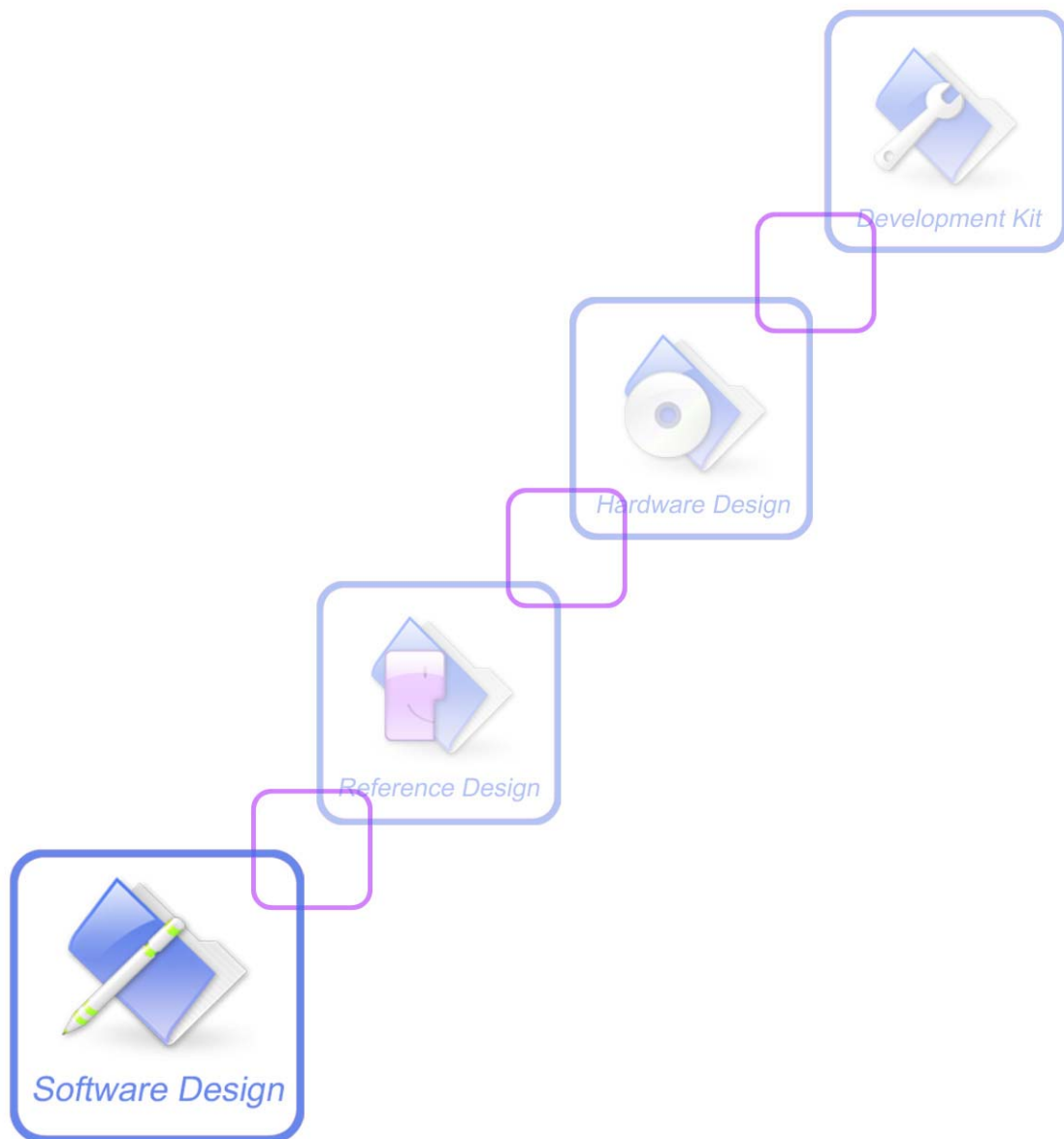


AT Commands Set

SIM300_ATC_V1.06



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|-----------------------------|------------------------|
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0 Version History

Preceding document: "SIM300 AT Interface Description" Version 1.02

Now document: "SIM300 AT Interface Description" Version 1.03

| Version | Chapter | What is new |
|---------|-------------------|--|
| V1.01 | 4.3 | Add new commands: AT+SMALPHAID AT+SMEXTRAINFO AT+SMEXTRAUNSOL |
| | 4.2.4at+cmgr | Add a new parameter <mode> |
| | 7.1 | Remove AT+CGMSCLASS in the overview |
| V1.02 | 7.2.9 at+csns | Change CSNS mode 2 to FAX and 4 to data |
| | 7.2.25 at+ceng | Change the parameter <n> to <mode> |
| | 3.2.15 at+chld | Change the definition "1X Terminate the active call number X (X= 1-7)" to "1X Terminate the specific call number X (X= 1-7)(active, waiting or held)" |
| V1.03 | 8.2.23at+cipmode | Select TCPIP Application Mode |
| | 8.2.24at+cipccfg | Configure transparent transfer mode |
| V1.04 | 7.2.1 at+ echo | Change the value of the parameter <channel> |
| | 7.2.29 at+ cmte | AT+CMTE |
| | 7.2.30 at+ csdt | AT+CSDT |
| V1.05 | 2.2.44 at+ilrr | Add a new value of IPR(0) |
| | 2.2.45 at+ipr | Add a new value of IPR and some information (refer to 2.2.45.1) about it |
| | 10.1Profile | Delete some invalid information about +cfun |
| | Commands | |
| | 7.2.31 at+cmgda | Add this command |
| | 7.2.32 at+simtone | Add this command |
| | 7.2.33 at+ccpd | Add this command |
| | 3.2.19 at+clck | Add a new value PF |
| | 3.2.31 at+cpwd | Add some new value: PS and PF |
| | 7.2.34 at+cgid | Add this command |
| V1.06 | 1.5 | Modify the SIM300 AT command interface defaults |
| | 2.2.2 ata | Modify the description of ata |
| | 2.2.3 atd | Modify the description of atd |
| | 2.2.6 atd> <str> | Modify the description of atd> <str> |
| | 2.2.21 ats6 | Modify the parameter range from 0 to 10 |
| | 2.2.22 ats7 | Modify the parameter range from 1 to 255 |
| | 2.2.24 ats10 | Modify the parameter range to 1-254 and revise carries to carrier |
| | 2.2.26 atv | Add a table to describe result codes and their numeric equivalents |
| | 2.2.27 atx | Modify the description of atx |

| | |
|-------------------|---|
| 2.2.29 at&c | Modify the description of at&c |
| 2.2.30 at&d | Modify the description of at&d |
| 2.2.35 at+ds | Modify the value range of parameters |
| 2.2.36 at+gcap | Add the description of +CGSM, +FCLASS, +DS |
| 2.2.43 at+ifc | Modify the parameter 2 of dce_by_dte and dte_by_dce |
| 2.2.45 at+ipr | Add 14400 baud rate |
| 3.2.2 at+camm | Modify the description of at+camm |
| 3.2.4 at+cbst | Modify the description of at+cbst |
| 3.2.11 at+gmr | Modify the format of firmware version name |
| 3.2.14 at+csta | Modify the description of at+csta |
| 3.2.18 at+clcc | Instead ALPHA parameter to quotation mark |
| 3.2.19 at+clck | Add new parameter of “FD” and “BN” and new value PF |
| 3.2.20 at+clip | Add parameter <CLI validity> to CLIP string to indicate the validity of CLI |
| 3.2.24 at+cops | Add short alphanumeric <oper> to at+cops=? Command |
| 3.2.28 at+cpbs | Modify the description of at+cpbs |
| 3.2.29 at+cpbw | Modify the description of at+cpbw |
| 3.2.31 at+cpwd | Add new parameters of “FD” and “BN”, remove parameter of “PF” |
| 3.2.34 at+creg | Add URC strings description if creg is set to 2 |
| 3.2.35 at+crlp | Modify the value range of parameters |
| 3.2.37 at+csq | Modify the description of at+csq |
| 3.2.42 At+vtd | Remove parameter of 0 |
| 3.2.44 at+cmux | Modify the description of at+cmux |
| 3.2.45 at+cnum | Modify the description of at+cnum |
| 3.2.52 at+crsl | Modify the description of at+crsl |
| 3.2.53 at+clvl | Modify the description of at+clvl |
| 3.2.55 at+cpuc | Modify the description of at+cpuc |
| 3.2.57 at+cbc | Add parameter 2 to indicate charge progress is completed |
| 4.2.9 at+cnmi | Remove the value 1 of parameter <bfr> |
| 7.2.3 at+cpowd | Add a new parameter 0 to this at command |
| 7.2.11 at+cmod | Modify the description of at+cmod |
| 7.2.16 at+csmins | Modify the parameter of at+csmins |
| 7.2.18 at+cdrind | Modify the description of at+cdrind |
| 7.2.19 at+cspn | Modify the description of at+cspn |
| 7.2.22 at+chf | Add test Command of at+chf |
| 7.2.23 at+chfa | Modify the parameter of at+chfa |
| 7.2.26 at+sclass0 | Modify the description of at+sclass0 |
| 7.2.27 at+ccid | Modify the description of at+ccid |
| 7.2.31 at+simtone | Change the frequency range from 4000 to 50000 |

| | | |
|--|--------------------|--|
| | 7.2.34 at+moring | Add this AT command |
| | 8.2.2 at+cipsend | Modify the description of at+cipsend |
| | 8.2.3 at+cipclose | Modify the description of at+cipclose |
| | 8.2.4 at+cipshut | Modify at+cipshut |
| | 8.2.6 at+cstt | Modify the overview of at+cstt |
| | 8.2.7 at+ciicr | Modify the description of at+ciicr |
| | 8.2.8 at+cifsr | Modify the description of at+cifsr |
| | 8.2.9 at+cipstatus | Modify the description of at+cipstatus |
| | 8.2.10 at+cdnscfg | Modify the description of at+cdnscfg |
| | 8.2.11 at+cdnsgip | Modify the description of at+cdnsgip |
| | 8.2.13 at+ciphead | Modify the overview of at+ciphead |
| | 8.2.17 at+cipcsqp | Modify the description of at+cipcsqp |
| | 8.2.18 at+cipcon | Modify the description of at+cipcon |
| | 8.2.19 at+cipflp | Modify the overview of at+cipflp |
| | 8.2.20 at+cipsrip | Modify the overview of at+cipsrip |
| | 8.2.21at+cipdpdp | Modify the parameter of at+cipdpdp |
| | 8.2.22at+cipscont | Modify the parameter of at+cipscont |
| | 8.2.23at+cipmode | Modify the description of at+cipmode |
| | 8.2.24 at+cipccfg | Modify the description of at+cipccfg |
| | At+cssn | Add CSSI and CSSU description of AT+CSSN |
| | At+clvl | Modify the description of at+clvl |
| | At+fmi | Modify the description of at+fmi |
| | At+cfclass | Modify the description of at+cfclass |
| | At+cpas | Change incoming to ringing |
| | | |

1 Introduction

1.1 Scope of the document

This document presents the AT Command Set for SIMCOM cellular engine SIM300

1.2 Related documents

You can visit the SIMCOM Website using the following link:

<http://www.simcom-sh.com>

1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:

- 1) ME (Mobile Equipment);
- 2) MS (Mobile Station);
- 3) TA (Terminal Adapter);
- 4) DCE (Data Communication Equipment) or facsimile DCE(FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface. The controlling device at the other end of the serial line is referred to as following term:

- 1) TE (Terminal Equipment);
- 2) DTE (Data Terminal Equipment) or plainly “the application” which is running on an embedded system;

1.4 AT Command syntax

The "AT" or "at" prefix must be set at the beginning of each command line. To terminate a command line enter <CR>.

Commands are usually followed by a response that includes.”<CR><LF><response><CR><LF>” Throughout this document, only the responses are presented, <CR><LF> are omitted intentionally.

The AT command set implemented by SIM300 is a combination of GSM07.05, GSM07.07 and ITU-T recommendation V.25ter and the AT commands developed by SIMCOM.

Note: Only enter AT command through serial port after SIM300 is power on and Unsolicited Result Code “RDY” is received from serial port. And if unsolicited result code “SCKS: 0” returned it indicates SIM card isn’t present. If autobauding is enabled, the Unsolicited Result Codes “RDY” and so on are not indicated when you start up the ME

All these AT commands can be split into three categories syntactically: “**basic**”, “**S parameter**”, and “**extended**”. These are as follows:

1.4.1 Basic syntax

These AT commands have the format of “AT<x><n>”, or “AT&<x><n>”, where “<x>” is the command, and “<n>” is/are the argument(s) for that command. An example of this is “ATE<n>”, which tells the DCE whether received characters should be echoed back to the DTE according to the value of “<n>”. “<n>” is optional and a default will be used if missing.

1.4.2 Sparameter syntax

These AT commands have the format of “ATS<n>=<m>”, where “<n>” is the index of the S register to set, and “<m>” is the value to assign to it. “<m>” is optional; if it is missing, then a default value is assigned.

1.4.3 Extended Syntax

These commands can operate in several modes, as following table:

Table 1: Types of AT commands and responses

| | | |
|-------------------|--------------|---|
| Test command | AT+<x>=? | The mobile equipment returns the list of parameters and value ranges set with the corresponding Write command or by internal processes. |
| Read command | AT+<x>? | This command returns the currently set value of the parameter or parameters. |
| Write command | AT+<x>=<...> | This command sets the user-definable parameter values. |
| Execution command | AT+<x> | The execution command reads non-variable parameters affected by internal processes in the GSM engine |

1.4.4 Combining AT commands on the same command line

You can enter several AT commands on the same line. In this case, you do not need to type the “AT” or “at” prefix before every command. Instead, you only need type “AT” or “at” at the beginning of the command line. Please note to use a semicolon as command delimiter.

The command line buffer can accept a maximum of 256 characters. If the characters entered exceeded this number then none of the command will be executed and TA will return “**ERROR**”.

1.4.5 Entering successive AT commands on separate lines

When you need to enter a series of AT commands on separate lines, please note that you need to wait the final response (for example OK, CME error, CMS error) of last AT command you entered before you enter the next AT command.

1.5 Supported character sets

The SIM300 AT command interface defaults to the **IRA** character set. The SIM300 supports the following character sets:

- GSM format
- UCS2
- HEX
- IRA
- PCCP437
- PCDN
- 8859_1

The character set can be set and interrogated using the “**AT+CSCS**” command (GSM 07.07). The character set is defined in GSM specification 07.05.

The character set affects transmission and reception of SMS and SMS Cell Broadcast messages, the entry and display of phone book entries text field and SIM Application Toolkit alpha strings.

1.6 Flow control

Flow control is very important for correct communication between the GSM engine and DTE. For in the case such as a data or fax call, the sending device is transferring data faster than the receiving side is ready to accept. When the receiving buffer reaches its capacity, the receiving device should be capable to cause the sending device to pause until it catches up.

There are basically two approaches to achieve data flow control: software flow control and hardware flow control. SIM300 support both two kinds of flow control.

In Multiplex mode, it is recommended to use the hardware flow control.

1.6.1 Software flow control (XON/XOFF flow control)

Software flow control sends different characters to stop (XOFF, decimal 19) and resume (XON, decimal 17) data flow. It is quite useful in some applications that only use three wires on the serial interface.

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The default flow control approach of SIM300 is hardware flow control (RTS/CTS flow control), to enable software flow control in the DTE interface and within GSM engine, type the following AT command:

AT+IFC=1, 1

This setting is stored volatile, for use after restart, **AT+IFC=1, 1** should be stored to the user profile with **AT+W**.

Ensure that any communications software package (e.g. ProComm Plus, Hyper terminal or WinFax Pro) uses software flow control.

NOTE:

Software Flow control should not be used for data calls where binary data will be transmitted or received (e.g. TCP/IP) as the DTE interface may interpret binary data as flow control characters.

1.6.2 Hardware flow control (RTS/CTS flow control)

Hardware flow control achieves the data flow control by controlling the RTS/CTS line. When the data transfer should be suspended, the CTS line is set inactive until the transfer from the receiving buffer has completed. When the receiving buffer is ok to receive more data, CTS goes active once again.

To achieve hardware flow control, ensure that the RTS/CTS lines are present on your application platform.

2 AT Commands According to V.25TER

These AT command are designed according to the ITU-T (International Telecommunication Union, Telecommunication sector) V.25ter document.

2.1 Overview of AT Commands According to V.25TER

| Command | Description |
|--------------|---|
| A/ | RE-ISSUES LAST AT COMMAND GIVEN |
| ATA | ANSWER AN INCOMING CALL |
| ATD | MOBILE ORIGINATED CALL TO DIAL A NUMBER |
| ATD><MEM><N> | ORIGINATE CALL TO PHONE NUMBER IN MEMORY <MEM> |
| > | |
| ATD><N> | ORIGINATE CALL TO PHONE NUMBER IN CURRENT MEMORY |
| ATD><STR> | ORIGINATE CALL TO PHONE NUMBER IN MEMORY WHICH CORRESPONDS TO FIELD <STR> |
| | |
| ATDL | REDIAL LAST TELEPHONE NUMBER USED |
| ATE | SET COMMAND ECHO MODE |
| ATH | DISCONNECT EXISTING CONNECTION |
| ATI | DISPLAY PRODUCT IDENTIFICATION INFORMATION |
| ATL | SET MONITOR SPEAKER LOUDNESS |
| ATM | SET MONITOR SPEAKER MODE |
| +++ | SWITCH FROM DATA MODE OR PPP ONLINE MODE TO COMMAND MODE |
| ATO | SWITCH FROM COMMAND MODE TO DATA MODE |
| ATP | SELECT PULSE DIALLING |
| ATQ | SET RESULT CODE PRESENTATION MODE |
| ATS0 | SET NUMBER OF RINGS BEFORE AUTOMATICALLY ANSWERING THE CALL |
| | |
| ATS3 | SET COMMAND LINE TERMINATION CHARACTER |
| ATS4 | SET RESPONSE FORMATTING CHARACTER |
| ATS5 | SET COMMAND LINE EDITING CHARACTER |
| ATS6 | SET PAUSE BEFORE BLIND DIALLING |
| ATS7 | SET NUMBER OF SECONDS TO WAIT FOR CONNECTION COMPLETION |
| ATS8 | SET NUMBER OF SECONDS TO WAIT WHEN COMMA DIAL MODIFIER USED |
| | |
| ATS10 | SET DISCONNECT DELAY AFTER INDICATING THE ABSENCE OF |

| | |
|---------|--|
| | DATA CARRIER |
| ATT | SELECT TONE DIALLING |
| ATV | SET RESULT CODE FORMAT MODE |
| ATX | SET CONNECT RESULT CODE FORMAT AND MONITOR CALL PROGRESS |
| ATZ | SET ALL CURRENT PARAMETERS TO USER DEFINED PROFILE |
| AT&C | SET DCD FUNCTION MODE |
| AT&D | SET DTR FUNCTION MODE |
| AT&F | SET ALL CURRENT PARAMETERS TO MANUFACTURER DEFAULTS |
| AT&V | DISPLAY CURRENT CONFIGURATION |
| AT&W | STORE CURRENT PARAMETER TO USER DEFINED PROFILE |
| AT+DR | V.42BIS DATA COMPRESSION REPORTING CONTROL |
| AT+DS | V.42BIS DATA COMPRESSION CONTROL |
| AT+GCAP | REQUEST COMPLETE TA CAPABILITIES LIST |
| AT+GMI | REQUEST MANUFACTURER IDENTIFICATION |
| AT+GMM | REQUEST TA MODEL IDENTIFICATION |
| AT+GMR | REQUEST TA REVISION IDENTIFICATION OF SOFTWARE RELEASE |
| AT+GOI | REQUEST GLOBAL OBJECT IDENTIFICATION |
| AT+GSN | REQUEST TA SERIAL NUMBER IDENTIFICATION (IMEI) |
| AT+ICF | SET TE-TA CONTROL CHARACTER FRAMING |
| AT+IFC | SET TE-TA LOCAL DATA FLOW CONTROL |
| AT+ILRR | SET TE-TA LOCAL RATE REPORTING MODE |
| AT+IPR | SET TE-TA FIXED LOCAL RATE |

2.2 Detailed Description of AT Commands According to V.25TER

2.2.1 A/ Reissues the last command given

| A/ Reissues the last command given | |
|------------------------------------|---|
| Execution command | Response |
| A/ | Re-issues the previous command Note: It does not have to end with terminating character. |
| | Parameter |
| Reference V.25ter | Note This command does not work when the serial multiplexer is active |

2.2.2 ATA Answer an incoming call

| ATA Answer an incoming call | |
|---------------------------------|---|
| Execution command ATA | <p>Response</p> <p>TA sends off-hook to the remote station.</p> <p>Note1: Any additional commands on the same command line are ignored.</p> <p>Note2: This command may be aborted generally by receiving a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>Response in case of data call, if successfully connected</p> <p>CONNECT<text> TA switches to data mode.</p> <p>Note: <text> output only if ATX<value> parameter setting with the <value> >0</p> <p>When TA returns to command mode after call release</p> <p>OK</p> <p>Response in case of voice call, if successfully connected</p> <p>OK</p> <p>Response if no connection</p> <p>NO CARRIER</p> <p>Parameter</p> |
| Reference V.25ter | <p>Note</p> <p>See also ATX</p> |

2.2.3 ATD Mobile originated call to dial a number

| ATD Mobile originated call to dial a number | |
|--|--|
| Execution command ATD[<n>][<mgs m>]; | <p>Response</p> <p>This command can be used to set up outgoing <i>voice, data or fax calls</i>. It also serves to control <i>supplementary services</i>.</p> <p>Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>If no dial tone and (parameter setting ATX2 or ATX4)</p> <p>NO DIALTONE</p> <p>If busy and (parameter setting ATX3 or ATX4)</p> <p>BUSY</p> <p>If a connection cannot be established</p> |

| | |
|----------------------|---|
| | <p>NO CARRIER</p> <p>If connection successful and non-voice call. CONNECT<text> TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value> >0</p> <p>When TA returns to command mode after call release OK</p> <p>If connection successful and voice call OK</p> |
| | <p>Parameter</p> <p><n> string of dialing digits and optionally V.25ter modifiers dialing digits: 0-9, *, #, +, A, B, C Following V.25ter modifiers are ignored: ,(comma), T, P, !, W, @</p> <p>Emergency call:</p> <p><n> Standardized emergency number 112(no SIM needed)</p> <p><mgs> string of GSM modifiers:</p> <p>I Activates CLIR (Disables presentation of own number to called party)</p> <p>i Deactivates CLIR (Enable presentation of own number to called party)</p> <p>G Activates Closed User Group invocation for this call only</p> <p>g Deactivates Closed User Group invocation for this call only</p> <p><;> only required to set up voice call , return to command state</p> |
| Reference V.25ter | <p>Note</p> <ul style="list-style-type: none"> ● Parameter “T” and “i” only if no *# code is within the dial string ● <n> is default for last number that can be dialed by ATDL ● *# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon “;” ● See ATX command for setting result code and call monitoring parameters. <p>Responses returned after dialing with ATD</p> <ul style="list-style-type: none"> ● For voice call two different responses mode can be determined. TA returns “OK” immediately either after dialing was completed or after |

the call is established. The setting is controlled by **AT+COLP**. Factory default is **AT+COLP=0**, this cause the **TA** returns “OK” immediately after dialing was completed, otherwise **TA** will returns “OK”, “BUSY”, “NO DIAL TONE”, “NO CARRIER”.

