AT COMMANDS

SUPPORTED BY SAGEM myX-5 MOBILE PHONES

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1. INTRODUCTION

1.1. Content of this document

This document describes the AT commands supported by the SAGEM 3xxx cellular phones family. These commands refer to **3GPP 27.007 and 27.005 GSM recommendations**; nevertheless, some of the commands implemented in the SAGEM mobile phones may not be fully compatible with the 3GPP recommendations.
Depending on the model of your mobile phone, a few of the following commands may not be implemented. You can check which AT commands are available on your mobile phone using the AT+CLAC command.
For more detailed informations about specific parameter or command, you should refer to the above-noticed recommendations.

1.2. Implementation of indexes

SMS and phonebook entries can be stored in either SIM card or mobile phone memory. For each type of memory, a valid range of indexes are defined. These ranges may vary according to SIM / mobile phone type. For instance,
+ for SMS:
- When the preferred memory storage is set to SM, the indexes begin from 1 to 10 (if the SIM card supports up to 10 SMS).
- When the preferred memory storage is set to ME, the indexes begin from 900 to 919 (if the Mobile equipment supports up to 20 SMS).
- When the preferred memory storage is set to MT, the indexes begin from 1 to 10 (if the SIM card supports up to 10 SMS) and jump to 900 to 919 (if the Mobile equipment supports up to 20 SMS). The reason of this implementation is to have the same numbering from a mobile point of view and a TE point of view for the user.

+ for phonebook management:
- When the preferred memory storage is set to SM, the indexes begin from 1 to 80 (if the SIM card supports up to 80 phonebook entries).
- When the preferred memory storage is set to ME, the indexes begin from 750 to 999 (if the Mobile equipment supports up to 250 phonebook entries).
- When the preferred memory storage is set to MT, the indexes begin from 1 to 80 (if the SIM card supports up to 80 phonebook entries) and jump to 750 to 999 (if the Mobile equipment supports up to 250 phonebook entries). The reason of this implementation is to have the same numbering from a mobile point of view and a TE point of view for the user.

1.3. Modification of this document

The commands described in this document are subject to change without notice, and shall only be used as a support for usual AT commands use.

2. SMS SPECIFIC COMMANDS

2.1. Text Mode

2.1.1. Set Text Mode Parameters +CSMP

Command	Parameters / Possible response(s)
+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]	**Parameters** <fo> Only SMS-SUBMIT (default 17) is supported <vp> GSM 03.40 TP-Validity-Period, in integer format 71 6 hours 167 24 hours (default) 173 7 days 255 63 weeks <pid> GSM 03.40 TP-Protocol-Identifier in integer format (default 0) <dcs> GSM 03.38 SMS Data Coding Scheme (default 0) **Response** OK or ERROR
+CSMP?	+CSMP: <fo>,<vp>,<pid>,<dcs>
+CSMP=?	+CSMP:(list of supported <fo>s),(list of supported <vp>s),(list of supported <pid>s),(list of supported <dcs>s)

2.1.2. Preferred Message Storage +CPMS

Command	Parameters / Possible response(s)
+CPMS=<mem>	**Parameters** <mem> memory from which messages are read and deleted, also memory to which writing and sending operations are made <used> number of messages currently in <mem> <total> total number of message locations in <mem> **Response** +CPMS: <used>,<total>
+CPMS?	+CPMS: <mem>,<used>,<total>
+CPMS=?	+CPMS: (list of supported <mem>s)

2.1.3. Message Format +CMGF

Command	Parameters / Possible response(s)
+CMGF=[<mode>]	**Parameters** <mode> 0 PDU mode 1 text mode **Response** OK or ERROR
+CMGF?	+CMGF: <mode>
+CMGF=?	+CMGF: (list of supported <mode>s)

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

<err>	
0...127	GSM 04.11 Annex E-2 values
128...255	GSM 03.40 subclause 9.2.3.22 values
300	ME failure
301	SMS service of ME reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode parameter
305	invalid text mode parameter
310	SIM not inserted
311	SIM PIN required
312	PH-SIM PIN required
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network service
332	network timeout
340	no +CNMA acknowledgement expected
500	unknown error
...511	other values in range 256...511 are reserved
512...	manufacturer specific

2.1.5. Service Centre Address +CSCA

Command	Parameters / Possible response(s)
+CSCA=<sca>[,<tosca>]	**Parameters** <sca> GSM 04.11 RP SC address Address-Value (SMS Service Center) <tosca> GSM 04.11 RP SC address Type-of-Address octet **Response** OK or ERROR
+CSCA?	+CSCA: <sca>,<tosca>
+CSCA=?	+CSCA: list of supported <sca>s,(list of supported <tosca>s)

2.1.6. List Messages +CMGL

Command	Parameters / Possible response(s)
+CMGL[=<stat>]	**Parameters** <index> integer type; value in the range of location numbers supported by the associated memory <stat> integer type (default 0: "REC UNREAD"); indicates the status of message in memory; defined values: 0 "REC UNREAD" received unread message (i.e. new message) 1 "REC READ" received read message 2 "STO UNSENT" stored unsent message (only applicable to SMS) 3 "STO SENT" stored sent message (only applicable to SMS) 4 "ALL" all messages (only applicable to +CMGL command) <oa/da> GSM 03.40 TP-Originating-Address / TP-Destination-Address Address-Value field in string format <scts> GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format <length> integer type value indicating the length in characters of the message body <data> <data> GSM 03.40 TP-User-Data in text mode responses **Response** **If command successful and SMS-SUBMITs and/or SMS-DELIVERs:** **If <stat> = "REC READ" or "REC UNREAD"** +CMGL: <index>,<stat>,<oa/da>,<scts>,<*length*> <CR><LF><data><CR><LF> [+CMGL: <index>,<stat>,<oa/da>,<scts>,<*length*><CR><LF><data> <CR><LF>[...]] **If <stat> = "STO UNSENT" or "STO SENT"** +CMGL: <index>,<stat>,<oa/da>,<*length*> <CR><LF><data><CR><LF> [+CMGL: <index>,<stat>,<oa/da>,<*length*><CR><LF><data> <CR><LF>[...]] **Otherwise:** *+CMS ERROR: <err>*
+CMGL?	*+CMS ERROR: <err>*
+CMGL=?	+CMGL: (list of supported <stat>s)

2.1.7. Read Message +CMGR

Command	Parameters / Possible response(s)
+CMGR=<index>	**Parameters** See command above. **Response** **If command successful and SMS-DELIVER:** +CMGR: <stat>,<oa>,<scts>,<length> <CR><LF><data><CR><LF> **If command successful and SMS-SUBMIT:** +CMGR: <stat>,<da>,<length> <CR><LF><data><CR><LF> **Otherwise:** *+CMS ERROR: <err>*
+CMGR?	*+CMS ERROR: <err>*
+CMGR=?	*+CMS ERROR: <err>*

2.1.8. Write Message to Memory +CMGW

Command	Parameters / Possible response(s)
+CMGW=<oa/da><CR>***text is entered***<ctrl-Z/ESC>	**Parameters** See command above. **Response** +CMGW: <index> *+CMS ERROR: <err>* if selected memory full
+CMGW?	*+CMS ERROR: <err>*
+CMGW=?	OK

2.1.9. Delete Message +CMGD

Command	Parameters / Possible response(s)
+CMGD=<index>	**Parameters** See command above. **Response** OK or *+CMS ERROR: <err>*
+CMGD?	*+CMS ERROR: <err>*
+CMGD=?	*+CMS ERROR: <err>*

2.1.10. Send Message +CMGS

Command	Parameters / Possible response(s)
+CMGS=<da><CR>***text is entered***<ctrl-Z/ESC>	**Parameters** See command above. **Response** If sending successful: +CMGS: 0 If sending fails: *+CMS ERROR: <err>*
+CMGS?	*+CMS ERROR: <err>*
+CMGS=?	OK

2.1.11. Send Message from Storage +CMSS

Command	Parameters / Possible response(s)
+CMSS=<index>[,<da>]	**Parameters** See command above. **Response** If sending successful: +CMSS: 0 If sending fails: *+CMS ERROR: <err>*
+CMSS?	*+CMS ERROR: <err>*
+CMSS=?	+CMSS: index,”address”

2.1.12. New Message Indications to TE +CNMI

Command	Parameters / Possible response(s)
+CNMI=<mode>,<mt>, <bm>,<ds>,<bfr>	**Parameters** <mode> buffering mode 0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, 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 (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. <mt> rules for storing received SMs 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 unsolicited result code +CMTI: <mem>,<index> <bm> rules for storing received CBMs 0 No CBM indications are routed to the TE. <ds> SMS-STATUS-REPORTs routing mode 0 No SMS-STATUS-REPORTs are routed to the TE. <bfr> TA buffer of unsolicited result codes behaviour 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. **Response** ERROR
+CNMI?	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>
+CNMI=?	+CNMI: ?

