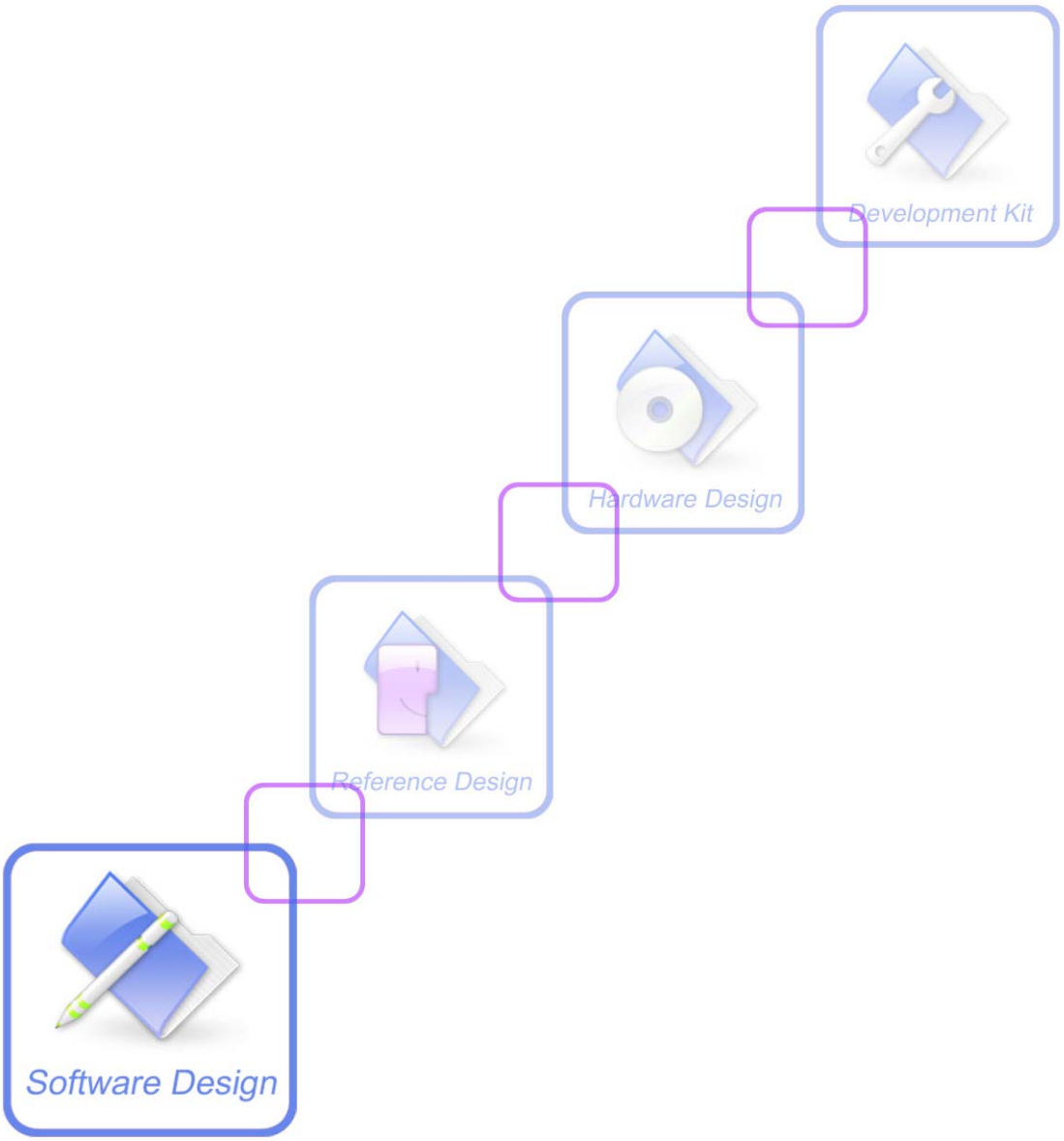
AT Commands Set

SIM5210_ATC_V1.1



Document Title:	SIM5210 AT Commands Set
Version:	1.1
Date:	2007-01-05
Status:	Release
Document Control ID:	SIM5210_ATC_V1.1

General Notes

Simcom offers this information as a service to its customers, to support application and engineering efforts that use the products designed by Simcom. The information provided is based upon requirements specifically provided to Simcom by the customers. Simcom has not undertaken any independent search for additional relevant information, including any information that may be in the customer's possession. Furthermore, system validation of this product designed by Simcom within a larger electronic system remains the responsibility of the customer or the customer's system integrator. All specifications supplied herein are subject to change.

Copyright

Contents

Version history

Version	Date	Description	Author
V1.0	2006-09-08	Created	Wang Ronghua
V1.1	2007-01-05	Modified syntax error	Li Li & Chen Tao

1 Introduction

1.1 Scope

This document presents the AT Command Set for SIM5210, suitable for End-User.

1.2 References

Document name	Version
3GPP TS 07.07	7.8.0
3GPP TS 27.007	6.4.0
3GPP TS 27.005	5.0.0

1.3 Abbreviations

Abbreviation	Description
AT	Attention;this two-character abbreviation is always used to start a command line to be sent from TE to TA
CBM	Cell Broadcast Message
DCE	Data Communication Equipment
DM	Diagnostic Monitor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
ESN	Electronic Serial Number
ME	Mobile Equipment
MIC	Microphone
MIDI	Musical Instrument Digital Interface MIDI
MIN	Mobile Identification Number
MO	Mobile Originated
MS	Mobile Station
MT	Mobile Terminated
OA	Outgoing Access
PCS	Personal Communication Services
PDU	Protocol Data Unit
PIN	Personal Identification Number
PUK	Personal Unlock Key

RSSI	Received Signal Strength Indicator
SID	System Identification
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSC	Short Message Service Center
TI	Teleservice Identifier
WCDMA	Wide-band Code Division Multiple Access

1.4 Definitions

In the following specifies, all AT command and return value will disply italic, but the AT command in the cutline do not follow above rule.
For example:

AT+CSQ
+CSQ:25,99

The contents in the“<>”are command parameters.
For example: ATD<dial_no>;
In this case, <dial_no>is a parameter. User need enter a actual value, it’s a phone number which user wants to dial.

The contents wihich contain in“[]”are optional parameters.
For example: <par1>[,<par2>];
In this case, <par2> is a optional parameter.

The return result(parameters) in“[]”are optional parameters, such indicate the return results depend on specific situation.
For example: par_a[,par_b,par_c,par_d];
In this case, par_b, par_c, par_d are optional return result.

2 AT interface synopsis

2.1 Interface settings

SIM5210 module and DTE are using standard RS-232 interface, the default value for cluster setting is 115200bps, eight data bits, no parity, 1 stop bit, no data stream control.

2.2 AT command syntax

AT command start with header AT, and end with <CR>. If the formart of AT command input was correct, the terminal will return the corresponding request information, and finally will return "OK"; Otherwise, the terminal will return "ERROR". When parameters follow with AT command, 1) For string type, we will put quotation marks to the both side of input string, 2) For numeric string type, able to input numeric value immediately.

2.3 AT command response

The response data package for AT command could be exist between <CR><LF>.
1. If AT command implemented successful, then return "**OK**";
2. If AT command syntax error, then return "**ERROR**";
3. If AT command implemented failed, return "**+CMS ERROR**" or "**+CME ERROR**".
Notice: The following sections will ignore <**CR**> and <**LF**>.

3 General commands

3.1 Request manufacturer identification +CGMI

Description:

Execution command causes the TA to return manufacturer identification text.

+CGMI action command syntax:

Command	Possible response(s)
+CGMI	<manufacturer> *+CME ERROR: <err>*
+CGMI=?	

Defined values:

<manufacturer>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

Implementation:

AT+GMI(AT+CGMI)
QUALCOMM INCORPORATED
OK

3.2 Request model identification +CGMM

Description:

Execution command causes the TA to return product model identification text.

+CGMM action command syntax:

Command	Possible response(s)
+CGMM	<model> *+CME ERROR: <err>*
+CGMM=?	

Defined values:

<model>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

Implementation:

AT+GMM(AT+CGMM)
183

OK

3.3 Request revision identification +CGMR

Description:

Execution command causes the TA to return product firmware version identification text.

+CGMR action command syntax:

Command	Possible response(s)
+CGMR	<revision> *+CME ERROR: <err>*
+CGMR=?	

Defined values:

<revision>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

Implementation:

AT+GMR(AT+CGMR)
M6250D-VMSX-6.2.70 1 [Aug 07 2005 15:00:00]
OK

3.4 Request product serial number identification +CGSN

Description:

Execution command causes the TA to return identification text for determination of the individual ME.

+CGSN action command syntax:

Command	Possible response(s)
+CGSN	<sn> *+CME ERROR: <err>*
+CGSN=?	

Defined values:

<sn>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

Implementation:

AT+CGSN
003516020064540

OK

3.5 Request Complete Capabilities List +GCAP

Description:

Execution command causes the TA reports a list of additional capabilities.

+GCAP action command syntax:

Command	Possible response(s)
+GCAP	*+GCAP: <name>*
+GCAP=?	

Defined values:

<name>: list of additional capabilities.

Implementation:

AT+GCAP
+GCAP: +CGSM,+FCLASS,+DS
OK

3.6 Repeat command A/

Description:

The command A/ use for implement previous AT command repeatedly;(Except A/).

A/ action command syntax:

Command	Possible response(s)
A/	

Defined values:

The command A/ use for implement previous AT command repeatedly, the return value depends on the last AT command.

Implementation:

AT+CGSN
003516020064540
OK
A/
003516020064540
OK

3.7 Switch to DM mode AT$QCDMG

Description:

Execution command will switch current serial port to DM mode, the DM mode mainly uses for download software or read debug informations. Normally, when the serial port working under AT mode, user is able to input AT command, after executing AT command, the serial port will switch to the DM mode and could not input AT command at that status.

$QCDMG action command syntax:

Command	Possible response(s)
$QCDMG	OK
$QCDMG=?	

Defined values：

1. After switching to DM mode, could not accept commonly AT commands.
2. The status will switch to DM mode when module debugging.
3. The status will resume to AT mode after restart module.
4. The baud rate can not modify by AT command under the DM mode.

Connect two calls and cut off the connection between users and them simultaneously.

Implementation:

AT$QCDMG
OK

3.8 Select TE character set +CSCS

Description:

Set command informs TA which character set <chset> is used by the TE. TA is then able to convert character strings correctly between TE and ME character sets.