Using **ATD** during an active voice call:

- When a user originates a second voice call while there is already an active voice call, the first call will be automatically put on hold.
- The current states of all calls can be easily checked at any time by using the **AT+CLCC** command.

2.2.4 ATD<mem><n> Originate call to phone number in memory <mem>

ATD<mem><n> Originate call to phone number in memory <mem>

| | |
|--------------------------------------|--|
| Execution command | Response |
| ATD<mem><n> | This command can be used to dial a phone number from a specific phonebook. |
| >[<I>][<G>][;] | Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. |
| | If error is related to ME functionality +CME ERROR: <err> |
| | If no dial tone and (parameter setting ATX2 or ATX4) NO DIALTONE |
| | If busy and (parameter setting ATX3 or ATX4) BUSY |
| | If a connection cannot be established NO CARRIER |
| | If connection successful and non-voice call. CONNECT<text> TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value> >0 |
| | When TA returns to command mode after call release OK |
| | If successfully connected and voice call OK |

| | |
|---------------------------------|--|
| | <p>Parameter</p> <p><mem> Phonebook</p> <p>"DC" ME dialled calls list</p> <p>"FD" SIM fixed dialling-phonebook</p> <p>"LD" SIM dialled calls list</p> <p>"MC" ME missed (unanswered received) calls list</p> <p>"ME" ME phonebook</p> <p>"ON" SIM (or ME) own numbers (MSISDNs) list</p> <p>"RC" ME received calls list</p> <p>"SM" SIM phonebook</p> <p><n> Integer type memory location should be in the range of locations available in the memory used</p> <p><mgs> string of GSM modifiers:</p> <p>I Activates CLIR (Disables presentation of own number to called party)</p> <p>i Deactivates CLIR (Enable presentation of own number to called party)</p> <p>G Activates Closed User Group invocation for this call only</p> <p>g Deactivates Closed User Group invocation for this call only</p> <p><;> only required to set up voice call , return to command state</p> |
| <p>Reference</p> <p>V.25ter</p> | <p>Note</p> <ul style="list-style-type: none"> ● There is no <mem> for emergency call ("EN"). ● Parameter "I" and "i" only if no *# code is within the dial string ● *# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon ";;" ● See ATX command for setting result code and call monitoring parameters. ● For example: The command "ATD>SM7;" is going to dial the phone number stored at location 7 in SIM phone book. |

2.2.5 ATD> <n> Originate call to phone number in current memory

ATD><n> Originate call to phone number in current memory

| | |
|--|---|
| <p>Execution command</p> <p>ATD><n>[<I>][<G>][;]</p> | <p>Response</p> <p>This command can be used to dial a phone number from current phonebook memory.</p> <p>Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>If error is related to ME functionality +CME ERROR: <err></p> <p>If no dial tone and (parameter setting ATX2 or ATX4) NO DIALTONE</p> <p>If busy and (parameter setting ATX3 or ATX4) BUSY</p> <p>If a connection cannot be established NO CARRIER</p> <p>If connection successful and non-voice call. CONNECT<text> TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value> >0</p> <p>When TA returns to command mode after call release OK</p> <p>If successfully connected and voice call OK</p> |
| | <p>Parameter</p> <p><n> Integer type memory location should be in the range of locations available in the memory used</p> <p><mgsms> string of GSM modifiers:</p> <ul style="list-style-type: none"> I Activates CLIR (Disables presentation of own number to called party) i Deactivates CLIR (Enable presentation of own number to called party) G Activates Closed User Group invocation for this call only g Deactivates Closed User Group invocation for this call |

| | |
|----------------------|---|
| | only <;> only required to set up voice call , return to command state |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● Parameter “T” and “i” only if no *# code is within the dial string ● *# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon “;” ● See ATX command for setting result code and call monitoring parameters. |

2.2.6 ATD> <str> Originate call to phone number in memory which corresponds to field <str>

| ATD><str> Originate call to phone number in memory which corresponds to field <str> | |
|---|--|
| Execution command ATD><str>[I][G] [;] | Response This command make the TA attempts to set up an outgoing call to stored number. All available memories are searched for the entry <str>. Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. If error is related to ME functionality +CME ERROR: <err> If no dial tone and (parameter setting ATX2 or ATX4) NO DIALTONE If busy and (parameter setting ATX3 or ATX4) BUSY If a connection cannot be established NO CARRIER If connection successful and non-voice call. CONNECT<text> TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value> >0 When TA returns to command mode after call release OK If successfully connected and voice call OK |

| | |
|---------------------------------|--|
| | <p>Parameter</p> <p><str> string type value (“x”), which should equal to an alphanumeric field in at least one phone book entry in the searched memories. str formatted as current TE character set specified by +CSCS.</p> <p><mgsms> string of GSM modifiers:</p> <p>I Activates CLIR (Disables presentation of own number to called party)</p> <p>i Deactivates CLIR (Enable presentation of own number to called party)</p> <p>G Activates Closed User Group invocation for this call only</p> <p>g Deactivates Closed User Group invocation for this call only</p> <p><;> only required to set up voice call , return to command state</p> |
| <p>Reference</p> <p>V.25ter</p> | <p>Note</p> <ul style="list-style-type: none"> ● Parameter “T” and “i” only if no *# code is within the dial string ● *# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon “;” ● See ATX command for setting result code and call monitoring parameters. |

2.2.7 ATDL Redial last telephone number used

| ATDL Redial last telephone number used | |
|---|--|
| <p>Execution command</p> <p>ATDL</p> | <p>Response</p> <p>This command redials the last voice and data call number used.</p> <p>Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>If error is related to ME functionality</p> <p>+CME ERROR: <err></p> <p>If no dial tone and (parameter setting ATX2 or ATX4)</p> <p>NO DIALTONE</p> <p>If busy and (parameter setting ATX3 or ATX4)</p> <p>BUSY</p> <p>If a connection cannot be established</p> <p>NO CARRIER</p> |

| | |
|----------------------|--|
| | <p>If connection successful and non-voice call. CONNECT<text> TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value> >0</p> <p>When TA returns to command mode after call release OK</p> <p>If successfully connected and voice call OK</p> |
| Reference V.25ter | <p>Note</p> <ul style="list-style-type: none"> See ATX command for setting result code and call monitoring parameters. |

2.2.8 ATE Set command echo mode

| ATE Set command echo mode | | |
|---|---|-----------------------|
| Execution command ATE[<value>] | Response | |
| | This setting determines whether or not the TA echoes characters received from TE during command state. OK | |
| | Parameter | |
| | <value> | 0 Echo mode off |
| | | <u>1</u> Echo mode on |
| Reference V.25ter | Note | |

2.2.9 ATH Disconnect existing connection

| ATH Disconnect existing connection | |
|------------------------------------|---|
| Execution command ATH[n] | <div>Response</div> <div>Disconnect existing call by local TE from command line and terminate call OK</div> <div>Note: OK is issued after circuit 109(DCD) is turned off, if it was previously on.</div> |
| | <div>Parameter</div> <div><n> 0 disconnect from line and terminate call</div> |
| Reference V.25ter | <div>Note</div> |

2.2.10 ATI Display product identification information

| ATI Display product identification information | |
|--|---|
| Execution command ATI | Response TA issues product information text Example: SIMCOM_Ltd SIMCOM_SIM300 Revision: 1008B09SIM300M32_SPANSION OK |
| | Parameter |
| Reference V.25ter | Note |

2.2.11 ATL Set monitor speaker loudness

| ATL Set monitor speaker loudness | | |
|---|---|-------------------------|
| Execution command ATL[value] | Response OK | |
| | Parameter | |
| | <value> | 0 low speaker volume |
| | | 1 low speaker volume |
| | | 2 medium speaker volume |
| | 3 high speaker volume | |
| Reference V.25ter | Note <ul style="list-style-type: none">● The two commands ATL and ATM are implemented only for V.25 compatibility reasons and have no effect. | |

2.2.12 ATM Set monitor speaker mode

| ATM Set monitor speaker mode | | | |
|---|-----------------------------|---|--|
| Execution command ATM[<i>value</i>] | Response OK | | |
| | Parameter | | |
| | <<i>value</i>> | 0 | speaker is always off |
| | | 1 | speaker on until TA inform TE that carrier has been detected |
| | | 2 | speaker is always on when TA is off-hook |
| Reference | Note | | |

| | |
|----------------|--|
| V.25ter | <ul style="list-style-type: none"> The two commands ATL and ATM are implemented only for V.25 compatibility reasons and have no effect. |
|----------------|--|

2.2.13 +++ Switch from data mode or PPP online mode to command mode

| Switch from data mode or PPP online mode to command mode | |
|--|--|
| Execution command +++ | <p>Response</p> <p>This command is only available during a CSD call or a GPRS connection. The +++ character sequence causes the TA to cancel the data flow over the AT interface and switch to command mode. This allows you to enter AT command while maintaining the data connection to the remote server or, accordingly, the GPRS connection.</p> <p>OK</p> <p>To prevent the +++ escape sequence from being misinterpreted as data, it should comply to following sequence: No characters entered for T1 time (0.5 seconds) “+++” characters entered with no characters in between No characters entered for T1 timer (0.5 seconds) Switch to command mode, otherwise go to step 1.</p> <p>Parameter</p> |
| Reference V.25ter | <p>Note</p> <ul style="list-style-type: none"> To return from command mode back to data or PPP online mode: Enter ATO. |

2.2.14 ATO Switch from command mode to data mode

| ATO Switch from command mode to data mode | |
|---|---|
| Execution command ATO[n] | <p>Response</p> <p>TA resumes the connection and switches back from command mode to data mode.</p> <p>If connection is not successfully resumed NO CARRIER else TA returns to data mode from command mode CONNECT <text> Note: <text> only if parameter setting X>0</p> <p>Parameter</p> <p><n> 0 switch from command mode to data mode</p> |
| Reference V.25ter | <p>Note</p> |

2.2.15 ATP Select pulse dialing

| ATP Select pulse dialing | |
|---------------------------------|---|
| Execution command ATP | Response OK |
| | Parameter |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● No effect in GSM |

2.2.16 ATQ Set result code presentation mode

| ATQ Set result code presentation mode | |
|--|---|
| Execution command ATQ[<n>] | Response This parameter setting determines whether or not the TA transmits any result code to the TE. Information text transmitted in response is not affected by this setting. If <n>=0: OK If <n>=1: (none) |
| | Parameter <n> 0 TA transmits result code 1 Result codes are suppressed and not transmitted |
| Reference V.25ter | Note |

2.2.17 ATS0 set number of rings before automatically answering the call

| ATS0 Set number of rings before automatically answering the call | |
|--|---|
| Read command ATS0? | Response <n> OK |
| Write command ATS0=[<n>] | Response This parameter setting determines the number of rings before auto-answer. OK |
| | Parameter <n> 0 automatic answering is disable 1-255 enable automatic answering on the ring number specified |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● If <n> is set too high, the calling party may hang up before the call can be answered automatically. |

2.2.18 ATS3 Set command line termination character

| ATS3 Set command line termination character | |
|---|--|
| Read command ATS3? | Response <n> OK |
| Write command ATS3=[<n>] | Response This parameter setting determines the character recognized by TA to terminate an incoming command line. The TA also returns this character in output. OK |
| | Parameter <n> 0- <u>13</u> -127 command line termination character |
| Reference V.25ter | Note ● Default 13 = CR. |

2.2.19 ATS4 Set response formatting character

| ATS4 Set response formatting character | |
|--|--|
| Read command ATS4? | Response <n> OK |
| Write command ATS4=[<n>] | Response This parameter setting determines the character generated by the TA for result code and information text. OK |
| | Parameter <n> 0- <u>10</u> -127 response formatting character |
| Reference V.25ter | Note ● Default 10 = LF. |

2.2.20 ATS5 Set command line editing character

| ATS5 Set command line editing character | |
|--|---|
| Read command ATS5? | Response <n> OK |
| Write command ATS5=[<n>] | Response This parameter setting determines the character recognized by TA as a request to delete from the command line the immediately preceding character. OK |

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| | |
|-----------------------------|--|
| | Parameter < n > 0- <u>8</u> -127 response formatting character |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● Default 8 = Backspace. |

2.2.21 ATS6 Set pause before blind dialing

| ATS6 Set pause before blind dialing | |
|--|---|
| Read command ATS6? | Response < n > OK |
| Write command ATS6=[<n>] | Response OK Parameter < n > 0- <u>2</u> -10 number of seconds to wait before blind dialing |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● No effect for GSM |

2.2.22 ATS7 set number of seconds to wait for connection completion

| ATS7 Set number of seconds to wait for connection completion | |
|--|--|
| Read command ATS7? | Response < n > OK |
| Write command ATS7=[<n>] | Response This parameter setting determines the amount of time to wait for the connection completion in case of answering or originating a call. OK Parameter < n > 1- <u>60</u> -255 number of seconds to wait for connection completion |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● If called party has specified a high value for ATS0=<n>, call setup may fail. ● The correlation between ATS7 and ATS0 is important Example: Call may fail if ATS7=30 and ATS0=20. ● ATS7 is only applicable to data call. |

2.2.23 ATS8 set number of second to wait for comma dial modifier

| ATS8 Set number of second to wait for comma dial modifier | |
|---|--------------------------------|
| Read command ATS8? | Response < n > OK |

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| | |
|--|---|
| Write command ATS8=[<n>] | Response OK |
| | Parameter <n> 0 no pause when comma encountered in dial string 1-255 number of seconds to wait |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● No effect for GSM |

2.2.24 ATS10 Set disconnect delay after indicating the absence of data carrier

| ATS10 Set disconnect delay after indicating the absence of data carrier | |
|---|--|
| Read command ATS10? | Response <n> OK |
| Write command ATS10=[<n>] | Response This parameter setting determines the amount of time that the TA will remain connected in absence of data carrier. If the data carrier is once more detected before disconnect, the TA remains connected. OK |
| | Parameter <n> 1- <u>15</u> -254 number of tenths seconds of delay |
| Reference V.25ter | Note |

2.2.25 ATT Select tone dialing

| ATT Select tone dialing | |
|---------------------------------|--|
| Execution command ATT | Response OK |
| | Parameter |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● No effect in GSM |

2.2.26 ATV Set result code format mode

| ATV Set result code format mode | |
|--|--|
| Execution command ATV[<value>] | Response This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses. When <value>=0 0 When <value>=1 OK |
| | |

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| | |
|-----------------------------|---|
| | <p>Parameter</p> <p><value> 0 Information response: <text><CR><LF> Short result code format: <numeric code><CR></p> <p> 1 Information response: <CR><LF><text><CR><LF> Long result code format: <CR><LF><verbose code><CR><LF></p> <p>The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.</p> |
| Reference V.25ter | Note |

| ATV1 | ATV0 | Description |
|-------------------|-----------------------|--|
| OK | 0 | Acknowledges execution of a command |
| CONNECT | 1 | A connection has been established; the DCE is moving from command state to online data state |
| RING | 2 | The DCE has detected an incoming call signal from network |
| NO CARRIER | 3 | The connection has been terminated or the attempt to establish a connection failed |
| ERROR | 4 | Command not recognized, command line maximum length exceeded, parameter value invalid, or other problem with processing the command line |
| NO DIALTONE | 6 | No dial tone detected |
| BUSY | 7 | Engaged (busy) signal detected |
| NO ANSWER | 8 | "@" (Wait for Quiet Answer) dial modifier was used, but remote ringing followed by five seconds of silence was not detected before expiration of the connection timer (S7) |
| CONNECT <text> | Manufacturer-specific | Same as CONNECT, but includes manufacturer-specific text that may specify DTE speed, line speed, error control, data compression, or other status |

2.2.27 ATX Set CONNECT result code format and monitor call progress

| ATX Set CONNECT result code format and monitor call progress | |
|--|--|
| Execution command ATX[<value>] | <p>Response</p> <p>This parameter setting determines whether or not the TA detected the presence of dial tone and busy signal and whether or not TA transmits particular result codes</p> <p>OK</p> |

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| | |
|-----------------------------|---|
| | <p>Parameter</p> <p><value> 0 CONNECT result code only returned, dial tone and busy detection are both disabled</p> <p> 1 CONNECT<text> result code only returned, dial tone and busy detection are both disabled</p> <p> 2 CONNECT<text> result code returned, dial tone detection is enabled, busy detection is disabled</p> <p> 3 CONNECT<text> result code returned, dial tone detection is disabled, busy detection is enabled</p> <p> 4 CONNECT<text> result code returned, dial tone and busy detection are both enabled</p> |
| Reference V.25ter | Note |

2.2.28 ATZ set all current parameters to user defined profile

ATZ Set all current parameters to user defined profile

| | |
|--|--|
| Execution command ATZ[<value>] | <p>Response</p> <p>TA sets all current parameters to the user defined profile.</p> <p>OK</p> |
| | <p>Parameter</p> <p><value> <u>0</u> Reset to profile number 0</p> |
| Reference V.25ter | <p>Note</p> <ul style="list-style-type: none"> ● The user defined profile is stored in non volatile memory; ● If the user profile is not valid, it will default to the factory default profile; ● Any additional commands on the same command line are ignored. |

2.2.29 AT&C Set DCD function mode

AT&C Set DCD function mode

| | |
|---|---|
| Execution command AT&C[<value>] | <p>Response</p> <p>This parameter determines how the state of circuit 109(DCD) relates to the detection of received line signal from the distant end.</p> <p>OK</p> |
| | <p>Parameter</p> <p><value> 0 DCD line is always ON</p> <p> <u>1</u> DCD line is ON only in the presence of data carrier</p> |
| Reference V.25ter | Note |

2.2.30 AT&D Set DTR function mode

| AT&D Set DTR function mode | | | | | | | | | |
|--|---|---|---|--------------------------|--|----------|--|--|---|
| Execution command AT&D[<value>] | Response This parameter determines how the TA responds when circuit 108/2(DTR) is changed from the ON to the OFF condition during data mode. OK | | | | | | | | |
| | Parameter <table><tr><td><value></td><td>0</td><td>TA ignores status on DTR</td></tr><tr><td></td><td><u>1</u></td><td>ON->OFF on DTR: Change to command mode with remaining the connected call</td></tr><tr><td></td><td>2</td><td>ON->OFF on DTR: Disconnect call, change to command mode. During state DTR = OFF is auto-answer off.</td></tr></table> | <value> | 0 | TA ignores status on DTR | | <u>1</u> | ON->OFF on DTR: Change to command mode with remaining the connected call | | 2 |
| <value> | 0 | TA ignores status on DTR | | | | | | | |
| | <u>1</u> | ON->OFF on DTR: Change to command mode with remaining the connected call | | | | | | | |
| | 2 | ON->OFF on DTR: Disconnect call, change to command mode. During state DTR = OFF is auto-answer off. | | | | | | | |
| Reference V.25ter | Note | | | | | | | | |

2.2.31 AT&F Set all current parameters to manufacturer defaults

| AT&F Set all current parameters to manufacturer defaults | |
|--|--|
| Execution command AT&F[<value>] | Response TA sets all current parameters to the manufacturer defined profile. OK |
| | Parameter <value> 0 set all TA parameters to manufacturer defaults. |
| Reference V.25ter | Note |

2.2.32 AT&V Display current configuration

| AT&V Display current configuration | |
|--|---|
| Execution command AT&V[<n>] | Response TA returns the current parameter setting. <current configurations text> OK |
| | Parameter <n> 0 profile number |
| Reference V.25ter | Note |

2.2.33 AT+W Store current parameter to user defined profile

| AT+W Store current parameter to user defined profile | |
|--|--|
| Execution command AT+W[<n>] | Response TA stores the current parameter setting in the user defined profile. OK |
| | Parameter <n> <u>0</u> profile number to store to |
| Reference V.25ter | Note <ul style="list-style-type: none"> The user defined profile is stored in non volatile memory. |

2.2.34 AT+DR V.42bis data compression reporting control

| AT+DR V.42bis data compression reporting control | |
|--|---|
| Test command AT+DR=? | Response +DR:(list of supported <value>s) OK |
| | Parameter See write command. |
| Read command AT+DR? | Response +DR: <value> OK |
| | Parameter See write command. |
| Write command AT+DR=<value> | Response This parameter setting determines whether or not intermediate result code of the current data compressing is reported by TA to TE after a connection establishment. OK |
| | Parameter <value> <u>0</u> reporting disabled 1 reporting enabled |
| Reference V.25ter | Note <ul style="list-style-type: none"> If the <value> is set to 1, then the intermediate result code reported at call set up is: +DR: <type> <type> NONE data compression is not in use V42B Rec. V42bis is in use in both direction V42B RD Rec. V42bis is in use in receive direction only V42B TD Rec. V42bis is in use in transmit direction only |