2.2. PDU Mode

2.2.1. List Messages +CMGL

Command	Parameters / Possible response(s)
+CMGL[=<stat>]	**Parameters** See command above. <pdu> GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format **Response** **If command successful:** +CMGL: <index>,<stat>,<length> <CR><LF><pdu><CR><LF> [<CR><LF>+CMGL:<index>,<stat>,<length><CR><LF><pdu><CR><LF> [...]] **Otherwise:** *+CMS ERROR: <err>*
+CMGL?	*+CMS ERROR: <err>*
+CMGL=?	+CMGL: (list of supported <stat>s)

2.2.2. Read Message +CMGR

Command	Parameters / Possible response(s)
+CMGR=<index>	**Parameters** See command above. **Response** **If command successful:** +CMGR: <stat>,<length> <CR><LF><pdu><CR><LF> **Otherwise:** *+CMS ERROR: <err>*
+CMGR?	*+CMS ERROR: <err>*
+CMGR=?	*+CMS ERROR: <err>*

2.2.3. Send Message +CMGS

Command	Parameters / Possible response(s)
+CMGS=<length><CR> <pdu><ctrl-Z/ESC>	**Parameters** <length> integer type value indicating the length of the actual TP data unit in octets **Response** If sending successful: +CMGS: 0 If sending fails: *+CMS ERROR: <err>*
+CMGS?	*+CMS ERROR: <err>*
+CMGS=?	OK

2.2.4. Write Message to Memory +CMGW

Command	Parameters / Possible response(s)
+CMGW=<length><CR> <pdu><ctrl-Z/ESC>	**Parameters** See command above. **Response** +CMGW: <index> *+CMS ERROR: <err>*
+CMGW?	*+CMS ERROR: <err>*
+CMGW=?	OK

2.2.5. Send Message from Storage +CMSS

Command	Parameters / Possible response(s)
+CMSS=<index>[,<da>]	**Parameters** See command above. **Response** If sending successful: +CMSS: 0 If sending fails: *+CMS ERROR: <err>*
+CMSS?	*+CMS ERROR: <err>*
+CMSS=?	+CMSS: index,"address"

2.3. Example

In the examples below, the configuration used for sending / receiving AT commands is a computer linked to the mobile phone via a serial link. A (Hyper)Terminal session is used to access the serial port, at 19200 bps set up on both sides (computer and mobile phone). Every end of line is terminated by <cr><lf> character, unless something else is specified.

AT commands and mobile's responses	Comments
at+cpms? +CPMS: "ME",3,20 OK	Query of currently selected memory for SMS writing, …
at+cpms="MT" +CPMS: 5,30 OK	Selecting MT memory (SIM + Mobile)
at+cmgf? +CMGF: 0 OK	Query of currently selected SMS management mode (being either Text if 1 or PDU if 0)
at+cmgf=1 +CMGF: 1 OK	Selecting Text mode for SMS management
at+cmgw="+33600000000" > testing SMS. Writing this SMS to memory > <CTRL-Z> +CMGW:903 OK	Writing a SMS to MT memory. The first available memory index is then used to stored the SMS, in our case index 903 of mobile's memory is used.
at+cmss=903 +CMSS: 0 OK	Ask the mobile phone to send the SMS stored in memory index 903, to the recipient specified above (+33600000000, myself).
+CMTI: "ME",904	Notification from my mobile phone: I have received a new SMS, which has been stored to memory index 904. This is the SMS I have sent to myself above. The location where this SMS has been stored (ME and not SM) depends on the SMS's class, which is a parameter you can set only using PDU mode when sending your SMS. More details about PDU mode can be found in ETSI 03.40 and 03.38.
at+cmgr=904 +CMGR: "REC UNREAD" ,"+33600000000","00/02/24,10:38:42+00",39 testing SMS. Writing this SMS to memory OK	I can now read my new SMS in memory index 904.
at+cmgd=904 OK	Tell the mobile phone to delete the SMS in memory index 904.

3. Phonebook management

3.1. Select phonebook memory storage +CPBS

Command	Parameters / Possible response(s)
+CPBS=<storage>	**Parameters** <storage> "DC" ME dialled calls list (+CPBW is not applicable for this storage) "FD" SIM fixdialling-phonebook When selecting FD, a second parameter (PIN2 code) is required for write operations. Ex : AT+CPBS="FD",1234 (1234 is the PIN2 code) For read only operation, it is allowed to send the command without PIN2 code (AT+CPBS="FD") "ME" ME phonebook "MT" combined ME and SIM phonebook "SM" SIM phonebook **Response** OK or +CME ERROR
+CPBS?	**Parameters** <used> integer type value indicating the number of used locations in selected memory <total> integer type value indicating the total number of locations in selected memory **Response** +CPBS: <storage>,<used>,<total>
+CPBS=?	+CPBS: (list of supported <storage>s)

3.2. Read phonebook entries +CPBR

Command	Parameters / Possible response(s)
+CPBR=<index1>[,<index2>]	**Parameters** <index1>, <index2> integer type values in the range of location numbers of selected phonebook memory <number> string type phone number of format <type> <type> type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) <text> string type field of maximum length <tlength> **Response** +CPBR: <index1>,<number>,<type>,<text><CR><LF> [[...]<CR><LF>+CPBR: <index2>,<number>,<type>,<text><CR><LF>] *+CME ERROR: <err>*
+CPBR?	**Response** *+CME ERROR: <err>*
+CPBR=?	**Parameters** <nlength> integer type value indicating the maximum length of field <number> <tlength>: integer type value indicating the maximum length of field <text> **Response** +CPBR: (list of supported <index>s),<nlength>,<tlength>

3.3. Find phonebook entries +CPBF

Command	Parameters / Possible response(s)
+CPBF=<findtext>	**Parameters** See command above. <findtext>, <text> string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS. Case sensitive function. **Response** +CPBF: <index1>,<number>,<type>,<text><CR><LF> [[...]<CR><LF>+CBPF: <index2>,<number>,<type>,<text><CR><LF>] *+CME ERROR: <err>*
+CPBF?	**Response** *+CME ERROR: <err>*
+CPBF=?	**Parameters** <nlength> integer type value indicating the maximum length of field <number> <tlength> integer type value indicating the maximum length of field <text> **Response** +CPBF: <nlength>,<tlength>

3.4. Write phonebook entry +CPBW

Command	Parameters / Possible response(s)
+CPBW=<index>[,<number> [,<type>[,<text>]]]	**Parameters** See command above. **Response** OK *+CME ERROR: <err>*
+CPBW?	**Response** *+CME ERROR: <err>*
+CPBW=?	**Response** +CPBW: (list of supported <index>s),<nlength>,(list of supported <type>s),<tlength>

3.5. Example

In the examples below, the configuration used for sending / receiving AT commands is a computer linked to the mobile phone via a serial link. A (Hyper)Terminal session is used to access the serial port, at 19200 bps set up on both sides (computer and mobile phone). Every end of line is terminated by <cr> character, unless something else is specified.

