported values for parameter

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	<type>.

3.7.5.1.43 #RTCSTAT - RTC Status

#RTCSTAT - RTC Status	
AT#RTCSTAT= [<status>]	Set command resets the RTC status flag. Parameter: **<status>** 0 - Set RTC Status to **RTC HW OK** Note: the initial value of RTC status flag is **RTC HW Error** and it doesn't change until a command **AT#RTCSTAT=0** is issued. Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to **1**. It doesn't change until command **AT#RTCSTAT=0** is issued.
AT#RTCSTAT?	Read command reports the current value of RTC status flag, in the format: **#RTCSTAT: <status>**
AT#RTCSTAT=?	Test command returns the range of supported values for parameter **<status>**

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3.7.5.2 FTP AT Commands

3.7.5.2.1 #FTPTO - FTP Time-Out

#FTPTO - FTP timeout	
AT#FTPTO=[<tout>]	Set command sets time-out for FTP operations. Parameter: **<tout>** - time-out in 100 ms units 100..5000 - hundreds of ms (factory default is 100) Note: The parameter is not saved in NVM.
AT#FTPTO?	Read command returns the current FTP operations time-out, in the format: **#FTPTO: <tout>**
AT#FTPTO=?	Test command returns the range of supported values for parameter **<tout>**

3.7.5.2.2 #FTPOPEN - FTP Open

#FTPOPEN - FTP Open	
AT#FTPOPEN=[<server:port>,<username>,<password>,<mode>]	Execution command opens an FTP connection toward the FTP server. Parameters: **<server:port>** - string type, address and port of FTP server (factory default port 21). **<username>** - string type, authentication user identification string for FTP. **<password>** - string type, authentication password for FTP. **<mode>** 0 - active mode (factory default) 1 - passive modex Note: Before opening FTP connection the GPRS must been activated with **AT#GPRS=1**
AT#FTPOPEN=?	Test command returns the OK result code.

3.7.5.2.3 #FTPCLOSE - FTP Close

#FTPCLOSE - FTP Close	
AT#FTPCLOSE	Execution command closes an FTP connection.
AT#FTPCLOSE=?	Test command returns the OK result code.

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3.7.5.2.4 #FTPPUT - FTP Put

#FTPPUT - FTP Put	
AT#FTPPUT=[<filename>]	Execution command, issued during an FTP connection, opens a data connection and starts sending **<filename>** file to the FTP server. If the data connection succeeds, a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. 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#FTPPUT=?	Test command returns the OK result code.

3.7.5.2.5 #FTPPUTPH - FTP Put Photo

#FTPPUTPH - FTP Put Photo	
AT#FTPPUTPH=[<filename>]	Execution command, issued during an FTP connection, opens a data connection and starts sending to the FTP server the last photo taken issuing **#TPHOTO**. Parameter: **<filename>** - string type, name of the file on the FTP server side. Note: the file transfer type has to be binary in order to send the photo the right way (see command **#FTPTYPE**). Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPPUTPH=?	Test command returns the **OK** result code.

Example	`at#gprs=1`
	`+IP: ###.###.###.###`
	
	`OK`
	`at#camon`
	`OK`
	`at#tphoto`
	`OK`
	`at#ftpopen="xxx.xxx.xxx.xxx",<usern.>,<passw.>,0`
	`OK`
	`at#ftptype=0`

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#FTPPUTPH - FTP Put Photo	
	OK at#ftpputph="photo.jpg" OK at#ftpclose OK

3.7.5.2.6 #FTPGET - FTP Get

#FTPGET - FTP Get	
AT#FTPGET=[<filename>]	Execution command, issued during an FTP connection, opens a data connection and starts getting a file from the FTP server. If the data connection succeeds a **CONNECT** indication is sent, otherwise a **NO CARRIER** indication is sent. The file is received on the serial port. Parameter: **<filename>** - file name, string type. Note: The command causes an **ERROR** result code to be returned if no FTP connection has been opened yet.
AT#FTPGET=?	Test command returns the OK result code.

3.7.5.2.7 #FTPTYPE - FTP Type

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

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3.7.5.2.8 #FTPMSG - FTP Read Message

#FTPMSG - FTP Read Message	
AT#FTPMSG	Execution command returns the last response from the server.
AT#FTPMSG=?	Test command returns the OK result code.

3.7.5.2.9 #FTPDELE - FTP Delete

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

3.7.5.2.10 #FTPPWD - FTP Print Working Directory

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

3.7.5.2.11 #FTPCWD - FTP Change Working Directory

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

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3.7.5.2.12 #FTPLIST - FTP List

#FTPLIST - FTP List	
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.

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3.7.5.3 Enhanced Easy GPRS® Extension AT Commands

3.7.5.3.1 #USERID - Authentication User ID

#USERID - Authentication User ID	
AT#USERID=[<user>]	Set command sets the user identification string to be used during the authentication step. Parameter: **<user>** - string type, it's the authentication User Id; the max length for this value is the output of Test command, **AT#USERID=?** (factory default is the empty string "").
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

3.7.5.3.2 #PASSW - Authentication Password

#PASSW - Authentication Password	
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

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3.7.5.3.3 #PKTSZ - Packet Size

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

3.7.5.3.4 #DSTO - Data Sending Time-Out

#DSTO -Data Sending Time-Out	
AT#DSTO=[<tout>]	Set command sets the maximum time that the module awaits before sending anyway a packet whose size is less than the default one. Parameter: **<tout>** - packet sending time-out in 100ms units (factory default is 50) 0 - no time-out, wait forever for packets to be completed before send. 1..255 hundreds of ms Note: In order to avoid low performance issues, it is suggested to set the data sending time-out to a value greater than 5. Note: this time-out applies to data whose size is less than packet size and whose sending would have been delayed for an undefined time until new data to be sent had been received and full packet size reached.
AT#DSTO?	Read command reports the current data sending time-out value.

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#DSTO -Data Sending Time-Out	
AT#DSTO=?	Test command returns the allowed values for the parameter **<tout>**.
Example	AT#DSTO=10 *->1 sec. time-out* OK AT#DSTO? #DSTO: 10 OK

3.7.5.3.5 #SKTTO - Socket Inactivity Time-Out

#SKTTO - Socket Inactivity Time-Out	
AT#SKTTO= [<tout>]	Set command sets the maximum time with no data exchanging on the socket that the module awaits before closing the socket and deactivating the GPRS context. Parameter: **<tout>** - socket inactivity time-out in seconds units 0 - no timeout. 1..65535 - time-out in sec. units (factory default is 90). Note: this time-out applies when no data is exchanged in the socket for a long time and therefore the socket connection has to be automatically closed and the GPRS context deactivated.
AT#SKTTO?	Read command reports the current socket inactivity time-out value.
AT#SKTTO=?	Test command returns the allowed values for parameter **<tout>**.
Example	AT#SKTTO=30 *->(30 sec. time-out)* OK AT#SKTTO? #SKTTO: 30 OK

3.7.5.3.6 #SKTSET - Socket Definition

#SKTSET - Socket Definition	
AT#SKTSET= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command sets the socket parameters values. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0)

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	<remote addr> - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string "") **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: The resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTSET** command, then an error message will be issued. Note: the DNS Query to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection.
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

3.7.5.3.7 #SKTOP - Socket Open

#SKTOP - Socket Open	
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**

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	CARRIER indication is sent.
AT#SKTOP=?	Test command returns the **OK** result code.
Example	AT#SKTOP *..GPRS context activation, authentication and socket open..* CONNECT

3.7.5.3.8 #QDNS - Query DNS

#QDNS - Query DNS	
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: **#QDNS:"<host name>",<IP address>** 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: **<IP address>** is in the format: **xxx.xxx.xxx.xxx**
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.