2.2.35 AT+DS V.42bis data compression control

| AT+DS V.42bis data compression control | |
|--|--|
| Test command AT+DS=? | Response +DS:(list of supported <p0>s), (list of supported <n>s), (list of supported <p1>s), (list of supported <p2>s) OK |
| | Parameter See write command. |
| Read command AT+DS? | Response +DS: <p0>,<n>,<p1>,<p2> OK |
| | Parameter See write command. |
| Write command AT+DS=[<p0>,<n>,<p1>,<p2>]] | Response This parameter setting determines the possible data compression mode by TA at the compression negotiation with the remote TA after a call set up. OK |
| | Parameter <div> <div><p0></div> <div>0 NONE</div> <div>1 transmit only</div> <div>2 receive only</div> <div>3 both direction, but allow negotiation</div> <div><n></div> <div>0 allow negotiation of p0 down</div> <div>1 do not allow negotiation of p0 - disconnect on difference</div> <div><p1></div> <div>512-1024 dictionary size</div> <div><p2></div> <div>6-64 maximum string size (default 20)</div> </div> |
| Reference V.25ter | Note <ul style="list-style-type: none"> ● This command is only for data call; ● GSM transmits the data transparent. The remote TA may support this compression; ● This command must be used in conjunction with command AT+CRLP to enable compression (+CRLP=X,X,X,X,1,X). |

2.2.36 AT+GCAP Request complete TA capabilities list

| AT+GCAP Request complete TA capabilities list | |
|---|-----------------------|
| Test command AT+GCAP=? | Response OK |
| | Parameter |

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| | |
|--|--|
| Execution command AT+GCAP | Response TA reports a list of additional capabilities. +GCAP: <name>s OK |
| | Parameter <name> +CGSM GSM function is supported +FCLASS FAX function is supported +DS Data compression is supported |
| Reference V.25ter | Note |

2.2.37 AT+GMI Request manufacture identification

| AT+GMI Request manufacture identification | |
|--|--|
| Test command AT+GMI=? | Response OK |
| | Parameter |
| Execution command AT+GMI | TA reports one or more lines of information text which permit the user to identify the manufacturer. SIMCOM_Ltd OK |
| | Parameter |
| Reference V.25ter | Note |

2.2.38 AT+GMM Request TA model identification

| AT+GMM Request TA model identification | |
|---|---|
| Test command AT+GMM=? | Response OK |
| | Parameter |
| Execution command AT+GMM | TA reports one or more lines of information text which permit the user to identify the specific model of device. SIMCOM_SIM300 OK |
| | Parameter |
| Reference V.25ter | Note |

2.2.39 AT+GMR Request TA revision identification of software release

| AT+GMR Request TA revision identification of software release | |
|---|---|
| Test command AT+GMR=? | Response OK |
| | Parameter |
| Execution command AT+GMR | TA reports one or more lines of information text which permit the user to identify the revision of software release. Revision: 1008B09SIM300M32_SPANSION OK |
| | Parameter |
| Reference V.25ter | Note |

2.2.40 AT+GOI Request global object identification

| AT+GOI Request global object identification | |
|---|---|
| Test command AT+GOI=? | Response OK |
| | Parameter |
| Execution command AT+GOI | Response TA reports one or more lines of information text which permit the user to identify the device, based on the ISO system for registering unique object identifiers. SIM300 OK |
| | Parameter <Object Id> identifier of device type see X.208, 209 for the format of <Object Id> |
| Reference V.25ter | Note |

2.2.41 AT+GSN Request TA serial number identification (IMEI)

| AT+GSN Request TA serial number identification(IMEI) | |
|--|-----------------------|
| Test command AT+GSN=? | Response OK |
| | Parameter |

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| | |
|------------------------------------|---|
| Execution command AT+GSN | <p>Response</p> <p>TA reports the IMEI (international mobile equipment identifier) number in information text which permit the user to identify the individual ME device.</p> <p><sn></p> <p>OK</p> |
| | <p>Parameter</p> <p><sn> IMEI of the telephone(International Mobile station Equipment Identity)</p> |
| Reference V.25ter | <p>Note</p> <ul style="list-style-type: none"> ● The serial number (IMEI) is varied by individual ME device. |

2.2.42 AT+ICF Set TE-TA control character framing

| AT+ICF Set TE-TA control character framing | | | |
|---|--|-----------|------------------------|
| Test command AT+ICF=? | Response | | |
| | +ICF:(list of supported <format>s), (list of supported <parity>s) OK | | |
| | Parameter | | |
| | See write command. | | |
| Read command AT+ICF? | Response | | |
| | +ICF: <format>,<parity> OK | | |
| | Parameter | | |
| | See write command. | | |
| Write command AT+ICF=[<format>,<parity>] | Response | | |
| | This parameter setting determines the serial interface character framing format and parity received by TA from TE. | | |
| | OK | | |
| | Parameter | | |
| | <format> | 1 | 8 data 0 parity 2 stop |
| | | 2 | 8 data 1 parity 1 stop |
| | | <u>3</u> | 8 data 0 parity 1 stop |
| | | 4 | 7 data 0 parity 2 stop |
| | | 5 | 7 data 1 parity 1 stop |
| | | 6 | 7 data 0 parity 1 stop |
| <parity> | 0 | odd | |
| | 1 | even | |
| | 2 | mark (1) | |
| | <u>3</u> | space (0) | |
| Reference V.25ter | Note | | |
| | ● The command is applied for command state; | | |
| | ● The setting of AT+IPR=0 forces AT+ICF=0; | | |
| | ● The <parity> field is ignored if the < format > field specifies no | | |

parity.

2.2.43 AT+IFC Set TE-TA local data flow control

| AT+IFC Set TE-TA local data flow control | |
|--|---|
| Test command AT+IFC=? | Response +IFC:(list of supported <dce_by_dte>s), (list of supported <dte_by_dce>s) OK |
| | Parameter See write command. |
| Read command AT+IFC? | Response +IFC: <dce_by_dte>,<dte_by_dce> OK |
| | Parameter See write command. |
| Write command AT+IFC=[<dce_by_dte>,<dte_by_dce>] | Response This parameter setting determines the data flow control on the serial interface for data mode. OK |
| | Parameter <dce_by_dte> specifies the method will be used by TE at receive of data from TA 0 None 1 XON/XOFF, don't pass characters on to data stack <u>2</u> RTS flow control 3 XON/XOFF, pass characters on to data stack <dte_by_dce> specifies the method will be used by TA at receive of data from TE 0 None 1 XON/XOFF <u>2</u> CTS flow control |
| Reference V.25ter | Note ● This flow control is applied for data mode; |

2.2.44 AT+ILRR Set TE-TA local rate reporting mode

| AT+ILRR Set TE-TA local rate reporting mode | |
|---|--|
| Test command AT+ILRR=? | Response +ILRR:(list of supported <value>s) OK |
| | Parameter See write command. |

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| | | | | | | |
|---|---|---------------------------------------|----------|---------------------------------------|--|---|
| Read command AT+ILRR? | Response +ILRR: <value> OK | | | | | |
| | Parameter See write command. | | | | | |
| Write command AT+ILRR=<value> | Response This parameter setting determines whether or not an intermediate result code of local rate is reported at connection establishment. The rate is applied after the final result code of the connection is transmitted to TE. OK | | | | | |
| | Parameter <table><tr><td><value></td><td><u>0</u></td><td>Disables reporting of local port rate</td></tr><tr><td></td><td>1</td><td>Enables reporting of local port rate</td></tr></table> | <value> | <u>0</u> | Disables reporting of local port rate | | 1 |
| <value> | <u>0</u> | Disables reporting of local port rate | | | | |
| | 1 | Enables reporting of local port rate | | | | |
| Reference V.25ter | Note <ul style="list-style-type: none">● If the <value> is set to 1, the following intermediate result will comes out on connection to indicates the port rate settings +ILRR:<rate> <rate> port rate setting on call connection in Baud per second 0(AutoBauding ,see chapter 2.2.45.1) 300 1200 2400 4800 9600 19200 28800 38400 57600 115200 | | | | | |

2.2.45 AT+IPR Set TE-TA fixed local rate

| AT+IPR Set TE-TA fixed local rate | |
|-----------------------------------|---|
| Test command AT+IPR=? | Response +IPR: (list of supported auto detectable <rate>s),(list of supported fixed-only<rate>s) OK |
| | Parameter See write command. |
| Read command AT+IPR? | Response +IPR: <rate> OK |

| | |
|---|---|
| | Parameter See write command. |
| Write command AT+IPR=<rate> | Response This parameter setting determines the data rate of the TA on the serial interface. The rate of command takes effect following the issuance of any result code associated with the current command line. OK Parameter <rate> Baud-rate per second 0(AutoBauding ,see chapter 2.2.45.1) 300 1200 2400 4800 9600 14400 19200 28800 38400 57600 <u>115200</u> |
| Reference V.25ter | Note Factory setting is AT+IPR=0 (autobauding) .It can be restored with AT&F and ATZ when you modified the bit rate's value. |

2.2.45.1 AutoBauding

Synchronization between DTE and DCE ensure that DTE and DCE are correctly synchronized and the bit rate used by the DTE is detected by the DCE (= ME). To allow the bit rate to be synchronized simply issue an "AT" or "at" string. This is necessary when you start up the module while autobauding is enabled. It is recommended to wait 3 to 5 seconds before sending the first AT character. Otherwise undefined characters might be returned.

If you want to use autobauding and autoanswer at the same time, you can easily enable the DTE-DCE synchronization, when you activate autobauding first and then configure the autoanswer mode.

Restrictions on autobauding operation

- The serial interface has to be operated at 8 data bits, no parity and 1 stop bit (factory setting).
- Only the strings .AT. or .at. can be detected (neither .aT. nor .At.).
- Unsolicited Result Codes that may be issued before the ME detects the new bit rate (by receiving the first AT command string) will be sent at the previously detected bit rate.
- The Unsolicited Result Codes "RDY" and so on are not indicated when you start up the ME while autobauding is enabled.
- It is not recommended to switch to autobauding from a bit rate that cannot be detected by

the autobaud mechanism (e.g. 300 baud). Responses to +IPR=0 and any commands on the same line might be corrupted.

- See also Chapter 2.2.44.

Autobauding and bit rate after restart

The most recently detected bit rate cannot be stored when module is powered down (Store bit rate determined with AT&W). Therefore, module will detect bit rate again after restart.

3 AT Commands According to GSM07.07

3.1 Overview of AT Command According to GSM07.07

| Command | Description |
|---------|--|
| AT+CACM | ACCUMULATED CALL METER(ACM) RESET OR QUERY |
| AT+CAMM | ACCUMULATED CALL METER MAXIMUM(ACMMAX) SET OR QUERY |
| AT+CAOC | ADVICE OF CHARGE |
| AT+CBST | SELECT BEARER SERVICE TYPE |
| AT+CCFC | CALL FORWARDING NUMBER AND CONDITIONS CONTROL |
| AT+CCUG | CLOSED USER GROUP CONTROL |
| AT+CCWA | CALL WAITING CONTROL |
| AT+CEER | EXTENDED ERROR REPORT |
| AT+CGMI | REQUEST MANUFACTURER IDENTIFICATION |
| AT+CGMM | REQUEST MODEL IDENTIFICATION |
| AT+CGMR | REQUEST TA REVISION IDENTIFICATION OF SOFTWARE RELEASE |
| AT+CGSN | REQUEST PRODUCT SERIAL NUMBER IDENTIFICATION (IDENTICAL WITH +GSN) |
| AT+CSCS | SELECT TE CHARACTER SET |
| AT+CSTA | SELECT TYPE OF ADDRESS |
| AT+CHLD | CALL HOLD AND MULTIPARTY |
| AT+CIMI | REQUEST INTERNATIONAL MOBILE SUBSCRIBER IDENTITY |
| AT+CKPD | KEYPAD CONTROL |
| AT+CLCC | LIST CURRENT CALLS OF ME |
| AT+CLCK | FACILITY LOCK |
| AT+CLIP | CALLING LINE IDENTIFICATION PRESENTATION |
| AT+CLIR | CALLING LINE IDENTIFICATION RESTRICTION |
| AT+CMEE | REPORT MOBILE EQUIPMENT ERROR |
| AT+COLP | CONNECTED LINE IDENTIFICATION PRESENTATION |
| AT+COPS | OPERATOR SELECTION |
| AT+CPAS | MOBILE EQUIPMENT ACTIVITY STATUS |
| AT+CPBF | FIND PHONEBOOK ENTRIES |
| AT+CPBR | READ CURRENT PHONEBOOK ENTRIES |
| AT+CPBS | SELECT PHONEBOOK MEMORY STORAGE |
| AT+CPBW | WRITE PHONEBOOK ENTRY |
| AT+CPIN | ENTER PIN |
| AT+CPWD | CHANGE PASSWORD |
| AT+CR | SERVICE REPORTING CONTROL |

SIM300 AT Commands Set

| | |
|-----------|--|
| AT+CRC | SET CELLULAR RESULT CODES FOR INCOMING CALL INDICATION |
| AT+CREG | NETWORK REGISTRATION |
| AT+CRLP | SELECT RADIO LINK PROTOCOL PARAM.ETER |
| AT+CRSM | RESTRICTED SIM ACCESS |
| AT+CSQ | SIGNAL QUALITY REPORT |
| AT+FCLASS | FAX: SELECT, READ OR TEST SERVICE CLASS |
| AT+FMI | FAX: REPORT MANUFACTURED ID |
| AT+FMM | FAX: REPORT MODEL ID |
| AT+FMR | FAX: REPORT REVISION ID |
| AT+VTD | TONE DURATION |
| AT+VTS | DTMF AND TONE GENERATION |
| AT+CMUX | MULTIPLEXER CONTROL |
| AT+CNUM | SUBSCRIBER NUMBER |
| AT+CPOL | PREFERRED OPERATOR LIST |
| AT+COPN | READ OPERATOR NAMES |
| AT+CFUN | SET PHONE FUNCTIONALITY |
| AT+CCLK | CLOCK |
| AT+CSIM | GENERIC SIM ACCESS |
| AT+CALM | ALERT SOUND MODE |
| AT+CRSL | RINGER SOUND LEVEL |
| AT+CLVL | LOUD SPEAKER VOLUME LEVEL |
| AT+CMUT | MUTE CONTROL |
| AT+CPUC | PRICE PER UNIT CURRENCY TABLE |
| AT+CCWE | CALL METER MAXIMUM EVENT |
| AT+CBC | BATTERY CHARGE |
| AT+CUSD | UNSTRUCTURED SUPPLEMENTARY SERVICE DATA |
| AT+CSSN | SUPPLEMENTARY SERVICES NOTIFICATION |

3.2 Detailed Descriptions of AT Command According to GSM07.07

3.2.1 AT+CACM Accumulated Call Meter (ACM) Reset or Query

| AT+CACM Accumulated Call Meter(ACM) Reset or Query | |
|--|---|
| Test command AT+CACM=? | Response OK Parameter |
| Read command AT+CACM? | Response TA returns the current value of ACM. +CACM: <acm> OK If error is related to ME functionality: |

| | |
|--|---|
| | <p>+CME ERROR: <err></p> <p>Parameters</p> <p><acm> string type; three bytes of the current ACM value in hexa-decimal format (e.g. "00001E" indicates decimal value 30)</p> <p>000000 - FFFFFFFF</p> |
| <p>Write command</p> <p>AT+CACM=[<passwd>]</p> | <p>Parameters</p> <p><passwd> string type:</p> <p> SIM PIN2</p> <p>Response</p> <p>TA resets the Advice of Charge related accumulated call meter (ACM) value in SIM file EF (ACM). ACM contains the total number of home units for both the current and preceding calls.</p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> |
| <p>Reference</p> <p>GSM 07.07 [13]</p> | <p>Note</p> |

3.2.2 AT+CAMM Accumulated Call Meter Maximum (ACM max) Set or Query

| AT+CAMM Accumulated Call Meter Maximum(ACM max) Set or Query | |
|--|--|
| <p>Test command</p> <p>AT+CAMM=?</p> | <p>Response</p> <p>OK</p> <p>Parameter</p> |
| <p>Read command</p> <p>AT+ CAMM?</p> | <p>Response</p> <p>TA returns the current value of ACM max.</p> <p>+CAMM: <acmmmax> OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> <p>Parameters</p> <p>see write command</p> |
| <p>Write command</p> <p>AT+CAMM=[<acmmmax>,<passwd>]</p> | <p>Response</p> <p>TA sets the Advice of Charge related accumulated call meter maximum value in SIM file EF (ACM max). ACM max contains the maximum number of home units allowed to be consumed by the subscriber.</p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> <p>Parameters</p> <p><acmmmax> string type; three bytes of the max. ACM value in hexa-decimal format (e.g. "00001E" indicates decimal value 30)</p> |

| | |
|-----------------------------|---|
| | 000000 disable ACMmax feature 000001-FFFFFF <passwd> string type SIM PIN2 |
| Reference GSM 07.07 [13] | Note |

3.2.3 AT+CAOC Advice of Charge

| AT+CAOC Advice of Charge | | | | | | | | | | | |
|---------------------------------|--|--------|-------------------|--|---|--|---|-------|--|--|---------------|
| Test command AT+CAOC=? | Response +CAOC: list of supported <mode>s OK Parameters see execution command | | | | | | | | | | |
| Read command AT+CAOC? | Response +CAOC: <mode> OK Parameters see execution command | | | | | | | | | | |
| Write command AT+CAOC=<mode> | Response TA sets the Advice of Charge supplementary service function mode. If error is related to ME functionality: +CME ERROR: <err> If <mode>=0, TA returns the current call meter value +CAOC: <ccm> OK If <mode>=1, TA deactivates the unsolicited reporting of CCM value OK If <mode>=2. TA activates the unsolicited reporting of CCM value OK Parameter <table><tr><td><mode></td><td>0 query CCM value</td></tr><tr><td></td><td>1 deactivate the unsolicited reporting of CCM value</td></tr><tr><td></td><td>2 activate the unsolicited reporting of CCM value</td></tr></table> <table><tr><td><ccm></td><td>string type; three bytes of the current CCM value in hex-decimal format (e.g. "00001E" indicates decimal value 30); bytes are similarly coded as ACMmax value in the SIM</td></tr><tr><td></td><td>000000-FFFFFF</td></tr></table> | <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 CCM value in hex-decimal format (e.g. "00001E" indicates decimal value 30); bytes are similarly coded as ACMmax value in the SIM | | 000000-FFFFFF |
| <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 CCM value in hex-decimal format (e.g. "00001E" indicates decimal value 30); bytes are similarly coded as ACMmax value in the SIM | | | | | | | | | | |
| | 000000-FFFFFF | | | | | | | | | | |
| Reference GSM 07.07 [13] | Note | | | | | | | | | | |

3.2.4 AT+CBST Select Bearer Service Type

| AT+CBST Select Bearer Service Type | | | |
|---|---|----|--|
| Test command AT+CBST=? | Response | | |
| | +CBST: (list of supported <speed>s) ,(list of supported <name>s) ,(list of supported <ce>s) OK | | |
| | Parameter | | |
| | see write command | | |
| Read command AT+CBST? | Response | | |
| | +CBST: <speed>,<name>,<ce> OK | | |
| | Parameter | | |
| | see write command | | |
| Write command AT+CBST=[<speed>] [,<name>[,<ce>]]] | Response | | |
| | TA selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated. | | |
| | OK | | |
| | Parameter | | |
| | <speed> | 0 | autobauding |
| | | 1 | 300 bps(V.21) |
| | | 2 | 1200 bps(V.22) |
| | | 3 | 1200/75 bps(V.23) |
| | | 4 | 2400 bps(V.22bis) |
| | | 5 | 2400 bps(V.26ter) |
| | | 6 | 4800 bps(V.32) |
| | | 7 | 9600 bps(V.32) |
| | | 12 | 9600 bps(V.34) |
| | | 14 | 14400 bps(V.34) |
| | | 34 | 1200 bps (V.120) |
| | | 36 | 2400 bps (V.120) |
| | | 38 | 4800 bps (V.120) |
| | | 39 | 9600 bps (V.120) |
| | | 43 | 14400 bps (V.120) |
| | | 65 | 300 bps (V.110) |
| | | 66 | 1200 bps(V.110 or X.31 flag stuffing) |
| | | 68 | 2400 bps(V.110 or X.31 flag stuffing) |
| | | 70 | 4800 bps(V.110 or X.31 flag stuffing) |
| | | 71 | 9600 bps(V.110 or X.31 flag stuffing) |
| | | 75 | 14400 bps(V.110 or X.31 flag stuffing) |
| | | | |
| | <name> | 0 | asynchronous modem |
| | | 2 | PAD access (asynchronous) |
| | <ce> | 0 | transparent |

| | |
|-----------------------------|--|
| | <u>1</u> non-transparent |
| Reference GSM 07.07 [14] | Note GSM 02.02[1]: lists the allowed combinations of the sub parameters |

3.2.5 AT+CCFC Call Forwarding Number And Conditions Control

AT+CCFC Call Forwarding Number And Conditions Control

| | |
|---|---|
| Test Command AT+CCFC=? | Response +CCFC: (list of supported <reads>) OK |
| | Parameters see Write command |
| Write Command AT+CCFC = <reads>, <mode> [, <number> [, <type> [,<class> [, <subaddr> [,<satype> [,time]]]]]] | <p>Response</p> <p>TA controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.</p> <p>Only ,<reads> and <mode> should be entered with mode (0-2,4)</p> <p>If <mode><2 and command successful</p> <p>OK</p> <p>If there is a network error:</p> <p>+CCFC: 0, 0</p> <p>If <mode>=2 and command successful (only in connection with <reads> 0 – 3)</p> <p>For registered call forward numbers:</p> <p>+CCFC: <status>, <class1>[, <number>, <type> [,<subaddr>,<satype>[,<time>]]] [<CR><LF>+CCFC:] OK</p> <p>If no call forward numbers are registered (and therefore all classes are inactive):</p> <p>+CCFC: <status>, <class> OK</p> <p>where <status>=0 and <class>=7</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> <p>Parameters</p> <p><reads></p> <p>0 unconditional</p> <p>1 mobile busy</p> <p>2 no reply</p> <p>3 not reachable</p> <p>4 all call forwarding (0-3)</p> <p>5 all conditional call forwarding (1-3)</p> <p><mode></p> <p>0 disable</p> |

| | |
|-----------|--|
| | 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 in integer format; default 145 when dialing string includes international access code character "+", otherwise 129 <subaddr> string type subaddress of format specified by <satype> <satype> type of subaddress in integer; default 128 <class> 1 voice 2 data 4 fax 7 all classes <time> time, rounded to a multiple of 5 sec. 1...20..30 <status> 0 not active 1 active |
| Reference | |
| GSM07.07 | |

