

PV200 Platform

Software modification and implementation between production release

6.03.X00 – 6.04.X04

VERIFICATION AND APPROVALS

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1 Introduction

This document provides the information about the modification and new implementation of the PV200 software platform for the production release 6.04.X04.

The delta provided start from the last production release 6.03.X00.

The document is divided in three sections:

- ❑ Bugs fixing
- ❑ Improvements
- ❑ New features/commands

2 Bugs fixing

Since the last production release we've fixed the following bugs:

Bugzilla Id.	Summary	Description
#68	AT#SRS	Also when with the command AT#SRS=0, 6 the module is forced to use a different tone the module uses the default one.
#136	AT answer for commands AT+GCAP and AT+CSQ	The command AT+GCAP and AT+CSQ with SELINT 0 and 1 are not backward compatible in the syntax output.
#137	ATDS	Sometime while using the command ATDS the module hangs and need hardware reboot.
#138	COPS problem with unsolicited	With COPS=0 or COPS=1 if we force the module to loose the network connection (disconnecting the antenna) the CREG sequence is not correct and sometimes the module crash.
#141	HS microphone default value	The default gain for the microphone in HS is too low.
#142	AT#SHFEC	The command AT#SHFEC does not work correctly so if the customer issue AT#SHFEC=1 the value would not be changed.
#143	AT#HSMICG and AT#HFMICG	If the user force a factory reset the value for HSMICG and HFMICG are not restored to default.
#144	RTC problem	For some reason sometime the RTC after a firmware update fails to initialize itself.
#145	AT+CREG	Some mismatch while changing customer user profile.
#149, #204	Dialup and incoming call	Sometime while initializing a dialup procedure if an incoming is accepted the UART port result to be freeze.
#164	AT answers with SELINT=1	Some backward compatibility on AT syntax answer with SELINT=1.
#174	AT#BND=?	The command reflects the HW so if a QUAD band is used the answer to the command would be different form the standard dual-band.
#175	AT+CGATT=0	If the command AT+CGATT=0 is issued while a voice call is established the AT interface result blocked.
#179	AT#VAUX	The command does not comply with the reference specification.
#185	LDN list entry not deleted	Set LDN Phonebook AT+CPBS=LD: Sometimes you can find some entries that can not be deleted.
#189, #190	SMS in PDU	If AT+CMGL=4 is issued sometime we did not get

#196	AT#SGPO	the OK and the UART result freeze.
#197	Call log	Some backward compatibility problems.
#201	AT#CLCK	The call log does not work correctly.
		A crash of the software happens while using SS and specifically the command AT@CLCK="IR",1,0000,7.
#202	Infinite ring loop	If the DATA CALL DIVERT service is enabled and a voice call is received the ring tone goes forever.
#203	AT#CCFC	The command AT#CCFC does not reply as specified.
#205	AT#CSSN	The command answer contains always a double OK.
#208	Dial-Up with Windows	Sometimes opening a dial-up connection with Windows make the UART unavailable.
#210	Wrong message	Sometimes when a call is dropped appear the message BUSY instead of NO CARRIER.
#269	AT&D1,AT&D2,	Wrong behaviours compared to previous version.

3 Improvement

Command/Features	Description
PLMN list	New updated PLMN list, available only in SELINT=2.
New +++ behaviour	While in SELINT=2 the +++ suspend the current PPP GPRS session.
AT&D1	While in SELINT=2 the DTR OFF works like the +++ and suspend the current PPP GPRS session.
AT#CAMTXT	The value 4 is no more reserved
Power saving	The power saving algorithm has been improved also while the user is with an active context.
AT+CFUN	Starting from this version we've introduced: +CFUN=2 in order to disable the TX +CFUN=4 in order to switch off the radio and shut-down all protocols.
AT\Q	Changed the flow control function.
Charger	While in SELINT=2 if the module is in charger mode it would start with the radio off (TX/RX disabled). This functionality it's independent from the +CFUN setting.
EMAIL	The email buffer in text format has been increased up to 512 Bytes.
AT#MONI	Synchronization on C1 and C2 calculation. The MNC display is, for PCS networks only, displayed with three digits network (e.g. 338 050 instead of 338 05)
MIKOM commands	The MNC display is, for PCS networks only, displayed with three digits network (e.g. 338 050 instead of 338 05)
+CLIP	The CLIP indication now is available also when there is call in progress
+CGPADDR	When there isn't any context activated the test command reply with OK instead of +CGPADDR: ()
#COPSMODE,+COPS	#COPSMODE is available only with SELINT < 2 and it force the behaviour of the command +COPS. If the SELINT 2 interface is selected #COPSMODE is not available and the +COPS command would work only in ETSI standard mode.
#SELINT=2	Introduced a new AT interface mode that is compliant with ETSI, if this interface is selected the backward compatibility is not assured. For more details see the dedicated chapter.

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4 SELINT=2 description

4.1 Introduction

In order to keep our backward compatibility and on the same time to give the opportunity to the customer to get competitor compatibility, Telit modules offer a specific AT command that is able to switch the behaviour of the device and its AT command interface.

The switch of SELINT is available also at run-time but for a correct functionality it is recommended to reboot the device each time the SELINT is changed.

This command **AT#SELINT** is able to select the AT command interface style and behaviour.

#SELINT - Select type of interface	
AT#SELINT[=<v>]	<p>There are some slight modifications between GM862-GSM/GM862-GPRS and following products AT interface. It is up to the user to select the AT interface he prefers.</p> <p>Set command sets the AT command interface style depending on parameter <v>.</p> <p>Parameter: <v> - AT command interface</p> <ol style="list-style-type: none"> 0. AT interface style is like the former GM862 family one (ref. ver. 1.05.000); 1. Newer AT interface style (ref. ver. 6.02.007); 2. Fully compliant to ETSI technical specifications ETSI TS 100 916 (GSM 07.07) and ETSI TS 100 585 (GSM 07.05); 3. Reserved for future use <p>NOTE:</p> <ul style="list-style-type: none"> - The switch of SELINT is available also at run-time but for a correct functionality it is recommended to reboot the device each time the SELINT is changed.