AT commands and mobile's responses	Comments
at+cpbs? +CPBS: "SM",80,80 OK	Check which memory is currently used in phonebook management
at+cpbs="ME" OK	Select mobile's memory for phonebook management
at+cpbr=? +CPBR: (750-999),20,16 OK	Check which indexes are available for reading in the selected memory, 750 to 999 in ME memory, in our case.
at+cpbr=750 +CPBR: 750,"33600000000",145,"TOTO" OK	Read phonebook's memory index 750.
at+cpbw=751,"+33600000000",145,"TITUS" OK	Write phone number and name in phonebook index 751
at+cpbr=751 +CPBR: 751,"33600000000",145,"TITUS" OK	Confirm what we have just written
at+cpbw=751 OK	Deletes index entry 751 in phonebook's memory
at+cpbf="T" +CPBF: 750,"33600000000",145,"TOTO" OK	Search for every name beginning with "T" in the phonebook's memory. There is just one in our case.

4. GENERAL COMMANDS

ITU-T Recommendation V.25ter [14] includes "Generic DCE Control" commands with the prefix +G. These commands are for the identification of the TA. Four of those commands are adapted here to be the identification commands of the ME. Syntax is otherwise similar but the prefix is +CG. TIA IS-99 [15] uses same commands for ME identification.

4.1. Request manufacturer identification +CGMI

Command	Parameters / Possible response(s)
+CGMI	**Response** +CGMI: SAGEM
+CGMI?	**Response** *ERROR*
+CGMI=?	**Response** OK

4.2. Request model identification +CGMM

Command	Parameters / Possible response(s)
+CGMM	**Parameters** <model> myX-5, etc… depending on the internal model name defined by SAGEM **Response** +CGMM: <model>
+CGMM?	**Response** *ERROR*
+CGMM=?	**Response** OK

4.3. Request revision identification +CGMR

Command	Parameters / Possible response(s)
+CGMR	**Parameters** <revision> revision of mobile phone's software (i.e. SAGEM JB3,6A) **Response** +CGMR: <revision>
+CGMR?	**Response** *ERROR*
+CGMR=?	**Response** OK

4.4. Request product serial number identification +CGSN

Command	Parameters / Possible response(s)
+CGSN	**Parameters** <sn> string being the IMEI of the ME **Response** <sn>
+CGSN?	**Response** OK
+CGSN=?	**Response** OK

4.5. Select TE character set +CSCS

Command	Parameters / Possible response(s)
+CSCS=<chset>	**Parameters** <chset> conversion scheme implemented in the mobile phone "PCCP437" PC character set Code Page 437 "GSM" GSM default alphabet (GSM 03.38 subclause 6.2.1); this setting causes easily software flow control (XON/XOFF) problems **"IRA"** international reference alphabet (ITU-T T.50 [13]) "UCS2" 16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2 character strings are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99 "8859-1" ISO 8859 Latin 1 character set "HEX" character strings consist only of hexadecimal numbers from 00 to FF; e.g. "032FE6" equals three 8-bit characters with decimal values 3, 47 and 230; no conversions to the original ME character set shall be done. **Response** ?
+CSCS?	**Response** +CSCS: <chset>
+CSCS=?	**Response** +CSCS: (list of supported <chset>s)

4.6. Request international mobile subscriber identity +CIMI

Command	Parameters / Possible response(s)
+CIMI	**Parameters** <IMSI> International Mobile Subscriber Identity **Response** <IMSI>
+CIMI?	**Response** OK
+CIMI=?	**Response** OK

4.7. Generic AT Commands

Most of these AT commands are part of recommendation ITU-T V25.Ter. Refer to this recommendation for detailed specifications. Default values of the parameters below are underlined.

ATE[0|1] : 0 = echo off, 1 = echo on

ATS3: end of command line character. Only one decimal value defined: 13.

ATS4: response formatting character. Only one decimal value defined: 10.

ATS5: editing command line character. Only one decimal value defined: 8.

ATS7: maximum delay for the ME to wait between dialling and the connexion is established.

ATV[0|1] : 0 = digit, 1 = text mode

ATQ[0|1] : 0 =display messages on computer, 1 = no message

ATD[ATDP][ATDT]<number>; : VOICE dialing command.

ATA : Answer a call

ATH[0] ou AT+CHUP: Hang up an established call

ATI ou ATI0 : mobile type

ATI1 ou ATI2 : Checksum flash
ATI3, ATI4, ATI6, ATI7, ATI8, ATI9 : Revision identification (SAGEM FW4,0H for example)
ATI5 : Returns 005
A/ : repetition of the previous command
AT&W : write the user configuration in saved memory (S0, S7, Bxx, \Nn, E0, V0); (DATA-Inside mobile phones only)
AT&F : recover default (factory) configuration (DATA-Inside mobile phones only).
AT+IPR : Fixed TE data rate
NO CARRIER : no carrier indication
BUSY : busy indication
+CRING VOICE : incoming voice call indication
CONNECT VOICE : connected in Data or Fax mode
NETWORK OUT OF ORDER, NO NETWORK, SWITCH CONGESTION, TCH NOT AVAILABLE : network problem indication

5. CALL CONTROL COMMANDS

5.1. DATA specific commands

ATD[ATDP][ATDT]<number> : DATA / FAX dialing command.
ATX1: CONNECT <text> is sent to TE when mobile enters online Data state.
ATZ[0] : reset modem (restore last configuration the user has saved using AT&W)
AT\V[0|1] : 0 = CONNECT message only, 1 = /RLP after CONNECT message
ATS0=n : Answer a Data / Fax call after n rings. If n=0, automatic answer is disabled
ATS2: defines the character, in decimal, to use as the escape sequence. Only one value is supported: 43 ('+' sign so the escape sequence is '+++').
+++ : escape sequence. During a data call, switches to online command mode. Use ATH to hang-up.
ATO : returns TA to online data state
ATBi : Bearer Capability (data rate and type on GSM interface) selection :

ATB7	ATB11	ATB13	ATB25	ATB27	ATB29
Analogic modem 2400 (V22BIS)	Analogic modem 4800 (V32)	Analogic modem 9600 (V32)	UDI 2400 (ISDN call)	UDI 4800 (ISDN call)	UDI 9600 (ISDN call)

AT\N4 or AT\N6 : Secured mode (RLP)
AT\N0 : Transparent mode
AT&C0 : DCD signal is set to the active state all the time
AT&C1: DCD signal is set to the active state only when the connection is established with the remote end. The signal is reset when the connection is over.
AT&K0 : no flow control
AT&K3 : hardware flow control
AT&K4 : software flow control (Xon/Xoff)
AT&D0 : Ignore DTR
AT&D2 : Use DTR
AT&V : Returns the Active (current), Stored (by AT&W), and Default (factory) settings of the mobile (Data enabled mobile phones only).