3.7.5.3.9 #SKTCT - Socket TCP Connection Time-Out

#SKTCT - Socket TCP Connection Time-Out	
AT#SKTCT= [<tout>]	Set command sets the TCP connection time-out for the first **CONNECT** answer from the TCP peer to be received. Parameter: **<tout>** - TCP first **CONNECT** answer time-out in 100ms units 10..1200 - hundreds of ms (factory default value is 600). Note: this time-out applies only to the time that the TCP stack waits for the **CONNECT** answer to its connection request. Note: The time for activate the GPRS and resolving the name with the DNS

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	query (if the peer was specified by name and not by address) is not counted in this timeout.
AT#SKTCT?	Read command reports the current TCP connection time-out.
AT#SKTCT=?	Test command returns the allowed values for parameter **<tout>**.
Example	AT#SKTCT=600 OK *socket first connection answer timeout has been set to 60 s.*

3.7.5.3.10 #SKTSAV - Socket Parameters Save

#SKTSAV - Socket Parameters Save	
AT#SKTSAV	Execution command saves the actual socket parameters in the NVM of the device. The socket parameters to store are: - User ID - Password - Packet Size - Socket Inactivity Time-Out - Data Sending Time-Out - Socket Type (UDP/TCP) - Remote Port - Remote Address - TCP Connection Time-Out
AT#SKTSAV=?	Test command returns the **OK** result code.
Example	AT#SKTSAV OK *socket parameters have been saved in NVM*
Note	If some parameters have not been previously specified then a default value will be stored.

3.7.5.3.11 #SKTRST - Socket Parameters Reset Command

#SKTRST - Socket Parameters Reset Command	
AT#SKTRST	Execution command resets the actual socket parameters in the NVM of the device to the default ones. The socket parameters to reset are: - User ID - Password - Packet Size - Socket Inactivity Timeout

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	- Data Sending Timeout - Socket Type - Remote Port - Remote Address - TCP Connection Time-Out
AT#SKTRST=?	Test command returns the **OK** result code.
Example	AT#SKTRST OK *socket parameters have been reset*

3.7.5.3.12 #GPRS - GPRS Context Activation

#GPRS - GPRS Context Activation	
AT#GPRS= [<mode>]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request In the case that the GPRS context has been activated, the result code **OK** is preceded by the intermediate result code: **+IP: <ip_address_obtained>** reporting the local IP address obtained from the network.
AT#GPRS?	Read command reports the current status of the GPRS context, in the format: **#GPRS: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated 2 - GPRS context activation pending.
AT#GPRS=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#GPRS=1 +IP: 129.137.1.1 OK *Now GPRS Context has been activated and our IP is 129.137.1.1* AT#GPRS=0

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#GPRS - GPRS Context Activation	
	OK *Now GPRS context has been deactivated, IP is lost.*

3.7.5.3.13 #SKTD - Socket Dial

#SKTD - Socket Dial	
AT#SKTD= [<socket type>, <remote port>, <remote addr>, [<closure type>], [<local port>]]	Set command opens the socket towards the peer specified in the parameters. Parameters: **<socket type>** - socket protocol type 0 - TCP (factory default) 1 - UDP **<remote port>** - remote host port to be opened 0..65535 - port number (factory default is 0) **<remote addr>** - address of the remote host, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) **<local port>** - local host port to be used on UDP socket 0..65535 - port number Note: **<closure type>** parameter is valid only for TCP socket type, for UDP sockets shall be left unused. Note: **<local port>** parameter is valid only for UDP socket type, for TCP sockets shall be left unused. Note: the resolution of the host name is done when opening the socket, therefore if an invalid host name is given to the **#SKTD** command, then an error message will be issued. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set **(#USERID**, **#PASSW**) the GPRS coverage is enough to permit a connection - the GPRS has been activated with **AT#GPRS=1** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command.

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#SKTD - Socket Dial	
AT#SKTD?	Read command reports the socket dial parameters values, in the format: **AT#SKTD: <socket type>,<remote port>,<remote addr>, <closure type>,<local port>**
AT#SKTD=?	Test command returns the allowed values for the parameters.

Example	`AT#SKTD=0,1024,"123.255.020.001",255`
	OK
	
	`AT#SKTD=1,1024,"123.255.020.001", ,1025`
	OK
	In this way my local port 1025 is opened to the remote port 1024
	
	`AT#SKTD=0,1024,"www.telit.net", 255`
	OK

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.

3.7.5.3.14 #SKTL - Socket Listen

#SKTL - Socket Listen	
AT#SKTL =[<mode>, <socket type>, <input port>, [<closure type>]]	Execution command opens/closes the socket listening for connection requests. Parameters: **<mode>** - socket mode 0 - closes socket listening 1 - starts socket listening **<socket type>** - socket protocol type 0 - TCP **<input port>** - local host input port to be listened 0..65535 - port number **<closure type>** - socket closure behaviour for TCP 0 - local host closes immediately when remote host has closed (default) 255 - local host closes after an escape sequence (**+++**) Command returns the **OK** result code if successful. Note: the command to be successful requests that: - the GPRS context 1 is correctly set with **+CGDCONT** - the authentication parameters are set (**#USERID**, **#PASSW**) - the GPRS coverage is enough to permit a connection

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#SKTL - Socket Listen	
	- the GPRS has been activated with **AT#GPRS=1** When a connection request comes on the input port, if the sender is not filtered by the internal firewall (see command **#FRWL**), an unsolicited code is reported: **+CONN FROM: <remote addr>** Where: **<remote addr>** - host address of the remote machine that contacted the device. When the connection is established the **CONNECT** indication is given and the modem goes into data transfer mode. On connection close or when context is closed with **#GPRS=0** the socket is closed and no listen is anymore active. If the context is closed by the network while in listening, the socket is closed, no listen is anymore active and an unsolicited code is reported: **#SKTL: ABORTED**
AT#SKTL?	Read command returns the current socket listening **status** and the last settings of parameters **<input port>** and **<closure type>**, in the format: **#SKTL: <status>,<input port>,<closure type>** Where **<status>** - socket listening status 0 - socket not listening 1 - socket listening
AT#SKTL=?	Test command returns the allowed values for parameters **<mode>**, **<socket type>**, **<input port>** and **<closure type>**.
Example	*Activate GPRS* AT#GPRS=1 +IP: ###.###.###.### OK *Start listening* AT#SKTL=1,0,1024 OK or AT#SKTL=1,0,1024,255 OK *Receive connection requests* +CONN FROM: 192.164.2.1

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#SKTL - Socket Listen	
	CONNECT *exchange data with the remote host* *send escape sequence* +++ NO CARRIER *Now listen is not anymore active* *to stop listening* AT#SKTL=0,0,1024, 255 OK
Note	The main difference between this command and **#SKTD** is that **#SKTL** does not contact any peer, nor does any interaction with the GPRS context status, 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.

3.7.5.3.15 #E2SLRI - Socket Listen Ring Indicator

#E2SLRI - Socket Listen Ring Indicator	
AT#E2SLRI=[<n>]	Set command enables/disables the Ring Indicator pin response to a Socket Listen connect and, if enabled, the duration of the negative going pulse generated on receipt of connect. Parameter: **<n>** - RI enabling 0 - RI disabled for Socket Listen connect (factory default) 50..1150 - RI enabled for Socket Listen connect; a negative going pulse is generated on receipt of connect and **<n>** is the duration in ms of this pulse.
AT#E2SLRI?	Read command reports whether the Ring Indicator pin response to a Socket Listen connect is currently enabled or not, in the format: **#E2SLRI: <n>**
AT#E2SLRI=?	Test command returns the allowed values for parameter **<status>.**

3.7.5.3.16 #FRWL - Firewall Setup

#FRWL - Firewall Setup	
AT#FRWL= [<action>, <ip_address>, <net mask>]	Execution command controls the internal firewall settings. Parameters: **<action>** - command action 0 - remove selected chain 1 - add an **ACCEPT** chain

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#FRWL - Firewall Setup	
	2 - remove all chains (**DROP** everything); **<ip_addr>** and **<net_mask>** has no meaning in this case. **<ip_addr>** - remote address to be added into the **ACCEPT** chain; string type, it can be any valid IP address in the format: xxx.xxx.xxx.xxx **<net_mask>** - mask to be applied on the **<ip_addr>**; string type, it can be any valid IP address mask in the format: xxx.xxx.xxx.xxx Command returns **OK** result code if successful. Note: the firewall applies for incoming (listening) connections only. Firewall general policy is **DROP**, therefore all packets that are not included into an **ACCEPT** chain rule will be silently discarded. When a packet comes from the IP address **incoming_IP**, the firewall chain rules will be scanned for matching with the following criteria: **incoming_IP & <net_mask> = <ip_addr> & <net_mask>** If criteria is matched, then the packet is accepted and the rule scan is finished; if criteria is not matched for any chain the packet is silently dropped.
AT#FRWL?	Read command reports the list of all **ACCEPT** chain rules registered in the Firewall settings in the format: **#FRWL: <ip_addr>,<net_mask>** **#FRWL: <ip_addr>,<net_mask>** **....** **OK**
AT#FRWL=?	Test command returns the allowed values for parameter **<action>.**
Example	*Let assume we want to accept connections only from our devices which are on the IP addresses ranging from 197.158.1.1 to 197.158.255.255* *We need to add the following chain to the firewall:* AT#FRWL=1,"197.158.1.1","255.255.0.0" OK
Note	For outgoing connections made with **#SKTOP** and **#SKTD** the remote host is dynamically inserted into the **ACCEPT** chain for all the connection duration. Therefore the **#FRWL** command shall be used only for defining the **#SKTL** behaviour, deciding which hosts are allowed to connect to the local device. Rules are not saved in NVM, at start-up the rules list will be empty.