3.2.6 AT+CCUG Closed User Group control

| AT+CCUG Closed User Group control | |
|-----------------------------------|---|
| Read Command AT+CCUG? | Response +CCUG: <n>,<index>,<info> OK If error is related to ME functionality: +CME ERROR: <err> |
| | Parameter see write command |
| Test Command AT+CCUG=? | Response OK |

| Write Command AT+CCUG=[<n>] [,<index>[,<info >]]] | TA sets the Closed User Group supplementary service parameters as a default adjustment for all following calls. OK If error is related to ME functionality: +CME ERROR: <err> | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|--|--|-----|---|-------------|---|------------|---------|-------|-----------|----|---|--------|---|----------------|---|-------------------------------|---|---------------------------|---|----------------------------------|
| | <table><tr><th colspan="3">Parameter</th></tr><tr><td rowspan="2"><n></td><td>0</td><td>disable CUG</td></tr><tr><td>1</td><td>enable CUG</td></tr><tr><td rowspan="2"><index></td><td>0...9</td><td>CUG index</td></tr><tr><td>10</td><td>no index (preferred CUG taken from subscriber data)</td></tr><tr><td rowspan="4"><info></td><td>0</td><td>no information</td></tr><tr><td>1</td><td>suppress OA (Outgoing Access)</td></tr><tr><td>2</td><td>suppress preferential CUG</td></tr><tr><td>3</td><td>suppress OA and preferential CUG</td></tr></table> | Parameter | | | <n> | 0 | disable CUG | 1 | enable CUG | <index> | 0...9 | CUG index | 10 | no index (preferred CUG taken from subscriber data) | <info> | 0 | no information | 1 | suppress OA (Outgoing Access) | 2 | suppress preferential CUG | 3 | suppress OA and preferential CUG |
| Parameter | | | | | | | | | | | | | | | | | | | | | | | |
| <n> | 0 | disable CUG | | | | | | | | | | | | | | | | | | | | | |
| | 1 | enable CUG | | | | | | | | | | | | | | | | | | | | | |
| <index> | 0...9 | CUG index | | | | | | | | | | | | | | | | | | | | | |
| | 10 | no index (preferred CUG taken from subscriber data) | | | | | | | | | | | | | | | | | | | | | |
| <info> | 0 | no information | | | | | | | | | | | | | | | | | | | | | |
| | 1 | suppress OA (Outgoing Access) | | | | | | | | | | | | | | | | | | | | | |
| | 2 | suppress preferential CUG | | | | | | | | | | | | | | | | | | | | | |
| | 3 | suppress OA and preferential CUG | | | | | | | | | | | | | | | | | | | | | |
| Reference | | | | | | | | | | | | | | | | | | | | | | | |

3.2.7 AT+CCWA Call Waiting Control

| AT+CCWA Call Waiting Control | | | | | | | |
|--|---|--|---|--|--|---|---|
| Read Command AT+CCWA? | Response +CCWA: <n> OK | | | | | | |
| Test Command AT+CCWA=? | Response +CCWA: (list of supported <n>s) OK | | | | | | |
| Write Command AT+CCWA=[<n>] [,<mode>[,<class >]]] | Response TA controls the Call Waiting supplementary service. Activation, deactivation and status query are supported. If there is a network error: +CCWA: 0, 0 If <mode><>2 and command successful OK If <mode>=2 and command successful +CCWA:<status>,<class1>[<CR><LF>+CCWA:<status>,<class2>[...]] OK Note :< status>=0 should be returned only if service is not active for any <class> i.e. +CCWA: 0, 7 will be returned in this case. When mode=2, all active call waiting classes will be reported. In this mode the command is abort able by pressing any key. If error is related to ME functionality: +CME ERROR: <err> Parameter <table><tr><td><n></td><td>0</td><td>disable presentation of an unsolicited result code</td></tr><tr><td></td><td>1</td><td>enable presentation of an unsolicited result code</td></tr></table> | <n> | 0 | disable presentation of an unsolicited result code | | 1 | enable presentation of an unsolicited result code |
| <n> | 0 | disable presentation of an unsolicited result code | | | | | |
| | 1 | enable presentation of an unsolicited result code | | | | | |

| | |
|-----------|---|
| | <p><mode> when <mode> parameter not given, network is not interrogated</p> <p>0 disable</p> <p>1 enable</p> <p>2 query status</p> <p><class> is a sum of integers each representing a class of information</p> <p>1 voice (telephony)</p> <p>2 data (bearer service)</p> <p>4 fax (teleservice)</p> <p>7 default(equals to all classes)</p> <p><status> 0 not active</p> <p>1 enable</p> |
| | <p>Unsolicited result code</p> <p>When the presentation Call Waiting at the TA is enabled (and Call Waiting is enabled) and a terminating call set up has attempted during an established call, an unsolicited result code is returned:</p> <p>+CCWA: <number>,<type>,<class>[,<alpha>]</p> |
| | <p>Parameter</p> <p><number> string type phone number of calling address in format specified by <type></p> <p><type> type of address octet in integer format;</p> <p>129 Unknown type(ISDN format number)</p> <p>128 Unknown type(unknown number format)</p> <p>161 National number type(ISDN format)</p> <p>145 International number type(ISDN format)</p> <p>177 Network specific number(ISDN format)</p> <p><alpha> optional string type alphanumeric representation of <number> corresponding to the entry found in phone book</p> |
| Reference | |
| GSM 07.07 | |

3.2.8 AT+CEER Extended error report

| AT+CEER Extended error report | |
|-------------------------------|---|
| Test command | Response |
| AT+CEER=? | OK |
| Execution command | Response |
| AT+CEER | <p>TA returns an extended report of the reason for the last call release.</p> <p>+CEER: <report> OK</p> <p>Parameters</p> <p><report> Reason for last call release as number code</p> |
| Reference | Note |
| GSM 07.07 [13] | |

3.2.9 AT+CGMI Request manufacturer identification

| AT+CGMI Request manufacturer identification | |
|--|---|
| Test command AT+CGMI=? | Response OK |
| Execution command AT+CGMI | Response TA returns manufacturer identification text. <manufacturer> OK Parameters <manufacturer> |
| Reference GSM 07.07 [13] | Note |

3.2.10 AT+CGMM Request model identification

| AT+CGMM Request model identification | |
|---|--|
| Test command AT+CGMM=? | Response OK |
| Execution command AT+CGMM | Response TA returns product model identification text. <model> OK Parameters <model> |
| Reference GSM 07.07 [13] | Note |

3.2.11 AT+CGMR Request revision identification

| AT+CGMR Request revision identification | |
|--|---|
| Test command AT+CGMR=? | Response OK |
| Execution command AT+CGMR | Response TA returns product software version identification text. <revision> OK Parameters <revision> |
| Reference GSM 07.07 [13] | Note |

3.2.12 AT+CGSN Request product serial number identification (Identical with +GSN)

| AT+CGSN Request product serial number identification (Identical with +GSN) | |
|---|----------------|
| Test command AT+CGSN=? | Response OK |

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| | |
|------------------------------|---|
| Execution command AT+CGSN | Response see +GSN <sn> OK Parameters see +GSN |
| Reference GSM 07.07 [13] | Note |

3.2.13 AT+CSCS Select TE Character Set

AT+CSCS Select TE Character Set

| | |
|--|--|
| Test command AT+CSCS=? | Response +CSCS: (list of supported <chset>s) Parameters <chset> “GSM” GSM default alphabet. "HEX" character strings consist only of hexadecimal numbers from 00 to FF; "IRA" international reference alphabet "PCCP" PC character set Code "PCDN" PC Danish/Norwegian character set “UCS2” UCS2 alphabet "8859-1" ISO 8859 Latin I character set |
| Read command AT+CSCS? | Response +CSCS: <chset> OK Parameter <chset> see Test command |
| Write command AT+CSCS=[<chse t>] | Response Sets which character set <chset> are used by the TE. The TA can then convert character strings correctly between the TE and ME character sets. Parameter <chset> see Test command |
| Reference GSM 07.07 [13] | Note |

3.2.14 AT+CSTA Select Type of Address

AT+CSTA Select Type of Address

| | |
|---------------------------|--|
| Test command AT+CSTA=? | Response +CSTA: (129,145, 161,177) |
| Read command AT+CSTA? | Response +CSTA: <type> OK Parameters < type > Current address type setting. |

| | |
|-----------------------------|---|
| Reference GSM 07.07 [13] | Note The ATD command overrides this setting when a number is dialed. 129 Unknown type(ISDN format number) 161 National number type(ISDN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format) |
|-----------------------------|---|

3.2.15 AT+CHLD Call hold and multiparty

| AT+CHLD Call hold and multiparty | | |
|-------------------------------------|---|--|
| Test Command AT+CHLD=? | Response +CHLD: list of supported <n>s OK | |
| Write Command AT+CHLD=[<n>] | Response TA controls the supplementary services Call Hold, Multiparty and Explicit Call Transfer. Calls can be put on hold, recovered, released, added to conversation, and transferred. Note These supplementary services are only applicable to tele service 11 (Speech: Telephony). OK If error is related to ME functionality: +CME ERROR: <err> | |
| | Parameters | |
| | <n> | 0 |
| | 1 | Terminate all active calls (if any) and accept the other call (waiting call or held call). It can not terminate active call if there is only one call. |
| | 1X | Terminate the specific call number X (X= 1-7)(active, waiting or held) |
| | 2 | Place all active calls on hold (if any) and accept the other call (waiting call or held call) as the active call |
| | 2X | Place all active calls except call X (X= 1-7) on hold |
| | 3 | Add the held call to the active calls |
| Reference | | |

3.2.16 AT+CIMI Request international mobile subscriber identity

| AT+CIMI Request international mobile subscriber identity | |
|--|---|
| Test command AT+CIMI=? | Response OK Parameters |
| Execution command AT+CIMI | Response TA returns <IMSI> for identifying the individual SIM which is attached to ME. +CIMI: <IMSI> OK If error is related to ME functionality: +CME ERROR: <err> Parameter <IMSI> International Mobile Subscriber Identity (string without double quotes) |
| Reference GSM 07.07 [13] | |

3.2.17 AT+CKPD Keypad Control

| AT+CKPD Keypad Control | | | | | | | | | | | | | | | | |
|---|---|-----------------------------------|-------------|-------|---|----|--------------------|---|----|----------|--------|----------|-------------|---|----|-----------------------------------|
| Test command AT+ CKPD=? | Response OK Parameters | | | | | | | | | | | | | | | |
| Write command AT+CKPD=<keys> > [,<time>[,<pause>]] | Response TA emulates ME keypad by giving each keystroke as a character in a string <keys>. <time>*0.1 seconds is the time to stroke each key and <pause>*0.1 seconds is the length of pause between two strokes. Keystrokes <keys> are emulated. OK If error is related to ME functionality: +CME ERROR: <err> Parameters <keys> string of characters representing keys as listed in the following table (based on PCCA STD-101 Annex table I-3): <table> <tr> <td>Char.:</td> <td>ASCII-Code:</td> <td>Note:</td> </tr> <tr> <td>#</td> <td>35</td> <td>hash (number sign)</td> </tr> <tr> <td>*</td> <td>42</td> <td>star (*)</td> </tr> <tr> <td>0... 9</td> <td>48... 57</td> <td>number keys</td> </tr> <tr> <td>:</td> <td>58</td> <td>escape character for manufacturer</td> </tr> </table> | Char.: | ASCII-Code: | Note: | # | 35 | hash (number sign) | * | 42 | star (*) | 0... 9 | 48... 57 | number keys | : | 58 | escape character for manufacturer |
| Char.: | ASCII-Code: | Note: | | | | | | | | | | | | | | |
| # | 35 | hash (number sign) | | | | | | | | | | | | | | |
| * | 42 | star (*) | | | | | | | | | | | | | | |
| 0... 9 | 48... 57 | number keys | | | | | | | | | | | | | | |
| : | 58 | escape character for manufacturer | | | | | | | | | | | | | | |

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|----------------|--|
| | <p>specific keys</p> <p>D/d 68/100 volume down</p> <p>E/e 69/101 connection end (END)</p> <p>R/r 82/114 recall last number (R/RCL/MR)</p> <p>S/s 83/115 connection start (SEND)</p> <p>U/u 85/117 volume up</p> <p><time> 0...255 seconds (default value is manufacturer specific, but should be so long that a normal ME can handle keystrokes correctly)</p> <p><pause> 0... 25.5 seconds (default value is manufacturer specific, but should be so long that a normal ME can handle keystrokes correctly)</p> |
| Reference | |
| GSM 07.07 [13] | |

3.2.18 AT+CLCC List current calls of ME

| AT+CLCC List current calls of ME | |
|-------------------------------------|---|
| Test command AT+CLCC=? | <p>Response</p> <p>OK</p> <p>Parameters</p> |
| Execution command AT+CLCC | <p>Response</p> <p>TA returns a list of current calls of ME.</p> <p>Note: If command succeeds but no calls are available, no information response is sent to TE.</p> <p>[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,“”]]</p> <p>[<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[, <number>,<type>[,“”]]</p> <p>[...]] OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> <p>Parameters</p> <p><idx> integer type; call identification number as described in GSM 02.30[19] sub clause 4.5.5.1; this number can be used in +CHLD command operations</p> <p><dir> 0 mobile originated (MO) call 1 mobile terminated (MT) call</p> <p><stat> state of the call: 0 active 1 held 2 dialing (MO call) 3 alerting (MO call)</p> |

| | |
|-----------|---|
| | 4 incoming (MT call) 5 waiting (MT call) <mode> bearer/tele service: 0 voice 1 data 2 fax 9 unknown <empty> 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 of octet in integer format; 129 Unknown type(ISDN format number) 128 Unknown type(unknown number format) 161 National number type(ISDN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format) |
| Reference | |
| GSM 07.07 | |
| [13][14] | |

3.2.19 AT+CLCK Facility lock

AT+CLCK Facility lock

| | |
|---------------|---|
| Test command | Response |
| AT+CLCK=? | +CLCK: (list of supported <fac>s) OK |
| | Parameter |
| | see execution command |
| Write command | Response |
| AT+CLCK = | This 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>. |
| <fac>, <mode> | |
| [,<passwd> | |
| [,<class>]] | |
| | If <mode><>2 and command is successful OK If <mode>=2 and command is successful +CLCK: <status>[,<class1>[<CR><LF> +CLCK: <status>, class2....]] OK |
| | Parameter |
| <fac> | "PS" PH-SIM (lock Phone to SIM card) (ME asks password |

| | | |
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| | | when other than current SIM card inserted; ME may remember certain amount of previously used cards thus not requiring password when they are inserted) |
| "SC" | | SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command issued) |
| "AO" | | BAOC (Barr All Outgoing Calls) (refer GSM02.88[6] clause 1) |
| "OI" | | BOIC (Barr Outgoing International Calls) (refer GSM02.88[6] clause 1) |
| "OX" | | BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer GSM02.88[6] clause 1) |
| "AI" | | BAIC (Barr All Incoming Calls) (refer GSM02.88[6] clause 2) |
| "IR" | | BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer GSM02.88 [6] clause 2) |
| "AB" | | All Barring services (refer GSM02.30[19]) (applicable only for <mode>=0) |
| "AG" | | All out Going barring services (refer GSM02.30[19]) (applicable only for <mode>=0) |
| "AC" | | All in Coming barring services (refer GSM02.30[19]) (applicable only for <mode>=0) |
| "FD" | | SIM fixed dialing memory: If the mobile is locked to "FD", only the phone numbers stored to the "FD" memory can be dialed |
| "BN" | | SIM barred memory: If the mobile is locked to "BN", the phone numbers stored to the "BN" memory can not be dialed |
| "PF" | | Lock Phone to the very first SIM card |
| "PN" | | Network Personalization (refer GSM 02.22[33]) |
| "PU" | | network subset Personalization (refer GSM 02.22[33]) |
| "PP" | | service Provider Personalization (refer GSM 02.22[33]) |
| "PC" | | Corporate Personalization (refer GSM 02.22[33]) |
| <mode> | 0 | unlock |
| | 1 | lock |
| | 2 | query status |
| <passwd> | | password |
| <class> | 1 | voice |
| | 2 | data |
| | 4 | fax |
| | 7 | all classes (default) |
| <status> | 0 | off |

| | |
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| | 1 on |
| Reference GSM 07.07 [14] | Note |

3.2.20 AT+CLIP calling line identification presentation

| AT+CLIP Calling line identification presentation | | | | | | | | | | | | | | | |
|---|--|-----------------------------------|---|-----------------------------------|--|---|----------------------------------|-----|---|----------------------|--|---|------------------|--|---|
| Read Command AT+CLIP? | Response +CLIP: <n>, <m> OK If error is related to ME functionality: +CME ERROR: <err> | | | | | | | | | | | | | | |
| | Parameters see write command | | | | | | | | | | | | | | |
| Test Command AT+CLIP=? | Response +CLIP: (list of supported <n>s) OK | | | | | | | | | | | | | | |
| | Parameters see write command | | | | | | | | | | | | | | |
| Write Command AT+CLIP=<n> | Response TA 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. OK If error is related to ME functionality: +CME ERROR: <err> | | | | | | | | | | | | | | |
| | Parameters <table><tr><td><n></td><td>0</td><td>suppress unsolicited result codes</td></tr><tr><td></td><td>1</td><td>display unsolicited result codes</td></tr><tr><td><m></td><td>0</td><td>CLIP not provisioned</td></tr><tr><td></td><td>1</td><td>CLIP provisioned</td></tr><tr><td></td><td>2</td><td>unknown</td></tr></table> | <n> | 0 | suppress unsolicited result codes | | 1 | display unsolicited result codes | <m> | 0 | CLIP not provisioned | | 1 | CLIP provisioned | | 2 |
| <n> | 0 | suppress unsolicited result codes | | | | | | | | | | | | | |
| | 1 | display unsolicited result codes | | | | | | | | | | | | | |
| <m> | 0 | CLIP not provisioned | | | | | | | | | | | | | |
| | 1 | CLIP provisioned | | | | | | | | | | | | | |
| | 2 | unknown | | | | | | | | | | | | | |

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|-----------|---|
| | <p>Unsolicited result code</p> <p>When the presentation of the CLI at the TE is enabled (and calling subscriber allows), an unsolicited result code is returned after every RING (or +CRING: <type>) at a mobile terminating call.</p> <p>+CLIP: <number>, <type>,"",,<alphaId>,<CLI validity></p> <p>Parameter</p> <p><number> string type phone number of calling address in format specified by <type></p> <p><type> type of address octet in integer format;</p> <p>129 Unknown type(ISDN format number)</p> <p>128 Unknown type(unknown number format)</p> <p>161 National number type(ISDN format)</p> <p>145 International number type(ISDN format)</p> <p>177 Network specific number(ISDN format)</p> <p><alphaId> string type alphanumeric representation of <number> corresponding to the entry found in phone book</p> <p><CLI validity> 0 CLI valid</p> <p>1 CLI has been withheld by the originator</p> <p>2 CLI is not available due to interworking problems or limitations of originating network</p> |
| Reference | |

3.2.21 AT+CLIR Calling Line Identification Restriction

| AT+CLIR Calling Line Identification Restriction | |
|---|--|
| Read Command AT+CLIR? | <p>Response</p> <p>+CLIR: <n>, <m></p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> <p>Parameters</p> <p>see write command</p> |
| Test Command AT+CLIR=? | <p>Response</p> <p>+CLIR: (list of supported <n>s)</p> <p>OK</p> |
| Write Command AT+CLIR=<n> | <p>Response</p> <p>TA restricts or enables the presentation of the CLI to the called party when originating a call.</p> <p>The command overrides the CLIR subscription (default is restricted or</p> |

| | |
|-----------|---|
| | <p>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.</p> <p>OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p> |
| | <p>Parameters</p> <p><n> (parameter sets the adjustment for outgoing calls):</p> <ul style="list-style-type: none"> 0 presentation indicator is used according to the subscription of the CLIR service 1 CLIR invocation 2 CLIR suppression <p><m> (parameter shows the subscriber CLIR service status in the network):</p> <ul style="list-style-type: none"> 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 |
| Reference | |

3.2.22 AT+CMEE Report mobile equipment error

| AT+CMEE Report mobile equipment error | |
|---------------------------------------|--|
| Test command AT+CMEE=? | <p>Response</p> <p>+CMEE: (list of supported <n>s) OK</p> |
| | <p>Parameters</p> <p>see write command</p> |
| Read command AT+CMEE? | <p>Response</p> <p>+CMEE: <n> OK</p> |
| | <p>Parameters</p> <p>See write command</p> |
| Write command AT+CMEE=<n> | <p>Response</p> <p>TA disables or enables the use of result code +CME ERROR: <err> as an indication of an error relating to the functionality of the ME.</p> <p>OK</p> |

| | | | | | | | | | | |
|----------------|---|---|----------|---------------------|--|---|---|--|---|---|
| | <div>Parameters</div> <table><tr><td><n></td><td><u>0</u></td><td>disable result code</td></tr><tr><td></td><td>1</td><td>enable result code and use numeric values</td></tr><tr><td></td><td>2</td><td>enable result code and use verbose values</td></tr></table> | <n> | <u>0</u> | disable result code | | 1 | enable result code and use numeric values | | 2 | enable result code and use verbose values |
| <n> | <u>0</u> | disable result code | | | | | | | | |
| | 1 | enable result code and use numeric values | | | | | | | | |
| | 2 | enable result code and use verbose values | | | | | | | | |
| Reference | | | | | | | | | | |
| GSM 07.07 [13] | | | | | | | | | | |