5.2. Select bearer service type +CBST

Command	Parameters / Possible response(s)
+CBST=<speed>,<name>,<ce>	**Parameters** <speed> 0 autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem and non-transparent service) 4 2400 bps (Analog - V.22bis) 6 4800 bps (Analog - V.32) 7 9600 bps (Analog - V.32) 68 2400 bps (UDI - V.110) 70 4800 bps (UDI - V.110) 71 9600 bps (UDI - V.110) <name> 0 asynchronous modem (all other values will return ERROR) <ce> 0 transparent mode 1 secured mode (RLP) **Response** OK ERROR
+CBST?	**Response** +CBST: <speed>,<name>,<ce>
+CBST=?	**Response** +CBST: (list of supported <speed>s),(list of supported <name>s),(list of supported <ce>s)

5.3. Radio link protocol +CRLP

Command	Parameters / Possible response(s)
+CRLP=<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]	**Parameters** <ver> RLP version number in integer format; version indication 0 means “RLP version indication not present” <iws>, <mws>, <T1>, <N2>, <T4> IWF to MS window size, MS to IWF window size, acknowledgement timer T1, retransmission attempts N2, re-sequencing period T4 in integer format (default values and value ranges depend on RLP version; refer GSM 04.22 [18]): T1 and T4 are in units of 10 ms **Response** OK ERROR
+CRLP?	**Response** +CRLP: <iws>,<mws>,<T1>,<N2>,<ver1>,<T4>
+CRLP=?	**Response** +CRLP: (list of supported <iws>s),(list of supported <mws>s),(list of supported <T1>s),(list of supported <N2>s),<ver1>,(list of supported <T4>s)

5.4. Cellular result codes +CRC

Command	Parameters / Possible response(s)
+CRC=[<mode>]	**Parameters** <mode> 0 disables extended format 1 enables extended format <type> ASYNC [,<priority>[,<subaddr>,<satype>]] asynchronous transparent FAX [,<priority>[,<subaddr>,<satype>]] facsimile (TS 62) VOICE [,<priority>[,<subaddr>,<satype>]] normal voice (TS 11) ALT VOICE/FAX [,<priority>[,<subaddr>,<satype>]] alternating voice/fax, voice first (TS 61) **Response** OK ERROR **Unsollicited result code** +CRING: <type> instead of the normal RING, when <mode>=1
+CRC?	**Response** +CRC: <mode>
+CRC=?	**Response** +CRC: (list of supported <mode>s)

5.5. Service reporting control +CR

Command	Parameters / Possible response(s)
+CR=<mode>	**Parameters** <mode> 0 disables reporting 1 enables reporting <serv> ASYNC asynchronous transparent REL ASYNC asynchronous non-transparent **Response** OK ERROR **Intermediate result code** +CR: <serv>
+CR?	**Response** +CR: <mode>
+CR=?	**Response** +CR: (list of supported <mode>s)

6. NETWORK SERVICE RELATED COMMANDS

6.1. Calling line identification restriction +CLIR

Command	Parameters / Possible response(s)
+CLIR=<n>	**Parameters** <n> (parameter sets the adjustment for outgoing calls) 0 presentation indicator is used according to the subscription of the CLIR service 1 CLIR invocation (asks the network to hide phone number) 2 CLIR suppression (asks the network to show phone number) <m> (parameter shows the subscriber CLIR service status in the network) 2 unknown **Response** OK *+CME ERROR: <err>*
+CLIR?	**Response** +CLIR: <n>,<m>
+CLIR=?	**Response** +CLIR: (list of supported <n>s)

6.2. Calling line identification presentation +CLIP

Command	Parameters / Possible response(s)
+CLIP=<n>	**Parameters** <n> (parameter sets/shows the result code presentation status in the TA) 0 disable 1 enable <m> (parameter shows the subscriber CLIP service status in the network) 0 CLIP not provisioned 1 CLIP provisioned 2 unknown <number> string type phone number of format specified by <type> <type> type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) <alpha> optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS **Unsollicited result code** +CLIP: <number>,<type>[,,,<alpha>] response is returned after every RING **Response** OK *+CME ERROR: <err>*
+CLIP?	**Response** +CLIP: <n>,<m>
+CLIP=?	**Response** +CLIP: (list of supported <n>s)

6.3. Network registration +CREG

Command	Parameters / Possible response(s)
+CREG=<n>	**Parameters** <n> 0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CREG: <stat> 2 enable network registration and location information unsolicited result code +CREG: <stat>,<lac>,<ci> <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 <lac> string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) <ci> string type; two byte cell ID in hexadecimal format **Unsollicited result code** +CREG: <stat>,<lac>,<ci> **Response** OK *+CME ERROR: <err>*
+CREG?	**Response** If <n>=0 or <n>=1 : +CREG: <n>,<stat> If <n>=2 and ME is registered in the network: +CREG: <n>,<stat>,<lac>,<ci>
+CREG=?	**Response** +CREG: (list of supported <n>s)

6.4. Subscriber number +CNUM

Command	Parameters / Possible response(s)
+CNUM	**Parameters** <alpha*x*>: optional alphanumeric string associated with <number*x*>; used character set should be the one selected with command Select TE Character Set +CSCS <number*x*>: string type phone number of format specified by <type*x*> <type*x*>: type of address octet in integer format **Response** +CNUM: <alpha1>,<number1>,<type1> [<CR><LF>+CNUM: <alpha2>,<number2>,<type2><CR><LF>] [...]] *+CME ERROR: <err>*
+CNUM?	**Response** *+CME ERROR: <err>*
+CNUM=?	**Response** OK

6.5. Operator selection +COPS

Command	Parameters / Possible response(s)
+COPS=[<mode>[,<format> [,<oper>]]]	**Parameters** <mode> 0 automatic (<oper> field is ignored) 3 set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> field is ignored); this value is not applicable in read command response 4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered <format> 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> <oper> string type; <format> indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer GSM 04.08 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 2)(network code digit 1) <stat> 0 unknown 1 available 2 current 3 forbidden **Response** OK *+CME ERROR: <err>*
+COPS?	**Response** +COPS: <mode>,<format>,<oper>
+COPS=?	**Response** +COPS: list of supported (<stat>,long alphanumeric <oper> , numeric <oper>)s,,(list of supported <mode>s),(list of supported <format>s)

6.6. Supplementary service notifications +CSSN

Command	Parameters / Possible response(s)
+CSSN=<n>,[<m>]	**Parameters** <n> parameter sets/shows the +CSSI result code presentation status in the TA (in case of MO call) 0 disable 1 enable <m> parameter sets/shows the +CSSU result code presentation status in the TA (in case of MT call) 0 call is not one of multiparty (conference) call parties 1 call is one of multiparty (conference) call parties <code1> 0 unconditional call forwarding is active 1 some of the conditional call forwardings are active 2 call has been forwarded 3 call is waiting 4 this is a CUG call (also <index> present) 5 outgoing calls are barred 6 incoming calls are barred <code2> 0 this is a forwarded call (MT call setup) 1 this is a CUG call (also <index> present) (MT call setup) 2 call has been put on hold (during a voice call) 3 call has been retrieved (during a voice call) 4 multiparty call entered (during a voice call) **intermediate result code** +CSSI: <code1> (MO case) +CSSU: <code2> (MT case) **Response** OK
+CSSN?	**Response** +CSSN: <n>,<m> *+CME ERROR: <err>*
+CSSN=?	**Response** +CSSN: (list of supported <n>s),(list of supported <m>s)

6.7. List current calls +CLCC

Command	Parameters / Possible response(s)
+CLCC	**Parameters** <id*x*>: integer type; call identification number as described in GSM 02.30 [19] subclause 4.5.5.1; this number can be used in +CHLD command operations <dir>: 0 mobile originated (MO) call 1 mobile terminated (MT) 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> (bearer/teleservice): 0 voice 1 data 2 fax <mpty>: 0 call is not one of multiparty (conference) call parties 1 call is one of multiparty (conference) call parties <number>: string type phone number in format specified by <type> <type>: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) <alpha>: string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS **Response** [+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,<alpha>]] [<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,<alpha>]]<CR><LF> [...]]] or OK
+CLCC?	**Response** *+CME ERROR: <err>*
+CLCC=?	**Response** OK

6.8. Preferred operator list +CPOL

Command	Parameters / Possible response(s)
+CPOL=[<index>][, <format>[,<oper>]]	**Parameters** <index*n*> integer type; the order number of operator in the SIM preferred operator list <format> 0 long format alphanumeric <oper> 2 numeric <oper> <oper*n*> string type; <format> indicates if the format is alphanumeric or numeric (see +COPS) **Response** *+CME ERROR: <err>*

+CPOL?	**Response** +CPOL: <index1>,<format>,<oper1> [<CR><LF>+CPOL: <index2>,<format>,<oper2><CR><LF> [...]]
+CPOL=?	**Response** +CPOL: (list of supported <index>s),(list of supported <format>s)