+CSCS action command syntax:

Command	Possible response(s)
+CSCS=[<chset>]	
+CSCS?	+CSCS: <chset>
+CSCS=?	+CSCS: (list of supported <chset>s)

Defined values:

<chset>: character set, the define is following:

"IRA" international reference alphabet

"GSM" GSM default alphabet ; this setting causes easily software flow control (XON/XOFF) problems

"UCS2" 16-bit universal multiple-octet coded character set

Implementation:

AT+CSCS="IRA"
OK

3.9 Request international mobile subscriber identity +CIMI

Description:

Execution command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual SIM which is attached to ME.

+CIMI action command syntax:

Command	Possible response(s)
+CIMI	<IMSI> *+CME ERROR: <err>*
+CIMI=?	

Defined values:

<IMSI>: International Mobile Subscriber Identity (string without double quotes).

Implementation:

AT+CIMI
460010222028133
OK

4 Call control commands and methods

4.1 Select type of address +CSTA

Description:

Set command selects the type of number for further dialling commands (D) according to GSM specifications. Test command returns values supported by the TA as a compound value.

+CSTA action command syntax:

Command	Possible response(s)
+CSTA=[<type>]	
+CSTA?	+CSTA: <type>
+CSTA=?	+CSTA: (list of supported <type>s)

Defined values:

<type>: type of address octet in integer format; default 145 when dialling string includes international access code character "+", otherwise 129.

Implementation:

AT+CSTA ?
+CSTA: 129
OK

4.2 Voice call process

The following sections described voice call process briefly.

4.2.1 Dialing process

Step1: Check current network status whether is available or not.
Step2: DTE send “ATD<dial_no>” command to module, and start voice call process, moudle will return “OK” and send a dialing request to GSM or WCDMA.
ATD command also support dial the phone number which from current phonebook or a appoint phonebook, for example:

ATD><index>;	Dial a specific record from current phonebook.
ATD>Bill;	Dial a number according to name form current phonebook.
ATD>mem<index>;	Dial a specific record from a appointed phonebook.

4.2.2 Incoming call process

Step1: If module receive a voice call, module will send “RING” to DTE every period of time.
Step2: DTE will send “ATA” command to response incoming voice call.

4.2.3 Hang-up process

DTE can send “ATH” command to end voice call.

4.3 Call mode +CMOD

Description:

Set command selects the call mode of further dialling commands (D) or for next answering command (A). Mode can be either single or alternating.

+CMOD action command syntax:

Command	Possible response(s)
+CMOD=[<mode>]	
+CMOD?	+CMOD: <mode>
+CMOD=?	+CMOD: (list of supported <mode>s)

Defined values:

<mode>:

0 single mode
1 alternating voice/fax (teleservice 61)
2 alternating voice/data (bearer service 61)
3 voice followed by data (bearer service 81)

Implementation:

AT+CMOD?
+CMOD: 0
OK

4.4 Hangup call +CHUP

Description:

Execution command causes the TA to hang up the current call of the ME, commonly, we use the command to hang up VOICE CALL.

+CHUP action command syntax:

Command	Possible response(s)
+CHUP	
+CHUP=?	

Defined values:

None.

Implementation:

AT+CHUP
OK

4.5 Select bearer service type +CBST

Description:

Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated. Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls.

+CBST action command syntax:

Command	Possible response(s)
+CBST=[<speed>[,<name>[,<ce>]]]	
+CBST?	+CBST: <speed>,<name>,<ce>
+CBST=?	+CBST: (list of supported <speed>s),(list of supported <name>s),(list of supported <ce>s)

Defined values:

<speed>:

0 autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem and non-transparent service)
1 300 bps
2 1200 bps
3 1200/75 bps
4 2400 bps
5 2400 bps
6 4800 bps
7 9600 bps
12 9600 bps
14 14400 bps
15 19200 bps
16 28800 bps
17 33600 bps
34 1200 bps

36 2400 bps
38 4800 bps
39 9600 bps
43 14400 bps
47 19200 bps
48 28800 bps
49 38400 bps
50 48000 bps
51 56000 bps
65 300 bps
66 1200 bps
68 2400 bps
70 4800 bps
71 9600 bps
75 14400 bps
79 19200 bps
80 28800 bps
81 38400 bps
82 48000 bps
83 56000 bps
84 64000 bps
115 56000 bps
116 64000 bps
120 32000 bps
121 64000 bps
130 28800 bps
131 32000 bps
132 33600 bps
133 56000 bps
134 64000 bps

<name>:

GSM
WCDMA

<ce>:

0 transparent
1 non-transparent
2 both, transparent preferred
3 both, non-transparent preferred

Implementation:

AT+CBST=0,0,1
OK
AT+CBST?
+CBST: (0,7,12,14,16,17,39,43,48,51,71,75,80,81,83,84,116,134),(0,1,4),(0,1)

4.6 Radio link protocol +CRLP

Description:

Radio link protocol (RLP) parameters used when non-transparent data calls are originated may be altered with set command.

+CRLP action command syntax:

Command	Possible response(s)
+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]]	
+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [<CR><LF>+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]]
+CRLP=?	+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)]] [<CR><LF>+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)]] [...]]

Defined values:

<ver>, <verx>: RLP version number in integer format; when version indication is not present it shall equal 0.
<iws>: IWF to MS window size.
<mws>: MS to IWF window size.
<T1>: acknowledgement timer T1
<N2>: retransmission attempts N2
<T4>: re-sequencing period T4 in integer format, T1 and T4 are in units of 10 ms.

Implementation:

AT+CRLP?
+CRLP: 61,61,48,6,0
+CRLP: 61,61,48,6,1
+CRLP: 240,240,52,6,2
OK

4.7 Service reporting control +CR

Description:

Set command controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE.

+CR action command syntax:

Command	Possible response(s)
+CR=[<mode>]	
+CR?	+CR: <mode>
+CR=?	+CR: (list of supported <mode>s)

Defined values:

<mode>:

0 disables reporting

1 enables reporting

Implementation:

AT+CR?
+CR: 0

4.8 Extended error report +CEER

Description:

Execution command causes the TA to return one or more lines of information text <report>, determined by the ME manufacturer, which should offer the user of the TA an extended report of the reason for

1. the failure in the last unsuccessful call setup (originating or answering) or in-call modification,
2. the last call release,
3. the last unsuccessful Packet Domain attach or unsuccessful PDP context activation,
4. the last Packet Domain detach or PDP context deactivation.

+CEER action command syntax:

Command	Possible response(s)
+CEER	+CEER: <report>
+CEER=?	

Defined values:

<report>: the total number of characters, including line terminators, in the information text shall not exceed 2041 characters.

Implementation:

AT+CEER

+CEER: Invalid/incomplete number

4.9 Cellular result codes +CRC

Description:

Set command controls whether or not the extended format of incoming call indication or Packet Domain network request for PDP context activation is used. When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING.

+CRC action command syntax:

Command	Possible response(s)
+CRC=[<mode>]	
+CRC?	+CRC: <mode>
+CRC=?	+CRC: (list of supported <mode>s)

Defined values:

<mode>:

0 disables extended format

1 enables extended format

<type>:

+CRING: ASYNC (asynchronous transparent)

+CRING: SYNC (synchronous transparent)

+CRING: REL ASYNC (asynchronous non-transparent)

+CRING: REL SYNC (synchronous non-transparent)

+CRING: VOICE (normal voice)

+CRING: DATA (all data)

+CRING: FAX (all fax)

+CRING: OTAPA (OTAPA)

Implementation:

AT+CRC=1

OK

+CRING: VOICE (with incoming call)

5 SMS related commands

5.1 Message Service Failure Result Code +CMS ERROR

Description:

Final result code +CMS ERROR: <err> indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same command line is executed. Neither ERROR nor OK result code shall be returned. ERROR is returned normally when error is related to syntax or invalid parameters.

Action Command Syntax:

+CMS ERROR: <err>

Defined Values:

<err>:

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 (U)SIM not inserted
311 (U)SIM PIN required
312 PH-(U)SIM PIN required
313 (U)SIM failure
314 (U)SIM busy
315 (U)SIM wrong
316 (U)SIM PUK required
317 (U)SIM PIN2 required
318 (U)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

Implementation:

AT+CMGS=02152063366

+CMS ERROR: 304

5.2 Select Message Service +CSMS

Description:

Set command selects messaging service <service>.

+CSMS Action Command Syntax:

Command	Possible response(s)
+CSMS=<service>	+CSMS: <mt>,<mo>,<bm> *+CMS ERROR: <err>*
+CSMS?	+CSMS: <service>,<mt>,<mo>,<bm>
+CSMS=?	+CSMS: (list of supported <service>s)

Defined Values:

<service>:

0 SMS AT command is compatible with GSM Phase 2

1 SMS AT command is compatible with GSM Phase 2+

<mt>: Mobile Terminated Messages:

0 Type not supported

1 Type supported

<mo>: Mobile Originated Messages:

0 Type not supported

1 Type supported

<bm>: Broadcast Type Messages:

0 Type not supported

1 Type supported

Implementation:

AT+CSMS=0
+CSMS: 1,1,1
OK
AT+CSMS?
+CSMS: 0,1,1,1
AT+CSMS=?
+CSMS: (0-1)
OK

5.3 Preferred Message Storage +CPMS

Description:

Set command selects memory storages <mem1>, <mem2> and <mem3> to be used for reading,

writing, etc.

+CPMS Action Command Syntax:

Command	Possible response(s)
+CPMS=<mem1>[, <mem2>[,<mem3>]]	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> *+CMS ERROR: <err>*
+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>, <mem3>,<used3>,<total3> *+CMS ERROR: <err>*
+CPMS=?	+CPMS: (list of supported <mem1>s),(list of supported <mem2>s), (list of supported <mem3>s)

Defined Values:

<mem1>: string type, memory from which messages are read and deleted (commands List Messages +CMGL, Read Message +CMGR and Delete Message +CMGD)

<mem2>: string type, memory to which writing and sending operations are made (commands Send Message from Storage +CMSS and Write Message to Memory +CMGW)

<mem3>: string type, memory to which received SMs are preferred to be stored (unless forwarded directly to TE; refer command New Message Indications +CNMI)

<usedx>: integer type, number of messages currently in <memx>

<totalx>: integer type, total number of message locations in <memx>

Implementation:

AT+CPMS=? (“ME” and “MT” means FLASH message storage; “SM” and “SR” means SIM message storage.)
+CPMS: ("ME","MT","SM","SR"),("ME","MT","SM","SR"),("ME","MT","SM","SR")
OK
AT+CPMS?
+CPMS: "ME",0,23,"ME",0,23,"ME",0,23
OK
AT+CPMS="SM","SM","SM"
+CPMS: 3,40,3,40,3,40
OK

5.4 Message Format +CMGF

Description:

Set command tells the TA, which input and output format of messages to use.