3.2.23 AT+COLP Connected Line Identification Presentation

AT+COLP Connected Line Identification Presentation

| | | | | | | | | | | | | | | | |
|--|---|-----|---|----------|---------|---|--------|-----|--|---|----------------------|---|------------------|---|---------------------------------|
| Read Command AT+COLP? | Response +COLP: <n>,<m> OK If error is related to ME functionality: +CME ERROR: <err> | | | | | | | | | | | | | | |
| | Parameters See write command | | | | | | | | | | | | | | |
| Test Command AT+COLP=? | Response +COLP: (list of supported <n>s) OK | | | | | | | | | | | | | | |
| | Parameters See write command | | | | | | | | | | | | | | |
| Write Command AT+COLP=[<n>] | Response TA enables or disables the presentation of the COL (Connected Line) at the TE for a mobile originated call. It has no effect on the execution of the supplementary service COLR in the network. Intermediate result code is returned from TA to TE before any +CR or V.25ter responses. OK | | | | | | | | | | | | | | |
| | Parameters <table> <tr> <td><n></td><td>(parameter sets/shows the result code presentation status in the TA):</td></tr> <tr> <td><u>0</u></td><td>disable</td></tr> <tr> <td>1</td><td>enable</td></tr> <tr> <td><m></td><td>(parameter shows the subscriber COLP service status in the network):</td></tr> <tr> <td>0</td><td>COLP not provisioned</td></tr> <tr> <td>1</td><td>COLP provisioned</td></tr> <tr> <td>2</td><td>unknown (e.g. no network, etc.)</td></tr> </table> | <n> | (parameter sets/shows the result code presentation status in the TA): | <u>0</u> | disable | 1 | enable | <m> | (parameter shows the subscriber COLP service status in the network): | 0 | COLP not provisioned | 1 | COLP provisioned | 2 | unknown (e.g. no network, etc.) |
| <n> | (parameter sets/shows the result code presentation status in the TA): | | | | | | | | | | | | | | |
| <u>0</u> | disable | | | | | | | | | | | | | | |
| 1 | enable | | | | | | | | | | | | | | |
| <m> | (parameter shows the subscriber COLP service status in the network): | | | | | | | | | | | | | | |
| 0 | COLP not provisioned | | | | | | | | | | | | | | |
| 1 | COLP provisioned | | | | | | | | | | | | | | |
| 2 | unknown (e.g. no network, etc.) | | | | | | | | | | | | | | |
| | Intermediate result code When enabled (and called subscriber allows), an intermediate result code is returned before any +CR or V.25ter responses: +COLP:<number>,<type>[,<subaddr>,<satype> [,<alpha>]] | | | | | | | | | | | | | | |

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| | <p>Parameters</p> <p><number> string type phone number of format specified by <type></p> <p><type> type of address octet in integer format; 129 Unknown type(ISDN format number) 128 Unknown type(unknown number format) 161 National number type(ISDN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format)</p> <p><subaddr> string type sub address of format specified by <satype></p> <p><satype> type of sub address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.8)</p> <p><alpha> optional string type alphanumeric representation of <number> corresponding to the entry found in phone book</p> |
| Reference | |

3.2.24 AT+COPS Operator selection

| AT+COPS Operator selection | |
|--------------------------------------|--|
| <p>Test command</p> <p>AT+COPS=?</p> | <p>Response</p> <p>TA returns a list of quadruplets, each representing an operator present in the network. 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.</p> <p>+COPS: list of supported(<stat>, long alphanumeric <oper>, short alphanumeric <oper>, numeric <oper>)s [,(list of supported <mode>s),(list of supported <format>s)] OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p> <p>Parameters see write command</p> |
| <p>Read command</p> <p>AT+COPS?</p> | <p>Response</p> <p>TA returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted.</p> <p>+COPS: <mode>[, <format>[, <oper>]] OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p> <p>Parameters see write command</p> |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|---|---------|--|---|--------------------|--|---|------------------|--|---|--------------------|--------|--|----------------------------------|--------|---|---|--|---|--|--|---|--------------------------------|--|---|--|--|---|--|----------|---|---|--|---|----------------------------------|--|---|---|
| Write command AT+COPS = <mode> [, <format>[, <oper>]] | <div>Response</div> <div>TA forces an attempt to select and register the GSM network operator. 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?).</div> <div>OK</div> <div>If error is related to ME functionality: +CME ERROR: <err></div> <div>Parameters</div> <table><tr><td><stat></td><td>0</td><td>unknown</td></tr><tr><td></td><td>1</td><td>operator available</td></tr><tr><td></td><td>2</td><td>operator current</td></tr><tr><td></td><td>3</td><td>operator forbidden</td></tr><tr><td><oper></td><td></td><td>operator in format as per <mode></td></tr><tr><td><mode></td><td>0</td><td>automatic mode; <oper> field is ignored</td></tr><tr><td></td><td>1</td><td>manual operator selection; <oper> field shall be present</td></tr><tr><td></td><td>2</td><td>manual deregister from network</td></tr><tr><td></td><td>3</td><td>set only <format> (for read command +COPS?) – not shown in Read command response</td></tr><tr><td></td><td>4</td><td>manual/automatic selected; if manual selection fails, automatic mode (<mode>=0) is entered</td></tr><tr><td><format></td><td>0</td><td>long format alphanumeric <oper>;can be up to 16 characters long</td></tr><tr><td></td><td>1</td><td>short format alphanumeric <oper></td></tr><tr><td></td><td>2</td><td>numeric <oper>; GSM Location Area Identification number</td></tr></table> | <stat> | 0 | unknown | | 1 | operator available | | 2 | operator current | | 3 | operator forbidden | <oper> | | operator in format as per <mode> | <mode> | 0 | automatic mode; <oper> field is ignored | | 1 | manual operator selection; <oper> field shall be present | | 2 | manual deregister from network | | 3 | set only <format> (for read command +COPS?) – not shown in Read command response | | 4 | manual/automatic selected; if manual selection fails, automatic mode (<mode>=0) is entered | <format> | 0 | long format alphanumeric <oper>;can be up to 16 characters long | | 1 | short format alphanumeric <oper> | | 2 | numeric <oper>; GSM Location Area Identification number |
| <stat> | 0 | unknown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | operator available | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | operator current | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | operator forbidden | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <oper> | | operator in format as per <mode> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <mode> | 0 | automatic mode; <oper> field is ignored | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | manual operator selection; <oper> field shall be present | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | manual deregister from network | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | set only <format> (for read command +COPS?) – not shown in Read command response | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4 | manual/automatic selected; if manual selection fails, automatic mode (<mode>=0) is entered | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <format> | 0 | long format alphanumeric <oper>;can be up to 16 characters long | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | short format alphanumeric <oper> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 | numeric <oper>; GSM Location Area Identification number | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reference GSM 07.07 [14] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3.2.25 AT+CPAS Mobile Equipment Activity Status

| AT+CPAS Mobile Equipment Activity Status | |
|--|---|
| Test command AT+CPAS=? | <div> <p>Response</p> <p>+CPAS: (list of supported <pas>s) OK</p> </div> <div> <p>Parameters</p> <p>see execution command</p> </div> |
| Execution command AT+CPAS | <div> <p>Response</p> <p>TA returns the activity status of ME.</p> <p>+CPAS: <pas> OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p> </div> |

| | | | |
|-----------------------------|------------|---|---|
| | Parameters | | |
| | <pas> | 0 | ready |
| | | 2 | unknown (ME is not guaranteed to respond to instructions) |
| | | 3 | ringing |
| | | 4 | call in progress or call hold |
| Reference GSM 07.07 [13] | | | |

3.2.26 AT+CPBF Find phone book entries

| AT+CPBF Find phone book entries | |
|--|---|
| Test command AT+CPBF=? | Response +CPBF: [maximum length of field <nlength>],[maximum length of field <tlength>] OK |
| | Parameter see execution command |
| Write command AT+CPBF=<findt ext> | Response TA returns phone book entries (from the current phone book memory storage selected with +CPBS) which contain alphanumeric string <findtext>. [+CPBF: <index1>, <number>,<type>, <text>[[...] <CR><LF>+CBPF: <index2>,<number>,<type>,<text>] OK |

| | |
|-----------------------------|--|
| | Parameter <index1>, <index2> integer type values in the range of location numbers of phone book memory <number> string type phone number of format <type> <type> type of address octet in integer format ; 129 Unknown type (ISDN format number) 128 Unknown type (unknown number format) 161 National number type (ISDN format) 145 International number type (ISDN format) 177 Network specific number (ISDN format) <findtext>, <text> string type field of maximum length <tlength> in current TE character set specified by +CSCS. <nlength> integer type value indicating the maximum length of field <number> <tlength> integer type value indicating the maximum length of field <text> |
| Reference GSM 07.07 [13] | Note |

3.2.27 AT+CPBR Read current phone book entries

| AT+CPBR Read current phone book entries | |
|---|--|
| Test command AT+CPBR=? | Response TA returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields. +CPBR: (list of supported <index>s), <nlength>, <tlength> OK |
| | Parameter <index> location number <nlength> max. length of phone number <tlength> max. length of text for number |

| | |
|--|---|
| Write command AT+CPBR= <index1> [, <index2>] | <p>Response</p> <p>TA returns phone book entries in location number range <index1>...<index2> from the current phone book memory storage selected with +CPBS. If <index2> is left out, only location <index1> is returned.</p> <p>+CPBR: <index1>, <number>, <type>, <text>[<CR><LF>+CPBR:+CPBR: <index2>, <number>, <type>, <text>] OK</p> <p>Parameter</p> <p><index1> read as of this location number <index2> read to this location number <number> phone number <type> type of number <text> ext for phone number in current TE character set specified by +CSCS.</p> |
| Reference GSM 07.07 [13] | Note |

3.2.28 AT+CPBS Select phone book memory storage

| | |
|--|---|
| AT+CPBS Select phone book memory storage | |
| Test command AT+CPBS=? | <p>Response</p> <p>+CPBS: (list of supported <storage>s) OK</p> <p>Parameter see write command</p> |
| Read command AT+CPBS? | <p>Response</p> <p>+CPBS: <storage>[,<used>,<total>] OK</p> <p>Parameter See write command</p> |
| Write command AT+CPBS=<stor age>[,<used>,<to tal>] | <p>Response</p> <p>TA selects current phone book memory storage, which is used by other phone book commands. OK</p> |

| | |
|------------------------------------|--|
| | <p>Parameter</p> <p><storage> "MC" ME missed (unanswered) calls list</p> <p> "RC" ME received calls list</p> <p> "DC" ME dialed calls list(+CPBW may not be applicable or this storage)(same as LD)</p> <p> "LA" Last Number All list (LND/LNM/LNR)</p> <p> "ME" ME phonebook</p> <p> "BN" SIM barred dialed number</p> <p> "SD" SIM service dial number</p> <p> "VM" SIM voice mailbox</p> <p> "FD" SIM fix dialing-phone book</p> <p> "LD" SIM last-dialing-phone book</p> <p> "ON" SIM (or ME) own numbers (MSISDNs) list</p> <p> "SM" SIM phonebook</p> <p><used> integer type value indicating the total number of used Locations in selected memory</p> <p><total> integer type value indicating the total number of locations In selected memory</p> |
| Reference GSM 07.07 [13] | Note |

3.2.29 AT+CPBW Write phone book entry

| AT+CPBW Write phone book entry | |
|--|---|
| Test command AT+CPBW=? | <p>Response</p> <p>TA returns location range supported by the current storage, the maximum length of <number> field, supported number formats of the storage, and the maximum length of <text> field.</p> <p>+CPBW: (list of supported <index>s), <nlength>, (list of supported <type>s), <tlength></p> <p>OK</p> |
| | Parameter see execution command |
| Write command AT+CPBW= <index1> [, <number>, [<type>, [<text>]]] | <p>Response</p> <p>TA writes phone book entry in location number <index> in the current phone book memory storage selected with +CPBS. Entry fields written are phone number <number> (in the format <type>) and text <text> associated with the number. If those fields are omitted, phone book entry is deleted. If <index> is left out, but <number> is given, entry is written to the first free location in the phone book.</p> <p>OK</p> |

| | | | | | | | | | | | | | | | | |
|--|---|--------------------|----------------|------|---|--------------|-------------|---|--------------|--------------------|-----|--------------|-------------|------|--------------|------------|
| | Parameter | | | | | | | | | | | | | | | |
| | <nlength> max. length of phone number | | | | | | | | | | | | | | | |
| | <tlength> max. length of text for number | | | | | | | | | | | | | | | |
| | <index> location number | | | | | | | | | | | | | | | |
| | <number> phone number | | | | | | | | | | | | | | | |
| | <type> type of number; | | | | | | | | | | | | | | | |
| | 129 Unknown type(IDSN format number) | | | | | | | | | | | | | | | |
| | 128 Unknown type(unknown number format) | | | | | | | | | | | | | | | |
| | 161 National number type(IDSN format) | | | | | | | | | | | | | | | |
| | 145 International number type(ISDN format) | | | | | | | | | | | | | | | |
| 177 Network specific number(ISDN format) | | | | | | | | | | | | | | | | |
| <text> | text for phone number in current TE character set specified by +CSCS. | | | | | | | | | | | | | | | |
| Note: | The following characters in <text> must be entered via the escape sequence: | | | | | | | | | | | | | | | |
| | <table><tr><td>GSM char.</td><td>Seq. Seq.(hex)</td><td>Note</td></tr><tr><td>\</td><td>\5C 5C 35 43</td><td>(backslash)</td></tr><tr><td>“</td><td>\22 5C 32 32</td><td>(string delimiter)</td></tr><tr><td>BSP</td><td>\08 5C 30 38</td><td>(backspace)</td></tr><tr><td>NULL</td><td>\00 5C 30 30</td><td>(GSM null)</td></tr></table> | GSM char. | Seq. Seq.(hex) | Note | \ | \5C 5C 35 43 | (backslash) | “ | \22 5C 32 32 | (string delimiter) | BSP | \08 5C 30 38 | (backspace) | NULL | \00 5C 30 30 | (GSM null) |
| GSM char. | Seq. Seq.(hex) | Note | | | | | | | | | | | | | | |
| \ | \5C 5C 35 43 | (backslash) | | | | | | | | | | | | | | |
| “ | \22 5C 32 32 | (string delimiter) | | | | | | | | | | | | | | |
| BSP | \08 5C 30 38 | (backspace) | | | | | | | | | | | | | | |
| NULL | \00 5C 30 30 | (GSM null) | | | | | | | | | | | | | | |
| | ‘0’ (GSM null) may cause problems for application layer software when reading string lengths. | | | | | | | | | | | | | | | |
| Reference | Note | | | | | | | | | | | | | | | |
| GSM 07.07 [13] | | | | | | | | | | | | | | | | |

3.2.30 AT+CPIN Enter PIN

| AT+CPIN Enter PIN | |
|----------------------------------|--|
| Test command AT+CPIN=? | <p>Response OK</p> <p>Parameter see execution command</p> |
| Read command AT+CPIN? | <p>Response</p> <p>TA returns an alphanumeric string indicating whether some password is required or not.</p> <p>+CPIN: <code></p> <p>OK</p> |

| | |
|--|---|
| | <p>Parameter</p> <p><code> READY no further entry needed</p> <p>SIM PIN ME is waiting for SIM PIN</p> <p>SIM PUK ME is waiting for SIM PUK</p> <p>PH_SIM PIN ME is waiting for phone to SIM card (antitheft)</p> <p>PH_SIM PUK ME is waiting for SIM PUK (antitheft)</p> <p>SIM PIN2 PIN2, e.g. for editing the FDN book possible only if preceding command was acknowledged with +CME ERROR:17</p> <p>SIM PUK2 possible only if preceding command was acknowledged with error +CME ERROR: 18.</p> |
| <p>Write command</p> <p>AT+CPIN=<pin> [, <new pin>]</p> | <p>Response</p> <p>TA stores 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 and an error message, +CME ERROR, is returned to TE.</p> <p>If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <new pin>, is used to replace the old pin in the SIM.</p> <p>OK</p> <p>Parameter</p> <p><pin> string type; password</p> <p><new pin> string type; If the PIN required is SIM PUK or SIMPUK2: new password</p> |
| <p>Reference</p> <p>GSM 07.07 [13]</p> | <p>Note</p> |

3.2.31 AT+CPWD Change password

| AT+CPWD Change password | |
|---|--|
| <p>Test command</p> <p>AT+CPWD=?</p> | <p>Response</p> <p>TA returns a list of pairs which present the available facilities and the maximum length of their password.</p> <p>+CPWD: list of supported (<fac>, <pwdlength>)s</p> <p>OK</p> <p>Parameter</p> <p><fac></p> <p>otherwise see execution command, without "FD"</p> <p><pwdlength> integer max. length of password</p> |
| <p>Write command</p> <p>AT+CPWD = <fac>, [<oldpwd>],</p> | <p>Response</p> <p>TA sets a new password for the facility lock function.</p> <p>OK</p> |

| | |
|------------------------------------|---|
| | Parameter <fac> "PS" Phone locked to SIM (device code). The "PS" password may either be individually specified by the client or, depending on the subscription, supplied from the provider (e.g. with a prepaid mobile). "SC" SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command issued) "AO" BAO (Barr All Outgoing Calls) (refer GSM02.88[6] clause 1) "OI" BOIC (Barr Outgoing International Calls) (refer GSM02.88[6] clause 1) "OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer GSM02.88[6] clause 1) "AI" BAIC (Barr All Incoming Calls) (refer GSM02.88[6] clause 2) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer GSM02.88 [6] clause 2) "AB" All Barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "AG" All outgoing barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "AC" All incoming barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "FD" SIM fixed dialing memory feature "BN" SIM barred memory feature "P2" SIM PIN2 <oldpwd> password specified for the facility from the user interface or with command. If an old password has not yet been set, <oldpwd> is not to enter. <newpwd> new password |
| | |
| Reference GSM 07.07 [13] | Note |

3.2.32 AT+CR Service Reporting Control

| AT+CR Service Reporting Control | |
|---------------------------------|---|
| Test command AT+CR=? | Response +CR: list of supported <mode>s OK |
| | Parameters see write command |

| | |
|--|---|
| Read command AT+CR? | Response +CR: <mode> OK |
| | Parameters see write command |
| Write command AT+CR=<mode> | Response TA controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE at a call set up. OK Parameters <mode> <u>0</u> disable 1 enable |
| | Intermediate result code If enabled, an intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before any final result code (e.g. CONNECT) is transmitted. +CR:<serv> Parameters <serv> ASYNC asynchronous transparent SYNC synchronous transparent REL ASYNC asynchronous non-transparent REL SYNC synchronous non-transparent |
| Reference GSM 07.07 [13] | |

3.2.33 AT+CRC Set Cellular Result Codes for incoming call indication

| AT+CRC Set Cellular Result Codes for incoming call indication | |
|--|--|
| Test command AT+CRC=? | Response +CRC: list of supported <mode>s OK |
| | Parameters see write command |
| Read command AT+CRC? | Response +CRC: <mode> OK |
| | Parameters see write command |

| | |
|-------------------------------------|---|
| Write command AT+CRC=<mode> > | <p>Response</p> <p>TA controls whether or not the extended format of incoming call indication is used.</p> <p>OK</p> <p>Parameters</p> <p><mode> <u>0</u> disable extended format 1 enable extended format</p> <p>Unsolicited result code</p> <p>When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING.</p> <p>Parameters</p> <p><type> ASYNC asynchronous transparent SYNC synchronous transparent REL ASYNC asynchronous non-transparent REL SYNC synchronous non-transparent FAX facsimile VOICE voice</p> |
| Reference GSM 07.07 [13] | |

3.2.34 AT+CREG Network registration

| AT+CREG Network registration | |
|--------------------------------|---|
| Test command AT+CREG=? | <p>Response</p> <p>+CREG: list of supported <n>s OK</p> <p>Parameters</p> <p>see write command</p> |
| Read command AT+CREG? | <p>Response</p> <p>TA returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the ME. Location information elements <lac> and <ci> are returned only when <n>=2 and ME is registered in the network.</p> <p>+CREG: <n>,<stat>[,<lac>,<ci>] OK</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p> |
| Write command AT+CREG=[<n>] | <p>Response</p> <p>TA controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the ME network registration status.</p> <p>OK</p> |

| | |
|----------------|---|
| | Parameters <code><n></code> 0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CREG: <stat> 2 enable network registration unsolicited result code with location information <code><stat></code> 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 <code>< lac ></code> string type; two byte location area code in hexadecimal format <code>< ci ></code> string type; two byte cell ID in hexadecimal format |
| | Unsolicited result code If <n>=1 and there is a change in the ME network registration status: +CREG: <stat> If <n>=2 and there is a change in the ME network registration status or a change of the network cell: +CREG: <stat>[,<lac>,<ci>] Parameters see write command |
| Reference | |
| GSM 07.07 [13] | |