6.9. Read operator names +COPN

Command	Parameters / Possible response(s)
+COPN	**Parameters** <numeric*n*> string type; operator in numeric format (see +COPS) <alpha*n*> string type; operator in long alphanumeric format (see +COPS) **Response** +COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2><CR><LF> [...]]
+COPN?	**Response** *+CME ERROR: <err>*
+COPN=?	**Response** OK

6.10. Change password +CPWD

Command	Parameters / Possible response(s)
+CPWD=<fac>,<oldpwd>,<newpwd>	**Parameters** <fac> "SC" SIM PIN "P2" SIM PIN2 <oldpwd>, <newpwd> string type; <oldpwd> shall be the same as password specified for the facility from the ME user interface or with command Change Password +CPWD and <newpwd> is the new password; maximum length of password can be determined with <pwdlength> <pwdlength> integer type maximum length of the password for the facility **Response** OK *+CME ERROR: <err>*
+CPWD?	**Response** OK
+CPWD=?	**Response** +CPWD: list of supported (<fac>,<pwdlength>)s

6.11. Call forwarding number and conditions +CCFC

Command	Parameters / Possible response(s)
+CCFC=<reason>,<mode>[,<number>[,<type>[,<class>[,,,<time>]]]]	**Parameters** <reason> 0 unconditional 1 mobile busy 2 no reply 3 not reachable 4 all call forwarding (refer 3GPP TS 22.030 [19]) 5 all conditional call forwarding (refer 3GPP TS 22.030 [19]) <mode> 0 disable 1 enable 2 query status 3 registration (identical to <mode> 1) 4 erasure (identical to <mode> 0) <number> string type phone number of forwarding address in format specified by <type> <type> type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7); default 145 when dialling string includes international access code character "+", otherwise 129 <class*x*> is a sum of integers each representing a class of information (default 7): 1 voice (telephony) 2 data (refers to all bearer services) 4 fax (facsimile services) <time> 1...30 when "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded, default value 20 **Response** OK *+CME ERROR: <err>* **when <mode>=2 and command successful:** +CCFC: <status>,<class1>,<number>,<type> [,,,<time>] [<CR><LF>+CCFC: <status>,<class2>,<number>,<type> [,,,<time>] [...]]
+CCFC?	**Response** OK
+CCFC=?	**Response** +CCFC: (list of supported <reason>s)

6.12. Call waiting +CCWA

Command	Parameters / Possible response(s)
+CCWA=[<n>[,<mode>[,<class>]]]	**Parameters** <n> sets/shows the result code presentation status in the TA 0 disable 1 enable <mode> when <mode> parameter is not given, network is not interrogated 0 disable 1 enable 2 query status <class*x*> is a sum of integers each representing a class of information (default 7): 1 voice (telephony) 2 data (refers to all bearer services) 4 fax (facsimile services) <status> 0 not active 1 active <number> string type phone number of calling address in format specified by <type> <type> type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) <alpha> optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS **Response** OK *+CME ERROR: <err>* **when <mode>=2 and command successful** +CCWA: <status>,<class1> [<CR><LF>+CCWA: <status>,<class2> [...]] **Unsolicited result code** +CCWA: <number>,<type>,<class>,[<alpha>]
+CCWA?	**Response** +CCWA: <n>
+CCWA=?	**Response** +CCWA: list of supported (<n>)s

6.13. Connected line identification presentation +COLP

Command	Parameters / Possible response(s)
+COLP=<n>	**Parameters** <n> (parameter sets/shows the result code presentation status in the TA): 0 disable 1 enable <m> (parameter shows the subscriber COLP service status in the network): 0 COLP not provisioned 1 COLP provisioned 2 unknown (e.g. no network, etc.) <number>, <type>, <alpha>: refer +CLIP **Response** OK *+CME ERROR: <err>* **Unsolicited result code** +COLP: <number>,<type>[,,,<alpha>]
+COLP?	**Response** +COLP: <n>,<m>
+COLP=?	**Response** +COLP: list of supported (<n>)s

6.14. Call related supplementary services +CHLD

Command	Parameters / Possible response(s)
+CHLD=<n>	**Parameters** <n> integer type; equals to numbers entered before SEND button in 3GPP TS 22.030 [19] subclause 4.5.5.1 **Response** OK *+CME ERROR: <err>*
+CHLD?	**Response** ERROR
+CHLD=?	**Response** +CHLD: list of supported (<n>)s The ‘x’ symbol in the list of <n>s represents the called number that can be used in some operations.

7. MOBILE EQUIPMENT CONTROL AND STATUS COMMAND

7.1. Key pad and Display management

7.1.1. Mobile Equipment control mode +CMEC

Command	Parameters / Possible response(s)
+CMEC=<keyp>[,<disp>[,<ind>]]	**Parameters** <keyp> 2 ME can be operated from both ME keypad and TE (with command +CKPD) <disp> 0 only ME can write to its display <ind> 0 only ME can set the status of its indicators **Response** *+CME ERROR: <err>*
+CMEC?	**Response** +CMEC: <keyp>,<disp>,<ind>
+CMEC=?	**Response** +CMEC: (list of supported <keyp>s), (list of supported <disp>s), (list of supported <ind>s)

7.1.2. Keypad control +CKPD

Command	Parameters / Possible response(s)
+CKPD=<keys>[,,<pause>]	**Parameters** <keys> string of characters representing keys as listed in the following table (based on PCCA XANX-101-I table I-3). All characters from a semicolon character (IRA 59) to the next single semicolon character are treated as alpha entries and are not converted to key equivalents. All semicolon characters inside alpha entries should be duplicated in the TE and stripped to one before entering to the ME <pause> 0…255 → 0…25.5 seconds (default is long enough so that the ME can handle keystrokes correctly, in our case 10 ms) **Response** OK *ERROR*
+CKPD?	**Response** *ERROR*
+CKPD=?	**Response** +CKPD: list of supported <keys>

Table of Character codes

Char	IRA (dec)	Comment (+ some known key symbols)
#	35	hash (number sign)
*	42	star (*)
0... 9	48... 57	number keys
;	59	escape character for string entering

C	67	clear display (C/CLR)
D	68	volume down
E	69	connection end (END)
M	77	menu (MENU)
O	79	Power off
S	83	connection start (SEND)
U	85	volume up
V	86	down arrow
Y	89	delete last character (C)
Z	90	Simulates the “OK” button
[	91	left soft key
X/x	88/120	middle soft key
]	93	right soft key
^	94	up arrow

Examples :

- AT+CKPD=”M42”,,5 simulate the keys stroke of the keys : Menu, 4, 2 with 0,5 seconds between each strokes.
- AT+CKPD=”;Hello;” simulates the entry of the string “Hello”. This escape mechanism may not work in every screen.

7.2. Mobile Equipment event reporting +CMER

Command	Parameters / Possible response(s)
+CMER=<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]	**Parameters** <mode> 0 buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded 1 discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2 buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE <keyp> 0 no keypad event reporting 1 keypad event reporting using result code +CKEV: <key>,<press>. <key> indicates the key (refer IRA values defined in table in subclause "Keypad control +CKPD") and <press> if the key is pressed or released (1 for pressing and 0 for releasing). Only those key pressings, which are not caused by +CKPD shall be indicated by the TA to the TE. 2 keypad event reporting using result code +CKEV: <key>,<press>. All key pressings shall be directed from TA to TE. <disp> 0 no display event reporting <ind> 0 no indicator event reporting 1 indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator events, which are not caused by +CIND shall be indicated by the TA to the TE <bfr> 0 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered 1 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) **Response** OK *+CME ERROR: <err>*
+CMER?	**Response** +CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>
+CMER=?	**Response** +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)

7.3. Indicator control +CIND

Command	Parameters / Possible response(s)
+CIND	**Response** *+CME ERROR: <err>*

+CIND?	**Parameters** <battchg> battery charge level (0-5) <signal> signal quality (0-5) <service> service availability (0-1) <call> call in progress (0-1) **Response** +CIND: <battchg>,<signal>,<service>,<call>
+CIND=?	**Response** +CIND: ("battchg",(0..5)),("signal",(0..5)),("service",(0,1)),("call",(0,1))