+CMGF Action Command Syntax:

Command	Possible response(s)
+CMGF=[<mode>]	

+CMGF?	+CMGF: <mode>
+CMGF=?	+CMGF: (list of supported <mode>s)

Defined Values:

<mode>:

0 PDU mode (default when implemented)

1 text mode

Implementation:

AT+CMGF?
+CMGF: 0
OK
AT+CMGF=?
+CMGF: (0-1)
OK
AT+CMGF=1
OK

5.5 Service Centre Address +CSCA

Description:

Set command updates the SMSC address, through which mobile originated SMs are transmitted.

+CSCA Action Command Syntax:

Command	Possible response(s)
+CSCA=<sca>[,<tosca>]	
+CSCA?	+CSCA: <sca>,<tosca>
+CSCA=?	

Defined Values:

<sca>: SC address Address, value field in string format, BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tosca>.

<tosca>: SC address Type-of-Address octet in integer format. (when first character is + default is 145, otherwise default is 129)

Implementation:

AT+CSCA="+8613010314500"
OK
AT+CSCA?
+CSCA: "+8613010314500",145
OK

5.6 Show Text Mode Parameters +CSDH

Description:

Set command controls whether detailed header information is shown in text mode result codes.

+CSDH Action Command Syntax:

Command	Possible response(s)
+CSDH=[<show>]	
+CSDH?	+CSDH: <show>
+CSDH=?	+CSDH: (list of supported <show>s)

Defined Values:

<show>:

0 do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode; for SMS-COMMANDs in +CMGR result code, do not show <pid>, <mn>, <da>, <toda>, <length> or <cdata>

1 show the values in result codes

Implementation:

AT+CSDH?
+CSDH: 0
OK
OK
AT+CSDH=1
OK

5.7 New Message Indications to TE +CNMI

Description:

Set command selects the procedure, how receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF).

+CNMI Action Command Syntax:

Command	Possible response(s)
+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	*+CMS ERROR: <err>*
+CNMI?	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>

+CNMI=?	+CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s)

Defined Values:

<mode>:

0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.

1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (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.

3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode.

<mt>: the rules for storing received SMs depend on its data coding scheme, preferred memory storage (+CPMS) setting and this value:

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>.

2 SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the TE using unsolicited result code:

+CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled); or

+CMT: <oa>, [<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>

(text mode enabled, about parameters in italics, refer command Show Text Mode Parameters +CSDH).

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>: the rules for storing received CBMs depend on its data coding scheme, the setting of Select CBM Types (+CSCB) and this value:

0 No CBM indications are routed to the TE.

1 If CBM is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CBMI: <mem>,<index>

2 New CBMs are routed directly to the TE using unsolicited result code:

+CBM: <length><CR><LF><pdu> (PDU mode enabled); or

+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled)

3 Class 3 CBMs are routed directly to TE using unsolicited result codes defined in <bm>=2. If CBM storage is supported, messages of other classes result in indication as defined in <bm>=1.

<ds>:

0 No SMS-STATUS-REPORTs are routed to the TE.

1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code:
+CDS: <length><CR><LF><pdu> (PDU mode enabled); or
+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)

2 If SMS-STATUS-REPORT is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CDSI: <mem>,<index>

<bfr>:

0 TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 to 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 to 3 is entered.

Implementation:

AT+CNMI?
+CNMI: 0,0,0,0,0
OK
AT+CNMI=?
+CNMI: (0,1,2),(0,1,2,3),(0,2),(0,1,2),(0,1)

OK
AT+CNMI=2,1 (unsolicited result codes after received messages.)
OK

5.8 List Messages +CMGL

Description:

Execution command returns messages with status value <stat> from message storage <mem1> to the TE.

+CMGL Action Command Syntax:

a. Text Mode

Command	Possible response(s)

+CMGL[=<stat>]	**if text mode (+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:** +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>]*[,<tooa/toda>,<length>]*<CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>]*[,<tooa/toda>,<length>]*<CR><LF><data>[...]] **if text mode (+CMGF=1), command successful and SMS-STATUS-REPORTs:** +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> [<CR><LF> +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> [...]] **if text mode (+CMGF=1), command successful and SMS-COMMANDs:** +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<ct>[...]] **if text mode (+CMGF=1), command successful and CBM storage:** +CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages> <CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages> <CR><LF><data>[...]] **otherwise:** *+CMS ERROR: <err>*
+CMGL=?	+CMGL: (list of supported <stat>s)

b. PDU Mode

Command	Possible response(s)
+CMGL[=<stat>]	**if PDU mode (+CMGF=0) and command successful:** +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu> [<CR><LF>+CMGL:<index>,<stat>,[<alpha>],<length><CR><LF><pdu> [...]] **otherwise:** +CMS ERROR: <err>
+CMGL=?	+CMGL: (list of supported <stat>s)

Defined Values:

<stat>:

a. Text Mode：

"REC UNREAD" received unread message (i.e. new message)

"REC READ" received read message

"STO UNSENT" stored unsent message

"STO SENT" stored sent message

"ALL" all messages

b. PDU Mode：

0 received unread message (i.e. new message)
1 received read message
2 stored unsent message
3 stored sent message
4 all messages

<alpha>: string type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with command Select TE Character Set +CSCS.

<da>: Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.

<data>: In the case of SMS: TP-User-Data in text mode responses; format:

1. if <dcs> indicates that GSM 7 bit default alphabet is used and <fo> indicates that TP-User-Data-Header-Indication is not set:
   a. if TE character set other than "HEX": ME/TA converts GSM alphabet into current TE character set.
   b. if TE character set is "HEX": ME/TA converts each 7-bit character of GSM 7 bit default alphabet into two IRA character long hexadecimal number. (e.g. character Π (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55))
2. if <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number. (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))
3. if <dcs> indicates that GSM 7 bit default alphabet is used:
   a. if TE character set other than "HEX":ME/TA converts GSM alphabet into current TE character set.
   b. if TE character set is "HEX": ME/TA converts each 7-bit character of the GSM 7 bit default alphabet into two IRA character long hexadecimal number
4. if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number.

<length>: integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets. (i.e. the RP layer SMSC address octets are not counted in the length)

<index>: integer type, value in the range of location numbers supported by the associated memory

<oa>: Originating-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tooa>

<pdu>: In the case of SMS: SC address followed by TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number. (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))

<scts>: TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)

<toda>: TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)

<tooa>: TP-Originating-Address, Type-of-Address octet in integer format. (default refer <toda>)

Implementation:

AT+CMGL=?
+CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL")
OK
AT+CMGL="ALL"
+CMGL: 1,"STO UNSENT","+10011",,,145,4
abcd
OK

5.9 Read Message +CMGR

Description:

Execution command returns message with location value <index> from message storage <mem1> to the TE.

+CMGR Action Command Syntax:

a. Text Mode

Command	Possible response(s)
+CMGR=<index>	**if text mode (+CMGF=1), command successful and SMS-DELIVER:** +CMGR: <stat>,<oa>,[<alpha>],<scts>*[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*<CR><LF><data> **if text mode (+CMGF=1), command successful and SMS-SUBMIT:** +CMGR: <stat>,<da>,[<alpha>]*[,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]*<CR><LF><data> **if text mode (+CMGF=1), command successful and SMS-STATUS-REPORT:** +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> **if text mode (+CMGF=1), command successful and SMS-COMMAND:** +CMGR: <stat>,<fo>,<ct>*[,<pid>,[<mn>],[<da>],[<toda>],<length><CR><LF><cdata>]* **if text mode (+CMGF=1), command successful and CBM storage:** +CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> **otherwise:** *+CMS ERROR: <err>*
+CMGR=?	

b. PDU Mode

Command	Possible response(s)

+CMGR=<index>	**if PDU mode (+CMGF=0) and command successful:** +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> **otherwise:** *+CMS ERROR: <err>*
+CMGR=?	

Defined Values:

<alpha>, <da>, <data>, <length>, <oa>, <pdu>, <scts>, <stat>, <toda>, <tooa> reference +CMGL commands.

<dcs>: depending on the command or result code: SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format.

<fo>: depending on the command or result code: first octet of SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format.

<mid>: CBM Message Identifier in integer format.

<sca>: RP SC address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tosca>

<tosca>: RP SC address Type-of-Address octet in integer format (default refer <toda>)

<vp>: depending on SMS-SUBMIT <fo> setting: TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>).

Implementation:

AT+CMGR=1
+CMGR: "STO UNSENT","+10011",,145,17,0,0,167,"+8613800100500",145,4
abcd
OK

5.10 Send Message +CMGS

Description:

Execution command sends message from a TE to the network (SMS-SUBMIT).

+CMGS Action Command Syntax:

a. Text Mode

Command	Possible response(s)
if text mode (+CMGF=1): +CMGS=<da>[,<toda>]<CR> ***text is entered***<ctrl-Z/ESC>	**if text mode (+CMGF=1) and sending successful:** +CMGS: <mr> **if sending fails:** *+CMS ERROR: <err>*
+CMGS=?	

b. PDU Mode

Command	Possible response(s)
if PDU mode (+CMGF=0): +CMGS=<length><CR> ***PDU is given***<ctrl-Z/ESC>	**if PDU mode (+CMGF=0) and sending successful:** +CMGS: <mr>[,<ackpdu>] **if sending fails:** *+CMS ERROR: <err>*
+CMGS=?	

Defined Values:

<mr>: TP-Message-Reference in integer format.
<da>, <toda>, <length> reference +CMGL commands.
<ackpdu>: RP-User-Data element of RP-ACK PDU, format is same as for <pdu> in case of SMS, but without SC address field and parameter shall be bounded by double quote characters like a normal string type parameter.

Implementation:

AT+CMGS="13012832788"<CR> (TEXT MODE)
> ABCD<ctrl-Z/ESC>

+CMGS: 46
OK

5.11 Send Message from Storage +CMSS

Description:

Execution command sends message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).

+CMSS Action Command Syntax:

a. Text Mode

Command	Possible response(s)
+CMSS=<index>[,<da>[,<toda>]]	**if text mode (+CMGF=1) and sending successful:** +CMSS: <mr> **if sending fails:** *+CMS ERROR: <err>*
+CMSS=?	

b. PDU Mode

Command	Possible response(s)

+CMSS=<index>[,<da>[,<toda>]]	**if PDU mode (+CMGF=0) and sending successful:** +CMSS: <mr>[,<ackpdu>] **if sending fails:** *+CMS ERROR: <err>*
+CMSS=?	

Defined Values:

<index>: integer type, value in the range of location numbers supported by the associated memory.
<mr>, <da>, <toda> reference +CMGL commands.
<ackpdu> reference +CMGS commands.

Implementation:

AT+CMSS=3
+CMSS: 0
OK
AT+CMSS=3,"13012832788"
+CMSS: 55
OK

5.12 Write Message to Memory +CMGW

Description:

Execution command stores message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>.