3.2.35 AT+CRLP Select Radio Link Protocol parameter

| AT+CRLP Select Radio Link Protocol parameter | |
|--|--|
| Test command | Response |
| AT+CRLP=? | TA returns values supported. RLP versions 0 and 1 share the same parameter set. TA returns only one line for this set (where <verx> is not present). +CRLP: (list of supported <iws>s), (list of supported <mws>s), (list of supported <T1>s), (list of supported <N2>s), (list of supported <ver1>s), (list of supported <T4>s) ... OK |
| | Parameters see write command |

| | |
|--|--|
| Read command AT+CRLP? | Response TA returns current settings for RLP version. RLP versions 0 and 1 share the same parameter set. TA returns only one line for this set (where <verx> is not present). +CRLP: <iws>,<mws>,<T1>,<N2>,<ver1>,<T4> ... OK |
| | Parameters see write command |
| Write command AT+CRLP=[<iws> >,<mws>,<T1>[,<N2>,<ver>,<T 4>]]]]]] | Response TA sets radio link protocol (RLP) parameters used when non-transparent data calls are setup. OK |
| | Parameters <iws> 0-61 Interworking window size (IWF to MS) <mws> 0-61 Mobile window size (MS to IWF) <T1> 39-255 acknowledgment timer T1 in 10 ms units <N2> 1-255 retransmission attempts N2 <verx> 0-1 RLP version number in integer format; when Version indication is not present it shall equal 0. Note: Versions 0 and 1 share the same parameter set. <T4> 3-255 re-sequencing period in integer format, in units of 10 ms. This is NOT used for RLP versions 0 and 1. |
| Reference GSM 07.07 [13] | |

3.2.36 AT+CRSM Restricted SIM access

| AT+CRSM Restricted SIM access | |
|--|--|
| Test command AT+CRSM=? | Response OK |
| Write command AT+CRSM=<com mand>,<fileId> [<P1>,<P2>,<P3 > [<data>]]] | Response +CRSM: <sw1>, <sw2> [<response>] OK / ERROR / +CME ERROR: <err> Parameter <command> 176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY |

| | |
|-----------|---|
| | <p>220 UPDATE RECORD</p> <p>242 STATUS</p> <p>all other values are reserved; refer GSM 11.11.</p> <p><fileId> integer type; this is the identifier for an elementary data file on SIM. Mandatory for every command except STATUS</p> <p><P1>,<P2>,<P3> integer type, range 0 - 255</p> <p>parameters to be passed on by the ME to the SIM; refer GSM 11.11.</p> <p><data> information which shall be written to the SIM (hex-decimal character format)</p> <p><sw1>,<sw2> integer type, range 0 - 255</p> <p>status information from the SIM about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command; refer GSM 11.11.</p> <p><response> response of a successful completion of the command previously issued (hexadecimal character format)</p> |
| Reference | |
| GSM 07.07 | |
| GSM 11.11 | |

3.2.37 AT+CSQ Signal Quality Report

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

| | |
|-----------------------------|------|
| Reference GSM 07.07 [13] | Note |
|-----------------------------|------|

3.2.38 AT+FCLASS FAX: select, read or test service class

| AT+FCLASS FAX: select, read or test service class | |
|---|---|
| Test command AT+FCLASS=? | Response +FCLASS: list of supported <n>s) OK |
| | Parameter see write command |
| Read command AT+ FCLASS? | Response + FCLASS: <n> OK |
| | Parameter See write command. |
| Write command AT+FCLASS= <n> | Response TA sets a particular mode of operation (data fax). This causes the TA to process information in a manner suitable for that type of information OK |
| | Parameter <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"><n></div> <div style="display: flex; align-items: center;"> <div style="border-bottom: 1px solid black; width: 20px; text-align: center; margin-right: 5px;">0</div> <div style="margin-right: 10px;">data</div> </div> <div style="display: flex; align-items: center;"> <div style="border-bottom: 1px solid black; width: 20px; text-align: center; margin-right: 5px;">1</div> <div>fax class 1 (TIA-578-A)</div> </div> </div> |
| Reference GSM 07.07 [13] | Note |

3.2.39 AT+FMI FAX: report manufactured ID

| AT+FMI FAX: report manufactured ID | |
|------------------------------------|--|
| Test command AT+ FMI =? | Response OK |
| | Parameter see write command |
| Read command AT+ FMI | Response TA reports one or more lines of information text which permit the user to identify the manufacturer. <manufacturer Id> OK |
| | Parameter <manufacturer Id> |
| Reference EIA/TIA-578-D | Note |

3.2.40 AT+FMM FAX: report model ID

| AT+FMM FAX: report model ID | |
|------------------------------------|--|
| Test command AT+ FMM =? | Response OK |
| | Parameter see write command |
| Read command AT+ FMM | Response TA reports one or more lines of information text which permit the user to identify the specific model of device. <model Id> OK |
| | Parameter <model Id> |
| Reference EIA/TIA-578-D | Note |

3.2.41 AT+FMR FAX: report revision ID

| AT+FMR FAX: report revision ID | |
|---------------------------------------|---|
| Test command AT+ FMR =? | Response OK |
| | Parameter see write command |
| Execution command AT+ FMR | Response TA reports one or more lines of information text which permit the user to identify the version, revision level or data or other information of the device. <Revision Id> OK |
| | Parameter <Revision Id> |
| Reference EIA/TIA-578-D | Note |

3.2.42 AT+VTD=<n> Tone duration

| AT+VTD=<n> Tone duration | |
|---------------------------------------|--|
| Test command AT+VTD=? | Response +VTD: list of supported <n>s OK |
| | Parameters see write command |
| Read command AT+VTD? | Response +VTD: <n> OK |

| | |
|---|---|
| | Parameters see write command |
| Write command AT+VTD = <duration> | Response This command refers to an integer <n> that defines the length of tones emitted as a result of the +VTS command. This does not affect the D command. OK |
| | Parameters <n> 1-255 duration of the tone in 1/10 seconds |
| Reference GSM 07.07 [13] | Note |

3.2.43 AT+VTS DTMF and tone generation

| AT+VTS DTMF and tone generation | |
|---------------------------------|---|
| Test command AT+VTS=? | Response +VTS: list of supported <dtmf>s, list of supported <duration>s OK |
| | Parameters see write command |

| | |
|---------------------------------------|---|
| Write command AT+VTS=<dtmf-string> | Response This command allows the transmission of DTMF tones and arbitrary tones in voice mode. These tones may be used (for example) when announcing the start of a recording period. Note: D is used only for dialing. OK If error is related to ME functionality: +CME ERROR: <err> Note: The command is writing only. Parameters <dtmf-string> which has a max length of 20 characters, must be entered between double quotes (“ ”) and consists of combinations of the following separated by commas: 1) <dtmf> A single ASCII characters in the set 0-9, #, *, A-D. This is interpreted as a sequence of DTMF tones whose duration is set by the +VTD command. 2) {<dtmf>, <duration>} This is interpreted as a DTMF tone whose duration is determined by <duration>. <duration> duration of the tone in 1/10 seconds range :1-255 |
| Reference GSM 07.07 [13] | Note |

3.2.44 AT+CMUX Multiplexer Control

| AT+CMUX Multiplexer Control | |
|------------------------------|---|
| Test command AT+CMUX=? | Response +CMUX: (list of supported <mode>,<subset>,<port_speed>,<N1>,<T1>,<N2>,<T2>,<T3>,<k>) |
| | Parameter See write command |
| Write command AT+CMUX=<mo | Response +CME ERROR: <err> |

| de>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]] | <p>Parameters</p> <p><mode> multiplexer transparency mechanism</p> <p><u>0</u> Basic option</p> <p>1 Advanced option (GSM 07.10 multiplexer)</p> <p><subset> the way in which the multiplexer control channel is set up</p> <p><u>0</u> UIH frames used only</p> <p><port_speed>transmission rate</p> <p><u>5</u> 115200bit/s</p> <p><N1> maximum frame size</p> <p><u>127</u></p> <p><T1> acknowledgement timer in units of ten milliseconds</p> <p><u>10</u></p> <p><N2> maximum number of re-transmissions</p> <p><u>3</u></p> <p><T2> response timer for the multiplexer control channel in units of ten milliseconds</p> <p><u>30</u></p> <p><T3> wake up response timers in seconds</p> <p><u>10</u></p> <p><k> window size, for Advanced operation with Error Recovery options</p> <p><u>2</u></p> | | | | | | | | | | | | | | | | | | |
|---|---|----------------|------|------|------|---------------------|---|---|-----------------|---|---|-----------------|---|---|-----------------|---|---|-----------------|---|
| Read command AT+CMUX ? | <p>Response:</p> <p>+CMUX: (mode-1),0,5,127,10,3,30,10,2</p> <p>OK</p> <p><i>ERROR</i></p> | | | | | | | | | | | | | | | | | | |
| Reference GSM 07.07 [13] | <p>Note</p> <p>1. Advanced option with Error Recovery options is not supported.</p> <p>2. The multiplexing transmission rate is according to the current serial baud rate. It is recommended to enable multiplexing protocol under 115200 bit/s baud rate.</p> <p>3. Multiplexer control channels are listed as follows:</p> <table><tr><th>Channel Number</th><th>Type</th><th>DLCI</th></tr><tr><td>None</td><td>Multiplexer Control</td><td>0</td></tr><tr><td>1</td><td>07.07 and 07.05</td><td>1</td></tr><tr><td>2</td><td>07.07 and 07.05</td><td>2</td></tr><tr><td>3</td><td>07.07 and 07.05</td><td>3</td></tr><tr><td>4</td><td>07.07 and 07.05</td><td>4</td></tr></table> | Channel Number | Type | DLCI | None | Multiplexer Control | 0 | 1 | 07.07 and 07.05 | 1 | 2 | 07.07 and 07.05 | 2 | 3 | 07.07 and 07.05 | 3 | 4 | 07.07 and 07.05 | 4 |
| Channel Number | Type | DLCI | | | | | | | | | | | | | | | | | |
| None | Multiplexer Control | 0 | | | | | | | | | | | | | | | | | |
| 1 | 07.07 and 07.05 | 1 | | | | | | | | | | | | | | | | | |
| 2 | 07.07 and 07.05 | 2 | | | | | | | | | | | | | | | | | |
| 3 | 07.07 and 07.05 | 3 | | | | | | | | | | | | | | | | | |
| 4 | 07.07 and 07.05 | 4 | | | | | | | | | | | | | | | | | |

3.2.45 AT+CNUM Subscriber Number

| AT+CNUM Subscriber Number | |
|------------------------------|---|
| Test command AT+CNUM=? | Response OK |
| Execution command AT+CNUM | <p>Response</p> <p>+CNUM: [<alpha1>,<number1>,<type1>[,<speed>,<service>[,<itc>]] [<CR><LF>+CNUM: [<alpha2>,<number2>,<type2>[,<speed>,<service>[,<itc>]] [...]] +CME ERROR: <err></p> <p>Parameters</p> <p><alphax> optional alphanumeric string associated with <numberx>; used character set should be the one selected with command Select TE Character Set +CSCS</p> <p><numberx> string type phone number of format specified by <typex></p> <p><typex> type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)</p> <p><speed> as defined by the +CBST command</p> <p><service> (service related to the phone number:)</p> <p>0 asynchronous modem 1 synchronous modem 2 PAD Access (asynchronous) 3 Packet Access (synchronous) 4 Voice 5 Fax</p> <p><itc> (information transfer capability:)</p> <p>0 3.1 kHz 1 UDI</p> |
| Reference GSM 07.07 [13] | Note |

3.2.46 AT+CPOL Preferred operator list

| AT+CPOL Preferred operator list. | |
|----------------------------------|---|
| Test command AT+CPOL=? | Response +CPOL: (list of supported <index>s),(list of supported <format>s) |
| | Parameters see write command |

| | |
|--|--|
| Read command AT+CPOL? | Response +CPOL: <index1>,<format>,<oper1> [<CR><LF>+CPOL: <index2>,<format>,<oper2> [...]] +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CPOL=[<index>][,<format>[,<oper>]] | Response +CME ERROR: <err> |
| | Parameters <index> integer type: order number of operator in SIM preferred operator list <format> 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> <oper> string type: <format> indicates whether alphanumeric or numeric format used (see +COPS command) |
| Reference GSM 07.07 [13] | Note |

3.2.47 AT+COPN Read operator names.

| AT+COPN Read operator names. | |
|---------------------------------|--|
| Test command AT+COPN=? | Response OK |
| Execution command AT+COPN | Response +COPN: <numeric1>,<alpha1 > [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] +CME ERROR: <err> |
| | Parameters <numericn> string type: operator in numeric format (see +COPS) <alphan> string type: operator in long alphanumeric format (see +COPS) |
| Reference GSM 07.07 [13] | Note |

3.2.48 AT+CFUN Set phone functionality.

| AT+CFUN Set phone functionality. | |
|---|--|
| Test command AT+CFUN=? | Response +CFUN: (list of supported <fun>s), (list of supported <rst>s) +CME ERROR: <err> |
| | Parameters See write command |
| Read command AT+CFUN? | Response +CFUN: <fun> +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CFUN=<fun>, [<rst>] | Response +CME ERROR: <err> |
| | Parameters <fun> 0 minimum functionality 1 full functionality (Default) 4 disable phone both transmit and receive RF circuits <rst>: 0 Set the ME to <fun> power level immediately. This is the default when <rst> is not given. 1 Set the ME to <fun> power level after the ME been reset. |
| Reference GSM 07.07 [13] | Note |

3.2.49 AT+CCLK Clock

| AT+CCLK Clock | |
|---------------------------|--|
| Test command AT+CCLK=? | Response OK |
| | Parameters |
| Read command AT+CCLK? | Response +CCLK: <time> +CME ERROR: <err> |
| | Parameter See write command |

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| | |
|--------------------------------------|---|
| Write command AT+CCLK=<time> > | Response +CME ERROR: <err> |
| | Parameters <time> string type value; format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -48...+48). E.g. 6th of May 1994, 22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08" |
| Reference GSM 07.07 [13] | Note |

3.2.50 AT+CSIM Generic SIM Access

| AT+CSIM Generic SIM Access | |
|--|---|
| Test command AT+CSIM=? | Response OK |
| | Parameters |
| Write command AT+CSIM=<length> >,<command> | Response +CSIM: <command>,<response> +CME ERROR: <err> |
| | Parameters <length> integer type: length of characters sent to the TE in <command> or <response> (i.e. twice the number of octets in the raw data) <command> string type: hex format: GSM 11.11 SIM command sent from the ME to the SIM <response> string type: hex format: GSM 11.11 response from SIM to <command> |
| Reference GSM 07.07 [13] | Note |

3.2.51 AT+CALM Alert Sound Mode

| AT+CALM Alert Sound Mode | |
|---------------------------|---|
| Test command AT+CALM=? | Response +CALM: (list of supported <mode>s) +CME ERROR: <err> |

| | |
|---------------------------------|---|
| | Parameter See write command |
| Read command AT+CALM? | Response +CALM: <mode> +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CALM=<mode> | Response +CME ERROR: <err> |
| | Parameters <mode> <u>0</u> normal mode 1 silent mode (all sounds from ME are prevented) |
| Reference GSM 07.07 [13] | Note |

3.2.52 AT+CRSL Ringer Sound Level

| AT+CRSL Ringer Sound Level | | | |
|----------------------------------|---|---------|---|
| Test command AT+CRSL=? | Response +CRSL: (list of supported <level>s) +CME ERROR: <err> | | |
| | Parameter See write command | | |
| Read command AT+CRSL? | Response +CRSL: <level> +CME ERROR: <err> | | |
| | Parameter See write command | | |
| Write command AT+CRSL=<level> | Response +CME ERROR: <err> | | |
| | Parameters <table> <tr> <td><level></td><td>integer type value(0-100) with manufacturer specific range (smallest value represents the lowest sound level)</td></tr> </table> | <level> | integer type value(0-100) with manufacturer specific range (smallest value represents the lowest sound level) |
| <level> | integer type value(0-100) with manufacturer specific range (smallest value represents the lowest sound level) | | |
| Reference GSM 07.07 [13] | Note | | |

3.2.53 AT+CLVL Loudspeaker volume level

| AT+CLVL Loudspeaker volume level | |
|----------------------------------|---|
| Test command AT+CLVL=? | Response +CLVL: (list of supported <level>s) +CME ERROR: <err> |
| | Parameters see write command |
| Read command AT+CLVL? | Response +CLVL: <level> +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CLVL=<level> | Response +CME ERROR: <err> |
| | Parameters <level> integer type value with manufacturer specific range (smallest value represents the lowest sound level) |
| Reference GSM 07.07 [13] | Note |

3.2.54 AT+CMUT Mute control.

| AT+CMUT Mute control. | | | | | | |
|------------------------------|--|----------|----------|----------|--|---|
| Test command AT+CMUT=? | Response +CMUT: (list of supported <n>s) | | | | | |
| | Parameters see write command | | | | | |
| Read command AT+CMUT? | Response +CMUT: <n> +CME ERROR: <err> | | | | | |
| | Parameter See write command | | | | | |
| Write command AT+CMUT=<n> | Response +CME ERROR: <err> | | | | | |
| | Parameters <table><tr><td><n></td><td><u>0</u></td><td>mute off</td></tr><tr><td></td><td>1</td><td>mute on</td></tr></table> | <n> | <u>0</u> | mute off | | 1 |
| <n> | <u>0</u> | mute off | | | | |
| | 1 | mute on | | | | |
| Reference GSM 07.07 [13] | Note | | | | | |

3.2.55 AT+CPUC Price per Unit and Currency Table

| AT+CPUC Price Per Unit and Currency Table | |
|--|--|
| Test command AT+CPUC=? | Response OK |
| | Parameters see write command |
| Read command AT+CPUC? | Response +CPUC: <currency>,<ppu> +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CPUC=<currency>,<ppu>[,<passwd>] | Response +CME ERROR: <err> |
| | Parameters <currency> string 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 |
| Reference GSM 07.07 [13] | Note |

3.2.56 AT+CCWE Call Meter Maximum Event

| AT+CCWE Call Meter Maximum Event | |
|----------------------------------|---|
| Test command AT+CCWE=? | Response +CCWE: (list of supported <mode>s) +CME ERROR: <err> |
| | Parameters see write command |
| Read command AT+CCWE? | Response +CCWE: <mode> +CME ERROR: <err> |
| | Parameter See write command |
| Write command AT+CCWE=<mode> | Response +CME ERROR: <err> |

| | |
|-----------------------------|---|
| de> | Parameters <mode> 0 Disable call meter warning event 1 Enable call meter warning event |
| | <u>Unsolicited result codes supported:</u> +CCWV Shortly before the ACM (Accumulated Call Meter) maximum value is reached, an unsolicited result code +CCWV will be sent, if enabled by this command. The warning is issued approximately when 5 seconds call time remains. It is also issued when starting a call if less than 5 s call time remains. Parameters |
| Reference GSM 07.07 [13] | Note GSM 07.07 specifies 30 seconds, so SIMCOM deviate from the specification. |

3.2.57 AT+CBC Battery charge

| AT+ CBC Battery charge | |
|-----------------------------|--|
| Test command AT+CBC=? | Response +CBC: (list of supported < bcs >s),(list of supported < bcl >s),(voltage) |
| | Parameters see write command |
| Read command AT+CBC? | Response <i>ERROR</i> |
| | Parameter See write command |
| Execution command AT+CBC | Response +CBC: < battery connected status >, < battery charging level >,<voltage> +CME ERROR: <err> |
| | Parameters <bcs> charge status 0 ME is not charged 1 ME is charging <bcl> battery connection level 1...100 battery has 1-100 percent of capacity remaining vent <voltage> battery voltage(mV) |

| | |
|-----------------------------|--|
| Reference GSM 07.07 [13] | Note Support for this command will be hardware dependant and only be used when battery is set to vibrator |
|-----------------------------|--|

3.2.58 AT+CUSD Unstructured supplementary service data

| AT+ CUSD Unstructured supplementary service data | |
|---|--|
| Test command AT+CUSD=? | Response +CUSD: <n> |
| | Parameters see write command |
| Read command AT+CUSD? | Response +CUSD:<n> |
| | Parameter <n> |
| Write command AT+CUSD=[<n>[,<str>[,<dcs>]] | Response OK ERROR |
| | Parameters <n> a numeric parameter which indicates control of the unstructured supplementary service data 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) |
| Reference GSM 03.38 [25] | Note |

3.2.59 AT+CSSN SUPPLEMENTARY SERVICES NOTIFICATION

| AT+ CSSN SUPPLEMENTARY SERVICES NOTIFICATION | |
|--|---|
| Test command AT+CSSN=? | Response +CSSN: (list of supported <n>s), (list of supported <m>s) |
| | Parameters see write command |
| Read command AT+CSSN? | Response +CSSN:<n>,<m> |

| | |
|--|--|
| | Parameter see write command |
| Write command AT+CSSN=[<n>[, <m>]] | Response OK ERROR Parameters <n> a numeric parameter which indicates whether to show the +CSSI:<code1>[,<index>] result code presentation status after a mobile originated call setup 0 disable 1 enable <m> a numeric parameter which indicates whether to show the +CSSU:<code2> result code presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received. 0 disable 1 enable <code1> 0 unconditional call forwarding is active 1 some of the conditional call forwarding 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 <index> closed user group index <code2> 0 this is a forwarded call |
| Reference | Note |

4 AT Commands According to GSM07.05

The GSM 07.05 commands are for performing SMS and CBS related operations. SIM300 II supports both Text and PDU modes.