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3.7.5.4 Easy Camera® Management AT Commands

3.7.5.4.1 #CAMEN - Camera ON/OFF

#CAMEN - Camera ON/OFF	
AT#CAMEN=[<status>]	Execution command turns camera **ON/OFF**. Parameter: **<status>** - camera status 0 - turns camera **OFF** 1 - turns camera **ON** Note: for the GPS product (GE863-GPS) if the camera is turned off while GPS or VAUX pin is enabled they'll both also be powered off.
AT#CAMEN?	Read command reports the current camera status and, if the camera is **ON**, the current camera model, in the format: **#CAMEN: 0** *if camera is **OFF*** **#CAMEN: 1,<cam>** *if camera is **ON*** where: **<cam>** - camera model 2 - TRANSCHIP camera
AT#CAMEN=?	Test command returns the allowed values for parameter **<status>.**

3.7.5.4.2 #SELCAM - Camera Model

#SELCAM - Camera Model	
AT#SELCAM=[<cam>]	Set command selects current camera model Parameter: **<cam>** - camera model 0 - automatic detection (factory default) 2 - TRANSCHIP camera 3 - reserved for future us 4 - reserved for future use 5 - reserved for future use Note: If GPS is present it's not possible to set **AT#SELCAM=1**
AT#SELCAM?	Read command reports the current camera model in the format: **#SELCAM: <cam>**
AT#SELCAM=?	Test command returns the allowed values for parameter **<cam>**

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3.7.5.4.3 #CAMRES - Camera Resolution

#CAMRES - Camera Resolution	
AT#CAMRES=[<res>]	Set command sets current camera resolution Parameter: **<res>** - camera resolution 0 - VGA photo output,640x480 (factory default) 1 - QVGA photo output, 320x240 2 - QQVGA photo output, 160x120 3 - reserved for future use 4 - reserved for future use
AT#CAMRES?	Read command reports the current value of the parameter **<res>** in format: **#CAMRES:<res>**
AT#CAMRES=?	Test command returns the allowed values for parameter **<res>**.

3.7.5.4.4 #CAMCOL - Camera Colour Mode

#CAMCOL - Camera Colour Mode	
AT#CAMCOL=[<col>]	Set command sets current colour mode Parameter: **<col>** - camera colour mode 0 - colour mode (factory default) 1 - Black&White mode
AT#CAMCOL?	Read command reports the current colour mode, in the format: **#CAMCOL: <col>**.
AT#CAMCOL=?	Test command returns the allowed values for parameter **<col>**.

3.7.5.4.5 #CAMQUA - Camera Photo Quality

#CAMQUA - Camera Photo Quality	
AT#CAMQUA=[<qual>]	Set command sets the quality of the photo. Parameter: **<qual>** - photo quality 0 - low quality of picture, high Jpeg compression 1 - medium quality of picture, medium Jpeg compression 2 - high quality of picture, low Jpeg compression (factory default) Note: increasing the photo quality increases its size.
AT#CAMQUA?	Read command reports the current photo quality, in the format:

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#CAMQUA - Camera Photo Quality	
	#CAMQUA: <qual>
AT#CAMQUA=?	Test command returns the allowed values for parameter **<qual>**.

3.7.5.4.6 #CMODE - Camera Exposure

#CMODE - Camera Exposure	
AT#CMODE=[<mode>]	Set command sets the camera exposure. Parameter: **<exp>** - camera exposure 0 - daylight mode, short exposure (factory default) 1 - nightlight mode, long exposure
AT#CMODE?	Read command reports the current camera exposure in the format: **#CMODE: <exp>**
AT#CMODE=?	Test command returns the allowed values for parameter **<exp>**.

3.7.5.4.7 #CAMZOOM - Camera Zoom

#CAMZOOM - Camera Zoom	
AT#CAMZOOM=[<zoom>]	Set command sets current zoom. Parameter: **<zoom>** - camera zoom 0 - no zoom, x1 (factory default) 1 - zoom, x2 2 - zoom, x4 3 - reserved for future use
AT#CAMZOOM?	Read command reports the current zoom setting, in the format: **#CAMZOOM: <zoom>**
AT#CAMZOOM=?	Test command returns the allowed values for parameter **<zoom>**.

3.7.5.4.8 #CAMTXT - Camera Time/Date Overprint

#CAMTXT - Camera Time/Date Overprint	
AT#CAMTXT=[<ov>]	Set command sets time/date overprinting. Parameter: **<ov>** - time/date overprinting mode 0 - no overprinting (factory default) 1 - time info printed at the bottom of picture 2 - date info printed at the bottom of picture

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	3 - time&date info printed at the bottom of picture 4 - reserved for future use
AT#CAMTXT?	Read command reports the current time/date overprinting mode, in the format: **#CAMTXT: <ov>**
AT#CAMTXT=?	Test command returns the allowed values for parameter **<ov>**.

3.7.5.4.9 #TPHOTO - Camera Take Photo

#TPHOTO - Camera Take Photo	
AT#TPHOTO	Execution command is used to take the photo and to store it in the MODULE memory.
AT#TPHOTO=?	Test command returns the **OK** result code.
Example	AT#TPHOTO OK … the camera has taken the photo and it is now stored on the MODULE memory.
Note	The photo is kept in the MODULE RAM memory, therefore after a power off it is lost. There's only 1 position for the photo, every photo will overwrite the previous. The photo is taken during IDLE time, if the mobile is busy on network operations, (e.g. during a call) the photo cannot be taken.

3.7.5.4.10 #RPHOTO - Camera Read Photo

#RPHOTO - Camera Read Photo	
AT#RPHOTO	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line, ending it with the sequence: **<CR><LF>OK<CR><LF>**
AT#RPHOTO=?	Test command returns the **OK** result code.
Example	AT#RPHOTO xxxxxxxxxxxx *(binary digits of the JPEG image)* **<cr><lf>**OK**<cr><lf>** *the photo has been flushed to the serial line*
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

3.7.5.4.11 #OBJL - Object List

#OBJL- Object List	
AT#OBJL	Execution command reports the list of the objects stored in the MODULE memory.

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#OBJL- Object List	
	The output format is: **#OBJL: <filename>,<size>** where: **<filename>** - name of the object; it is always “Snapshot” **<size>** - size of the object in bytes
AT#OBJL=?	Test command returns the **OK** result code.
Example	AT#OBJL #OBJL: Snapshot,47224 OK

3.7.5.4.12 #OBJR - Object Read

#OBJR - Object Read	
AT#OBJR= [<obj>, "Snapshot"]	Execution command is used to flushing the photo stored in the MODULE RAM memory to the serial line. The difference between this command and **#RPHOTO** is that **#OBJR** output ends without the sequence: **<CR><LF>OK<CR><LF>** Parameter: **<obj>** - type of objects to be listed, string type “IMG” - Image object Note: **"Snapshot"** is the only name of the object.
AT#OBJR=?	Test command returns the **OK** result code.
Example	AT#OBJR="IMG","Snapshot" xxxxxxxxxxx (binary digits of the JPEG image) … the photo has been flushed to the serial line.
Note	The photo is flushed as hexadecimal characters in the format selected. The baudrate is fixed at 115200, using hardware flow control.