+CMGW Action Command Syntax:

a. Text Mode

Command	Possible response(s)
if text mode (+CMGF=1): +CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]]<CR> ***text is entered***<ctrl-Z/ESC>	+CMGW: <index> *+CMS ERROR: <err>*
+CMGW=?	

b. PDU Mode

Command	Possible response(s)
if PDU mode (+CMGF=0): +CMGW=<length>[,<stat>]<CR> ***PDU is given***<ctrl-Z/ESC>	+CMGW: <index> *+CMS ERROR: <err>*
+CMGW=?	

Defined Values:

<index>: integer type, value in the range of location numbers supported by the associated memory.
<da>, <toda>, <length>, <stat>reference +CMGL commands.

Implementation:

AT+CMGW="13012832788" <CR> (TEXT MODE)
ABCD<ctrl-Z/ESC>
+CMGW: 1
OK

5.13 Delete Message +CMGD

Description:

Execution command deletes message from preferred message storage <mem1> location <index>.

+CMGD Action Command Syntax:

Command	Possible response(s)
+CMGD=<index>[,<delflag>]	*+CMS ERROR: <err>*
+CMGD=?	+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]

Defined Values:

<delflag>:

0(or omitted) Delete the message specified in <index>

1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched.

2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched.

3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched.

4 Delete all messages from preferred message storage including unread messages.

Implementation:

AT+CMGD=1
OK

5.14 Set Text Mode Parameters +CSMP

Description:

Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected.

+CSMP Action Command Syntax:

Command	Possible response(s)
+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]	
+CSMP?	+CSMP: <fo>,<vp>,<pid>,<dcs>
+CSMP=?	

Defined Values:

<fo>: depending on the command or result code: first octet of SMS-DELIVER, SMS-SUBMIT (default 17), or SMS-COMMAND (default 2) in integer format.

<vp>: depending on SMS-SUBMIT <fo> setting: TP-Validity-Period either in integer format (default 167) , in time-string format, or if is supported, in enhanced format (hexadecimal coded string with quotes).

<pid>: Protocol-Identifier in integer format (default 0).

<dcs>: SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format depending on the command or result code.

Implementation:

AT+CSMP=17,23,64,244
OK

6 Network service related commands

6.1 Subscriber number +CNUM

Description:

Execution command returns the MSISDNs related to the subscriber (this information can be stored in the SIM or in the ME). If subscriber has different MSISDN for different services, each MSISDN is returned in a separate line.

+CNUM action command syntax:

Command	Possible response(s)
+CNUM	+CNUM: [<alpha1>],<number1>,<type1> [<CR><LF>+CNUM: [<alpha2>],<number2>,<type2> [...]] *+CME ERROR: <err>*
+CNUM=?	

Defined values:

<alphax>: optional alphanumeric string associated with <numberx>; used character set should be the one selected with command Select TE Character Set +CSCS.
<numberx>: string type phone number of format specified by <typex>.
<typex>: type of address octet in integer format.

Implementation:

AT+CNUM
+CNUM: ,"13697252277",129
OK

6.2 Network registration +CREG

Description:

Set command controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the ME network registration status.
Read command returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the ME.

+CREG action command syntax:

Command	Possible response(s)
+CREG=[<n>]	
+CREG?	+CREG: <n>,<stat> *+CME ERROR: <err>*

+CREG=?	+CREG: (list of supported <n>s)

Defined values:

<n>:

0 disable network registration unsolicited result code

1 enable network registration unsolicited result code +CREG: <stat>

<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

Implementation:

AT+CREG?
+CREG: 0,1
OK

6.3 Operator selection +COPS

Description:

Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the ME or is forced by this command to operator <oper> (it shall be given in format <format>). If the selected operator is not available, no other operator shall be selected (except <mode>=4). The selected operator name format shall apply to further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g. after <mode>=2, ME shall be unregistered until <mode>=0 or 1 is selected).
Read command returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted.
Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM, and other networks.
It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

+COPS action command syntax:

Command	Possible response(s)
+COPS=[<mode>[,<format>[,<oper>[,< AcT>]]]]	*+CME ERROR: <err>*
+COPS?	+COPS: <mode>[,<format>,<oper>[,< AcT>]] *+CME ERROR: <err>*
+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper>,short alphanumeric <oper>,numeric <oper>[,< AcT>])s][,,(list of supported <mode>s),(list of supported <format>s)] *+CME ERROR: <err>*

Defined values:

<mode>:

0 automatic (default)

1 manual

3 set only <format>

4 manual/automatic

<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.

<stat>:

0 unknown

1 available

2 current

3 forbidden

<AcT>: access technology selected

0 GSM

1 GSM Compact

2 UTRAN

Implementation:

AT+COPS?

+COPS: 0,0,"China Mobile Com",0

OK

AT+COPS=?

+COPS: (2,"China Unicom","Unicom","46001",0),(3,"China Mobile Com","DGT MPT","46000",0),,(0,1,3,4),(0,1,2)

OK

6.4 Facility lock +CLCK

Description:

Execute command is used to lock, unlock or interrogate a ME or a network facility <fac>. Password is normally needed to do such actions. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>.

+CLCK action command syntax:

Command	Possible response(s)
+CLCK=<fac>,<mode>[,<passwd>[,<class>]]	*+CME ERROR: <err>* **when <mode>=2 and command successful:** +CLCK: <status>[,<class1> [<CR><LF>+CLCK: <status>,<class2> [...]]
+CLCK=?	+CLCK: (list of supported <fac>s) *+CME ERROR: <err>*

Defined values:

<fac>:

"PF" lock Phone to the very First inserted SIM card or USIM card
"SC" lock SIM card or USIM card
"AO" Barr All Outgoing Calls
"OI" Barr Outgoing International Calls
"OX" Barr Outgoing International Calls except to Home Country
"AI" Barr All Incoming Calls
"IR" Barr Incoming Calls when Roaming outside the home country
"AB" All Barring services
"AG" All outGoing barring services
"AC" All inComing barring services
"FD" SIM fixed dialling memory feature
"PN" Network Personalisation
"PU" network sUbset Personalisation
"PP" service Provider Personalisation
"PC" Corporate Personalisation

<mode>:

0 unlock
1 lock
2 query status

<status>:

0 not active
1 active

<passwd>: password.

Implementation:

AT+CLCK="SC",2

+CLCK: 0

OK

6.5 Change password +CPWD

Description:

Action command sets a new password for the facility lock function defined by command Facility Lock +CLCK.

Test command returns a list of pairs which present the available facilities and the maximum length of their password.

+CPWD action command syntax:

Command	Possible response(s)
+CPWD=<fac>,<oldpwd>,<newpwd>	*+CME ERROR: <err>*
+CPWD=?	+CPWD: list of supported (<fac>,<pwdlength>)s *+CME ERROR: <err>*

Defined values:

<fac>: refer Facility Lock +CLCK for other values

"SC" SIM or USIM PIN1

"P2" SIM or USIM 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>.

Implementation:

AT+CPWD=?

+CPWD: ("AB",4),("SC",8),("P2",8)

OK

6.6 Calling line identification presentation +CLIP

Description:

This command refers to the GSM/UMTS supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the calling line identity (CLI) of the calling party when receiving a mobile terminated call.

Set command enables or disables the presentation of the CLI at the TE. It has no effect on the execution of the supplementary service CLIP in the network.

When the presentation of the CLI at the TE is enabled (and calling subscriber allows), +CLIP: <number>,<type>[,<subaddr>,<satype>[,[<alpha>][,<CLI validity>]]] response is returned after every RING (or +CRING: <type>; refer subclause "Cellular result codes +CRC") result code sent

from TA to TE. It is manufacturer specific if this response is used when normal voice call is answered.

+CLIP action command syntax:

Command	Possible response(s)
+CLIP=[<n>]	
+CLIP?	+CLIP: <n>,<m>
+CLIP=?	+CLIP: (list of supported <n>s)

Defined values:

<n> (parameter sets/shows the result code presentation status in the TA):

0 disable

1 enable

<m>:

0 CLIP not provisioned

1 CLIP provisioned

2 unknown (e.g. no network, etc.)

<number>: string type phone number of format specified by <type>.

<type>: type of address octet in integer format.

<subaddr>: string type subaddress of format specified by <satype>.

<satype>: type of subaddress octet in integer format.

<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

<CLI validity>:

0 CLI valid

1 CLI has been withheld by the originator

2 CLI is not available due to interworking problems or limitations of originating network

Implementation:

AT+CLIP=1
OK
RING (with incoming call)
+CLIP: "02152063113",128,,,"gongsi",0

6.7 Calling line identification restriction +CLIR

Description:

This command refers to CLIR-service that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call.

Set command overrides the CLIR subscription (default is restricted or allowed) when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can

be revoked by using the opposite command.. If this command is used by a subscriber without provision of CLIR in permanent mode the network will act.
Read command gives the default adjustment for all outgoing calls (given in <n>), and also triggers an interrogation of the provision status of the CLIR service (given in <m>).
Test command returns values supported as a compound value.

+CLIR action command syntax:

Command	Possible response(s)
+CLIR=[<n>]	
+CLIR?	+CLIR: <n>,<m>
+CLIR=?	+CLIR: (list of supported <n>s)

Defined values:

<n>:

0 presentation indicator is used according to the subscription of the CLIR service
1 CLIR invocation
2 CLIR suppression

<m>:

0 CLIR not provisioned
1 CLIR provisioned in permanent mode
2 unknown (e.g. no network, etc.)
3 CLIR temporary mode presentation restricted
4 CLIR temporary mode presentation allowed

Implementation:

AT+CLIR=?
+CLIR: (0-2)
OK

6.8 Connected line identification presentation +COLP

Description:

This command refers to the GSM/UMTS supplementary service COLP (Connected Line Identification Presentation) that enables a calling subscriber to get the connected line identity (COL) of the called party after setting up a mobile originated call. The command enables or disables the presentation of the COL at the TE. It has no effect on the execution of the supplementary service COLR in the network.
When enabled (and called subscriber allows), +COLP: <number>,<type>[,<subaddr>,<satype> [,<alpha>]] intermediate result code is returned from TA to TE before any +CR responses.

+COLP action command syntax:

Command	Possible response(s)
+COLP=[<n>]	
+COLP?	+COLP: <n>,<m>
+COLP=?	+COLP: (list of supported <n>s)

Defined values:

<n> (parameter sets/shows the result code presentation status in the TA):

0 disable

1 enable

<m>:

0 COLP not provisioned

1 COLP provisioned

2 unknown (e.g. no network, etc.)