4.2 Basic concept

The basic differences in the new interface with respect to SELINT=0/1 can be summarized as follow:

- All basic *AT&C*, *AT&D*, *AT&F*, *AT&G*, *AT&K*, *AT&N*, *AT&P*, *AT&Q*, *AT&S*, *AT&V*, *AT&W*, *AT&Y*, *AT&Z*, *AT%E*, *AT%L*, *AT%Q*, *AT\B*, *AT\K*, *AT\N*, *AT\R*, *AT\V* and *ATA*, *ATD*, *ATE*, *ATF*, *ATH*, *ATI*, *ATL*, *ATM*, *ATO*, *ATP*, *ATQ*, *ATT*, *ATV*, *ATX* and *ATZ* commands from V25.Ter specification do not accept anymore '=' or '?' characters in the command (e.g. *AT&F*, *AT&F0* are correct commands, *AT&F=*, *AT&F=0*, *AT&F0?* are not); an **ERROR** message is returned instead of **OK**. Unsupported basic commands (e.g. *ATR*) return **ERROR** instead of **OK**;
- All *ATS* commands do not accept the '=?' '=??' or simple '=' format anymore (e.g. *ATS0*, *ATS0=0*, *ATS0?* are correct commands, *ATS0=*, *ATS0=??*, *ATS0=?* are not); an **ERROR** message is returned instead of **OK**;
- All custom *AT@* commands are not accepted anymore, because all modifications in the command behaviour implemented in these commands with respect to the standard equivalent command are integrated in the standard command itself; an **ERROR** message is returned instead of **OK**;
- All *AT+* commands do not accept the '=??' format anymore (e.g. the command *AT+CRSL=??* is not accepted anymore) because the standard test command returns the actual correct range; an **ERROR** message is returned instead of **OK**;
- For all *AT* commands the *AT+CMD<CR>* and *AT+CMD?<CR>* forms are not equivalent anymore; if the *AT+CMD?<CR>* is not supported in the specification, an **ERROR** message is returned instead of **OK**.
- **AT+CPBF=""** return all the phone-book records.
- **AT#CAMON** and **AT#CAMOFF** have been removed because already covered by the generic **AT#CAMEN**;

4.3 Behaviour for *AT+CMD=<CR>*

The following *AT* commands and all the custom commands (*AT#* and *AT\$*) return OK without doing nothing. The other commands return ERROR.

- **AT+CSCS**
- **AT+CBST**
- **AT+CRLP**
- **AT+CR**
- **AT+CRC**

- **AT+CSNS**
- **AT+CVHU**
- **AT+CREG**
- **AT+COPS**
- **AT+CLIP**
- **AT+CLIR**
- **AT+CCUG**
- **AT+CCWA**
- **AT+CHLD**
- **AT+CUSD**
- **AT+CSSN**
- **AT+CFUN**
- **AT+CPBW**
- **AT+CACM**
- **AT+CAMM**
- **AT+CMEE**
- **AT+CGDCONT**
- **AT+CGQREQ**
- **AT+CGQMIN**
- **AT+CGATT**
- **AT+CGACT**
- **AT+CGDATA**
- **AT+CGPADDR**
- **AT+CGCLASS**
- **AT+CGREG**
- **AT+ICF**
- **AT+IFC**
- **AT+DS**
- **AT+CMGF**
- **AT+CSMP**
- **AT+CSDH**
- **AT+CSCB**
- **AT+CNMI**

4.4 Behaviour for AT+CMD=? test command

The following commands accept the AT+CMD=? format and the response would be only **OK**.

- **AT+CGMI**
- **AT+CGMM**
- **AT+CGMR**
- **AT+CGSN**

- **AT+CIMI**
- **AT+CHUP**
- **AT+CEER**
- **AT+CNUM**
- **AT+CCUG**
- **AT+CLCC**
- **AT+COPN**
- **AT+CPIN**
- **AT+CCLK**
- **AT+CRSM**
- **AT+CACM**
- **AT+CAMM**
- **AT+CPUC**
- **AT+CSCA**
- **AT+CSMP**
- **AT+CMGR**
- **AT+CMGS**
- **AT+CMSS**
- **AT+CMGW**

The following commands respond to the test command *AT+CMD=?* with a list of values that are included in parentheses that were missing before (SELINT 0/1), or with new ranges:

- **AT+FTM=?**
- **AT+FRM=?**
- **AT+FCLASS=?**
- **AT+CMEE=?**
- **AT+DS=?**
- **AT+CGDATA=?**
- **AT+CMGL=?**
- **AT+CAOC=?**
- **AT+CFUN=?**
 - Response is
 - +CFUN: (0,1,2,4,5), (0)
 - instead of
 - +CFUN: (1,5)
- **AT+CALM=?**
 - Response is
 - +CALM: (0-2)
 - instead of
 - +CALM: (0-1)

- **AT+CRSL=?**
Response is
+CRSL: (0-4)
instead of
+CRSL: (0-3)
- **AT+VTS=?**
Response is
+VTS: (0-9,#,*,A-D),(1-255)
instead of
+VTS: (),(),()
- **AT+CBC=?**
Response is
+CBC: (0-3),(0-100)
instead of
+CBC: (0-2),(0-100)
- **AT+CPBS=?**
Response is
+CPBS: ("SM","FD","LD","MC","RC")
instead of
+CPBS: ("SM"),("FD"),("LD"),("MC"),("RC")
- **AT+CHLD=?**
Response is
+CHLD: (0,1,1x,2,2x,3)
instead of
+CHLD: (0,1,2,3)
- **AT+CSMP=?**
Response is
OK
instead of
+CSMP: (0-255),(0-255),(0-255),(0,16-23,240-243)

Some other commands behave differently on the response, such as:

- **AT+CSMS=0**
Response is
+CSMS: 1,1,1
instead of
+CSMS: 0,1,1,1

- **AT+CACM?**, **AT+CAMM?**, **AT+CAOC=0**
Response is included in double quotes
- **AT+CLCK="xx",2** (where xx = "AO", "OI", "OX", "AI", "IR", "AB", "AG", "AC")
Response is
+CLCK: 0,1
+CLCK: 0,2
+CLCK: 0,4
instead of
+CLCK: 0
- **AT+CREG?** and **AT+CGREG?**
Response (if AT+CREG=2 and AT+CGREG=2 issued) is e.g.
+CREG: 2,1,"55FA",1297"
instead of
+CREG: 2,1,55FA,1297
- **AT+CNUM**
Response is
+CNUM: "3290569606",129
instead of
+CNUM: 3290569606,129
- **AT+CPAS**
Response just after ATD is
+CPAS: 4
instead of
+CPAS: 3
- **AT+IPR=?**
Response is
+IPR:
(0,300,1200,2400,4800,9600,19200,38400,57600,115200),(0,300,1200,2400,4800,9600,14400,19200,38400,57600,115200)
instead of
+IPR: (0,300,1200,2400,4800,9600,19200,38400,57600,115200)
- **ATA** (without any incoming call)
Response is
NO CARRIER
instead of
ERROR