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3.7.5.5 Email Management AT Commands

3.7.5.5.1 #ESMTP - E-mail SMTP Server

#ESMTP - E-mail SMTP Server	
AT#ESMTP= [<smtp>]	Set command sets the SMTP server address, used for E-mail sending. SMTP server can be specified as IP address or as nick name. Parameter: **<smtp>** - SMTP server address, string type. This parameter can be either: - any valid IP address in the format: xxx.xxx.xxx.xxx - any host name to be solved with a DNS query in the format: **<host name>** (factory default is the empty string “”) Note: the max length for **<smtp>** is the output of Test command.
AT#ESMTP?	Read Command reports the current SMTP server address, in the format: **#ESMTP: <smtp>**
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 email.

3.7.5.5.2 #EADDR - E-mail Sender Address

#EADDR - E-mail Sender Address	
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 AT#EADDR? #EADDR: "me@email.box.com"

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#EADDR - E-mail Sender Address	
	OK

3.7.5.5.3 #EUSER - E-mail Authentication User Name

#EUSER - E-mail Authentication User Name	
AT#EUSER= [<e-user>]	Set command sets the user identification string to be used during the authentication step of the SMTP. Parameter: **<e-user>** - email authentication User ID, string type. - any string value up to max length reported in the Test command. (factory default is the empty string “”) Note: if no authentication is required then the **<e-user>** parameter shall be empty "".
AT#EUSER?	Read command reports the current user identification string, in the format: **#EUSER: <e-user>**
AT#EUSER=?	Test command returns the maximum allowed length of the string parameter **<e-user>**.
Example	AT#EUSER="myE-Name" OK AT#EUSER? #EUSER: "myE-Name" OK
Note	It is a different user field than the one used for GPRS authentication (see **#USERID**).

3.7.5.5.4 #EPASSW - E-mail Authentication Password

#EPASSW - E-mail Authentication Password	
AT#EPASSW= [<e-pwd>]	Set command sets the password string to be used during the authentication step of the SMTP. Parameter: **<e-pwd>** - email 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 "".

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#EPASSW - E-mail Authentication Password	
AT#EPASSW=?	Test command returns the maximum allowed length of the string parameter **<e-pwd>**.
Example	AT#EPASSW="myPassword" OK
Note	It is a different password field than the one used for GPRS authentication (see **#PASSW**).

3.7.5.5.5 #SEMAIL - E-mail Sending With GPRS Context Activation

#SEMAIL - E-mail Sending With GPRS Context Activation	
AT#SEMAIL= [<da>,<subj>, <att> [,<filename>]]	Execution command activates a GPRS context, if not previously activated by **#EMAILACT**, and sends an e-mail message. The GPRS context is deactivated when the e-mail is sent. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type. **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt **'>'** and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: if GPRS context was previously activated by **#GPRS** it’s not possible to successfully send the e-mail message and the response is the result code **activation failed**. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.
AT#SEMAIL=?	Test command returns the **OK** result code.
Example	AT#SEMAIL="me@myaddress.com","subject of the mail",1

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#SEMAIL - E-mail Sending With GPRS Context Activation	
	>message body… this is the text of the mail message… CTRL-Z *..wait..* OK *Message has been sent.*

3.7.5.5.6 #EMAILACT - E-mail GPRS Context Activation

#EMAILACT - E-mail GPRS Context Ativation	
AT#EMAILACT=[<mode>]	Execution command deactivates/activates the GPRS context, eventually proceeding with the authentication with the parameters given with **#PASSW** and **#USERID**. Parameter: **<mode>** - GPRS context activation mode 0 - GPRS context deactivation request 1 - GPRS context activation request
AT#EMAILACT?	Read command reports the current status of the GPRS context for the e-mail, in the format: **#EMAILACT: <status>** where: **<status>** 0 - GPRS context deactivated 1 - GPRS context activated
AT#EMAILACT=?	Test command returns the allowed values for parameter **<mode>**.
Example	AT#EMAILACT=1 OK *Now GPRS Context has been activated* AT# EMAILACT=0 OK *Now GPRS context has been deactivated.*

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3.7.5.5.7 #EMAILD - E-mail Sending

#EMAILD - E-mail Sending	
AT#EMAILD= [<da>, <subj>,<att> [,<filename>]]	Execution command sends an e-mail message if GPRS context has already been activated with **AT#EMAILACT=1**. Parameters: **<da>** - destination address, string type. **<subj>** - subject of the message, string type **<att>** - attached image flag 0 - don't attach any image 1 - attach the last snapshot taken **<filename>** - image name (default is “snapshot.jpg”) The device responds to the command with the prompt '**>**' and awaits for the message body text. To complete the operation send **Ctrl-Z** char (**0x1A** hex); to exit without writing the message send **ESC** char (**0x1B** hex). If e-mail message is successfully sent, then the response is **OK**. If message sending fails for some reason, an error code is reported Note: Care must be taken to ensure that during the command execution, no other commands are issued. To avoid malfunctions is suggested to wait for the **OK** or **ERROR / +CMS ERROR:<err>** response before issuing further commands. Note: sending an e-mail with an image attachment can take quite a long time since it can be over 50Kb to send and can take more than 1 minute.
AT#EMAILD=?	Test command returns the **OK** result code.

Example	`AT#EMAILD=”me@myaddress.com”,”subject of the mail”,1`
	`>message body… this is the text of the mail message…`
	`CTRL-Z`
	
	`..wait..`
	`OK`
	`Message has been sent.`

Note	The only difference between this command and the **#SEMAIL** is that this command does not interact with the GPRS context status, leaving it **ON** or **OFF** according to the **#EMAILACT** setting, thus, when the connection made with **#EMAILD** is closed, the context status is maintained.

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3.7.5.5.8 #ESAV - Email Parameters Save

#ESAV - Email Parameters Save	
AT#ESAV	Execution command saves the actual e-mail parameters in the NVM of the device. The values stored 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.

3.7.5.5.9 #ERST - E-mail Parameters Reset

#ERST - E-mail Parameters Reset	
AT#ERST	Execution command resets the actual e-mail parameters in the NVM of the device to the default ones. The values reset are: - E-mail User Name - E-mail Password - E-mail Sender Address - E-mail SMTP server
AT#ERST=?	Test command returns the OK result code.

3.7.5.5.10 #EMAILMSG -SMTP Read Message

#EMAILMSG - SMTP Read Message	
AT#EMAILMSG	Execution command returns the last response from SMTP server.
AT#EMAILMSG=?	Test command returns the OK result code.

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3.7.5.6 Easy Scan® Extension AT Commands

3.7.5.6.1 #CSURV - Network Survey

#CSURV - Network Survey	
AT#CSURV[=[<s>,<e>]] **AT*CSURV[=[<s>,<e>]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. Issuing **AT#CSURV<CR>**, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **arfcn: <arfcn> bsic: <bsic> rxLev: <rxLev> ber: <ber> mcc: <mcc> mnc: <mnc> lac: <lac> cellId: <cellId> cellStatus: <cellStatus> numArfcn: <numArfcn> arfcn: [<arfcn1> ..[<arfcn64>]] [numChannels: <numChannels> array: [<ba1> ..[<ba32>]] [pbcch: <pbcch> [nom: <nom> rac: <rac> spgc: <spgc> pat: <pat> nco: <nco> t3168: <t3168> t3192: <t3192> drxmax: <drxmax> ctrlAck: <ctrlAck> bsCVmax: <bsCVmax> alpha: <alpha> pcMeasCh: <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code; if **#CSURVF** last setting is 0, **<bsic>** is a decimal number, else it is a 2-digits octal number **<rxLev>** - decimal number; it is the receiption level (in dBm) **<ber>** - decimal number; it is the bit error rate (in %) **<mcc>** - hexadecimal 3-digits number; it is the mobile country code **<mnc>** - hexadecimal 2-digits number; it is the mobile network code **<lac>** - location area code; if **#CSURVF** last setting is 0, **<lac>** is a decimal number, else it is a 4-digits hexadecimal number **<cellId>** - cell identifier; if **#CSURVF** last setting is 0, **<cellId>** is a decimal number, else it is a 4-digits hexadecimal number **<cellStatus>** - string type; it is the cell status ..CELL_SUITABLE - C0 is a suitable cell. CELL_LOW_PRIORITY - the cell is low priority based on the received

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#CSURV - Network Survey

system information.
CELL_FORBIDDEN - the cell is forbidden.
CELL_BARRED - the cell is barred based on the received system information.
CELL_LOW_LEVEL - the cell **<rxLev>** is low.
CELL_OTHER - none of the above e.g. exclusion timer running, no BCCH available…etc.