Implementation:

AT+COLP=1
OK
RING (with incoming call)
ATA (answer incoming call)
OK
+COLP: "02152063113",128,,,"gongsi"

6.9 Closed user group +CCUG

Description:

This command allows control of the Closed User Group supplementary service. Set command enables the served subscriber to select a CUG index, to suppress the Outgoing Access (OA), and to suppress the preferential CUG.

+CCUG action command syntax:

Command	Possible response(s)
+CCUG=[<n>[,<index>[,<info>]]]	
+CCUG?	+CCUG: <n>,<index>,<info>
+CCUG=?	

Defined values:

<n>:

0 disable CUG temporary mode

1 enable CUG temporary mode

<index>:

0...9 CUG index

10 no index (preferred CUG taken from subscriber data)

<info>:

0	no information
1	suppress OA
2	suppress preferential CUG
3	suppress OA and preferential CUG

Implementation:

AT+CCUG?
+CCUG: 0,0,0
OK

6.10 Call forwarding number and conditions +CCFC

Description:

This command allows control of the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.

+CCFC action command syntax:

Command	Possible response(s)
+CCFC=<reason>,<mode> [,<number>[,<type> [,<class> [,<subaddr>[,<satype> [,<time>]]]]]]	*+CME ERROR: <err>* **when <mode>=2 and command successful:** +CCFC: <status>,<class1>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]][<CR><LF>+CCFC: <status>,<class2>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]] [...]]
+CCFC=?	+CCFC: (list of supported <reason>s)

Defined values:

<reason>:

0	unconditional
1	mobile busy
2	no reply
3	not reachable
4	all call forwarding
5	all conditional call forwarding

<mode>:

0	disable
1	enable
2	query status
3	registration
4	erasure

<number>: string type phone number of forwarding address in format specified by <type>.

<type>: type of address octet in integer forma; default 145 when dialling string includes international access code character "+", otherwise 129.

<subaddr>: string type subaddress of format specified by <satype>.

<satype>: type of subaddress octet in integer format, default 128.

<classx>: 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)
8	short message service
16	data circuit sync
32	data circuit async
64	dedicated packet access
128	dedicated PAD access

<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.

<status>:

0	not active
1	active

Implementation:

AT+CCFC=?
+CCFC: (0,1,2,3,4,5)
OK
AT+CCFC=0,2
+CCFC: 0,7
OK

6.11 Call waiting +CCWA

Description:

This command allows control of the Call Waiting supplementary service. Activation, deactivation and status query are supported. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. Parameter <n> is used to disable/enable the presentation of an unsolicited result code +CCWA: <number>,<type>,<class>,[<alpha>][,<CLI validity>] to the TE when call waiting service is enabled. Command should be abortable when network is interrogated.

+CCWA action command syntax:

Command	Possible response(s)
+CCWA=[<n>[,<mode>[,<class>]]]	*+CME ERROR: <err>* **when <mode>=2 and command successful** +CCWA: <status>,<class1> [<CR><LF>+CCWA: <status>,<class2> [...]]
+CCWA?	+CCWA: <n>
+CCWA=?	+CCWA: (list of supported <n>s)

Defined values:

<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

<classx>: 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)

8 short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128 dedicated PAD access

<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; default 145 when dialling string includes international access code character "+", otherwise 129.

<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.

<CLI validity>:

0 CLI valid

1 CLI has been withheld by the originator.

2 CLI is not available due to interworking problems or limitations of originating network.

<subaddr>: string type subaddress of format specified by <satype>.

<satype>: type of subaddress octet in integer format, default 128.

<priority>: priority value for incoming call eMLPP.

Implementation:

AT+CCWA=?
+CCWA: (0-1)
OK
AT+CCWA?
+CCWA: 0

6.12 Call related supplementary services +CHLD

Description:

This command allows the control of the following call related services:

1. a call can be temporarily disconnected from the ME but the connection is retained by the network
2. multiparty conversation (conference calls)
3. the served subscriber who has two calls (one held and the other either active or alerting) can connect the other parties and release the served subscriber's own connection

Calls can be put on hold, recovered, released, added to conversation, and transferred.

+CHLD parameter command syntax:

Command	Possible response(s)
+CHLD=[<n>]	*+CME ERROR: <err>*
+CHLD=?	[+CHLD: (list of supported <n>s)]

Defined values:

<n>:

0 Terminate all held calls; or set User Determined User Busy for a waiting call

1 Terminate all active calls and accept the other call (waiting call or held call)

1X Terminate the active call X

2 Place all active calls on hold and accept the other call (waiting call or held call) as the active call

2X Place all active calls except call X on hold

3 Add the held call to the active calls

4 Connect two calls and cut off the connection between users and them simultaneously

Implementation:

AT+CHLD=?
+CHLD: (0,1,1x,2,2x,3,4)

6.13 Unstructured supplementary service data +CUSD

Description:

This command allows control of the Unstuctured Supplementary Service Data (USSD). Both network and mobile initiated operations are supported. Parameter <n> is used to disable/enable the presentation of an unsolicited result code (USSD response from the network, or network initiated operation) +CUSD: <m>[,<str>,<dcs>] to the TE. In addition, value <n>=2 is used to cancel an ongoing USSD session.

+CUSD action command syntax:

Command	Possible response(s)
+CUSD=[<n>[,<str>[,<dcs>]]]	*+CME ERROR: <err>*
+CUSD?	+CUSD: <n>
+CUSD=?	+CUSD: (list of supported <n>s)

Defined values:

<n>:

0 disable the result code presentation in the TA

1 enable the result code presentation in the TA

2 cancel session (not applicable to read command response)

<str>: string type USSD-string

<dcs>: Cell Broadcast Data Coding Scheme in integer format (default 0)

<m>:

0 no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation)

1 further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation)

2 USSD terminated by network

4 operation not supported

5 network time out

Implementation:

AT+CUSD?
+CUSD: 1
OK
AT+CUSD=0
OK

6.14 Advice of Charge +CAOC

Description:

This refers to Advice of Charge supplementary service that enables subscriber to get information about the cost of calls. With <mode>=0, the execute command returns the current call meter value from the ME.

The command also includes the possibility to enable an unsolicited event reporting of the CCM information. The unsolicited result code +CCCM: <ccm> is sent when the CCM value changes, but not more that every 10 seconds. Deactivation of the unsolicited event reporting is made with the same command.

+CAOC action command syntax:

Command	Possible response(s)
+CAOC[=<mode>]	[+CAOC: <ccm>] *+CME ERROR: <err>*
+CAOC?	+CAOC: <mode>
+CAOC=?	[+CAOC: (list of supported <mode>s]

Defined values:

<mode>:

0 query CCM value

1 deactivate the unsolicited reporting of CCM value

2 activate the unsolicited reporting of CCM value

<ccm>: string type, three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates decimal value 30), value is in home units and bytes are similarly coded as ACMmax value in the SIM.

Implementation:

AT+CAOC=0

+CAOC: "000000"

6.15 Supplementary service notifications +CSSN

Description:

This command refers to supplementary service related network initiated notifications. The set command enables/disables the presentation of notification result codes from TA to TE.

When <n>=1 and a supplementary service notification is received after a mobile originated call setup, intermediate result code +CSSI: <code1>[,<index>] is sent to TE before any other MO call setup result codes presented in the present document. When several different <code1>s are received from the network, each of them shall have its own +CSSI result code.

When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received, unsolicited result code +CSSU: <code2>[,<index>[,<number>,<type>[,<subaddr>,<satype>]]] is sent to TE. In case of MT call setup, result code is sent after every +CLIP result code (refer command "Calling line identification presentation +CLIP") and when several different <code2>s

are received from the network, each of them shall have its own +CSSU result code.

+CSSN action command syntax:

Command	Possible response(s)
+CSSN=[<n>[,<m>]]	
+CSSN?	+CSSN: <n>,<m>
+CSSN=?	+CSSN: (list of supported <n>s),(list of supported <m>s)

Defined values:

<n> (parameter sets/shows the +CSSI result code presentation status in the TA):

0 disable

1 enable

<m> (parameter sets/shows the +CSSU result code presentation status in the TA):

0 disable

1 enable

<code1> (it is manufacturer specific, which of these codes are supported):

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

7 CLIR suppression rejected

8 call has been deflected

<index>: refer "Closed user group +CCUG"

<code2> (it is manufacturer specific, which of these codes are supported):

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)

5 call on hold has been released (this is not a SS notification) (during a voice call)

6 forward check SS message received (can be received whenever)

7 call is being connected (alerting) with the remote party in alerting state in explicit call transfer operation (during a voice call)

8 call has been connected with the other remote party in explicit call transfer operation (also number and subaddress parameters may be present) (during a voice call or MT call setup)

9 this is a deflected call (MT call setup)

<number>: string type phone number of format specified by <type>.

<type>: type of address octet in integer format; default 145 when dialling string includes international access code character "+", otherwise 129.

<subaddr>: string type subaddress of format specified by <satype>.
<satype>: type of subaddress octet in integer format, default 128.

Implementation:

AT+CSSN=1,1
OK
AT+CSSN?
+CSSN: 1,1
OK

6.16 List current calls +CLCC

Description:

Returns list of current calls of ME. If command succeeds but no calls are available, no information response is sent to TE.

+CLCC action command syntax:

Command	Possible response(s)
+CLCC	[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,<alpha>]] [<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,<alpha>]] [...]]] *+CME ERROR: <err>*
+CLCC=?	

Defined values:

<idx>: integer type, call identification number, 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

9 unknown

<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, default 145 when dialling string includes international access code character "+", otherwise 129.

<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.

Implementation:

ATD10011;
OK
AT+CLCC
+CLCC: 1,0,0,0,0,"10011",129,"sm"
OK

RING (with incoming call)
AT+CLCC
+CLCC: 1,1,4,0,0,"02152063113",128,"gongsi"

6.17 Preferred operator list +CPOL

Description:

This command is used to edit the SIM preferred list of networks.

+CPOL action command syntax:

Command	Possible response(s)
+CPOL=[<index>][,<format>[,<oper>]]	*+CME ERROR: <err>*
+CPOL?	+CPOL: <index1>,<format>,<oper1> [<CR><LF>+CPOL: <index2>,<format>,<oper2> [...]] *+CME ERROR: <err>*
+CPOL=?	+CPOL: (list of supported <index>s),(list of supported <format>s)*+CME ERROR: <err>*

Defined values:

<indexn>: integer type, the order number of operator in the SIM preferred operator list.

<format>:

0 long format alphanumeric <oper>
1 short format alphanumeric <oper>
2 numeric <oper>

<oper>: string type.

Implementation:

AT+CPOL?
+CPOL: 1,"46001"
OK
AT+CPOL=?
+CPOL: (1-10),(0-2)
OK

6.18 Read operator names +COPN

Description:

Execute command returns the list of operator names from the ME. Each operator code <numericn> that has an alphanumeric equivalent <alphan> in the ME memory shall be returned.