4.1 Overview of AT Commands According to GSM07.05

| Command | Description |
|---------|--|
| AT+CMGD | DELETE SMS MESSAGE |
| AT+CMGF | SELECT SMS MESSAGE FORMAT |
| AT+CMGL | LIST SMS MESSAGES FROM PREFERRED STORE |
| AT+CMGR | READ SMS MESSAGE |
| AT+CMGS | SEND SMS MESSAGE |
| AT+CMGW | WRITE SMS MESSAGE TO MEMORY |
| AT+CMSS | SEND SMS MESSAGE FROM STORAGE |
| AT+CMGC | SEND SMS COMMAND |
| AT+CNMI | NEW SMS MESSAGE INDICATIONS |
| AT+CPMS | PREFERRED SMS MESSAGE STORAGE |
| AT+CREG | RESTORE SMS SETTINGS |
| AT+CSAS | SAVE SMS SETTINGS |
| AT+CSCA | SMS SERVICE CENTER ADDRESS |
| AT+CSCB | SELECT CELL BROADCAST SMS MESSAGES |
| AT+CSDH | SHOW SMS TEXT MODE PARAMETERS |
| AT+CSMP | SET SMS TEXT MODE PARAMETERS |
| AT+CSMS | SELECT MESSAGE SERVICE |

4.2 Detailed Descriptions of AT Commands According to GSM07.05

4.2.1 AT+CMGD Delete SMS message

| AT+CMGD Delete SMS message | |
|---|--|
| Read Command AT+CMGD=? | Response +CMGD: <Range of SMS on SIM card can be deleted> OK |
| Write Command AT+CMGD=<index> | Response TA deletes message from preferred message storage <mem1> location <index>. OK If error is related to ME functionality: +CMS ERROR <err> |
| | Parameters <index> integer type; value in the range of location numbers supported by the associated memory |
| Reference | |

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format

| | |
|--|--|
| Read Command AT+CMGF? | Response +CMGF: <mode> OK |
| | Parameters see write command |
| Test Command AT+CMGF=? | Response +CMGF: list of supported <mode>s OK |
| Write Command AT+CMGF=[<mode>] | Response TA sets parameter to denote which input and output format of messages to use. OK |
| | Parameters <div> <mode> <div> <u>0</u> PDU mode 1 text mode </div> </div> |
| Reference GSM 07.05 | |

4.2.3 AT+CMGL List SMS messages from preferred store

| AT+CMGL List SMS messages from preferred store | |
|--|---|
| Test Command AT+CMGL=? | Response +CMGL: list of supported <stat>s OK |
| | Parameters see write command |
| Write Command AT+CMGL=[<stat>] | Parameters 1) If text mode: <stat> <u>"REC UNREAD"</u> Received unread messages (default) "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages 2) If PDU mode: <stat> 0 Received unread messages (default) 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages |
| | Response TA returns messages with status value <stat> from message storage <mem1> to the TE. . If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (+CMGF=1) and command successful: for 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>[...] for 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>[...] for SMS-COMMANDs: +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<ct>[...] for CBM storage: +CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data>[<CR><LF> |

+CMGL:

<index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data>[...]

OK

2) 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>[...]

OK

3) If error is related to ME functionality:

+CMS ERROR: <err>

Parameters

- <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 (see definition of this command in TS 07.07)
- <da>** GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer command+CSCS in TS 07.07); type of address given by <toa>
- <data>** In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:
- if <dc> indicates that GSM 03.38 default alphabet is used and <fo> indicates that GSM 03.40 TP-User-Data-Header-Indication is not set:
 - if TE character set other than "HEX" (refer command Select TE Character Set +CSCS in TS 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
 - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))
 - if <dc> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that GSM 03.40 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))
- In the case of CBS: GSM 03.41 CBM Content of

| | |
|------------------------|---|
| | <p>Message in text mode responses; format:</p> <ul style="list-style-type: none"> - if <dc> indicates that GSM 03.38 default alphabet is used: - if TE character set other than "HEX" (refer command +CSCS in GSM 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dc> 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 <p><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)</p> <p><index> integer type; value in the range of location numbers supported by the associated memory</p> <p><oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in TS 07.07); type of address given by <tooa></p> <p><pdu> In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 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)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.</p> <p><scts> GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer <dt>)</p> <p><toda> GSM 04.11 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)</p> <p><tooa> GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)</p> |
| Reference GSM 07.05 | |

4.2.4 AT+CMGR Read SMS message

AT+CMGR Read SMS message

| Test Command | Response |
|--------------|----------|
|--------------|----------|

| AT+CMGR=? | OK |
|--|---|
| Write Command AT+CMGR=<index>[,<mode>] | <p>Parameters</p> <p><index> integer type; value in the range of location numbers supported by the associated memory</p> <p><mode> 0 normal 1 not change status of the specified SMS record</p> <p>Response</p> <p>TA returns SMS message with location value <index> from message storage <mem1> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>1) If text mode (+CMGF=1) and command successful: for SMS-DELIVER: +CMGR:<stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF><data></p> <p>for SMS-SUBMIT: +CMGR:<stat>,<da>,[<alpha>],[<toda>,<fo>,<pid>,<dcsc>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data></p> <p>for SMS-STATUS-REPORTs: +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st></p> <p>for SMS-COMMANDs: +CMGR:<stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length>]<CR><LF><cdata>]</p> <p>for CBM storage: +CMGR:<stat>,<sn>,<mid>,<dcsc>,<page>,<pages><CR><LF><data></p> <p>2) If PDU mode (+CMGF=0) and command successful: +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu></p> <p>OK</p> <p>3) If error is related to ME functionality: +CMS ERROR: <err></p> <p>Parameters</p> <p><alpha> string type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific</p> <p><da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toda></p> <p><data> In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format: - if <dcsc> indicates that GSM 03.38 default alphabet is used and <fo> indicates that GSM 03.40 TPUser-Data-Header-Indication is not set:</p> |

| | |
|----------|--|
| | <ul style="list-style-type: none"> - if TE character set other than "HEX" (refer command Select TE Character Set +CSCS in TS 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55)) - if <dc> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that GSM 03.40 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)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format: <ul style="list-style-type: none"> - if <dc> indicates that GSM 03.38 default alphabet is used: - if TE character set other than "HEX" (refer command +CSCS in GSM 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dc> 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 |
| <dc> | depending on the command or result code: GSM 03.38 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 GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format |
| <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) |
| <mid> | GSM 03.41 CBM Message Identifier in integer format |
| <oa> | GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted characters of the currently selected TE character set (specified by +CSCS in TS |

| | |
|------------------------|---|
| | 07.07); type of address given by <tooa> |
| <pdu> | In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 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)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format. |
| <pid> | GSM 03.40 TP-Protocol-Identifier in integer format (default 0) |
| <sca> | GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07);; type of address given by <tosca> |
| <scts> | GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer <dt>) |
| <stat> | 0 "REC UNREAD" Received unread messages 1 "REC READ" Received read messages 2 "STO UNSENT" Stored unsent messages 3 "STO SENT" Stored sent messages 4 "ALL" All messages |
| <toda> | GSM 04.11 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> | GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>) |
| <tosca> | GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>) |
| <vp> | depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>) |
| Reference GSM 07.05 | |

4.2.5 AT+CMGS Send SMS message

AT+CMGS Send SMS message

| Test Command | Response |
|--------------|----------|
| AT+CMGS=? | OK |

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| | |
|---|--|
| <p>Write Command</p> <p>1) If text mode (+CMGF=1): +CMGS=<da>[,<toda>]<CR> text is entered <ctrl-Z/ESC> ESC quits without sending</p> <p>2) If PDU mode (+CMGF=0): +CMGS=<length>><CR> PDU is given <ctrl-Z/ESC></p> | <p>Parameters</p> <p><da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toda></p> <p><toda> GSM 04.11 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)</p> <p><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)</p> <p>Response</p> <p>TA sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code.</p> <p>1) If text mode(+CMGF=1) and sending successful: +CMGS: <mr> OK</p> <p>2) If PDU mode(+CMGF=0) and sending successful: +CMGS: <mr> OK</p> <p>3) If error is related to ME functionality: +CMS ERROR: <err></p> <p>Parameters</p> <p><mr> GSM 03.40 TP-Message-Reference in integer format</p> |
| <p>Reference</p> <p>GSM 07.05</p> | |

4.2.6 AT+CMGW Write SMS message to memory

| AT+CMGW Write SMS message to memory | |
|---|----------------------------------|
| <p>Test Command</p> <p>AT+CMGW=?</p> | <p>Response</p> <p>OK</p> |

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| | |
|---|---|
| <p>Write Command</p> <p>1) If text mode (+CMGF=1): AT+CMGW=[<oa>,<da>[,<toa>,<toda>[,<stat>]]] <CR> text is entered <ctrl-Z/ESC> <ESC> quits without sending</p> <p>2) If PDU mode (+CMGF=0): AT+CMGW=<length>[,<stat>]<CR> PDU is given <ctrl-Z/ESC></p> | <p>Response</p> <p>TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <stat> allows also other status values to be given.</p> <p>If writing is successful: +CMGW: <index> OK</p> <p>If error is related to ME functionality: +CMS ERROR: <err></p> <p>Parameters</p> <p><oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toa></p> <p><da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toda></p> <p><toa> GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)</p> <p><toda> GSM 04.11 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) 129 Unknown type(ISDN format number) 128 Unknown type(unknown number format) 161 National number type(ISDN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format)</p> <p><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)</p> <p><pdu> In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with</p> |
|---|---|

| | |
|------------------------|--|
| | integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format. |
| | <index> Index of message in selected storage <mem2> |
| Reference GSM 07.05 | |

4.2.7 AT+CMSS Send SMS message from storage

| AT+CMSS Send SMS message from storage | |
|---|---|
| Test Command AT+CMSS=? | Response OK |
| Write Command AT+CMSS=<index>[,<da>[,<toda>]] | <p>Response</p> <p>TA sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT). If new recipient address <da> is given, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code.</p> <p>1) If text mode(+CMGF=1) and sending successful: +CMGS: <mr> [,<scts>] OK</p> <p>2) If PDU mode(+CMGF=0) and sending successful: +CMGS: <mr> [,<ackpdu>] OK</p> <p>3) If error is related to ME functionality: +CMS ERROR: <err></p> <p>Parameters</p> <p><index> integer type; value in the range of location numbers supported by the associated memory</p> <p><da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07);; type of address given by <toda></p> <p><toda> GSM 04.11 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)</p> <p><mr> GSM 03.40 TP-Message-Reference in integer format</p> |
| Reference GSM 07.05 | |

4.2.8 AT+CMGC Send SMS Command

| AT+CMGC Send SMS Command | |
|--|---|
| Test Command AT+CMGC=? | Response OK |
| Write Command 1) If text mode (+CMGF=1): AT+CMGC=<fo> >,<ct>[<pid>[,<mn> n>[,<da>[,<toda>]]]<CR> text is entered <ctrl-Z/ESC> ESC quits without sending | Parameters <fo> first octet of GSM 03.40 SMS-COMMAND (default 2) in integer format <ct> GSM 03.40 TP-Command-Type in integer format (default 0) <pid> GSM 03.40 TP-Protocol-Identifier in integer format (default 0) <mn> GSM 03.40 TP-Message-Number in integer format <da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <toda> <toda> GSM 04.11 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) 129 Unknown type(ISDN format number) 128 Unknown type(unknown number format) 161 National number type(ISDN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format) |
| 2) If PDU mode (+CMGF=0): AT+CMGC=<length><CR> PDU is given <ctrl-Z/ESC> | <length> integer type value indicating 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) |

SIM300 AT Commands Set

| | |
|-----------|---|
| | <p>Response</p> <p>TA transmits SMS Command message from a TE to the network (SMS-COMMAND). Message reference value <mr> is returned to the TE on successful message delivery. Value can be used to identify message upon unsolicited delivery status report result code.</p> <p>1) If text mode(+CMGF=1) and sending successful: +CMGC: <mr> [,<scts>] OK</p> <p>2) If PDU mode(+CMGF=0) and sending successful: +CMGC: <mr> [,<ackpdu>] OK</p> <p>3) If error is related to ME functionality: +CMS ERROR: <err></p> <p>Parameters</p> <p><mr> GSM 03.40 TP-Message-Reference in integer format</p> |
| Reference | |
| GSM 07.05 | |

4.2.9 AT+CNMI New SMS message indications

| AT+CNMI New SMS message indications | |
|-------------------------------------|---|
| Test Command AT+CNMI=? | <p>Response</p> <p>+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) OK</p> <p>Parameters</p> <p>see write command</p> |
| Read Command AT+CNMI? | <p>Response</p> <p>+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr> OK</p> <p>Parameters</p> <p>see write command</p> |

| Write Command | Response |
|--|---|
| AT+CNMI =[<mode>,<mt>,<bm>,<ds>,<bfr>]]]] | TA selects the procedure for how the 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), message receiving should be done as specified in GSM 03.38. OK If error is related to ME functionality: +CMS ERROR: <err> |

| | |
|---------------------|--|
| Parameters | |
| <mode> | <p>0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.</p> <p>1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.</p> <p>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.</p> <p>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.</p> |
| <mt> | <p>(the rules for storing received SMs depend on its data coding scheme (refer GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value):</p> <p>0 No SMS-DELIVER indications are routed to the TE.</p> <p>1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index></p> <p>2 SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or +CMT: <oa>, [<alpha>],<scts> [,<toa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> (text mode enabled; about parameters in italics, refer command Show Text Mode Parameters +CSDH). Class 2 messages result in indication as defined in <mt>=1.</p> <p>3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other classes result in indication as defined in <mt>=1.</p> |
| <bm> | <p>(the rules for storing received CBMs depend on its data coding scheme (refer GSM 03.38 [2]), the setting of Select CBM Types (+CSCB) and this value):</p> <p>0 No CBM indications are routed to the TE.</p> <p>2 New CBMs are routed directly to the TE using unsolicited result code: +CBM: <length><CR><LF><pdu> (PDU mode enabled) or</p> |

4.2.10 AT+CPMS Preferred SMS Message Storage

16.10.2006

SIM300 AT Commands Set

| | |
|--|---|
| Write Command AT+CPMS= <mem1> [,<mem2> [,<mem3>]] | <p>Response</p> <p>TA selects memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc.</p> <p>+CPMS:<used1>,<total1>,<used2>,<total2>,<used3>,<total3></p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR:<err></p> |
| | <p>Parameters</p> <p><mem1> Messages to be read and deleted from this memory storage</p> <p>"SM" SIM message storage</p> <p><mem2> Messages will be written and sent to this memory storage</p> <p>"SM" SIM message storage</p> <p><mem3> Received messages will be placed in this memory storage if routing to PC is not set ("CNMI")</p> <p>"SM" SIM message storage</p> <p><usedx> integer type;Number of messages currently in <memx></p> <p><totalx> integer type;Number of messages storable in <memx></p> |
| Reference GSM 07.05 | |

4.2.11 AT+CRES Restore SMS settings

| AT+CRES Restore SMS settings | |
|---|--|
| Test Command AT+CRES=? | <p>Response</p> <p>+CRES: list of supported <profile>s</p> <p>OK</p> |
| Write Command AT+CRES=[<profile>] | <p>Response</p> <p>TA restores SMS settings for +CMGF, +CNMI, +CSDH from non-volatile memory to active memory. A TA can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are restored. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and therefore can not be restored.</p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR:<err></p> |

| | |
|------------------------|---|
| | Parameters <profile> <u>0</u> manufacturer specific profile number where setting are to be stored |
| Reference GSM 07.05 | |

4.2.12 AT+CSAS Save SMS settings

| AT+CSAS Save SMS settings | |
|---|--|
| Test Command AT+CSAS=? | Response +CSAS: list of supported <profile>s OK |
| Write Command AT+CSAS=[<profile>] | Response TA restores SMS settings for +CMGF, +CNMI, +CSDH from non-volatile memory to active memory. A TA can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are restored. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and therefore can not be restored OK If error is related to ME functionality: +CMS ERROR:<err> |
| | Parameters <profile> <u>0</u> manufacturer specific profile number where settings are to be stored |
| Reference GSM 07.05 | |

4.2.13 AT+CSCA SMS Service Center Address

| AT+CSCA SMS Service Center Address | |
|---------------------------------------|--|
| Read Command AT+CSCA? | Response +CSCA: <sca>,<tosca> OK |
| | Parameters see write command |
| Test Command AT+CSCA=? | Response OK |

SIM300 AT Commands Set

| | |
|--|--|
| Write Command AT+CSCA = <sca>[,<tosca>] | <p>Response</p> <p>TA updates the SMSC address, through which mobile originated SMS are transmitted. In text mode, setting is used by send and writes commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <pdu> parameter equals zero.</p> <p>Note: The command writes the parameters in NON-VOLATILE memory. OK</p> <p>Parameters</p> <p><sca> GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <tosca></p> <p><tosca> Service center address format GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>)</p> |
| Reference GSM 07.05 | |

4.2.14 AT+CSCB Select cell broadcast SMS messages

| AT+CSCB Select cell broadcast SMS messages | |
|--|--|
| Read Command AT+CSCB? | <p>Response</p> <p>+CSCB: <mode>,<mids>,<dcss> OK</p> <p>Parameters</p> <p>see write command</p> |
| Test Command AT+CSCB=? | <p>Response</p> <p>+CSCB: list of supported <mode>s OK</p> <p>Parameters</p> <p>see write command</p> |
| Write Command AT+CSCB= [<mode>[,<mids>[, <dcss>]]] | <p>Response</p> <p>TA selects which types of CBMs are to be received by the ME.</p> <p>Note: The command writes the parameters in NON-VOLATILE memory. OK</p> |

SIM300 AT Commands Set

| | |
|------------------------|---|
| | Parameters <mode> 0 message types specified in <mids> and <dcss> are accepted 1 message types specified in <mids> and <dcss> are not accepted <mids> string type; all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string); e.g. "0,1,5,320-478,922". <dcss> string type; all different possible combinations of CBM data coding schemes (refer <dc>) (default is empty string); e.g. "0-3,5". |
| Reference GSM 07.05 | |

4.2.15 AT+CSDH Show SMS text mode parameters

| AT+CSDH Show SMS text mode parameters | |
|--|---|
| Read Command AT+CSDH? | Response +CSDH: <show> OK |
| | Parameters see write command |
| Test Command AT+CSDH=? | Response +CSDH: list of supported <show>s OK |
| | Parameters see write command |
| Write Command AT+CSDH=<show> | Response TA determines whether detailed header information is shown in text mode result codes. OK |
| | Parameters <show> <u>0</u> do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dc>) nor <length>, <toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode 1 show the values in result codes |
| Reference GSM 07.05 | |

4.2.16 AT+CSMP Set SMS text mode parameters

| AT+CSMP Set SMS text mode parameters | | | | | | | | | |
|---|---|-------------------|---|-------------------|---|--------------------|---|-------------------|---|
| Read Command AT+CSMP? | <p>Response</p> <p>+CSMP:<fo>,<vp>,<pid>,<dc> OK</p> <p>Parameters see write command</p> | | | | | | | | |
| Test Command AT+CSMP=? | <p>Response</p> <p>+CSMP:(list of supported <fo>s),(list of supported <vp>s), (list of supported <pid>s), (list of supported <dc>s) OK</p> <p>Parameters see write command</p> | | | | | | | | |
| Write Command AT+CSMP=[<fo>[<vp>[,<pid>[,<dc>]]]] | <p>Response</p> <p>TA selects values for additional parameters needed when SM is sent to the network or placed in a storage when text mode is selected (+CMGF=1). It is possible to set the validity period starting from when the SM is received by the SMSC (<vp> is in range 0... 255) or define the absolute time of the validity period termination (<vp> is a string).</p> <p>Note: The command writes the parameters in NON-VOLATILE memory. OK</p> <p>Parameters</p> <table> <tr> <td><fo></td><td>depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49.</td></tr> <tr> <td><vp></td><td>depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>)</td></tr> <tr> <td><pid></td><td>GSM 03.40 TP-Protocol-Identifier in integer format (default 0).</td></tr> <tr> <td><dc></td><td>GSM 03.38 SMS Data Coding Scheme in Integer format.</td></tr> </table> | <fo> | depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49. | <vp> | depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>) | <pid> | GSM 03.40 TP-Protocol-Identifier in integer format (default 0). | <dc> | GSM 03.38 SMS Data Coding Scheme in Integer format. |
| <fo> | depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49. | | | | | | | | |
| <vp> | depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>) | | | | | | | | |
| <pid> | GSM 03.40 TP-Protocol-Identifier in integer format (default 0). | | | | | | | | |
| <dc> | GSM 03.38 SMS Data Coding Scheme in Integer format. | | | | | | | | |
| Reference GSM 07.05 | | | | | | | | | |

4.2.17 AT+CSMS Select Message Service

| AT+CSMS Select Message Service | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|---|---|---|--|-----|---|------|--|-----------------------------|--|---|--------------------|--|---|----------------|------|--|-----------------------------|--|---|--------------------|--|---|----------------|------|--|--------------------------|--|---|--------------------|--|---|
| Read Command AT+CSMS? | Response +CSMS: <service>,<mt>,<mo>,<bm> OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Parameters see write command | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Command AT+CSMS=? | Response +CSMS: list of supported <service>s OK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Parameters see write command | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Write Command AT+CSMS= <service> | Response +CSMS: <mt>,<mo>,<bm> OK If error is related to ME functionality: +CMS ERROR: <err> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Parameters <table><tr><td><service></td><td>0</td><td>GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes))</td></tr><tr><td></td><td>128</td><td>SMS PDU mode - TPDU only used for sending/receiving SMSs.</td></tr><tr><td><mt></td><td></td><td>Mobile Terminated Messages:</td></tr><tr><td></td><td>0</td><td>Type not supported</td></tr><tr><td></td><td>1</td><td>Type supported</td></tr><tr><td><mo></td><td></td><td>Mobile Originated Messages:</td></tr><tr><td></td><td>0</td><td>Type not supported</td></tr><tr><td></td><td>1</td><td>Type supported</td></tr><tr><td><bm></td><td></td><td>Broadcast Type Messages:</td></tr><tr><td></td><td>0</td><td>Type not supported</td></tr><tr><td></td><td>1</td><td>Type supported</td></tr></table> | <service> | 0 | GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes)) | | 128 | SMS PDU mode - TPDU only used for sending/receiving SMSs. | <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 |
| <service> | 0 | GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes)) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 128 | SMS PDU mode - TPDU only used for sending/receiving SMSs. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reference GSM 07.05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

4.3 Configuration commands for SMS

| | |
|-----------------|--|
| AT+SMALPHAID | CONFIGURE ALPHAID LOOKUP WHEN DISPLAYING SMS's |
| AT+SMEXTRAINFO | CONFIGURE EXTRA SMS INFORMATION DISPLAY |
| AT+SMEXTRAUNSOL | CONFIGURE EXTRA UNSOLICITED SMS MESSAGE |