7.4. Phone activity status +CPAS

Command	Parameters / Possible response(s)
+CPAS	**Parameters** <pas> 0 ready (ME allows commands from TA/TE) 4 call in progress (ME is ready for commands from TA/TE, but a call is in progress) **Response** +CPAS: <pas>
+CPAS?	**Response** *+CME ERROR: <err>*
+CPAS=?	**Response** +CPAS: (list of supported <pas>s)

7.5. Power off AT+CPOF

Command	Parameters / Possible response(s)
+CPOF	stops the GSM software stack and hardware layer **Response** OK
+CPOF?	**Response** *+CME ERROR: <err>*
+CPOF=?	**Response** +CPOF: ()

7.6. Clock +CCLK

Command	Parameters / Possible response(s)
+CCLK=<time>	**Parameters** <time> string type value; format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -47...+48). E.g. 6th of May 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08" NOTE: ME does not support time zone information so the three last characters of <time> are not returned by +CCLK? **Response** OK +CME ERROR: <err>
+CCLK?	**Response** +CCLK: <time>
+CCLK=?	**Response** OK

7.7. Alarm +CALA

Command	Parameters / Possible response(s)
+CALA=<time>	**Parameters** <time> refer +CCLK **Response** OK *+CME ERROR: <err>*
+CALA?	**Response** +CALA: <time>
+CALA=?	**Response** +CALA: (list of supported <n>s),(list of supported <type>s)

7.8. Enter PIN +CPIN

Command	Parameters / Possible response(s)
+CPIN=<pin>[,<newpin>]	**Parameters** <pin>, <newpin>: string type values. See +CPIN? Below. **Response** OK *+CME ERROR: <err>*
+CPIN?	**Parameters** <code> values reserved by this TS: 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. Also, a second pin, <newpin>, is used to replace the old pin in the SIM and should thus be supplied SIM PIN2 ME is waiting SIM PIN2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17); if PIN2 is not entered right after the failure, it is recommended that ME does not block its operation) SIM PUK2 ME is waiting SIM PUK2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18); if PUK2 and new PIN2 are not entered right after the failure, it is recommended that ME does not block its operation). Also, a second pin, <newpin>, is used to replace the old pin in the SIM and should thus be supplied **Response** +CPIN: <code>
+CPIN=?	**Response** OK

7.9. Signal quality +CSQ

Command	Parameters / Possible response(s)
+CSQ	**Parameters** <rssi> 0 -113 dBm or less 1 -111 dBm 2...30 -109... -53 dBm 31 -51 dBm or greater 99 not known or not detectable <ber> (in percent) 0...7 as RXQUAL values in the table in GSM 05.08 [20] subclause 8.2.4 99 not known or not detectable **Response** +CSQ: <rssi>,<ber>
+CSQ?	**Response** *+CME ERROR: <err>*
+CSQ=?	**Response** +CSQ: (list of supported <rssi>s),(list of supported <ber>s)

7.10. List all available AT commands +CLAC

Command	Parameters / Possible response(s)
+CLAC	**Parameters** <AT Command> defines the AT command including the prefix AT. Text shall not contain the sequence 0<CR> or OK<CR> <type of command> string giving the command type to return, i.e. AT+ commands, or AT\ commands, or AT& commands, … . **Response** <AT Command1> [<CR> <LF> <AT Command2>[…]]
+CLAC=<type of command>	**Response** AT commands being of type <type of command>, same format as +CLAC above *+CME ERROR: <err>*
+CLAC=?	**Response** +CLAC: list of supported <type of command>

8. Fax Class 1 Commands

8.1. Select Service Class +FCLASS

Command	Parameters / Possible response(s)
+FCLASS=<n>	**Parameters** <n> 0 Select Data mode (default) 1 Select Facsimile Class 1 **Response** OK *ERROR*
+FCLASS?	**Response** reports active configuration
+FCLASS=?	**Response** 0,1

8.2. Data/Fax Auto Answer +FAE

Command	Parameters / Possible response(s)
+FAE=<n>	**Parameters** <n> 0 Disable data/fax auto answer mode. The modem answers as a fax modem only (default) 1 Enable data/fax auto answer mode. The modem answers as a fax or data modem **Response** OK *ERROR*
+FAE?	**Response** reports active configuration
+FAE=?	**Response** 0,1

8.3. Stop transmission and wait +FTS

Command	Parameters / Possible response(s)
+FTS=<n>	**Parameters** <n> number of times of 10 ms to be waited for by the modem before it can respond with OK result code **Response** OK *ERROR*
+FTS?	**Response** OK
+FTS=?	**Response** 0-255

8.4. Receive Silence +FRS

Command	Parameters / Possible response(s)
+FRS=<n>	**Parameters** <n> number of times of 10 ms of silence detected on the line to be waited for by the modem before it can report OK to DTE **Response** OK *ERROR*
+FRS?	**Response** OK

+FRS=?	**Response** 0-255

8.5. Transmit Data +FTM

Command	Parameters / Possible response(s)
+FTM=<modulation>	**Parameters** <modulation> modulation to be used by the modem to transmit data. Modulations available : +FTM=24 V27 ter 2400 bps +FTM=48 V27 ter 4800 bps +FTM=72 V29 7200 bps +FTM=96 V29 9600 bps **Response** ERROR or CONNECT or NO CARRIER
+FTM?	**Response** OK
+FTM=?	**Response** 24,48,72,96

8.6. Receive Data +FRM

Command	Parameters / Possible response(s)
+FRM=<modulation>	**Parameters** <modulation> modulation used by the other modem to transmit data. The mobile phone should then enter in a receiving mode, using that modulation. Modulations available : +FTM=24 V27 ter 2400 bps +FTM=48 V27 ter 4800 bps +FTM=72 V29 7200 bps +FTM=96 V29 9600 bps **Response** ERROR or CONNECT or NO CARRIER
+FRM?	**Response** OK
+FRM=?	**Response** 24,48,72,96

8.7. Transmit Data with HDLC Framing +FTH

Command	Parameters / Possible response(s)
+FTH=<n>	**Parameters** <n> modulation to be used by the modem to transmit data, using HDLC protocol. Modulations available : +FTH=3 V21 channel 2 300 bps **Response** ERROR or CONNECT or NO CARRIER
+FTH?	**Response** OK
+FTH=?	**Response** 3

8.8. Receive Data with HDLC Framing +FRH

Command	Parameters / Possible response(s)
+FRH=<n>	**Parameters** <n> modulation used by the other modem to transmit data, using HDLC protocol. Modulations available : +FTH=3 V21 channel 2 300 bps **Response** ERROR or CONNECT or NO CARRIER
+FRH?	**Response** OK
+FRH=?	**Response** 3

9. MOBILE EQUIPMENT ERRORS

9.1. Report Mobile Equipment error +CMEE

Command	Parameters / Possible response(s)
+CMEE=[<n>]	**Parameters** <n> 0 disable +CME ERROR: <err> result code and use ERROR instead 1 enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause) **Response** OK *ERROR*
+CMEE?	**Response** +CMEE: <n>
+CMEE=?	**Response** +CMEE: (list of supported <n>s)

9.2. Mobile Equipment error result code +CME ERROR

The operation of +CME ERROR: <err> result code is similar to the regular ERROR result code: if +CME ERROR: <err> is the result code for any of the commands in a command line, none of the following commands in the same command line is executed (neither ERROR nor OK result code shall be returned as a result of a completed command line execution). The format of <err> is numeric.

NOTE: ITU-T V.25ter [14] command V does not affect the format of this result code.

<err> values (numeric format followed by 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
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
100 unknown

also all other values below 256 are reserved by this ETS

10. GPRS SPECIFIC COMMANDS

These commands are only available in GPRS-enabled mobile phones.