+COPN action command syntax:

Command	Possible response(s)
+COPN	+COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] *+CME ERROR: <err>*
+COPN=?	

Defined values:

<numericn>: string type, operator in numeric format (see +COPS).
<alphan>: string type, operator in long alphanumeric format (see +COPS).

Implementation:

AT+COPN
+COPN: "46000","China Mobile Com"
+COPN: "46001"," China Unicom"
……
OK

7 Mobile Equipment control and status commands

7.1 Phone activity status +CPAS

Description:

Execution command returns the activity status <pas> of the ME. It can be used to interrogate the ME before requesting action from the phone.

+CPAS action command syntax:

Command	Possible response(s)
+CPAS	+CPAS: <pas> *+CME ERROR: <err>*
+CPAS=?	+CPAS: (list of supported <pas>s) *+CME ERROR: <err>*

Defined values:

<pas>:

0 ready (ME allows commands from TA/TE)

1 unavailable (ME does not allow commands from TA/TE)

2 unknown (ME is not guaranteed to respond to instructions)

3 ringing (ME is ready for commands from TA/TE, but the ringer is active)

4 call in progress (ME is ready for commands from TA/TE, but a call is in progress)

5 asleep (ME is unable to process commands from TA/TE because it is in a low functionality state)

Implementation:

RING (with incoming call)
AT+CPAS
+CPAS: 3
AT+CPAS=?
+CPAS: (0,3,4)

7.2 Set phone functionality +CFUN

Description:

Set command selects the level of functionality <fun> in the ME. Level "full functionality" is where the highest level of power is drawn. "Minimum functionality" is where minimum power is drawn. Level of functionality between these may also be specified by manufacturers. When supported by manufacturers, ME resetting with <rst> parameter may be utilized.

+CFUN action command syntax:

Command	Possible response(s)
+CFUN=[<fun>[,<rst>]]	*+CME ERROR: <err>*
+CFUN?	+CFUN: <fun> *+CME ERROR: <err>*
+CFUN=?	+CFUN: (list of supported <fun>s), (list of supported <rst>s) *+CME ERROR: <err>*

Defined values:

<fun>:

0 minimum functionality

1 full functionality, online mode

4 disable phone both transmit and receive RF circuits

5 Factory Test Mode

6 Reset

7 Offline mode

<rst>:

0 do not reset the ME before setting it to <fun> power level

1 reset the ME before setting it to <fun> power level

Implementation:

AT+CFUN?
+CFUN: 1
OK
AT+CFUN=0
OK

7.3 Enter PIN +CPIN

Description:

Set command sends to the ME a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken towards MT and an error message, +CME ERROR, is returned to TE.

If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, is used to replace the old pin in the SIM.

+CPIN action command syntax:

Command	Possible response(s)
+CPIN=<pin>[,<newpin>]	*+CME ERROR: <err>*

+CPIN?	+CPIN: <code> *+CME ERROR: <err>*
+CPIN=?	

Defined values:

<pin>, <newpin>: string type values

<code>: values reserved by the present document:

READY	ME is not pending for any password
SIM PIN	ME is waiting SIM PIN to be given
SIM PUK	ME is waiting SIM PUK to be given
PH-SIM PIN	ME is waiting phone-to-SIM card password to be given
SIM PIN2	ME is waiting SIM PIN2 to be given
SIM PUK2	ME is waiting SIM PUK2 to be given
PH-NET PIN	ME is waiting network personalisation password to be given

Implementation:

AT+CPIN?
+CPIN: SIM PUK2
OK

7.4 Signal quality +CSQ

Description:

Execution command returns received signal strength indication <rssi> and channel bit error rate <ber> from the ME. Test command returns values supported by the TA as compound values.

+CSQ action command syntax:

Command	Possible response(s)
+CSQ	+CSQ: <rssi>,<ber> *+CME ERROR: <err>*
+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s)

Defined values:

<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	<0.01%
1	0.01% --- 0.1%

2	0.1% --- 0.5%
3	0.5% --- 1.0%
4	1.0% --- 2.0%
5	2.0% --- 4.0%
6	4.0% --- 8.0%
7	>=8.0%
99	not known or not detectable

Implementation:

AT+CSQ
+CSQ: 25, 99
OK

7.5 Battery charge +CBC

Description:

Execution command returns battery connection status <bcs> and battery charge level <bcl> of the ME.
Test command returns values supported by the TA as compound values.

+CBC action command syntax:

Command	Possible response(s)
+CBC	+CBC: <bcs>,<bcl> *+CME ERROR: <err>*
+CBC=?	+CBC: (list of supported <bcs>s),(list of supported <bcl>s)

Defined values:

<bcs>:

0	ME is powered by the battery
1	ME has a battery connected, but is not powered by it
2	ME does not have a battery connected
3	Recognized power fault, calls inhibited

<bcl>:

0	battery is exhausted, or ME does not have a battery connected
1...100	battery has 1-100 percent of capacity remaining

Implementation:

AT+CBC
+CBC: 0,100

7.6 Mobile Equipment control mode +CMEC

Description:

Set command selects the equipment, which operates ME keypad, writes to ME display and sets ME indicators. If operation mode is not allowed by the ME, +CME ERROR: <err> is returned.

+CMEC action command syntax:

Command	Possible response(s)
+CMEC=[<keyp>[,<disp>[,<ind>]]]	*+CME ERROR: <err>*
+CMEC?	+CMEC: <keyp>,<disp>,<ind>
+CMEC=?	+CMEC: (list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s)

Defined values:

<keyp>:

0 ME can be operated only through its keypad (execute command of +CKPD cannot be used)

1 ME can be operated only from TE (with command +CKPD)

2 ME can be operated from both ME keypad and TE

<disp> and <ind>: default 0.

Implementation:

AT+CMEC?
+CMEC: 2,0,0
OK
AT+CMEC=?
+CMEC: (0-2),(0),(0)

7.7 Keypad control +CKPD

Description:

Execution command emulates ME keypad by giving each keystroke as a character in a string <keys>.

+CKPD action command syntax:

Command	Possible response(s)
+CKPD=<keys>[,<time>[,<pause>]]	*+CME ERROR: <err>*
+CKPD=?	

Defined values:

<keys>: string of characters representing keys as listed in the following table

Char	IRA (dec)	Comment (+ some known key symbols)
#	35	hash (number sign)
%	37	percent sign (P)
*	42	star (*)
0... 9	48... 57	number keys
:	58	escape character for manufacturer specific keys
;	59	escape character for string entering
<	60	left arrow
>	62	right arrow
@	64	alpha key (/ABC)
A/a	65/97	channel A (A)
B/b	66/98	channel B (B)
C/c	67/99	clear display (C/CLR)
D/d	68/100	volume down
E/e	69/101	connection end (END)
F/f	70/102	function (FCN)
L/l	76/108	phone lock (LOCK)
M/m	77/109	menu (MENU)
P/p	80/112	power (PWR)
Q/q	81/113	quiet/mute (MUTE)
R/r	82/114	recall last number (R/RCL/MR)
S/s	83/115	connection start (SEND)
T/t	84/116	store/ memory (STO/M/M+)
U/u	85/117	volume up
V/v	86/118	down arrow
W/w	87/119	pause character
X/x	88/120	auxiliary (AUX)
Y/y	89/121	delete last character (C)
[	91	soft key 1
]	93	soft key 2
^	94	up arrow

<time>, <pause>:

0...255 0... 25.5 seconds (default values are manufacturer specific, but should be so long that a normal ME can handle keystrokes correctly)

Implementation:

AT+CKPD=1234,,20

OK

7.8 Accumulated call meter +CACM

Description:

Set command resets the Advice of Charge related accumulated call meter value in SIM file EF_{ACM}.

+CACM action command syntax:

Command	Possible response(s)
+CACM=[<passwd>]	*+CME ERROR: <err>*
+CACM?	+CACM: <acm> *+CME ERROR: <err>*
+CACM=?	

Defined values:

<passwd>: string type, SIM PIN2.
<acm>: string type, accumulated call meter value similarly coded as <ccm> under +CAOC.

Implementation:

AT+CACM?
+CACM: "000000"
OK

7.9 Accumulated call meter maximum +CAMM

Description:

Set command sets the Advice of Charge related accumulated call meter maximum value in SIM file EF_{ACMmax}.

+CAMM action command syntax:

Command	Possible response(s)
+CAMM=[<acmmax>[,<passwd>]]	*+CME ERROR: <err>*
+CAMM?	+CAMM: <acmmax> *+CME ERROR: <err>*
+CAMM=?	

Defined values:

<acmmax>: string type, accumulated call meter maximum value similarly coded as <ccm> under +CAOC, value zero disables ACMmax feature.
<passwd>: string type, SIM PIN2.

Implementation:

AT+CAMM?
+CAMM: "000000"
OK

7.10 Price per unit and currency table +CPUC

Description:

Set command sets the parameters of Advice of Charge related price per unit and currency table in SIM file $EF_{PUCT.}$ **+CPUC action command syntax:**

Command	Possible response(s)
+CPUC=<currency>,<ppu>[,<passwd>]	*+CME ERROR: <err>*
+CPUC?	+CPUC: <currency>,<ppu> *+CME ERROR: <err>*
+CPUC=?	

Defined values:

<currency>: tring type, three-character currency code (e.g. "GBP", "DEM"), character set as specified by command Select TE Character Set +CSCS.
<ppu>: string type, price per unit, dot is used as a decimal separator. (e.g. "2.66")
<passwd>: string type, SIM PIN2.

Implementation:

AT+CPUC?
+CPUC: "GBP",2.66
OK

7.11 Report Mobile Equipment error +CMEE

Description:

Set command disables or enables the use of result code +CME ERROR: <err> as an indication of an error relating to the functionality of the ME.