- **ATO** (without any active connection)
Response is
NO CARRIER
instead of
ERROR
- **AT+CSQ=?**
Response is
+CSQ: (0-31,99),(0-7,99)
instead of
+CSQ: (0-31),(0-7,99)
- **AT+CPBR=?**
Response is
+CPBR: (1-200),20,12

OK
instead of
+CPBR: (1-200),20,12
OK
- **AT+CCLK?**
Response is
+CCLK: "02/01/01,00:57:15"
instead of
+CCLK: 00/01/01,04:10:25
- **AT+CALA?**
Response is
+CALA: "00/00/00,00:00:00",0,0,""
instead of
+CALA: 05/01/01,13:30:00,0,1
- **AT+CPUC?**
Response is
+CPUC: "L. ", "100"
instead of
+CPUC: "L. ", "100"
- **AT+VTS=?**
Response is
(0-9,#,*,A-D),(1-255)
instead of

+VTS: (0-9),(A-D),(*,#)

- **AT+VTS=??** (SELINT 0 and 1)

Response is
(0-9,#,*,A-D),(1-255)

- **AT+CMGR=1**

Response is
+CMGR: "STO UNSENT", "+3484501802", 145,17,0,241,167,
"+393492000200",145,36

instead of

+CMGR: "STO UNSENT", "+3484501802", 145,2,0,17, "+393492000200",145,36

- **AT+CGDCONT=?**

Response is
+CGDCONT: (1-2),"IP",,(0),(0)

instead of

+CGDCONT: (1-5),"IP",,(0-1),(0-1)

- **ATFRWL=?**

Response is
#FRWL: "000.000.000.000.", "000.000.000.000"

instead of

#FRWL: 000.000.000.000 000.000.000.000

4.5 String manipulation

When SELINT 2 mode is selected, issuing a command string parameter within quote or without quote (e.g. typing AT+COPS=1,0,"A1" or AT+COPS=1,0,A1 is the same) is considered a valid input except for some commands.

String input within or outside quote in SELINT 2 is case sensitive. This is an important difference compared to SELINT 0 or 1 where all the string written outside quote are always transformed in upper-case (e.g. mickey became MICKEY), while all strings inside quotes are case sensitive.

According to V25.ter space characters are ignored and may be use freely for formatting purposes, unless they are embedded in numeric or string constants (included in double quote).

The commands that follow the above described rules are listed below:

- **AT#CAMTXT**

- **AT#FTPOPEN**
- **AT#FTPGET**
- **AT#FTPPUT**
- **AT#FTPPUTPH**
- **AT#FTPDELE**
- **AT#FTPCWD**
- **AT#FTPLIST**
- **AT+CGDATA**
- **AT+CGCLASS**
- **AT+CGDCONT**
- **AT#SEMAIL**
- **AT#EUSER**
- **AT#EPASSW**
- **AT#ESMTP**
- **AT#EADDR**
- **AT#EMAILD**
- **AT+CSCS**
- **AT+COPS**
- **AT+CPBW**
- **AT+CPBS**
- **AT+CPBF**
- **AT+CPIN**
- **AT+CPMS**
- **AT+CSCA**
- **AT+CMGS**
- **AT+CMGW**
- **AT+CMSS**
- **AT+CMGL**
- **AT+CSCB**
- **AT+CSMP**
- **AT+CACM**
- **AT+CAMM**
- **AT+CPUC**
- **AT+CLCK**
- **AT+CPWD**
- **AT+CCFC**
- **AT+CUSD**
- **AT#USERID**
- **AT#PASSW**
- **AT#SKTSET**
- **AT#QDNS**
- **AT#SKTD**
- **AT#FRWL**
- **AT#ESCRIPT**

- **AT#RSCRIPT**
- **AT#DSCRIPT**

The commands that are considered exceptions and require always to write the input parameters within quote are:

- **AT+CCLK**
- **AT+CALA**
- **AT+CSMP (when the absolute time of the validity period termination is used)**

4.6 Command line terminator

The command line terminator is the one defined by the command **ATS3**, if it's different from <CR> (0x0D default value), the <CR> itself is no more considered as a command line terminator.

5 Behaviour of AT+COPS and AT+CREG

5.1 Behaviour of AT+COPS (SELINT=2)

The AT+COPS in the SELINT 2 configuration is changed as follows.

- Different response to the AT+COPS=? That now following the ETSI specification would return the PLMN name in single concatenated line instead of printing a line for any available PLMN.

+COPS: [list of supported (<stat>,long alphanumeric <oper>, short alphanumeric <oper>,numeric <oper>)s][,,(list of supported <mode>s),(list of supported <format>s)]

- The only supported format is 0 and 2.

If the AT+COPS=3,1 is issued the response would ERROR.

- The prompt after the AT+COPS command has been issued is returned immediately.
- It would be possible to select also a PLMN that is not available.

(e. g. AT+COPS=1,0,"A1" or AT+COPS=1,2,"XXXXX")

- AT+COPS functionalities (0,1,2,4) are stored in NVM.
- With AT+COPS 1 and 4 also the selected PLMN would be saved on the NVM and it would be available at the device reboot.
- The SIM hot SWAP does not interfere with the AT+COPS functionalities

Note: the same behaviour is valid with SELINT 0 or SELINT 1 and COPS MODE 1.

5.2 Behaviour of AT+CREG (unsolicited)

The unsolicited +CREG value when connected to a forbidden network (only in COPS MODE 1 or SELINT=2) would be 3 instead of 2.

6 New features/commands

Since the last software production release we've introduced the following new AT commands.