Common commands parameters:

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

10.1. Define PDP Context +CGDCONT

Command	Parameters / Possible response(s)
+CGDCONT=<cid> ,<PDP_type> ,<APN> ,<PDP_addr> ,<d_comp> ,<h_comp>	**Parameters** <PDP_type> Packet Data Protocol type A string parameter which specifies the type of packet data protocol. Only IP (Internet Protocol - IETF STD 5) is supported. <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. <PDP_address> a string parameter that identifies the MT in the address space applicable to the PDP. As only IP is currently supported, it shall be an IP address. If the value is null ("0.0.0.0" or 0), then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command. <d_comp> a numeric parameter that controls PDP data compression. 0 off (default and only value supported) <h_comp> a numeric parameter that controls PDP header compression 0 off (default and only value supported) **Response** OK or ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)

10.2. Quality of Service Profile (Requested) +CGQREQ

Command	Parameters / Possible Response(s)
+CGQREQ=<cid>, <precedence>, <delay>, <reliability>, <peak>, <mean>	**Parameters** <precedence> a numeric parameter which specifies the precedence class <delay> a numeric parameter which specifies the delay class <reliability> a numeric parameter which specifies the reliability class. Only values 3, 4 and 5 are currently supported. <peak> a numeric parameter which specifies the peak throughput class <mean> a numeric parameter which specifies the mean throughput class **Response** OK or ERROR
+CGQREQ?	+CGQREQ: <cid>, <precedence>, <delay>, <reliability>, <peak>, <mean>
+CGQREQ=?	+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)

10.3. Quality of Service Profile (Minimum acceptable) +CGQMIN

Command	Parameters / Possible Response(s)
+CGQMIN=<cid>, <precedence>, <delay>, <reliability>, <peak>, <mean>	**Parameters** See command AT+CGQREQ. **Response** OK or ERROR
+CGQMIN?	+CGQMIN: <cid>, <precedence>, <delay>, <reliability>, <peak>, <mean>
+CGQMIN=?	+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)

10.4. GPRS attach or detach +CGATT

Command	Parameters / Possible Response(s)
+CGATT=<state>	**Parameters** <state> indicates the state of GPRS attachment 0 detached 1 attached Other values are reserved and will result in an ERROR response to the execution command. **Response** OK or ERROR
+CGATT?	+CGATT: <state>
+CGATT=?	+CGATT: (list of supported <state>s)

10.5. PDP context activate or deactivate +CGACT

Command	Parameters / Possible Response(s)
+CGACT=<state>, <cid>	**Parameters** <state> indicates the state of PDP context activation 0 deactivated 1 activated Other values are reserved and will result in an ERROR response to the execution command. **Response** OK or ERROR
+CGACT?	+CGACT: <cid>, <state>
+CGACT=?	+CGACT: (list of supported <state>s)

10.6. Enter data state +CGDATA

Command	Parameters / Possible Response(s)
+CGDATA=<L2P>, <cid>	**Parameters** <L2P> a string parameter that indicates the layer 2 protocol to be used between the TE and MT. Only PPP (Point-to-point) protocol is currently allowed. **Response** CONNECT or ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

10.7. Show PDP address +CGPADDR

Command	Parameters / Possible Response(s)
+CGDPADDR=<cid>	**Parameters** <PDP_address> a string that identifies the MT 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_address> is omitted if none is available. **Response** +CGPADDR: <cid>, <PDP_addr>
+CGPADDR=?	+CGPADDR: (list of supported <cid>s)

10.8. Modem compatibility commands

This subclause describes how existing AT commands, designed for use with a modem, may be used to control a GPRS MT. This is to provide backwards compatibility with existing communications software. For new applications it is recommended that the GPRS-specific commands, described in previous subclauses, be used.

10.8.1. MT originated PDP context activation

In this mode of operation, the MT behaves like an originating modem and accepts the normal V.25ter commands associated with placing and clearing a call. If GPRS-specific configuration commands are required, they may be sent to the MT as part of the modem initialisation commands.

10.8.1.1. Request GPRS service 'D'

Command	Parameters / Possible Response(s)
D*<GPRS_SC>*[**]<cid>#	**Parameters** <GPRS_SC> GPRS Service Code A digit string (value 99) which identifies a request to use the GPRS **Response** CONNECT or ERROR

11. COMMANDS FROM TIA IS-101

11.1. DTMF and tone generation +VTS

Command	Parameters / Possible response(s)
+VTS=<DTMF>	**Parameters** <DTMF> a single ASCII character in the set 0-9, #,*,A-D. DTMF tones can be issued only during a voice call. **Response** OK *+CME ERROR: <err>*
+VTS?	**Response** OK
+VTS=?	**Response** (list of supported <tone1>s),(list of supported <tone2>s),(list of supported <duration>s)

11.2. Line selection +VLS

Command	Parameters / Possible response(s)
+VLS=<label>	**Parameters** <label> 0 this is the idle state - the phone is not connected to the radio network and no audio paths are used 1 the phone is connected to the radio network and no audio paths involving the internal microphone or internal loudspeaker are selected. 7 the phone is connected to the radio network. The internal microphone is connected to the radio transmitter. The radio receiver is connected to the internal loudspeaker. This is the standard mode during a voice call. **Response** +VCON is returned if an audio path is established or if a connection is made to the radio network
+VLS?	**Response** +VLS: <label>
+VLS=?	**Response** +VLS: (supported <label>s)

11.3. Tone duration +VTD

Command	Parameters / Possible response(s)
+VTD=<n>	**Parameters** <n> length of tones emitted as a result of the +VTS command. A value different than zero causes a tone of duration <n>/10 seconds. **Response** OK *+CME ERROR: <err>*
+VTD?	**Response** <n>
+VTD=?	**Response** (list of supported <n>s)

12. MANAGEMENT OF VOICE CALLS WHEN CONNECTED TO A TE

In some case, you may want to answer / initiate a voice call from the TE. What follows is what SAGEM recommends to use in those cases:

- Use ATD123456789; to initiate a voice call. A CONNECT VOICE message is then transmitted to the TE. To hang up the call, use ATH or AT+CHUP command. An OK or NO CARRIER response will be returned to the TE
- For Mobile Terminated calls, a +CRING VOICE message is transmitted to the TE, until the TE sends ATA to accept the call. When the call gets set-up from a GSM point of view, a CONNECT VOICE is transmitted to both parts. Messages like NO CARRIER or BUSY are supported if possible.

13. Annex A: Character Set Conversions for SMS Text Mode

This annex is copy of the annex A of the 07.05 recommendation. It is given for information only.
The following conversions to and from GSM 03.38 default alphabet are defined:

TE char set	bits/char	Commands
PC Code Page 437	8	`+CMGF=1;+CSCS="PCCP437"`
PC Danish/Norwegian	8	`+CMGF=1;+CSCS="PCDN"`
ISO 8859 Latin 1	8	`+CMGF=1;+CSCS="8859-1"`
IRA	7	`+CMGF=1;+CSCS="IRA"`
GSM default alphabet	7	`+CMGF=1;+CSCS="GSM"`

The tables below show which 7 bit GSM value corresponds to the 7 or 8 bit value of external character set. The TE character set value is computed by adding column value, 00H through F0H (70H for 7 bits/char), with the row value (00H through 0FH). All values are in hexadecimal, but the H suffix is not used. When text mode is implemented, it is mandatory for a TA to have at least one conversion which include the conversion table of IRA (e.g. PC Code Page 437 does). Additional conversions can be defined by manufacturers. It is manufacturer specific if the TE set is actually converted to GSM set in the TA or in the ME, and if the TE set is converted to a ME specific set in the TA before converting it to GSM set when message is sent to the network. It is recommended that characters which cannot be converted to GSM set are deleted.