+CMEE action command syntax:

Command	Possible response(s)
+CMEE=[<n>]	
+CMEE?	+CMEE: <n>
+CMEE=?	+CMEE: (list of supported <n>s)

Defined values:

<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)
2 enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

Implementation:

AT+CMEE?
+CMEE: 2
OK
AT+CPIN="1234","1234"
+CME ERROR: incorrect password
AT+CMEE=0
OK
AT+CPIN="1234","1234"
ERROR
AT+CMEE=1
OK
AT+CPIN="1234","1234"
+CME ERROR: 16

7.12 Mobile Equipment error result code +CME ERROR

Description:

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> can be either numeric or verbose. This is set with command +CMEE (refer previous subclause).

action command syntax:

+CME ERROR: <err>

Defined values:

<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
6	PH-FSIM PIN required
7	PH-FSIM PUK 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
32 network not allowed - emergency calls only
40 network personalisation PIN required
41 network personalisation PUK required
42 network subset personalisation PIN required
43 network subset personalisation PUK required
44 service provider personalisation PIN required
45 service provider personalisation PUK required
46 corporate personalisation PIN required
47 corporate personalisation PUK required
100 unknown

103 Illegal MS (#3)
106 Illegal ME (#6)
107 GPRS services not allowed (#7)
111 PLMN not allowed (#11)
112 Location area not allowed (#12)
113 Roaming not allowed in this location area (#13)

132 service option not supported (#32)
133 requested service option not subscribed (#33)
134 service option temporarily out of order (#34)
149 PDP authentication failure

150 invalid mobile class
148 unspecified GPRS error

151 VBS/VGCS not supported by the network
152 No service subscription on SIM
153 No subscription for group ID
154 Group Id not activated on SIM

155	No matching notification
156	VBS/VGCS call already present
157	Congestion
158	Network failure
159	Uplink busy
160	No access rights for SIM file
161	No subscription for priority
162	operation not applicable or not possible

Implementation:

AT+CPIN="1234","1234"

+CME ERROR: incorrect password

8 Phonebook related commands

All phonebook, the maximum length of phone number is 20 digits, the range of name length depends on the SIM card.

8.1 Select phonebook memory storage +CPBS

Description:

Set command selects phonebook memory storage <storage>, which is used by other phonebook commands. If setting fails in an ME error, +CME ERROR: <err> is returned.

+CPBS action command syntax:

Command	Possible response(s)
+CPBS=<storage>	*+CME ERROR: <err>*
+CPBS?	+CPBS: <storage>[,<used>,<total>] *+CME ERROR: <err>*
+CPBS=?	+CPBS: (list of supported <storage>s)

Defined values:

<storage>: values reserved by the present document:

"DC" ME dialled calls list
"MC" ME missed (unanswered received) calls list
"RC" ME received calls list
"SM" SIM phonebook
"ME" ME phonebook
"FD" SIM fixdialling-phonebook

<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.

Implementation:

AT+CPBS=?
+CPBS: ("SM","DC","FD","LD","MC","ME","RC","EN","ON")
OK
AT+CPBS=”SM”
OK
AT+CPBS?
+CPBS: "SM",1,200
OK

8.2 Read phonebook entries +CPBR

Description:

Execution command returns phonebook entries in location number range <index1>... <index2> from the current phonebook memory storage selected with +CPBS. If <index2> is left out, only location <index1> is returned. Entry fields returned are location number <indexn>, phone number stored there <number> (of format <type>) and text <text> associated with the number. If all queried locations are empty (but available), no information text lines may be returnedIf listing fails in an ME error, +CME ERROR: <err> is returned.

+CPBR action command syntax:

Command	Possible response(s)
+CPBR=<index1> [,<index2>]	[+CPBR: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CPBR: <index2>,<number>,<type>,<text>]] *+CME ERROR: <err>*
+CPBR=?	+CPBR: (list of supported <index>s),[<nlength>],[<tlength>] *+CME ERROR: <err>*

Defined values:

<index1>, <index2>, <index>: integer type values in the range of location numbers of phonebook memory.
<number>: string type phone number of format <type>.
<type>: type of address octet in integer format.
<text>: string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS.
<nlength>: integer type value indicating the maximum length of field <number>.
<tlength>: integer type value indicating the maximum length of field <text>.

Implementation:

AT+CPBS?
+CPBS: "SM",2,200
OK
AT+CPBR=1,10 (phonebook information for SIM)
+CPBR: 1,"12345678901234567890",129,"Gjmjojggjmtpgj"
+CPBR: 2,"0987654321",129,"abcd"
OK

AT+CPBS=”DC” (information for dialed calls)
OK
AT+CPBR=1,10
+CPBR: 1,"10010",129,""
+CPBR: 2,"10010",129,""

+CPBR: 3,"10010",129,""
+CPBR: 4,"521",129,""
+CPBR: 5,"114",129,""
+CPBR: 6,"1391872",129,""
+CPBR: 7,"10010",129,""
+CPBR: 8,"1391872",129,""
+CPBR: 9,"1391872",129,""
+CPBR: 10,"1391872",129,""
OK

AT+ CPBS="MC" (information for missed calls)
OK
AT+CPBR=1,10
+CPBR: 1,"1391872",129,""
OK

AT+ CPBS="RC" (information for received calls)
OK
AT+CPBR=1,10
+CPBR: 1,"02152063113",129,""
+CPBR: 2,"02152063113",129,""
+CPBR: 3,"1391872",129,""
OK

8.3 Find phonebook entries +CPBF

Description:

Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) which alphanumeric field start with string <findtext>.

+CPBF action command syntax:

Command	Possible response(s)
+CPBF=<findtext>	[+CPBF: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CBPF: <index2>,<number>,<type>,<text>]] *+CME ERROR: <err>*
+CPBF=?	+CPBF: [<nlength>],[<tlength>] *+CME ERROR: <err>*

Defined values:

<findtext>, <text>: string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS.
<index1>, <index2>: integer type values in the range of location numbers of phonebook memory.

<number>: string type phone number of format <type>.
<type>: type of address octet in integer format.
<nlength>: integer type value indicating the maximum length of field <number>.
<tlength>: integer type value indicating the maximum length of field <text>.

Implementation:

AT+CPBF="Gjmjo"
+CPBF: 1,"12345678901234567890",129,"Gjmjojggjmtpgj"
OK

8.4 Write phonebook entry +CPBW

Description:

Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS.

+CPBW action command syntax:

Command	Possible response(s)
+CPBW=[<index>][,<number>[,<type>[,<text>]]]	*+CME ERROR: <err>*
+CPBW=?	+CPBW: (list of supported <index>s),[<nlength>],(list of supported <type>s),[<tlength>] *+CME ERROR: <err>*

Defined values:

<index>: integer type values in the range of location numbers of phonebook memory.
<number>: string type phone number of format <type>.
<type>: type of address octet in integer format, default 145 when dialling string includes international access code character "+", otherwise 129.
<text>: string type field of maximum length <tlength>, character set as specified by command Select TE Character Set +CSCS.
<nlength>: integer type value indicating the maximum length of field <number>.
<tlength>: integer type value indicating the maximum length of field <text>.

Implementation:

AT+CPBW=2,"0987654321",129,"qwertyuiop"
OK

9 V24-V25 command

9.1 Set fixed local rate AT+IPR

Description:

Execution command use for set the bit rate of mode.

+IPR action command Syntax:

Command	Possible response(s)
+IPR=<speed>	OK
+IPR?	+IPR: *<speed>* *+CME ERROR: <err>*
+IPR=?	+IPR: (list of supported<speed>s) *+CME ERROR: <err>*

Defined values:

<speed>: the range of the bit rate is 300—230400(300bps--230400bps).

Implementation:

AT+IPR?
+IPR: 115200
OK
AT+IPR=?
+IPR: (),(300,600,1200,2400,4800,9600,19200,38400,57600,115200,230400)
OK
AT+IPR=115200
OK

9.2 Set control character framing AT+ICF

Description:

Execution command use for character framing setting which contain data bit, stop bit and parity bit.

+ICF action command Syntax:

Command	Possible response(s)
+ICF=<format>,<parity>	OK
+ICF?	+ICF: *<format>,<parity>* *+CME ERROR: <err>*

+ICF=?	+ICF: (list of supported<format>s), (list of supported<parity>s) *+CME ERROR: <err>*

Defined values:

<format>: (only support value “3” at moment)

0 auto detect
1 data bit 8, stop bit 2
2 data bit 8, stop bit 1, parity bit 1
3 data bit 8, stop bit 1
4 data bit 8, stop bit 2
5 data bit 7, stop bit 1, parity bit 1
6 data bit 7, stop bit 1

<parity>:

0 Odd
1 Even
2 mark
3 space

Implementation:

AT+ICF?
+ICF: 3,3
AT+ICF=?
+ICF: (3),(0-3)
AT+ICF=3,3
OK

9.3 Set local data flow control AT+IFC

Description:

Execution command use for the mode of flow control setting.

+IFC action command Syntax:

Command	Possible response(s)
+IFC=<DCE>,<DTE>	OK
+IFC?	+IFC: *<DCE>,<DTE>* *+CME ERROR: <err>*
+IFC=?	+IFC: (list of supported<DCE>s), (list of supported<DTE>s) *+CME ERROR: <err>*

Defined values:

<DCE>:

0 none

1 Xon/Xoff, don't pass characters on to data stack

2 RTS hardware flow control

3 Xon/Xoff, pass characters on to data stack

<DTE>:

0 none

1 Xon/Xoff

2 CTS hardware flow control

Implementation:

AT+IFC?
+IFC: 2,2
OK
AT+IFC=?
+IFC: (0-3),(0-2)
OK
AT+IFC=0,0
OK

9.4 Set circuit Data Carrier Detect (DCD) function mode AT&Cx

Description:

Execution command use for control DCD(Data Carrier Detect) signal.

&Cx action command Syntax:

Command	Possible response(s)
&Cx	OK

Defined values:

x:

0 DCD line is always ON.

1 Turn on whenthe value incongruous with appointed value.

2 Always on except when channel disconnected (Default value).

Implementation:

AT&C2
OK

9.5 Set circuit Data Terminal Ready (DTR) function mode AT&Dx

Description:

Execution command use for control DTR(Data Terminal Ready) signal.

&Dx action command Syntax:

Command	Possible response(s)
&Dx	OK

Defined values:

x:

0 Ignore.

1 When the state from ON to OFF, enter ONLINE mode.

2 When the state from ON to OFF, enter COMMAND mode. (Default value)

Implementation:

AT&D2
OK

9.6 ATE Enable command echo ATEx

Description:

This setting determines whether or not echo.

Ex action command Syntax:

Command	Possible response(s)
Ex	OK

Defined values:

x:

0 Echo mode off

1 Echo mode on

Implementation:

ATE1
OK

9.7 Display current configuration AT&V

Description:

Execution command use for display current configuration.

&V action command Syntax:

Command	Possible response(s)
&V	*<TEXT>* *+CME ERROR: <err>*

Defined values:

<TEXT>: All relative configuration informations.