6.1 #DAC –Digital/Analog Converter control

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

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6.2 #MSCLASS – Multislot class control

#MSCLASS – Multislot class control	
AT#MSCLASS= <class>, <autoattach>	<p>Set command sets the multislot class according to <class> and <autoattach> parameters.</p> <p>where <class> - multislot class 1..10 - GPRS class, excluded class 7 (class not supported)</p> <p>Note: the <class> range for former GM862 family products is 1..8, excluded class 7.</p> <p><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.</p> <p>Note: if all parameters are omitted the behaviour of set command is the same as read command.</p>
AT#MSCLASS?	<p>Read command reports the current value of the multislot class in the format:</p> <p>#MSCLASS: <class></p>
AT#MSCLASS=?	<p>Test command reports the range of parameter <class>.</p>

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6.3 @CMGL - list messages with SELINT: 0 or 1

The command differs from the +CMGL because it performs a \r\n after the SMS message in PDU format and text format.

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

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

6.4 @CMGR - read message with SELINT: 0 or 1

The command differs from the +CMGR because it performs a \r\n after the SMS message in PDU format and text format.

@CMGR - read message	
AT@CMGR= <index>	<p>Execution command reports the message with location value <index> from <memr> message storage (<memr> is the message storage for read and delete SMS as last settings of command +CPMS).</p> <p>Parameter: <index> - message index.</p> <p>The output depends on the last settings of command +CMGF (SMS format to be used)</p> <p style="text-align: center;">(PDU Mode)</p> <p>The output has the following format:</p> <p>@CMGR: <stat>,<length><CR><LF><pdu></p> <p>where</p> <ul style="list-style-type: none"> <stat> - status of the message <ul style="list-style-type: none"> 0 - new message 1 - read message 2 - stored message not yet sent 3 - stored message already sent <length> - length of the PDU in bytes. <pdu> - message in PDU format according to GSM 3.40. <p>The status of the message and entire message data unit <pdu> is returned.</p> <p style="text-align: center;">(Text Mode)</p> <p>Output format for received messages:</p> <p>@CMGR: <stat>,<oa>,,<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><text></p> <p>Output format for sent messages:</p> <p>@CMGR: <stat>,<da>[,,<toda>,<fo>,<pid>,<dcs>,,<sca>,<tosca>,<length>]<CR><LF><text></p> <p>Output format for message delivery confirm:</p> <p>@CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st></p> <p>where:</p> <ul style="list-style-type: none"> <stat> - status of the message <ul style="list-style-type: none"> "REC UNREAD" - new received message unread "REC READ" - received message read

@CMGR – read message	
	<p>"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> 145 - number in international format (contains the "+") 129 - number in national format <length> - text length <text> - message text</p> <p>Note: the command differs from the +CMGR because after the SMS message a <CR><LF> is put before the OK result code.</p> <p>Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>Note: an error result code is sent on empty record <index>.</p>
AT@CMGR=?	Test command has no effect; the answer is OK
Reference	GSM 07.05

6.5 +CGCLASS – Set the GPRS class, with SELINT: 0 or 1

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

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6.6 +CGCLASS – Set the GPRS class, with SELINT: 2

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

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6.7 #COPSMODE set COPS modality

#COPSMODE – +COPS mode	
AT#COPSMODE [= <mode>]	<p>Set command sets +COPS mode.</p> <p>Parameters: <mode> 0 - +COPS response style like former GM862 family products (default) 1 - +COPS response compliant with ETSI format</p> <p>Note: The setting is saved in NVM (and available on following reboot).</p> <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command.</p>
AT#COPSMODE?	<p>Read command returns current value of <mode></p> <p>#COPSMODE: <mode></p>
AT#COPSMODE=?	<p>Test command returns the range of values for <mode>.</p>

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6.8 +COPS – operator selection with #SELINT: 0 or 1

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

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<p>+COPS - operator selection</p>	<p>2 - numeric 5 digits [country code (3) + network code (2)]</p> <p><oper>: network operator in format defined by <format> parameter.</p> <p>Note: <mode> parameter setting is stored in NVM and available at next reboot. If <mode> = 1 or 4, the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted)</p> <p>Note: in both cases if all subparameters are omitted then the behaviour of Set command is the same as Read command.</p>
<p>AT+COPS?</p>	<p>Read command returns current value of <mode>,<format> and <oper> in format <format>; if no operator is selected, <format> and <oper> are omitted</p> <p>+COPS: <mode>[, <format>, <oper>]</p>
<p>AT+COPS=?</p>	<p>Test command returns a list of quadruplets, each representing an operator present in the network.</p> <p>The behaviour of Test command depends on the last #COPSMODE setting.</p> <p style="text-align: center;">(#COPSMODE=0)</p> <p>The command outputs as many rows as the number of quadruplets, each of them in the format:</p> <p>+COPS: (<stat> ,<oper (in format=0)>,"",<oper (in format=2)>) where <stat> indicates the availability of the operator: <stat> 0 - unknown 1 - available 2 - current 3 - forbidden</p> <p style="text-align: center;">(#COPSMODE=1)</p> <p>The quadruplets in the list are separated by commas:</p> <p>+COPS: [list of supported (<stat> ,<oper (in format=0)>,,<oper (in format=2)>)s][,,(list of supported <mode>s),(list of supported <format>s)]</p> <p>where <stat> indicates the availability of the operator: <stat> 0 - unknown 1 - available 2 - current 3 - forbidden</p> <p>Note: since with this command a network scan is done, this command</p>

+COPS - operator selection

may require some seconds before the output is given.

Note: The value of parameter <oper> (in format=0) is strictly related to the operational SELINT chosen by the user.