<numArfcn> - number of valid channels in the Cell Channel Description

<arfcn*n*> - arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**)

<numArfcn> - decimal number; it is the number of valid channels in the Cell Channel Description

<arfcn*n*> - decimal number; it is the arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**)

<numChannels> - decimal number; it is the number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last **#CSURVEXT** setting:

7. if **#CSURVEXT=0** this information is displayed only for serving cell
8. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier.

<ba*n*> - decimal number; it is the arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last **#CSURVEXT** setting:

8. if **#CSURVEXT=0** this information is displayed only for serving cell
9. if **#CSURVEXT=1** or **2** this information is displayed also for every valid scanned BCCH carrier.

(The following informations will be printed only if GPRS is supported in the cell)

<pbcch> -
0
1

<nom> - network operation mode
1
2
3

<rac> - routing area code
0..255 -

<spgc> - SPLIT_PG_CYCLE support
..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell
..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell

<pat> - priority access threshold
0 -
3..6 -

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#CSURV - Network Survey	
	<nco> - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **arfcn: <arfcn> rxLev: <rxLev>** where: **<arfcn>** - decimal number; it is the RF channel **<rxLev>** - decimal number; it is the receiption level (in dBm) The last information from **#CSURV** 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	AT#CSURV
	
	`Network survey started…`
	
	`arfcn: 48 bsic: 24 rxLev: -52 ber: 0.00 mcc: 610 mnc: 1 lac: 33281 cellId: 3648 cellStatus: CELL_SUITABLE numArfcn: 2 arfcn: 30 48 numChannels: 5 array: 14 19 22 48 82`
	
	`arfcn: 14 rxLev: 8`

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#CSURV - Network Survey	
	`Network survey ended` OK
Note	The command is executed within max. 2 minute.

3.7.5.6.2 #CSURVC - Network Survey (Numeric Format)

#CSURVC - Network Survey (Numeric Format)	
AT#CSURVC[=[<s>,<e>]] **AT*CSURVC[=[=<s>,<e>]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through channels belonging to the band selected by last **#BND** command issue, starting from channel **<s>** to channel **<e>**. Issuing **AT#CSURVC<CR>**, a full band scan is performed. Parameters: **<s>** - starting channel **<e>** - ending channel After issuing the command the device responds with the string: **Network survey started…** and, after a while, a list of informations, one for each received carrier, is reported, each of them in the format: **(For BCCH-Carrier)** **<arfcn>,<bsic>,<rxLev>,<ber>,<mcc>,<mnc>,<lac>,<cellId>,** **<cellStatus>,<numArfcn>[,<arfcn1> ..[<arfcn64>]]** **[,<numChannels>[,<ba1> ..[<ba32>]] [<pbcch> [<nom> <rac> <spgc>** **<pat> <nco> <t3168> <t3192> <drxmax> <ctrlAck> <bsCVmax>** **<alpha> <pcMeasCh>]]]** **<CR><LF><CR><LF><CR><LF>** where: **<arfcn>** - C0 carrier assigned radio channel (BCCH - Broadcast Control Channel) **<bsic>** - base station identification code; if **#CSURVF** last setting is 0, **<bsic>** is a decimal number, else it is a 2-digits octal number **<rxLev>** - decimal number; it is the receiption level (in dBm) **<ber>** - decimal number; it is the bit error rate (in %) **<mcc>** - hexadecimal 3-digits number; it is the mobile country code **<mnc>** - hexadecimal 2-digits number; it is the mobile network code **<lac>** - location area code; if **#CSURVF** last setting is 0, **<lac>** is a decimal number, else it is a 4-digits hexadecimal number **<cellId>** - cell identifier; if **#CSURVF** last setting is 0, **<cellId>** is a decimal number, else it is a 4-digits hexadecimal number

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#CSURVC - Network Survey (Numeric Format)	
	<cellStatus> - string type; it is the cell status ..0 - C0 is a suitable cell (CELL_SUITABLE). 1 - the cell is low priority based on the received system information (CELL_LOW_PRIORITY). 2 - the cell is forbidden (CELL_FORBIDDEN). 3 - the cell is barred based on the received system information (CELL_BARRED). 4 - the cell **<rxLev>** is low (CELL_LOW_LEVEL). 5 - none of the above e.g. exclusion timer running, no BCCH available…etc.. (CELL_OTHER). **<numArfcn>** - decimal number; it is the number of valid channels in the Cell Channel Description **<arfcn*n*>** - decimal number; it is the arfcn of a valid channel in the Cell Channel Description (*n* is in the range **1..<numArfcn>**) **<numChannels>** - decimal number; it is the number of valid channels in the BCCH Allocation list; the output of this information for non-serving cells depends on last #**CSURVEXT** setting: 9. if #**CSURVEXT=0** this information is displayed only for serving cell 10. if #**CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. **<ba*n*>** - decimal number; it is the arfcn of a valid channel in the BA list (***n*** is in the range **1..<numChannels>**); the output of this information for non-serving cells depends on last #**CSURVEXT** setting: 10. if #**CSURVEXT=0** this information is displayed only for serving cell 11. if #**CSURVEXT=1 or 2** this information is displayed also for every valid scanned BCCH carrier. *(The following informations will be printed only if GPRS is supported in the cell)* **<pbcch> -** 0 1 **<nom>** - network operation mode 1 2 3 **<rac>** - routing area code 0..255 - **<spgc>** - SPLIT_PG_CYCLE support ..0 - SPLIT_PG_CYCLE is not supported on CCCH on this cell ..1 - SPLIT_PG_CYCLE is supported on CCCH on this cell **<pat>** - priority access threshold 0 - 3..6 -

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#CSURVC - Network Survey (Numeric Format)	
	<nco> - network control order 0..2 - **<t3168>** - timer 3168 **<t3192>** - timer 3192 **<drxmax>** - discontinuous reception max time (in seconds) **<ctrlAck>** - packed control ack **<bsCVmax> -** blocked sequenc countdown max value **<alpha> -** alpha parameter for power control **<pcMeasCh> -** type of channel which shall be used for downlink measurements for power control 0 - BCCH 1 - PDCH **(For non BCCH-Carrier)** **<arfcn>,<rxLev>** where: **<arfcn>** - decimal number; it is the RF channel **<rxLev>** - decimal number; it is the receiption level (in dBm) The last information from **#CSURVC** depends on the last **#CSURVF** setting: **#CSURVF=0** or **#CSURVF=1** The output ends with the string: **Network survey ended** **#CSURVF=2** the output ends with the string: **Network survey ended (Carrier: <NoARFCN> BCCh: <NoBCCh>)** where **<NoARFCN>** - number of scanned frequencies **<NoBCCH>** - number of found BCCh

Example	AT#CSURVC
	
	`Network survey started…`
	
	`48,24,-52,0.00,610,1,33281,3648,0,2,30 48,5,14 19 22 48 82`
	
	`14,8`
	
	`Network survey ended`

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#CSURVC - Network Survey (Numeric Format)	
	OK
Note	The command is executed within max. 2 minute. The information provided by **#CSURVC** is the same as that provided by **#CSURV**. The difference is that the output of **#CSURVC** is in numeric format only.

3.7.5.6.3 #CSURVU - Network Survey Of User Defined Channels

#CSURVU - Network Survey Of User Defined Channels	
AT#CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVU=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURV**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order.

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.

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3.7.5.6.4 #CSURVUC - Network Survey Of User Defined Channels (Numeric Format)

#CSURVUC - Network Survey Of User Defined Channels (Numeric Format)	
AT#CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]] **AT*CSURVUC=[<ch1>[,<ch2>[,… [,<ch10>]]]]** *(both syntax are possible)*	Execution command allows to perform a quick survey through the given channels. The range of available channels depends on the last **#BND** issue. The result format is like command **#CSURVC**. Parameters: **<ch*n*>** - channel number (arfcn) Note: the **<ch*n*>** must be in a increasing order.