Implementation:

AT&V
&C: 0; &D: 2; &F: 0; E: 1; L: 0; M: 0; Q: 0; V: 1; X: 0; Z: 0; S0: 0;
S3: 13; S4: 10; S5: 8; S6: 2; S7: 50; S8: 2; S9: 6; S10: 14; S11: 95;
+FCLASS: 0; +ICF: 3,3; +IFC: 2,2; +IPR: 115200; +DR: 0; +DS: 0,0,2048,6;
+WS46: 12; +CBST: 0,0,1;
……
OK

10 Commands for Packet Domain

10.1 Define PDP Context +CGDCONT

Description:

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

+CGDCONT action command syntax:

Command	Possible response(s)
+CGDCONT=[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,…[,pdN]]]]]]]]	OK ERROR
+CGDCONT?	+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]

Defined values:

<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.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol

PPP Point to Point Protocol

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

<PDP_addr>: a string parameter that identifies the MT in the address space applicable to the PDP. 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 if value is omitted)

1 on

<h_comp>: a numeric parameter that controls PDP header compression:

0 off (default if value is omitted)

1 on

<pd1>,…<pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>.

Implementation:

AT+CGDCONT?
+CGDCONT: 1,"IP","","",0,0
OK
AT+CGDCONT=?
+CGDCONT: (1-16),"IP",,,(0-1),(0-1)
+CGDCONT: (1-16),"PPP",,,(0-1),(0-1)
OK

10.2 Quality of Service Profile (Requested) +CGQREQ

Description:

This command allows the TE to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

+CGQREQ action command syntax:

Command	Possible Response(s)
+CGQREQ=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	OK ERROR
+CGQREQ?	+CGQREQ: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [<CR><LF>+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) [<CR><LF>+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) […]]

Defined values:

<cid>: a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol.

<precedence>: a numeric parameter which specifies the precedence class:

0 default priority
1 high priority
2 normal priority
3 low priority

<delay>: a numeric parameter which specifies the delay class:

0 setting value
1 delay class 1
2 delay class 2
3 delay class 3
4 delay class 4

<reliability>: a numeric parameter which specifies the reliability class:

0 setting value
1 Up to 1000 (8 kbit/s)
2 Up to 2000 (16 kbit/s)
3 Up to 4000 (32 kbit/s)
4 Up to 8000 (64 kbit/s)
5 Up to 16000 (128 kbit/s)

<peak>: a numeric parameter which specifies the peak throughput class:

0 setting value
1 Up to 1000 (8 kbit/s)
2 Up to 2000 (16 kbit/s)
3 Up to 4000 (32 kbit/s)
4 Up to 8000 (64 kbit/s)
5 Up to 16000 (128 kbit/s)
6 Up to 32000 (256 kbit/s)
7 Up to 64000 (512 kbit/s)
8 Up to 128000 (1024 kbit/s)
9 Up to 256000 (2048 kbit/s)

<mean>: a numeric parameter which specifies the mean throughput class:

0 setting value
1 100 (~0.22 bit/s)
2 200 (~0.44 bit/s)
3 500 (~1.11 bit/s)
4 1000 (~2.2 bit/s)
5 2000 (~4.4 bit/s)
6 5000 (~11.1 bit/s)
7 10000 (~22 bit/s)

8 20000 (~44 bit/s)
9 50000 (~111 bit/s)
10 100000 (~0.22 kbit/s)
11 200000 (~0.44 kbit/s)
12 500000 (~1.11 kbit/s)
13 1000000 (~2.2 kbit/s)
14 2000000 (~4.4 kbit/s)
15 5000000 (~11.1 kbit/s)
16 10000000 (~22 kbit/s)
17 20000000 (~44 kbit/s)
18 50000000 (~111 kbit/s)
31 optimization

Implementation:

AT+CGQREQ?
+CGQREQ:
OK
AT+CGQREQ=?
+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)
+CGQREQ: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31)
OK

10.3 Quality of Service Profile (Minimum acceptable) +CGQMIN

Description:

This command allows the TE to specify a minimum acceptable profile which is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message.

+CGQMIN action command syntax:

Command	Possible Response(s)
+CGQMIN=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	OK ERROR
+CGQMIN?	+CGQMIN: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [<CR><LF>+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) [<CR><LF>+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) […]]

Defined values:

see + CGQREQ command.

Implementation:

AT+CGQMIN?
+CGQMIN:
OK
AT+CGQMIN=?
+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)
+CGQMIN: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31)
OK

10.4 Packet Domain attach or detach +CGATT

Description:

The execution command is used to attach the MT to, or detach the MT from, the Packet Domain service.
The read command returns the current Packet Domain service state.

+CGATT action command syntax:

Command	Possible Response(s)
+CGATT= [<state>]	OK ERROR
+CGATT?	+CGATT: <state>
+CGATT=?	+CGATT: (list of supported <state>s)

Defined values:

<state>: indicates the state of Packet Domain attachment:
0 detached
1 attached

Implementation:

AT+CGATT?
+CGATT: 0
OK
AT+CGATT=1
OK

10.5 PDP context activate or deactivate +CGACT

Description:

The execution command is used to activate or deactivate the specified PDP context (s).

+CGACT action command syntax:

Command	Possible Response(s)
+CGACT=[<state> [,<cid>[,<cid>[,…]]]]	OK ERROR

+CGACT?	+CGACT: <cid>, <state> [<CR><LF>+CGACT: <cid>, <state> [...]]
+CGACT=?	+CGACT: (list of supported <state>s)

Defined values:

<state>: indicates the state of PDP context activation:

0 deactivated

1 activated

<cid>: a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).

Implementation:

AT+CGACT?
+CGACT: 1,0
OK
AT+CGACT=?
+CGACT: (0,1)
OK
AT+CGACT=0,1
OK

10.6 Enter data state +CGDATA

Description:

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations.

+CGDATA action command syntax:

Command	Possible Response(s)
+CGDATA=[<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

Defined Values:

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

PPP Point-to-point protocol for a PDP such as IP

<cid>: a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).

Implementation:

AT+CGDATA=?
+CGDATA: ("PPP")
OK

AT+CGDATA="PPP",1
CONNECT

10.7 Show PDP address +CGPADDR

Description:

The execution command returns a list of PDP addresses for the specified context identifiers.

+CGPADDR action command syntax:

Command	Possible response(s)
+CGPADDR=[<cid> [,<cid>[,…]]]	+CGPADDR: <cid>,<PDP_addr> [<CR><LF>+CGPADDR: <cid>,<PDP_addr> [...]]
+CGPADDR=?	+CGPADDR: (list of defined <cid>s)

Defined values:

<cid>: a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).

If no <cid> is specified, the addresses for all defined contexts are returned.

<PDP_addr>: a string that identifies the 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.

Implementation:

AT+CGPADDR =?
+CGPADDR: (1)
OK
AT+CGPADDR=1
+CGPADDR: 1,""
OK

10.8 GPRS mobile station class +CGCLASS

Description:

The set command is used to set the MT to operate according to the specified GPRS mobile class.

+CGCLASS action command syntax:

Command	Possible Response(s)
+CGCLASS= [<class>]	OK

	ERROR
+CGCLASS?	+CGCLASS: <class>
+CGCLASS=?	+CGCLASS: (list of supported <class>s)

Defined Values:

<class>: a string parameter which indicates the GPRS mobile class (in descending order of functionality)

A	class A (highest)
B	class B
C	class C
CG	class C in GPRS only mode
CC	class C in circuit switched only mode (lowest)

Implementation:

AT+CGCLASS=?
+CGCLASS: ("A","B","C","CG","CC")
OK
AT+CGCLASS?
+CGCLASS: "A"
OK

10.9 GPRS event reporting +CGEREP

Description:

Set command enables or disables sending of unsolicited result codes, +CGEV: XXX from MT to TE in the case of certain events occurring in the Packet Domain MT or the network. <mode> controls the processing of unsolicited result codes specified within this command. <bfr> controls the effect on buffered codes when <mode> 1 or 2 is entered. If a setting is not supported by the MT, ERROR or +CME ERROR: is returned.

+CGEREP action command syntax:

Command	Possible response(s)
+CGEREP=[<mode>[,<bfr>]]	OK ERROR
+CGEREP?	+CGEREP: <mode>,<bfr>
+CGEREP=?	+CGEREP: (list of supported <mode>s),(list of supported <bfr>s)

Defined values:

<mode>:

0 buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can be discarded. No codes are forwarded to the TE.

1 discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode);

otherwise forward them directly to the TE.

2 buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE.

<bfr>:

0 MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is entered.

1 MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is entered (OK response shall be given before flushing the codes).

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

+CGEV: REJECT <PDP_type>, <PDP_addr>

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

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

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

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

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

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

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

+CGEV: NW DETACH

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

+CGEV: ME DETACH

(The mobile equipment has forced a Packet Domain detach. This implies that all active contexts have been deactivated. These are not reported separately.)

+CGEV: NW CLASS <class>

(The network has forced a change of MS class. The highest available class is reported (see +CGCLASS).)

+CGEV: ME CLASS <class>

(The mobile equipment has forced a change of MS class. The highest available class is reported (see +CGCLASS).)

Implementation:

AT+CGEREP=?
+CGEREP: (0-2),(0-1)
OK
AT+CGEREP?
+CGEREP: 0,0
OK

10.10 GPRS network registration status +CGREG

Description:

The set command controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the MT's GPRS network registration status, or code +CGREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell.

+CGREG action command syntax:

Command	Possible response(s)
+CGREG=[<n>]	
+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>] *+CME ERROR: <err>*
+CGREG=?	+CGREG: (list of supported <n>s)

Defined values:

<n>:

0 disable network registration unsolicited result code

1 enable network registration unsolicited result code +CGREG: <stat>

<stat>:

0 not registered, ME is not currently searching an operator to register to

1 registered, home network

2 not registered, but ME is currently trying to attach or searching an operator to register to

3 registration denied

4 unknown

5 registered, roaming

<lac>: string type; two byte location area code in hexadecimal format.

<ci>: string type; two byte cell ID in hexadecimal format.

Implementation:

AT+CGREG=?
+CGREG: (0-1)
OK
AT+CGREG?
+CGREG: 0,0
OK

10.11 Select service for MO SMS messages +CGSMS

Description:

The set command is used to specify the service or service preference that the MT will use to send MO SMS messages.

+CGSMS action command syntax:

Command	Possible Response(s)
+CGSMS= [<service>]	OK ERROR
+CGSMS?	+CGSMS: <service>
+CGSMS=?	+CGSMS: (list of currently available <service>s)

Defined Values:

<service>: a numeric parameter which indicates the service or service preference to be used

0 GPRS

1 circuit switched

2 GPRS preferred (use circuit switched if GPRS not available)

3 circuit switched preferred (use GPRS if circuit switched not available)

Implementation:

AT+CGSMS?

+CGSMS: 3

OK

AT+CGSMS=?

+CGSMS: (0-3)

OK

Contact us:

Shanghai SIMCom Ltd.

Add: SIM Technology Building, No. 700, Yishan Road, Shanghai,P. R. China 200233

Tel: +86 21 5427 8900

Fax: +86 21 5427 6035

URL: www.sim.com