Reference

GSM 07.07

6.9 +COPS – operator selection with #SELINT: 2

+COPS - operator selection	
AT+COPS= [<mode> [,<format> [,<oper>]]]	<p>Set command forces an attempt to select and register the GSM network operator.</p> <p><mode> parameter defines whether the operator selection is done automatically or it is forced by this command to operator <oper>. The operator <oper> shall be given in format <format>.</p> <p>Parameters:</p> <p><mode></p> <ul style="list-style-type: none"> 0 - automatic choice (the parameter <oper> will be ignored) (default) 1 - manual choice (<oper> field shall be present) 2 - deregister from GSM network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1 or 4 is issued 3 - set only <format> parameter (the parameter <oper> will be ignored) 4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered <p><format></p> <ul style="list-style-type: none"> 0 - alphanumeric long form (max length 16 digits) 2 - numeric 5 digits [country code (3) + network code (2)] <p><oper>: network operator in format defined by <format> parameter.</p> <p>Note: <mode> parameter setting is stored in NVM and available at next reboot. If <mode> = 1 or 4, the selected network is stored in NVM too and is available at next reboot (this will happen even with a new SIM inserted)</p>
AT+COPS?	<p>Read command returns current value of <mode>,<format> and <oper> in format <format>; if no operator is selected, <format> and <oper> are omitted</p> <p>+COPS: <mode>[,<format>,<oper>]</p>
AT+COPS=?	<p>Test command returns a list of quadruplets, each representing an operator present in the network. The quadruplets in the list are separated by commas:</p> <p>+COPS: [list of supported (<stat> ,<oper (in format=0)>,,<oper (in format=2)>)s][,,(list of supported <mode>s),(list of supported<format>s)]</p> <p>where <stat> indicates the availability of the operator:</p> <p><stat></p> <ul style="list-style-type: none"> 0 - unknown 1 - available 2 - current 3 - forbidden

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+COPS - operator selection

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
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6.10 #CSURVNLF - <CR><LF> removing on Easy Scan® commands family with SELINT: 0 or 1

#CSURVNLF - <CR><LF> removing on Easy Scan® commands family	
AT#CSURVNLF [=<value>]	<p>Set command enables/disables the automatic <CR><LF> removing from each information text line.</p> <p>Parameter: <value> 0 - <CR><LF> present in the information text (default) 1 - remove <CR><LF> from information text</p> <p>Note: if parameter is omitted the behaviour of Set command is the same as Read command.</p>
AT#CSURVNLF?	Read command returns the current setting of <value>.
AT#CSURVNLF=?	Test command reports the range of values for parameter <value>.

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6.11 #CSURVNLF - <CR><LF> removing on Easy Scan® commands family with SELINT: 2

#CSURVNLF - <CR><LF> removing on Easy Scan® commands family	
AT#CSURVNLF =[<value>]	<p>Set command enables/disables the automatic <CR><LF> removing from each information text line.</p> <p>Parameter: <value> 0 - <CR><LF> present in the information text (default) 1 - remove <CR><LF> from information text</p>
AT#CSURVNLF?	Read command returns the current setting of <value>.
AT#CSURVNLF=?	Test command reports the range of values for parameter <value>.

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6.12 #CSURVB – BCCH network survey

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

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6.13 #CSURVBC – BCCH network survey in numeric format

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

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6.14 +CRSM – Restricted SIM access

+CRSM - Restricted SIM access	
<p>AT+CRSM= <command> [,<fileid> [,<P1>,<P2>,<P3 > [,<data>]]]</p>	<p>Execution command transmits to the ME the SIM <command> and its required parameters. ME handles internally all SIM-ME interface locking and file selection routines. As response to the command, ME sends the actual SIM information parameters and response data.</p> <p>Parameters:</p> <p><command> - command passed on by the ME to the SIM 176 - READ BINARY 178 - READ RECORD 192 - GET RESPONSE 214 - UPDATE BINARY 220 - UPDATE RECORD 242 - STATUS</p> <p><fileid> - identifier of an elementary datafile on SIM. Mandatory for every command except STATUS.</p> <p><P1>,<P2>,<P3> - parameter passed on by the ME to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0..255</p> <p><data> - information to be read/written to the SIM (hexadecimal character format).</p> <p>The response of the command is in the format:</p> <p>+CRSM: <sw1>,<sw2>[,<response>]</p> <p>where:</p> <p><sw1>,<sw2> - information from the SIM about the execution of the actual command either on successful or on failed execution.</p> <p><response> - on a successful completion of the command previously issued it gives the requested data (hexadecimal character format). It's not returned after a successful UPDATE BINARY or UPDATE RECORD command.</p> <p>Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files.</p> <p>Note: use only decimal numbers for parameters <command>, <fileid>, <P1>, <P2> and <P3>.</p>

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AT+CRSM=?	Test command returns the OK result code
Reference	GSM 07.07, GSM 11.11

6.15 #DIALMODE - ATD dialling mode with SELINT: 0 or 1

#DIALMODE - ATD dialling mode	
AT#DIALMODE[= <mode>]	<p>Set command sets voice call ATD modality.</p> <p>Parameters: <mode> 0 - OK result code is received as soon as it starts remotely ringing (default mode) 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)</p> <p>Note: The setting is saved in NVM and available on following reboot.</p> <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command.</p>
AT#DIALMODE?	<p>Read command returns current value of <mode>:</p> <p>#DIALMODE: <mode></p>
AT#DIALMODE=?	<p>Test command returns the range of parameter <mode></p>

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6.16 #DIALMODE - ATD dialling mode with SELINT: 2

#DIALMODE - ATD dialling mode	
AT#DIALMODE= <mode>	<p>Set command sets voice call ATD modality.</p> <p>Parameters: <mode></p> <ul style="list-style-type: none"> 0 - OK result code is received as soon as it starts remotely ringing (default mode) 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: <ul style="list-style-type: none"> DIALING (MO in progress) RINGING (remote ring) CONNECTED (remote call accepted) RELEASED (after ATH) DISCONNECTED (remote hang-up) <p>Note: The setting is saved in NVM and available on following reboot.</p>
AT#DIALMODE?	<p>Read command returns current value of <mode> :</p> <p>#DIALMODE: <mode></p>
AT#DIALMODE=?	<p>Test command returns the range of parameter <mode></p>

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6.17 +CNMI - new message indications to Terminal Equipment with SELINT: 0 or 1