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.

3.7.5.6.5 #CSURVB - BCCH Network Survey

#CSURVB - BCCH Network Survey	
AT#CSURVB=[<n>]	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result format is like command **#CSURV**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVB=?	Test command reports the range of values for parameter **<n>** in the format:

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#CSURVB - BCCH Network Survey	
	(1-M) where **M** is the maximum number of available frequencies depending on last selected band.

3.7.5.6.6 #CSURVBC - BCCH Network Survey (Numeric Format)

#CSURVBC - BCCH Network Survey (Numeric Format)	
AT#CSURVBC=[<n>]	Execution command performs a quick network survey through **M** (maximum number of available frequencies depending on last selected band) channels. The survey stops as soon as **<n>** BCCH carriers are found. The result is given in numeric format and is like command **#CSURVC**. Parameter: **<n>** - number of desired BCCH carriers 1..M
AT#CSURVBC=?	Test command reports the range of values for parameter **<n>** in the format: **(1-M)** where **M** is the maximum number of available frequencies depending on last selected band.

3.7.5.6.7 #CSURVF - Network Survey Format

#CSURVF - Network Survey Format	
AT#CSURVF=[<format>]	Set command controls the format of the numbers output by all the Easy Scan® Parameter: **<format>** - numbers format 0 - Decimal 1 - Hexadecimal values, no text 2 - Hexadecimal values with text
AT#CSURVF?	Read command reports the current number format, as follows: **#CSURVF: <format>**
AT#CSURVF=?	Test command reports the supported range of values for the parameter **<format>**.

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

#CSURVNLF - <CR><LF> Removing On Easy Scan® Commands Family	
AT#CSURVNLF=[<value>]	Set command enables/disables the automatic **<CR><LF>** removing from each information text line. Parameter: **<value>** 0 - disables **<CR><LF>** removing; they'll be present in the information text (factory default) 1 - remove **<CR><LF>** from imformation text Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVNLF?	Read command reports whether automatic **<CR><LF>** removing is currently enabled or not, in the format: **<value>**
AT#CSURVNLF=?	Test command reports the range of values for parameter **<value>.**

3.7.5.6.9 #CSURVEXT - Extended Network Survey

#CSURVEXT - Extended Network Survey	
AT#CSURVEXT[=<value>]	Set command enables/disables extended network survey. Parameter: **<value>** 0 - disables extended network survey (factory default) 1 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier 2 - enables extended network survey; all the network survey execution commands (**#CSURV**, **#CSURVC**, **#CSURVU**, **#CSURVUC**, **#CSURVB**, **#CSURVBC**) display the BAList for every valid scanned BCCh carrier and, if GPRS is supported in the cell, they report some GPRS informations carried by the System Information 13 of the BCCh Note: if parameter is omitted the behaviour of Set command is the same as Read command.
AT#CSURVEXT?	Read command reports whether extended network survey is currently enabled or not, in the format: **<value>**
AT#CSURVEXT=?	Test command reports the range of values for parameter **<value>.**

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3.7.5.7 Jammed Detect & Report AT Commands

3.7.5.7.1 #JDR - Jammed Detect & Report

#JDR - Jammed Detect & Report	
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. The MODULE can also report to the network the Jammed status condition, even if normal communications are inhibited by the Jammer, by using a unique message. Parameters: **<mode>** - behaviour mode of the Jammed Detect & Report 0 - disables Jammed Detect & Report (factory default) 1 - enables the Jammed Detect; the Jammed condition is reported on pin GPIO2/JDR GPIO2/JDR **LOW** - Normal Operating Condition GPIO2/JDR **HIGH** - Jammed Condition. 2 - enables the Jammed Detect; the Jammed condition is reported with a single unsolicited result code on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 3 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=2**. 4 - enables the Jammed Detect; the Jammed condition is reported with an unsolicited code every 3s on serial line, in the format: **#JDR: <status>** where: **<status>** JAMMED - Jammed condition detected OPERATIVE - Normal Operating condition restored. This code will be shown only after a jammed condition has occurred. 5 - enables the Jammed Detect; the MODULE will make both the actions as for **<mode>=1** and **<mode>=4**. **<MNPL>** - Maximum Noise Power Level 0..127 **<DCMN>** - Disturbed Channel Minimum Number 0..254

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#JDR - Jammed Detect & Report	
AT#JDR?	Read command reports the current behaviour mode, Maximum Noise Power Level and Disturbed Channel Minimum Number, in the format: **#JDR: <mode>,<MNPL>,<DCMN>**
AT#JDR=?	Test command reports the supported range of values for the parameters **<mode>**,**<MNPL>** and **<DCMN>**
Example	AT#JDR=2 OK *…jammer enters in the range…* #JDR: JAMMED *…jammer exits the range…* #JDR: OPERATIVE
Note	It is suggested not to change the default setting for Maximum Noise Power Level and Disturbed Channel Minimum Number. If the device is installed in a particular environment where the default values are not satisfactory the two parameters **<MNPL>** and **<DCMN>** permit to adapt the detection to all conditions.

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3.7.5.8 Easy Script® Extension - Python8 interpreter, AT Commands

3.7.5.8.1 #WSCRIPT - Write Script

#WSCRIPT - Write Script	
AT#WSCRIPT= [<script_name>, <size>, [,<hidden>]]	Execution command inserts a script text and save it with the name **<script_name>** in the NVM of the module supporting the Python extension. The script text should be sent using Raw Ascii file transfer. It is important to set properly the port settings. In particular: **Baud rate: 115200 bps** **Flow control: hardware.** Parameters: **<script_name>** - file name, string type (max 16 chars, case sensitive). **<size>** - file size in bytes **<hidden>** - file hidden attribute 0 - file content is readable with **#RSCRIPT** (default). 1 - file content is hidden, **#RSCRIPT** command will report empty file. The device responds to the command with the prompt '**>>>**' and waits for the script file text for **<size>** bytes. The operations completes when all the bytes are received. If script writing ends successfully, the response is **OK**; otherwise an error code is reported Note: The script name should be passed between quotes and all Executable Scripts files must have **.py** extension - Script names are Case sensitive. Note: When sending the script be sure that the line terminator is **<CR><LF>** and that your terminal program does not change it. Note: with the hidden attribute it is possible to protect your script 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 script file contains.

Example	`AT#WSCRIPT="First.py ",54,0`
	`>>> here receive the prompt; then type or send the script, sized 54 bytes`
	
	OK

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#WSCRIPT - Write Script	
	Script has been stored
Note	This command can also be used to write any text file in the MODULE-PYTHON memory (not script files only), for example application data or settings files with a different extension than **.py**.

3.7.5.8.2 #ESCRIPT - Select Active Script

#ESCRIPT - Select Active Script	
AT#ESCRIPT= [<script_name>]	Set command selects the name of the script that will be executed by the Easy Script® interpreter at the start-up. The script will be executed at start-up only if the **DTR** line is found **LOW** during initial start-up (that is: COM is not open on a PC), otherwise the Easy Script® interpreter will not execute and the module supporting the Python extension will behave normally answering only to AT commands on the serial port. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive). Note: all script files must have **.py** extension. Note: The **<script_name>** must match with a file name written with the **#WSCRIPT** in order to have it run. Note: the command does not check whether the script **<script_name>** does exist in the NVM of the module supporting the Python extension or not. If the file **<script_name>** is not present at the start-up then the Script Interpreter will not execute.
AT#ESCRIPT?	Read command reports the name of the script, as a quoted string, that will be executed by the Easy Script® interpreter at the start-up.

Example	`AT#ESCRIPT="First.py "`
	`OK`
	
	`Script First.py will be executed at the next start-ups if DTR is found LOW.`

3.7.5.8.3 #RSCRIPT - Read Script

#RSCRIPT - Read Script	
AT#RSCRIPT= [<script_name>]	Execution command reports the content of script file **<script_name>**. Parameter: **<script-name>** - file name, string type (max 16 chars, case sensitive).

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#RSCRIPT - Read Script	
	The device responds to the command with the prompt '**<<<**', followed by the script file text. 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.