Conversion from IRA to GSM:

	00	10	20	30	40	50	60	70
00	-	-	20	30	00	50	-	70
01	-	-	21	31	41	51	61	71
02	-	-	22	32	42	52	62	72
03	-	-	23	33	43	53	63	73
04	-	-	02	34	44	54	64	74
05	-	-	25	35	45	55	65	75
06	-	-	26	36	46	56	66	76
07	-	-	27	37	47	57	67	77
08	-	-	28	38	48	58	68	78
09	-	-	29	39	49	59	69	79
0A	LF	-	2A	3A	4A	5A	6A	7A
0B	-	-	2B	3B	4B	-	6B	-
0C	-	-	2C	3C	4C	-	6C	-
0D	C	-	2D	3D	4D	-	6D	-
0E	-	-	2E	3E	4E	-	6E	-
0F	-	-	2F	3F	4F	11	6F	-

Conversion from PCCP437 (PC-8 Code Page 437) to GSM:

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	-	-	20	30	00	50	-	70	09	45[7]	61[11]	-	-	-	-	-
01	-	-	21	31	41	51	61	71	7E	1D	69[12]	-	-	-	1E	-
	-	-	22	32	42	52	62	72	05	1C	6F[1]	-	-	-	13	-
03	-	-	23	33	43	53	63	73	61[1]	6F[8]	75[14]	-	-	-	-	-
04	-	-	02	34	44	54	64	74	7B	7C	7D	-	-	-	18	-
05	-	5F	25	35	45	55	65	75	7F	08	5D	-	-	-	-	-
06	-	-	26	36	46	56	66	76	0F	75[9]	-	-	-	-	-	-
07	-	-	27	37	47	57	67	77	09[2]	06	-	-	-	-	-	-
08	-	-	28	38	48	58	68	78	65[3]	79[10]	60	-	-	-	12	-
09	-	-	29	39	49	59	69	79	65[4]	5C	-	-	-	-	19	-
0A	LF	-	2A	3A	4A	5A	6A	7A	04	5E	-	-	-	-	15	-
0B	-	-	2B	3B	4B	-	6B	-	69[5]	-	-	-	-	-	-	-
0C	-	-	2C	3C	4C	-	6C	-	69[6]	01	-	-	-	-	-	-
0D	C	-	2D	3D	4D	-	6D	-	07	03	40	-	-	-	-	-
0E	-	-	2E	3E	4E	-	6E	-	5B	-	-	-	-	-	-	-
0F	-	-	2F	3F	4F	11	6F	-	0E	-	-	-	-	-	-	-

[1] : â ⇨ a [2] : ç ⇨ Ç [3] : ê ⇨ e [4] : ë ⇨ e [5] : ï ⇨ i
[6] : î ⇨ i [7] : É ⇨ E [8] : ô ⇨ o [9] : û ⇨ u [10] : ÿ ⇨ y
[11] : á ⇨ a [12] : í ⇨ i [13]: ó⇨ o [14] : ú⇨ u

Conversion from PCDN (PC-8 Danish/ Norwegian) to GSM:

	00	10	20	30	40	50	60	70	80	90	A0	B0	C	D	E0	F
00	-	-	20	30	00	50	-	70	09	45[7]	61[11]	-	-	-	-	-
01	-	-	21	31	41	51	61	71	7E	1D	69[12]	-	-	-	1E	-
02	-	-	22	32	42	52	62	72	05	1C	6F[13]	-	-	-	13	-
03	-	-	23	33	43	53	63	73	61[1]	6F[8]	75[14]	-	-	-	-	-
04	-	-	02	34	44	54	64	74	7B	7C	7D	-	-	-	18	-
05	-	5F	25	35	45	55	65	75	7F	08	5D	-	-	-	-	-
06	-	-	26	36	46	56	66	76	0F	75[9]	-	-	-	-	-	-
07	-	-	27	37	47	57	67	77	09[2]	06	-	-	-	-	-	-
08	-	-	28	38	48	58	68	78	65[3]	79[10]	60	-	-	-	12	-
09	-	-	29	39	49	59	69	79	65[4]	5C	-	-	-	-	19	-
0A	LF	-	2A	3A	4A	5A	6A	7A	04	5E	-	-	-	-	15	-
0B	-	-	2B	3B	4B	-	6B	-	69[5]	0C	-	-	-	-	-	-
0C	-	-	2C	3C	4C	-	6C	-	69[6]	01	-	-	-	-	-	-
0D	C	-	2D	3D	4D	-	6D	-	07	0B	40	-	-	-	-	-
0E	-	-	2E	3E	4E	-	6E	-	5B	-	-	-	-	-	-	-
0F	-	-	2F	3F	4F	11	6F	-	0E	-	-	-	-	-	-	-

[1] : â ⇨ a [2] : ç ⇨ Ç [3] : ê ⇨ e [4] : ë ⇨ e [5] : ï ⇨ i
[6] : î ⇨ i [7] : É ⇨ E [8] : ô ⇨ o [9] : û ⇨ u [10] : ÿ ⇨ y
[11] : á ⇨ a [12] : í ⇨ i [13] : ó ⇨ o [14] : ú ⇨ u

Conversion from 8859-1 (ISO 8859 Latin 1) to GSM:

	00	10	20	30	40	50	60	70	80	90	A0	B	C0	D0	E0	F0
00	-	-	20	30	00	50	-	70	-	-	-	-	41[1]	-	7F	-
01	-	-	21	31	41	51	61	71	-	-	40	-	41[2]	5D	61[2]	7D
02	-	-	22	32	42	52	62	72	-	-	-	-	41[3]	4F[13]	61[2]	08
03	-	-	23	33	43	53	63	73	-	-	01	-	41[4]	4F[14]	61[2]	6F[30]
04	-	-	02	34	44	54	64	74	-	-	24	-	5B	4F[15]	7B	6F[31]
05	-	-	25	35	45	55	65	75	-	-	03	-	0E	4F[16]	0F	6F[32]
06	-	-	26	36	46	56	66	76	-	-	-	-	1C	5C	1D	7C
07	-	-	27	37	47	57	67	77	-	-	5F	-	09	-	09[2]	-
08	-	-	28	38	48	58	68	78	-	-	-	-	45[5]	0B	04	0C
09	-	-	29	39	49	59	69	79	-	-	-	-	45[6]	55[17]	05	06
0A	LF	-	2A	3A	4A	5A	6A	7A	-	-	-	-	45[7]	55[18]	65[2]	75[33]
0B	-	-	2B	3B	4B	-	6B	-	-	-	-	-	45[8]	55[19]	65[2]	75[34]
0C	-	-	2C	3C	4C	-	6C	-	-	-	-	-	49[9]	5E	07	7E
0D	C	-	2D	3D	4D	-	6D	-	-	-	-	-	49[10]	59[20]	69[2]	79[35]
0E	-	-	2E	3E	4E	-	6E	-	-	-	-	-	49[11]	-	69[2]	-
0F	-	-	2F	3F	4F	11	6F	-	-	-	-	60	49[12]	1E	69[2]	79[36]

[1] : À ⇨ A
[2] : Á ⇨ A
[3] : Â ⇨ A
[4] : Ã ⇨ A
[5] : È ⇨ E
[6] : É ⇨ E
[7] : Ê ⇨ E
[8] : Ë ⇨ E
[9] : Ì ⇨ I
[10] : Í ⇨ I
[11] : Î ⇨ I
[12] : Ï ⇨ I
[13] : Ò ⇨ O
[14] : Ó ⇨ O
[15] : Ô ⇨ O
[16] : Õ ⇨ O
[17] : Ù ⇨ U
[18] : Ú ⇨ U
[19] : Û ⇨ U
[20] : Ý ⇨ Y
[21] : á ⇨ a
[22] : â ⇨ a
[23] : ã ⇨ a
[24] : ç ⇨ Ç
[25] : ê ⇨ e
[26] : ë ⇨ e
[27] : í ⇨ i
[28] : î ⇨ i
[29] : ï ⇨ i
[30] : ó ⇨ o
[31] : ô ⇨ o
[32] : õ ⇨ o
[33] : ú ⇨ u
[34] : û ⇨ u
[35] : ý ⇨ y
[36] : ÿ ⇨ y

Conversions from GSM default alphabet to above character sets are otherwise straightforward, but no conversions of the characters listed below tables are applied.