+CNMI - new message indications to terminal equipment	
<p>AT+CNMI=[<mode> [,<mt> [,<bm> [,<ds> [,<bfr>]]]]]</p>	<p>Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE.</p> <p>Parameter:</p> <p><mode> - unsolicited result codes buffering option</p> <p>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.</p> <p>1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE.</p> <p>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.</p> <p>3 - if <mt> is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too.</p> <p><mt> - result code indication reporting for SMS-DELIVER</p> <p>0 - No SMS-DELIVER indications are routed to the TE.</p> <p>1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code:</p> <p>+CMTI: <memr>,<index></p> <p>where:</p> <p><memr> - memory storage where the new message is stored "SM" "ME"</p> <p><index> - location on the memory where SMS is stored.</p> <p>2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the TE using the following unsolicited result code:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CMT: [<alpha>],<length><CR><LF><pdu></p> <p>where:</p> <p><alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook.</p> <p><length> - PDU length</p> <p><pdu> - PDU message</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CMT:<oa>,[<alpha>],<scts>[,<toa>,<fo>,<pid>,<dsc>,<sca>,<tosca>,<length>]<CR><LF><data> (about parameters in</p>

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+CNMI - new message indications to terminal equipment

italic, refer command +CSDH)

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>:
 145 - number in international format (contains the "+")
 129 - number in national format
- <fo> - first octet of GSM 03.40
- <pid> - Protocol Identifier
- <dsc> - Data Coding Scheme
- <sca> - Service Centre number
- <length> - text length
- <data> - text mode enabled

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><text>

where:

- <sn> - message serial number
- <mid> - message ID
- <dcs> - Data Coding Scheme
- <pag> - page number
- <pags> - total number of pages of the message
- <text> - message text

<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

+CNMI - new message indications to terminal equipment	
	<p><PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CDS: <fo>,<mr>,,,<scts>,<dt>,<st> where: <fo> - first octet of the message PDU <mr> - message reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU</p> <p>2 - if a status report is stored, then the following unsolicited result code is sent: +CDSI: <memr>,<index> where: <memr> - memory storage where the new message is stored "SM" <index> - location on the memory where SMS is stored</p> <p><bfr> - buffered result codes handling method: 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered.</p> <p>Note: if all parameters are omitted then the behaviour of Set command is the same as Read command.</p>
AT+CNMI?	<p>Read command returns the current parameter settings for +CNMI command in the form:</p> <p>+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr></p>
AT+CNMI=?	<p>Test command reports the supported range of values for the +CNMI command parameters.</p> <p>For compatibility with previous versions, Test command returns +CNMI: (0-2),(0-3),(0,2),(0-2),(0,1)</p> <p>An enhanced version of Test command has been defined: AT+CNMI=??, that provides the complete range of values for parameter <mode>.</p>
AT+CNMI=??	<p>Enhanced test command reports the supported range of values for all the +CNMI command parameters.</p>
Reference	GSM 07.05
Note	<p>DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE startup is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.</p>

6.18 +CNMI - new message indications to Terminal Equipment with SELINT: 2

+CNMI - new message indications to terminal equipment	
<p>AT+CNMI=[<mode>[,<mt> [,<bm>[,<ds> [,<bfr>]]]]]</p>	<p>Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE.</p> <p>Parameter:</p> <p><mode> - unsolicited result codes buffering option</p> <p>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.</p> <p>1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE.</p> <p>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.</p> <p>3 - if <mt> is set to 1 an indication via 100 ms break is issued when a SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too.</p> <p><mt> - result code indication reporting for SMS-DELIVER</p> <p>0 - No SMS-DELIVER indications are routed to the TE.</p> <p>1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code:</p> <p>+CMTI: <memr>,<index></p> <p>where:</p> <p><memr> - memory storage where the new message is stored "SM" "ME"</p> <p><index> - location on the memory where SMS is stored.</p> <p>2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the TE using the following unsolicited result code:</p> <p style="text-align: center;">(PDU Mode)</p> <p>+CMT: [<alpha>],<length><CR><LF><pdu></p> <p>where:</p> <p><alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook.</p> <p><length> - PDU length</p> <p><pdu> - PDU message</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CMT:<oa>,[<alpha>],<scts>[,<toa>,<fo>,<pid>,<dsc>,<sca>,<tosca>,<length>]<CR><LF><data> (about parameters in</p>

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+CNMI - new message indications to terminal equipment

italic, refer command +CSDH)
 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>:
 145 - number in international format (contains the "+")
 129 - number in national format
 <fo> - first octet of GSM 03.40
 <pid> - Protocol Identifier
 <dsc> - Data Coding Scheme
 <sca> - Service Centre number
 <length> - text length
 <data> - text mode enabled

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><text>
 where:
 <sn> - message serial number
 <mid> - message ID
 <dcs> - Data Coding Scheme
 <pag> - page number
 <pags> - total number of pages of the message
 <text> - message text

<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

+CNMI - new message indications to terminal equipment	
	<p><PDU> - message PDU</p> <p style="text-align: center;">(TEXT Mode)</p> <p>+CDS: <fo>,<mr>,,,<scts>,<dt>,<st> where: <fo> - first octet of the message PDU <mr> - message reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU</p> <p>2 - if a status report is stored, then the following unsolicited result code is sent: +CDSI: <memr>,<index> where: <memr> - memory storage where the new message is stored "SM" <index> - location on the memory where SMS is stored</p> <p><bfr> - buffered result codes handling method: 0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes) 1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered.</p>
AT+CNMI?	<p>Read command returns the current parameter settings for +CNMI command in the form:</p> <p>+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr></p>
AT+CNMI=?	<p>Test command reports the supported range of values for the +CNMI command parameters.</p>
Reference	GSM 07.05
Note	<p>DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE startup is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.</p>

6.19 #CODEC - audio codec with SELINT: 0 or 1

#CODEC - audio codec	
AT#CODEC[= <codec>]	<p>Set command sets the audio codec mode. The value <codec> is either 0 or is obtained as sum of the following values, each of them representing a specific codec mode:</p> <ul style="list-style-type: none"> 1 - FR, full rate mode enabled 2 - EFR, enhanced full rate mode enabled 4 - HR, half rate mode enabled 8 - AMR-FR, AMR full rate mode enabled 16 - AMR-HR, AMR half rate mode enabled <p>Parameter: <codec> 0.- all the codec modes are enabled (default) 1..31 - value obtained as sum of the previously defined codec modes.</p> <p>Note: the setting 0 is equivalent to the setting 31.</p> <p>Note: The codec setting is saved in the profile parameters.</p> <p>Note: if optional parameter <codec> is omitted the behaviour of Set command is the same as Read command.</p>
AT#CODEC?	<p>Read command returns current value of <codec></p> <p>#CODEC: <codec></p>
AT#CODEC=?	<p>Test command returns the range of supported values for <codec></p>
Example	<p>The command</p> <pre>AT#CODEC=14 OK</pre> <p>sets the codec modes HR (4), EFR (2) and AMR-FR (8)</p>