Example	`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`

Note	Executable scripts files must have **.py** extension.

3.7.5.8.4 #LSCRIPT - List Script Names

#LSCRIPT - List Script Names	
AT#LSCRIPT	Execution command reports the list of script files names currently saved into the NVM and the available free NVM memory in the format: **[#LSCRIPT: <script_name1>,<size1>…** **[<CR><LF>#LSCRIPT: <script_name*n*>,<size*n*>]]** **<CR><LF>#LSCRIPT: free bytes: <free_NVM>** where: **<script-name*n*>** - file name, quoted string type (max 16 chars, case sensitive) **<size*n*>** - size of script in bytes **<free_NVM>** - size of available NVM memory in bytes
AT#LSCRIPT=?	Test command returns **OK** result code.
Example	AT#LSCRIPT? #LSCRIPT: “First.py”,51 #LSCRIPT: “Second.py”,178 #LSCRIPT: “Third.py”,95 #LSCRIPT: free bytes: 20000 OK

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3.7.5.8.5 #DSCRIPT - Delete Script

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

3.7.5.8.6 #REBOOT - Reboot

#REBOOT - Reboot	
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.
Example	AT#REBOOT …. Module Reboots …
Note	This command does not return result codes.

3.7.5.8.7 #CMUXSCR - CMUX Script Enable

#CMUXSCR - CMUX Script Enable	
AT#CMUXSCR=<enable>,[<rate>]	Set command enables/disables the use of CMUX interface since the start of a Python script and specifies the **DTE** speed at which the device sends and receives CMUX frames (used to fix the **DTE-DCE** interface speed). Parameters: **<enable>** - enables/disables CMUX script. 0 - disables CMUX script (factory default) 1 - enables CMUX script **<rate>** 300 1200 2400 4800 9600 19200 38400 57600

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#CMUXSCR - CMUX Script Enable	
	115200 (default) If **<rate>** is omitted the value is unchanged **<enable>** and **<rate>** values are saved in NVM
AT#CMUXSCR ?	Read command returns the current value of **#CMUXSCRIPT** parameters in the format: **#CMUXSCRIPT: <enable>,<rate>**
AT#CMUXSCR =?	Test command reports the range for the parameters **<enable>** and **<rate>**

3.7.5.9 GPS AT Commands Set

3.7.5.9.1 $GPSP - GPS controller power management

$GPSP - GPS controller power management	
AT$GPSP=<status>	Execution command allows to manage power-up or down of the GPS controller Parameter: **<status>** 0 - GPS controller is powered down 1 - GPS controller is powered up (default) Note: for the GPS product (GE863-GPS): if the GPS controller is powered down while camera or VAUX pin is enabled they'll both also be also powered off.
AT$GPSP?	Read command reports return the current status
AT$GPSP=?	Test command returns the range of values accepted (0-1)
Example	AT$GPSP=0 0K
Note	If a camera is used with the module and it is powered on, the command will be not executed due to the fact the supply voltage is in common between the 2 devices.

3.7.5.9.2 $GPSR - GPS Reset

$GPSR - GPS Reset	
AT$GPSR=<reset type>	Execution command allows to manage allows to reset the GPS controller. Parameter: **<reset type>** 0 - Hardware reset: The GPS receiver is reset and restarts by using the values stored in the internal memory of the GPS receiver. 1 - Coldstart (No Almanac, No Ephemeris) (1: 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 2 - Warmstart (No ephemeris) (1: 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. 3 - Hotstart (with stored Almanac and Ephemeris) (1: The GPS receiver restarts by using the values stored in the internal memory of

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$GPSR - GPS Reset	
	the GPS receiver; validated ephemeris and almanac.
AT$GPSR=?	Read command that provides the range of accepted values (0-3)
Example	AT$GPSR=0 OK
Note	(1 Available only in Controlled mode. (SW reset)

3.7.5.9.3 $GPSD - GPS Device Type Set

$GPSD - GPS Device Type Set	
AT$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 (Serial port not connected to GPS device) 2 - Controlled Mode (Modem serial port connected to GPS serial port – default) (1
AT$GPSD?	Read command that returns the current status
AT$GPSD=?	Test command that provides the range of accepted values for the parameter **<device type>** (0-3)
Example AT$GPSD=0	AT$GPSD=0 OK
Note	(1 AT$GPSSAV must be executed after to store this setting in memory (the new functionality will be available after the next power_on)

3.7.5.9.4 $GPSSW - GPS Software Version

$GPSSW - GPS Software Version	
AT$GPSSW	Execution command provides GPS Module software version in the format: **$GPSSW: <sw version>**
Example	AT$GPSSW $GPSSW: GSW3.1.1_3.1.00.07-C23P1.00 OK

3.7.5.9.5 $GPSAT – GPS Antenna Type Definition

$GPSAT – Configure GPS Antenna Type	
AT$GPSAT=<type>	Set command selects the GPS antenna used. Parameter:

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$GPSAT – Configure GPS Antenna Type	
	<type> 0 - GPS Antenna not supplied by the module 1 - GPS Antenna supplied by the module (default)
AT$GPSAT?	Read command returns the current status
AT$GPSAT=?	Test command provides the range of accepted values (0-1)
Example	AT$GPSAT=1 OK
Note	*AT$GPSSAV must be executed to save this configuration* *If set to 0 the Antenna current and Voltage readout are not available.* *Refer to the HW user guide for the compatible GPS antennas*

3.7.5.9.6 $GPSAV – GPS Antenna Supply Voltage Readout

$GPSAV – GPS Antenna Readout Voltage	
AT$GPSAV?	Read command returns the measured GPS antenna's supply voltage in mV
AT$GPSAV?	AT$GPSAV? $GPSAV:3800 OK
Note	Not available if antenna Type set to 0

3.7.5.9.7 $GPSAI – GPS Antenna Current Readout

$GPSAI - GPS Antenna Current Monitor	
AT$GPSAI?	Read command reports the GPS antenna's current consumption in the format: **$GPSAI:<value>[,<status>]**(1 where: **<value>** - the measured current in mA <status> - (1 0 - GPS antenna OK 1 - GPS antenna consumption out of the limits
Example	AT$GPSAI? $GPSAI:040,0 OK
Note	(1 Available only if antenna protection is activated (see $GPSAP)

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3.7.5.9.8 $GPSAP – GPS Antenna Protection

$GPSAP - GPS Antenna Protection	
AT$GPSAP=<set>[,<value>]	Write command that allows to activate an automatic protection in case of high current consumption of GPS antenna. The protection disables the GPS antenna supply voltage. Parameters: **<set>** 0 - deactivate current antenna protection (default) 1 - activate current antenna protection **<value>** - the antenna current limit value in mA (000-200) If parameter **<set>=0** parameter **<value>** is omitted

AT$GPSAP?
 	
AT$GPSAP=?
 	
Example
	Read command that returns the current antenna limit value in the format:
	$GPSAP:<set>,<value>
	
	Test command that returns the available ranges for **<set>** and **<value>**
	
	`AT$GPSAP=0`
	`OK`
	Note : no SW control on antenna status (HW current limitation only)
	
	`AT$GPSAP=1,25` (1
	`OK`
	activate current antenna protection with related current limit
	
	`AT$GPSAP?` (1
	`$GPSAP:1,050`
	`OK`
	Antenna protection activated with 50mA limit

Note	(1 *AT$GPSSAV must be executed to save this configuration* *The module is already provided of an Hardware protection for the high current consumption that is automatically activated if the consumption exceeds 50mA*

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3.7.5.9.9 $GPSNMUN – Unsolicited NMEA Data Configuration