6.20 #CODEC - audio codec with SELINT: 2

#CODEC - audio codec	
AT#CODEC=[<codec>]	<p>Set command sets the audio codec mode. The value <codec> is either 0 or is obtained as sum of the following values, each of them representing a specific codec mode:</p> <ul style="list-style-type: none"> 1 - FR, full rate mode enabled 2 - EFR, enhanced full rate mode enabled 4 - HR, half rate mode enabled 8 - AMR-FR, AMR full rate mode enabled 16 - AMR-HR, AMR half rate mode enabled <p>Parameter: <codec> 0.- all the codec modes are enabled (default) 1..31 - value obtained as sum of the previously defined codec modes.</p> <p>Note: the setting 0 is equivalent to the setting 31.</p> <p>Note: The codec setting is saved in the profile parameters.</p>
AT#CODEC?	<p>Read command returns current value of <codec></p> <p>#CODEC: <codec></p>
AT#CODEC=?	<p>Test command returns the range of supported values for <codec></p>
Example	<p>The command</p> <pre>AT#CODEC=14 OK</pre> <p>sets the codec modes HR (4), EFR (2) and AMR-FR (8)</p>

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6.21 #GAUTH - PPP-GPRS connection type with SELINT: 0 or 1

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

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6.22 #GAUTH - PPP-GPRS connection type with SELINT: 2

#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 (default) 2 - CHAP authentication Note: for GSM connection <type> is fixed to PAP
AT#GAUTH?	Read command returns current value of <type>
AT#GAUTH=?	Test command returns the range of supported values for <type>

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6.23 #F26M - 26 MHz pin with SELINT: 0 or 1

#F26M - enable/disable the 26 MHz	
AT#F26M[= <on/off>]	<p>Set command enable/disable the 26 MHz clock output on PIN F26M.</p> <p>Parameter: <on/off> 0 - F26M pin disabled (default). 1 - F26M pin enabled</p> <p>NOTE:</p> <ul style="list-style-type: none"> - if parameter <on/off> is omitted the behaviour of Set command is the same as Read command; - the command would be saved in the user profile. - <i>Please refer to the hardware user guide in order to know the correct pin-out.</i>
AT#F26M?	Read command returns current value of <on/off>
AT#F26M=?	Test command returns the range of supported values for <on/off>

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6.24 #F26M – 26 MHz pin with SELINT: 2

#F26M - enable/disable the 26 MHz	
AT#F26M= <on/off>	Set command enable/disable the 26 MHz clock output on PIN F26M. Parameter: <on/off> 0 - F26M pin disabled (default). 1 - F26M pin enabled
AT#F26M?	Read command returns current value of <on/off>
AT#F26M=?	Test command returns the range of supported values for <on/off>

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6.25 +CHUP - hang-up calls with SELINT: 0 or 1

+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

6.26 +CHUP - hang-up calls with SELINT: 2

+CHUP - hangup call	
AT+CHUP	Execution command cancels all active and held calls, also if a multi-party session is running.

6.27 #RTCSTAT - RTC status with SELINT: 0 or 1

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

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6.28 #RTCSTAT - RTC status with SELINT: 2

#RTCSTAT - RTC Status	
AT#RTCSTAT= <status>	<p>Set command resets the RTC status flag.</p> <p>Parameter: <status> 0 - Set RTC Status to RTC HW OK</p> <p>Note: the initial value is RTC HW Error and it doesn't change until a command AT#RTCSTAT=0 is issued.</p> <p>Note: if a power failure occurs and the buffer battery is down the RTC status flag is set to 1. It doesn't change until next AT#RTCSTAT=0 command.</p>
AT#RTCSTAT?	Read command reports the status of RTC status flag
AT#RTCSTAT=?	Test command returns the range of supported values for < status >

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6.29 #E2SMSRI – SMS Ring Indicator with SELINT: 0 or 1

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

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6.30 #E2SMSRI – SMS Ring Indicator with SELINT: 2

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

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6.31 #E2ESC - Escape Sequence Guard Time with SELINT: 0 or 1

#E2ESC - Escape Sequence Guard Time	
AT#E2ESC[= [<gt>]]	<p>Set command sets a guard time in seconds for the escape sequence +++ in GPRS to return to on-line command mode</p> <p>Parameter: <gt> 0 - no guard time (default) 1..10 - guard time in seconds</p> <p>Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with ATS12.</p> <p>Note: if the parameter <gt> is omitted the behaviour of Set command is the same as Read command.</p>
AT#E2ESC?	Read command returns current value of the Escape Sequence Guard Time.
AT#E2ESC=?	Test command returns the OK result code

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6.32 #E2ESC - Escape Sequence Guard Time with SELINT: 2

#E2ESC - Escape Sequence Guard Time	
AT#E2ESC= [<gt;]	<p>Set command sets a guard time in seconds for the escape sequence +++ in GPRS to return to on-line command mode</p> <p>Parameter: <gt; 0 - no guard time (default) 1..10 - guard time in seconds</p> <p>Note: if the Escape Sequence Guard Time is set to a value different from zero, it overrides the one set with ATS12.</p>
AT#E2ESC?	Read command returns current value of the Escape Sequence Guard Time.
AT#E2ESC=?	Test command returns the range of supported values for <gt;.

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6.33 #ECAM - Extended Call Monitoring with SELINT: 0 or 1

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#ECAM - Extended Call Monitoring	
AT#ECAM[= [<onoff>]]	<p>This command enables/disables the call monitoring function in the ME.</p> <p>Parameter: <onoff> 0 - call monitoring disabled (default) 1 - call monitoring enabled</p> <p>When this monitoring is activated in the ME, the ME informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited code:</p> <p>#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]</p> <p>where <ccid> - call ID</p> <p><ccstatus> - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy</p> <p><calltype> - call type 1 - voice 2 - data</p> <p><number> - called number (valid only for <ccstatus>=1)</p> <p><type> - type of <number> 129 - national number 145 - international number</p> <p>Note: the unsolicited code is sent along with usual codes (OK, NO CARRIER, BUSY...).</p> <p>Note: if parameter <onoff> is omitted the behaviour of Set command is the same as Read command.</p>
AT#ECAM?	Read command returns current value of parameter <onoff>: #ECAM: <onoff>
AT#ECAM=?	Test command returns the list of supported values for <onoff>

6.34 #ECAM - Extended Call Monitoring with SELINT: 2

#ECAM - Extended Call Monitoring	
AT#ECAM[= [<onoff>]]	<p>This command enables/disables the call monitoring function in the ME.</p> <p>Parameter: <onoff> 0 - call monitoring disabled (default) 1 - call monitoring enabled</p> <p>When this monitoring is activated in the ME, the ME informs about call events, such as incoming call, connected, hang up etc. using the following unsolicited code:</p> <p>#ECAM: <ccid>,<ccstatus>,<calltype>,,, [<number>,<type>]</p> <p>where <ccid> - call ID</p> <p><ccstatus> - call status 0 - idle 1 - calling (MO) 2 - connecting (MO) 3 - active 4 - hold 5 - waiting (MT) 6 - alerting (MT) 7 - busy</p> <p><calltype> - call type 1 - voice 2 - data</p> <p><number> - called number (valid only for <ccstatus>=1)</p> <p><type> - type of <number> 129 - national number 145 - international number</p> <p>Note: the unsolicited code is sent along with usual codes (OK, NO CARRIER, BUSY...).</p> <p>Note: if parameter <onoff> is omitted the behaviour of Set command is the same as Read command.</p>
AT#ECAM?	<p>Read command returns current value of parameter <onoff>: #ECAM: <onoff></p>
AT#ECAM=?	<p>Test command returns the list of supported values for <onoff></p>

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6.35 +CVHU – Voice Hang-up Control with SELINT: 0 or 1

+CVHU - Voice Hang-up Control	
AT+CVHU = <mode>	<p>Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not.</p> <p><mode></p> <ul style="list-style-type: none"> 0 - [default] "Drop DTR" ignored but OK response given (DTR sensing must be enabled with AT&D2). ATH disconnects. 1 - "Drop DTR" ignored but OK response given (DTR sensing must be enabled with AT&D2). ATH ignored but OK response given. 2 - "Drop DTR" behaviour according to &D setting. ATH disconnects. <p>Note: if parameter <mode> is omitted the behaviour of Set command is the same as Read command.</p>
AT+CVHU?	<p>Read command reports the current value of the <mode> parameter: +CVHU: <mode></p>
AT+CVHU=?	<p>Test command reports the range of supported values for parameter <mode></p>

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6.36 +CVHU – Voice Hang-up Control with SELINT: 2

+CVHU - Voice Hang-up Control	
AT+CVHU= [<mode>]	<p>Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not.</p> <p><mode></p> <p>0 - "Drop DTR" ignored but OK response given (DTR sensing must be enabled with AT&D2). ATH disconnects.</p> <p>1 - "Drop DTR" ignored but OK response given (DTR sensing must be enabled with AT&D2). ATH ignored but OK response given.</p> <p>2 - "Drop DTR" behaviour according to &D setting. ATH disconnects.</p>
AT+CVHU?	<p>Read command reports the current value of the <mode> parameter: +CVHU: <mode></p>
AT+CVHU=?	<p>Test command reports the range of supported values for parameter <mode></p>

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6.37 #FTPTO – FTP Timeout with SELINT: 0 or 1

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

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6.38 #FTPPTO – FTP Timeout with SELINT: 2

#FTPPTO - FTP timeout	
AT#FTPPTO= [<timeout>]	<p>Set command sets timeout for FTP operations.</p> <p>Parameter: <timeout> - timeout in 100 ms units 100..5000 - hundreds of ms (default is 100)</p> <p>Note: The parameter is not saved in NVM</p>
AT#FTPPTO?	<p>Read command returns the current FTP operations timeout: # FTPPTO: <timeout></p>
AT#FTPPTO=?	<p>Test command returns the range of supported values for parameter <timeout></p>

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6.39 #AUTOBND – Auto band selection with SELINT: 0 or 1

#AUTOBND - Automatic band selection	
AT#AUTOBND[= <value>]	<p>Set command enables/disables the automatic band selection at power-on.</p> <p>Parameter: <value>: 0 - automatic band selection at power-on disabled (default) 1 - automatic band selection at power-on enabled</p> <p>Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found.</p> <p>Note: #AUTOBND = 1 and +COPS = 0 are necessary conditions in order to have automatic band selection at next power-on. The automatic band selection stops as soon as a GSM cell is found.</p> <p>Note: if parameter <value> is omitted the behaviour of Set command is the same as Read command.</p>
AT#AUTOBND?	<p>Read command returns if the Automatic Band Selection is enabled in the form: #AUTOBND: <value></p>
AT#AUTOBND=?	<p>Test command returns the range of supported values for <value>.</p>

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6.40 Auto band selection with SELINT: 2

#AUTOBND - Automatic band selection	
AT#AUTOBND=[<value>]	<p>Set command enables/disables the automatic band selection at power-on.</p> <p>Parameter: <value>: 0 - automatic band selection at power-on disabled (default) 1 - automatic band selection at power-on enabled</p> <p>Note: if automatic band selection is enabled the band changes every about 90 seconds through available bands until a GSM cell is found.</p> <p>Note: #AUTOBND = 1 and +COPS = 0 are necessary conditions in order to have automatic band selection at next power-on. The automatic band selection stops as soon as a GSM cell is found.</p>
AT#AUTOBND?	<p>Read command returns if the Automatic Band Selection is enabled in the form: #AUTOBND: <value></p>
AT#AUTOBND=?	<p>Test command returns the range of supported values for <value>.</p>

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6.41 AT\Q – Flow control

AT\Q – Flow Control	
Execute command AT\Q<n>	Enable the flow control. Parameter: <n>: 0 - No flow control (default) 1 - XON/XOFF software flow control bidirectional 2 - Only CTS by DCE 3 - RTS/CTS hardware flow control 4 - XON/XOFF software flow control mono-directional Response: <p style="text-align: center;">OK</p> Note: <ul style="list-style-type: none"> - If RTS/CTS flow control is not supported by interface and <n> is 2 or 3, response is <p style="text-align: center;">ERROR</p> The parameter is saved in the customer profile.

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