$GPSNMUN – Unsolicited NMEA Data Configuration	
AT$GPSNMUN=<enable>[,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >](1)	Set command permits to activate an Unsolicited streaming of GPS data (in NMEA format) through the standard GSM serial port (AT) and defines which NMEA sentences will be available Parameters: **<enable>** 0 - NMEA data stream de-activated (default) 1 - NMEA data stream activated 2 - NMEA data stream activated with the following unsolicited response syntax: **<NMEA SENTENCE> <CR>** 3 - dedicated NMEA data stream; it is not possible to send AT commands; with the escape sequence '+++' the user can return to command mode **<GGA>** - Global Positioning System Fix Data 0 - disable 1 - enable **<GLL>** - Geographical Position - Latitude/Longitude 0 - disable 1 - enable **<GSA>** - GPS DOP and Active Satellites 0 - disable 1 - enable **<GSV>** - GPS Satellites in View 0 - disable 1 - enable **<RMC>** - recommended Minimum Specific GPS Data 0 - disable 1 - enable **<VTG>** - Course Over Ground and Ground Speed 0 - disable 1 - enable **DEFAULT:** <0,0,0,0,0,0> The unsolicited response sintax for **<enable>=1** is: **$GPSNMUN: <CR>** **<NMEA SENTENCE> <CR>** Note: If all parameters are omitted then the behaviour of Set command is the same as Read command
AT$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:

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$GPSNMUN – Unsolicited NMEA Data Configuration	
	$GPSNMUN:<enable>,<GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >
AT$GPSNMUN=?	Test command returns the supported range of values for parameters **<enable>, <GGA>,<GLL>,<GSA>,<GSV>,<RMC>,<VTG >**
Example	AT$GPSNMUN=1,0,0,1,0,0,0 OK *These sets the GSA as available sentence in the unsolicited message* AT$GPSNMUN=0 OK *Turn-off the unsolicited mode* AT$GPSNMUN? $GPSNMUN: 1,0,0,1,0,0,0 OK *Give the current frame selected (GSA)* The unsolicited message will be: $GPSNMUN: $GPGSA,A,3,23,20,24,07,13,04,02,,,,,2.4,1.6,1.8*3C
Reference	NMEA 01803 Specifications
Note	(1 *AT$GPSSAV must be executed to save this configuration* *The command is available in "Controlled Mode" only* *The available NMEA Sentences are depending on the GPS receiver used* *In GE863-GPS and GM862-GPS the fields PDOP and VDOP are not available* *Use NMEA serial port instead if full DOP info are needed*

3.7.5.9.10 $GPSACP – Get Acquired Position

$GPSACP - Get Acquired position information	
AT$GPSACP	Read command returns information about the last GPS position in the format: **$GPSACP: <UTC>,<latitude>,<longitude>,<hdop>,<altitude>, <fix>,<cog>, <spkm>,<spkn>,<date>,<nsat>** where: **<UTC>** - UTC time (hhmmss) referred to GGA sentence **<latitude>** - ddmm.mmmm N/S (referred to GGA sentence)

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$GPSACP - Get Acquired position information	
	Values: dd (degrees) 00 to 90 mm.mmmm (minutes) 00,0000 to 59.9999 N/S: North / South **<longitude>** - dddmm.mmmm E/W (referred to GGA sentence) Values: ddd (degrees) 00 to 180 mm.mmmm (minutes) 00,0000 to 59.9999 E/W: East / West **<hdop>** - x.x - Horizontal Diluition of Precision (referred to GGA sentence) **<altitude>** - xxxx.x Altitude - mean-sea-level (geoid) in meters (referred to GGA sentence) **<fix>** - referred to GSA sentence 1 - Invalid Fix 2 - 2D fix 3 - 3D fix **<cog>** - ddd.mm - Course over Ground (degrees, True) (referred to VTG sentence) Values: ddd: 000 to 360 degrees mm 00 to 59 minutes **<spkm>** - xxxx.x Speed over ground (Km/hr) (referred to VTG sentence) **<spkn>** - xxxx.x- Speed over ground (knots) (referred to VTG sentence) **<date>** - ddmmyy Date of Fix (referred to RMC sentence) Values: dd (day) 01 to 31 mm (month) 01 to 12 yy (year) 00 to 99 (2000 to 2099) **<nsat>** - nn - Total number of satellites in view (referred to GSV sentence)

Example	`AT$GPSACP`
	`$GPSACP:080220,4542.82691N,01344.26820E,259.07,3,2.1,0.1,0.0,0.0,270705,09`
	
	`OK`

3.7.5.9.11 $GPSSAV – Save GPS Parameters Configuration

$GPSSAV – Save GPS Parameters	
AT$GPSSAV	Execution command saves the current configuration in the non volatile EEPROM memory of the module.

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$GPSSAV – Save GPS Parameters	
Example	AT$GPSSAV 0K
Note	*The module must be restarted to use the new configuration*

3.7.5.9.12 $GPSRST – Restore to Default GPS Parameters

$GPSRST – Restore all GPS Parameters	
AT$GPSRST	Execution command restores the GPS parameters to “Factory Default” configuration and stores them in the non volatile EEPROM memory of the module.
Example	AT$GPSRST 0K
Note	*The module must be restarted to use the new configuration*

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3.7.5.10 SAP AT Commands Set

3.7.5.10.1 #RSEN – Remote Sim Enable

#RSEN – Remote SIM Enable	
AT#RSEN = <mode>, [<Role>]	Set command is used to enable/disable the remote SIM Feature. Parameters: **<mode>** 0 - Disable 1 - Enable **<Role>** 0 - Remote Sim Client (Default) 1 – Remote Sim Server (Unsupported) Note: If the module has a SIM inserted, when it receive the enable Command: - Terminate all pending call - De-register from the actual network - De-initialize the current SIM. Note: The OK message is not returned until this procedure is not completed. Note: The Remote Sim Protocol is enabled only on the Serial Port Instance where this command is executed. If other instance already started the SAP the latest receive an error. Note: Command return Error if requested on a non multiplexed Interface
AT#RSEN?	Return the Enable status of Remote Sim Feature
AT#RSEN=?	Test command returns all supported values of Remote Sim Enable Command

3.7.5.10.2 #RSM: – Remote Sim message (Unsolicited)

#RSM: – Remote Sim Message	
AT#RSM: <CmdSeq>, <CmdId>,[<DataLen>],[<Data>]	This Message is generated by the module every time it need to access the remote SIM. It is automatically enabled as soon as the Remote Sim Feature is Enabled and displayed only on the serial port dedicated to the SAP. Parameters:

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	<CmdSeq> A sequential number from 0 to 65535 incremented for every unsolicited message sent. It is reset to 0 at the first SAP enable **<CmdId>** Optional field, it is used only with some specific command Look at Table Command on chapter 5 **<DataLen>** Optional field, it is used only with some specific command Number of Bytes trasmited with Data Field **<Data>** Optional field, it is used only with some specific command Data field format in Hexadecimal

3.7.5.10.3 AT#RSM – Remote Sim message Command

#RSM – Remote Sim Message	
AT#RSM=<CmdSeq>,<CmdId>,[<DataLen>],[<Data>]	This command is used to answer to request generated by the module with the unsolicited message. Parameters: **<CmdSeq>** A sequential number from 0 to 65535, shall be the same of the Request we are answering **<CmdId>** Look at Table Command on chapter 5 **<DataLen>** Optional field, it is used only with some specific command Number of Bytes trasmited with Data Field **<Data>** Optional field, it is used only with some specific command Data field format in Hexadecimal
AT#RSM?	Not supported
AT#RSM=?	Test command returns all supported values of Remote Sim message Command

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3.7.5.10.4 AT#RSS – Remote Sim Status Command

#RSS: – Remote Sim Status	
AT#RSS=<Status>	This command is used to inform the Remote SIM client of the status of the SIM **<Status>** 0 – Not Inserted 1 – Inserted 2 – De-inserted
AT#RSS?	Not supported
AT#RSS=?	Test command returns all supported values of Remote Sim Status Command

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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 Server
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi Fraquency
DTR	Data Terminal Ready
GGA	GPS Fix data
GLL	Geographic Position – Latitude/Longitude
GLONASS	Global positioning system maintained by the Russian Space Forces
GMT	Greenwich Mean Time
GNSS	Any single or combined satellite navigation system (GPS, GLONASS and combined GPS/GLONASS)
GPRS	Global Packet Radio Service
GPS	Global Positioning System
GSA	GPS DOP and Active satellites
GSM	Global System Mobile
GSV	GPS satellites in view
HDLC	High Level Data Link Control
HDOP	Horizontal Dilution of Precision
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IP	Internet Protocol
IRA	International Reference Alphabet
IWF	Interworking Function

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MO	Mobile Originated
MT	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

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5 Document Change Log

Revision	Date	Changes
ISSUE #0	04/08/06	Initial release

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