4.3.1 AT+SMALPHAID CONFIGURE ALPHAID LOOKUP WHEN DISPLAYING SMS's

| AT+SMALPHAID CONFIGURE ALPHAID LOOKUP WHEN DISPLAYING SMS's | |
|---|---|
| Test command AT+SMALPHAID=? | Response + SMALPHAID: (list of supported <mode>s) OK Parameter See write command |
| Read command AT+SMALPHAID? | Response +SMALPHAID :<mode> OK Parameter See write command |
| Write command AT+SMALPHAID =<mode> | Response OK Parameter <mode> Enable/disable the Alphaid lookup for phonenumbers when displaying sms 0 disable the Alphaid(default) 1 enable the Alphaid |
| Reference | Note |

4.3.2 AT+SMEXTRINFO CONFIGURE EXTRA SMS INFORMATION DISPLAY

| AT+SMEXTRINFO CONFIGURE EXTRA SMS INFORMATION DISPLAY | |
|---|--|
| Test command AT+SMEXTRINFO=? | Response +SMEXTRINFO: (list of supported <mode>s) OK Parameter See write command |
| Read command AT+SMEXTRINFO? | Response + SMEXTRINFO :<mode> OK Parameter See write command |
| Write command AT+SMEXTRINFO =<mode> | Response OK Parameter <mode> Enable/disable the extra non-standard information on |

| | |
|-----------|--|
| | some commands and messages <u>0</u> disable the extra non-standard information 1 enable the extra non-standard information |
| Reference | Note e.g. Adds an extra field onto the AT+CSCA command: +CSCA: "+447802000332",145,"BT Cellnet SMS" |

4.3.3 AT+SMEXTRAUNSOL CONFIGURE EXTRA UNSOLICITED SMS MESSAGE

| AT+SMEXTRAUNSOL CONFIGURE EXTRA UNSOLICITED SMS MESSAGE | |
|---|--|
| Test command AT+SMEXTRAUNSOL= ? | Response + SMEXTRAUNSOL: (list of supported <mode>s) OK Parameter See write command |
| Read command AT+SMEXTRAUNSOL? | Response + SMEXTRAUNSOL :<mode> OK Parameter See write command |
| Write command AT+SMEXTRAUNSOL =<mode> | Response OK Parameter <mode> Enable/disable the extra unsolicited messages. <u>0</u> disable the extra unsolicited message 1 enable the extra unsolicited message |
| Reference | Note |

5 AT Commands for GPRS Support

5.1 Overview of AT Commands for GPRS Support

| Command | Description |
|------------|---|
| AT+CGATT | ATTACH/DETACH FROM GPRS SERVICE |
| AT+CGDCONT | DEFINE PDP CONTEXT |
| AT+CGQMIN | QUALITY OF SERVICE PROFILE (MINIMUM ACCEPTABLE) |
| AT+CGQREQ | QUALITY OF SERVICE PROFILE (REQUESTED) |
| AT+CGACT | PDP CONTEXT ACTIVATE OR DEACTIVATE |
| AT+CGDATA | ENTER DATA STATE |
| AT+CGPADDR | SHOW PDP ADDRESS |
| AT+CGCLASS | GPRS MOBILE STATION CLASS |
| AT+CGEREP | CONTROL UNSOLICITED GPRS EVENT REPORTING |
| AT+CGREG | NETWORK REGISTRATION STATUS |
| AT+CGSMS | SELECT SERVICE FOR MO SMS MESSAGES |
| AT+CGCOUNT | GPRS PACKET COUNTERS |

5.2 Detailed Descriptions of AT Commands for GPRS Support

5.2.1 AT+CGATT Attach or detach from GPRS service

| AT+CGATT Attach or detach from GPRS service | |
|---|---|
| Test command AT+CGATT=? | Response +CGATT: (list of supported <state>s) Parameter See write command |
| Read command AT+CGATT? | Response +CGATT:<state> Parameter See write command |
| Write command AT+CGATT=[<state>] | Response OK ERROR Parameter <state> indicates the state of GPRS attachment 0 – detached 1 – attached Other values are reserved and will result in an ERROR response to the execution command. |
| Reference GSM07.07 | Note |

5.2.2 AT+CGDCONT Define PDP context

| AT+CGDCONT Define PDP context | |
|--|--|
| Test command AT+CGDCONT=? | Response +CGDCONT: (range of supported <cid>s), <PDP_type>, <APN>, <PDP_addr>, (list of supported <data_comp>s), <list of supported <head_comp>s), Parameter See write command |
| Read command AT+CGDCONT? | Response +CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp> [<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp> [...]] Parameter See write command |
| Write command AT+CGDCONT=[<cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>]] | Response OK ERROR Parameter <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 X25 ITU-T/CCITT X.25 layer 3 IP Internet Protocol (IETF STD 5) OSPF Internet Hosted Octet Stream Protocol PPP Point to Point Protocol (IETF STD 51) <APN> (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested. <PDP_addr> a string parameter that identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address |

| | |
|-----------------------|--|
| | <p>may be read using the +CGPADDR command.</p> <p><d_comp> a numeric parameter that controls PDP data compression 0 – off (default if value is omitted) 1 – on Other values are reserved</p> <p><h_comp> a numeric parameter that controls PDP data compression 0 – off (default if value is omitted) 1 – on Other values are reserved</p> <p>Note: At present only one data compression algorithm (V.42bis) is provided in Sndcp. If and when other algorithms become available, a command will be provided to select one or more of these.</p> |
| Reference GSM07.07 | Note |

5.2.3 AT+CGQMIN Quality of service profile (minimum acceptable)

| AT+CGQMIN Quality of service profile (minimum acceptable) | |
|---|---|
| Test command AT+CGQMIN=? | <p>Response</p> <p>+CGQMIN: <PDP_type>,(list of supported <precedence>s),(list of supported <delay>s),(list of supported <reliability>s),<list of supported <peak>s),(list of supported <mean>s)</p> <p>[<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)</p> <p>[...]]</p> <p>Parameter</p> <p>See write command</p> |
| Read command AT+CGQMIN? | <p>Response</p> <p>+CGQMIN:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean></p> <p>[<CR><LF>+CGQMIN:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean></p> <p>[...]]</p> <p>Parameter</p> <p>See write command</p> |
| Write command AT+CGQMIN=[<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>]]]]] | <p>Response</p> <p>OK</p> <p>ERROR</p> <p>Parameter</p> <p><cid> a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p> |

| | |
|-----------------------|--|
| | <p>The following parameter are defined in GSM 03.60</p> <p><precedence> a numeric parameter which specifies the precedence class</p> <p><delay> a numeric parameter which specifies the delay class</p> <p><reliability> a numeric parameter which specifies the reliability class</p> <p><peak> a numeric parameter which specifies the peak throughput class</p> <p><mean> a numeric parameter which specifies the mean throughput class</p> |
| Reference GSM07.07 | Note |

5.2.4 AT+CGQREQ Quality of service profile (requested)

AT+CGQREQ Quality of service profile (requested)

| | |
|---|--|
| Test command AT+CGQREQ=? | <p>Response</p> <p>+CGQREQ: <PDP_type>,(list of supported <precedence>s),(list of supported <delay>s),(list of supported <reliability>s),<list of supported <peak>s),(list of supported <mean>s)</p> <p>[<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)</p> <p>[...]]</p> <p>Parameter</p> <p>See write command</p> |
| Read command AT+CGQREQ? | <p>Response</p> <p>+CGQREQ:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean></p> <p>[<CR><LF>+CGQMIN:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean></p> <p>[...]]</p> <p>Parameter</p> <p>See write command</p> |
| Write command AT+CGQREQ=[<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>]]]]] | <p>Response</p> <p>OK</p> <p>ERROR</p> <p>Parameter</p> <p><cid> a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p> <p>The following parameter are defined in GSM 03.60</p> <p><precedence> a numeric parameter which specifies the precedence class</p> <p><delay> a numeric parameter which specifies the delay class</p> <p><reliability> a numeric parameter which specifies the reliability class</p> <p><peak> a numeric parameter which specifies the peak throughput class</p> |

5.2.5 AT+CGACT PDP context activate or deactivate

| | |
|---|---|
| Test command AT+CGACT=? | Response +CGACT: (list of supported <state>s) Parameter See write command |
| Read command AT+CGACT? | Response +CGACT: <cid>,<state>[<CR><LF>+CGACT:<cid>,<state>...] OK |
| Write command AT+CGACT=[<state>[,<cid>[,<cid>[,...]]]] | Response OK NO CARRIER ERROR Parameter <state> indicates the state of PDP context activation 0 – deactivated 1 – activated Other values are reserved and will result in an ERROR response to the execution command. <cid> a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) |
| Reference GSM07.07 | Note If context is deactivated successfully, NO CARRIER is returned |

| AT+CGDATA Enter Data State | |
|--|--|
| Test command AT+CGDATA=? | Response +CGDATA: (list of supported <L2P>s) Parameter See write command |
| Write command AT+CGDATA=[<L2P>[,<cid>[,<cid>[,...]]]] | Response OK ERROR Parameter <L2P> a string parameter that indicates the layer 2 protocol to be used between the TE and MT: |

| | |
|-----------------------|---|
| | <p>PPP – Point to Point protocol for a PDP such as IP</p> <p>Other values are not supported and will result in an ERROR response to the execution command.</p> <p><cid> a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p> |
| Reference GSM07.07 | <p>Note</p> <p>The command does not fully implement the CGDATA command as specified in GSM 07.07. The command will not enter data state once the PDP context has been activated and will simply generate the result code “OK” if the context has been successfully activated.</p> |

5.2.7 AT+CGPADDR Show PDP address

| AT+CGPADDR Show PDP address | |
|---|--|
| Test command AT+CGPADDR=? | <p>Response</p> <p>+CGPADDR: (list of defined <cid>s)</p> <p>Parameter</p> <p>See write command</p> |
| Write command AT+CGPADDR=[<cid>[,<cid>[,...]]] | <p>Response</p> <p>+CGPADDR: <cid>,<PDP_addr></p> <p>[<CR><LF>+CGPADDR:<cid>,<PDP_addr>[...]]</p> <p>ERROR</p> <p>Parameter</p> <p><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.</p> <p><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.</p> |
| Reference GSM07.07 | <p>Note</p> <p>This command dictates the behavior of PPP in the ME but not that of any other GPRS-enabled foreground layer, e.g. browser.</p> |

5.2.8 AT+CGCLASS GPRS mobile station class

| AT+CGCLASS GPRS mobile station class | |
|--------------------------------------|---|
| Test command AT+CGCLASS=? | <p>Response</p> <p>+CGCLASS: (list of supported <class>s)</p> |

5.2.9 AT+CGEREP Control unsolicited GPRS event reporting

16.10.2006

| | |
|-----------------------|--|
| | +CGEV: ME DEACT <PDP_type>, <PDP_addr>[,<cid>] +CGEV: NW DETACH +CGEV: ME CLASS <class> parameter <PDP_type> Packet Data Protocol type (see +CGDCONT command) <PDP_addr> Packet Data Protocol address (see +CGDCONT command) <cid> Context Id (see +CGDCONT command) <class> GPRS mobile class (see +CGCLASS command) |
| Reference GSM07.07 | Note |

5.2.10 AT+CGREG Network registration status

| AT+CGREG Network registration status | |
|---|--|
| Test command AT+CGREG=? | Response +CGREG: (list of supported <n>s) Parameter See write command |
| Read command AT+CGREG? | Response +CGREG:<n>,<stat>[,<lac>,<ci>] +CME ERROR:<err> Parameter See write command |
| Write command AT+CGREG=[<n>] >] | Response OK ERROR Parameter <n> 0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CGREG:<stat> 2 enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>] <stat> 0 not registered, ME is not currently searching a new operator to register to 1 registered <lac> string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) <ci> string type; two bytes cell ID in hexadecimal format |
| Reference GSM07.07 | Note For parameter stat, options 0 and 1 supported only. |

5.2.11 AT+CGSMS Select service for MO SMS messages

| AT+CGSMS Select service for MO SMS messages | |
|--|---|
| Test command AT+CGSMS=? | Response +CGSMS: (list of currently available <service>s) Parameter See write command |
| Read command AT+CGSMS? | Response +CGSMS:<service> Parameter See write command |
| Write command AT+CGSMS=[<s ervice>] | Response OK ERROR Parameter <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) |
| Reference GSM07.07 | Note The circuit switched service route is the default method |

5.2.12 AT+CGCOUNT GPRS packet counters

| AT+CGCOUNT GPRS packet counters | |
|--|---|
| Test command AT+CGCOUNT=? | Response +CGCOUNT: (list of supported <actions>s),(list of supported <cid>s),(list of supported <period>s) Parameter See write command |
| Read command AT+CGCOUNT? | Response +CGCOUNT:<cid>,<state>[,<period>] [<CR><LF>+CGCOUNT:<cid>,<state>[,<period>] [...]] Parameter <state> indicates the state of the GPRS counters 1 – periodic. The <period> will then also be displayed 2 – on GPRS context deactivation. <period> is N/A in this case For other parameters See write command |

| | |
|--|---|
| <p>Write command</p> <p>AT+CGCOUNT= <action>,<cid>[,< period>]</p> | <p>Response</p> <p>OK</p> <p>ERROR</p> <p>Parameter</p> <p><action> indicates the action to be performed</p> <p> 0 – reset counter for specified <cid></p> <p> 1 – read counter for specified <cid></p> <p> 2 – start reporting counter periodically for specified <cid></p> <p> defined by <period>. Counter is also reported on context deactivation.</p> <p> 3 – report counter on context deactivation for specified</p> <p> <cid></p> <p> 4 – stop reporting counter on specified <cid></p> <p><cid> a numeric parameter which specifies a particular PDP</p> <p> context definition (see +CGDCONT command)</p> <p><period> period for periodic packet counter reporting in seconds</p> <p>Unsolicited Result</p> <p>Once a counter has been setup for a <cid> the counter will be displayed as</p> <p>Following either periodically or when the context has been deactivated:</p> <p><uc> a numeric 32 parameter which indicates the number of compressed</p> <p> bytes transferred in the uplink direction displayed in</p> <p> decimal format</p> <p><uu> a numeric 32 bit parameter which indicates the number of</p> <p> uncompressed bytes transferred in the uplink direction</p> <p> displayed in decimal format</p> <p><un> a numeric 32 bit parameter which indicate the number of N-PDUs</p> <p> (i.e. IP packets) transferred in the uplink direction</p> <p> displayed in decimal format</p> <p><dc> a numeric 32 bit parameter which indicates the number of</p> <p> compressed bytes transferred in the downlink direction</p> <p> displayed in decimal format</p> <p><dn> a numeric 32 bit parameter which indicates the number of N-PDUs</p> <p> (i.e. IP packets) transferred in the downlink direction</p> <p> displayed in decimal format</p> <p>Note that the current counter values will be displayed immediately this</p> <p> command is entered for any action (i.e. even stopping</p> <p> the counter display will generate the above unsolicited</p> <p> result code for the cancelled <cid>)</p> |
| <p>Reference</p> <p>GSM07.07</p> | <p>Note</p> <p>This command displays byte and IP packet counters for GPRS contexts. It is</p> <p>proprietary to SIMCOM.</p> <p>If counters are displayed periodically, they will only be displayed if:</p> <ul style="list-style-type: none"> - there is a separate multiplexer channel for unsolicited result codes, or - the user switches to command mode using the “+++” escape sequence |

6 AT Commands for SIM Application Toolkit

This section defines the AT Commands implemented in SIM300 for the control of the SIM Application Toolkit protocol, as per specification GSM 11.14. The table in section 6.1 lists the AT commands supported – these are SIMCOM proprietary commands as no formal specification currently exist defining STK functionality via an AT interface. The parameters supported by each AT command for the different proactive commands are given in the subsections which follow the main table.

The protocol defined below provides a generic mechanism for the exchange of information between the ME and the application for a typical proactive SIM command.

How to use SIM300 STK AT interface please see document SIM300_STK_USER_GUIDE.DOC

6.1 Overview of Commands, Responses and Result codes

The following tables outline the AT commands, responses and unsolicited result codes applicable for control of the SIM Application Toolkit protocol via the AT command interface.

| Notation | Description |
|-----------------|--|
| AT+STC: | Unsolicited result code issued by the CI Task to the application to indicate either: <ul style="list-style-type: none"> there is no STK application available on the SIM there is a proactive SIM command to retrieve and action end of the current proactive command session – used if the user wishes to terminate the current proactive SIM session. |
| AT+STGC= ... | AT command to Get Command parameters for a proactive SIM command from the CI Task. This will be sent from the application after unsolicited result code +STC: <cmdId> informs it the SIM has issued a proactive SIM command to be performed. |
| AT+STCR= ... | AT command to provide Command Response parameters for a previously executed proactive SIM command. Its purpose is to relay response data to the lower layers of the SIMCOM protocol stack to allow the Terminal Response SIM command (see [10]) to be returned to the SIM for the current proactive command. |
| AT+STPD=... | AT command to provide Profile Download parameters to the CI Task. This contains information relating to the SIM Application Toolkit capabilities of the application, and is used by the SIMAT task to limit its SAT instruction set accordingly. Any application plugging into the serial port should send this command or it will be assumed that the application has no SAT support and will therefore never receive any SAT related information. |
| AT+STMS= ... | AT Command for selecting a menu option. On power-up the SIM will send the Set-Up-Menu proactive indication. The accessory should load |

| | |
|-------------------|---|
| | and display the menu structure. This AT command should be used to inform SIM300 of the item selected from the list. |
| AT+STEV= ... | This command is used to inform the MS that an MMI specific event has occurred. |
| AT+STRT=... | AT command for setting the automatic response timer used by the CI Task to issue the Terminal Response (no user response) to a proactive command which has not been processed. The default response time is ten seconds, but it is recommended this is increased when performing SIM Toolkit FTA. |
| AT+STTONE =... | AT command for playing SIM Toolkit Tones in both idle and dedicated mode. This command should be used in conjunction with the Play Tone proactive command. |

6.2 Definition of Unsolicited Result Codes

Not all proactive commands are required to be visible to the application. For example, the proactive commands More Time and Provide Local Information are transparent and therefore do not require an unsolicited result code to be sent to the user. The commands, which are relevant for user interaction in one form or another, are listed in the following tables.

The output generated for strings is controlled by the +CMGF AT command. The factory default for string output is PDU mode where strings are output in HEX. The tables below illustrate the alternative mechanism of TEXT output; this is obtained by using the +CMGF AT command with a parameter of one.

6.2.1AT +STC Command

AT+STC Informs the application of the type of proactive SIM command data awaiting retrieval.

| | |
|---------------|---|
| Result Code: | Parameters |
| +STC: <cmdId> | <p><cmdId> Hexadecimal format of Type of Command . Unique identifier for the current SIM Toolkit proactive command issued by the SIM -</p> <p>The following values are supported:</p> <ul style="list-style-type: none"> '10' Get Acknowledgement For Set Up Call command '15' Launch Browser command '20' Play Tone command '21' Display Text command '22' Get Inkey command '23' Get Input command '24' Select Item command '25' Set Up Menu command '28' Set Up Idle Mode Text command '40' Open Channel command '14' Send DTMF command '05' Set Up Event List command |

| | |
|-----------|--|
| | '81' End of proactive session |
| Reference | Note The special case is +STC: 0 that is issued when there is no STK application accessible on the SIM. |

The following tables in this section detail the information that is distributed to the application for proactive indications using unsolicited result codes. The information applicable to the proactive command is sent to the application using the +STUD (SIM Toolkit Unsolicited Data) results code.

6.2.2 Send SM

| Command data for Send Short Message unsolicited proactive command | |
|---|---|
| Result Code +STUD: 13[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 13 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding '0' : Special case indicating SIM provided a null alphaId and user should not be informed of SMS transaction. If alphaId field is not present it is up to the ME to decide whether to inform the user or not. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) display with alphaId or text string |
| Reference | Note |

6.2.3 Send SS

| Command data for Send SS unsolicited proactive command | |
|---|---|
| Result Code +STUD: 11[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 11 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0' : Special case indicating SIM provided a null alphaId and user should not be informed of SS transaction. If alphaId field is not present it is up to the ME to decide whether |

| | |
|-----------|--|
| | <p>to inform the user or not.</p> <p><iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM</p> <p>0 No icon</p> <p>1..255 Icon tag</p> <p><dispMode> integer: denotes use of associated icon</p> <p>0 display icon only (replaces any text string or alphaId)</p> <p>1 display with alphaId or text string</p> |
| Reference | Note |

6.2.4 Send USSD

Command data for Send USSD unsolicited proactive command

| | |
|--|---|
| Result Code +STUD: 12[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 12 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. ‘0’: Special case indicating SIM provided a null alphaId and user should not be informed of USSD transaction. If alphaId field is not present it is up to the ME to decide whether to inform the user or not. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.2.5 Set Up Call

Command data for Set Up Call unsolicited proactive command

| | |
|---|---|
| Result Code +STUD: 10,<alphaId>,<dialstring>,<cps>[,<iconId>,<dispMode>] | Parameters 10 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <dialstring> string format: using either SMS default alphabet or UCS2 alpha field coding <cps> string format: using either SMS default alphabet or UCS2 |
|---|---|

| | |
|-----------|---|
| | alpha field coding <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.2.6 Close Channel

Command data for Close Channel proactive command

| | |
|---|--|
| Result Code +STUD: 41[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 41 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. ‘0’ : Special case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.2.7 Receive Data

Command data for Receive Data proactive command

| | |
|--|--|
| Result Code +STUD: 42,<length>[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 42 hex notation: Command Type value. See Section 6.2 for values. <length> integer type: number of bytes requested in command <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. ‘0’ : Special case indicating SIM provided a null alphaId and the |
|--|--|

| | |
|-----------|--|
| | <p>user should not be informed of the current transaction.</p> <p>If alphaId field is not present it is up to the ME to decide whether or not to inform the user.</p> <p><iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM</p> <p>0 No icon</p> <p>1..255 Icon tag</p> <p><dispMode> integer: denotes use of associated icon</p> <p>0 display icon only (replaces any text string or alphaId)</p> <p>1 display with alphaId or text string</p> |
| Reference | Note |

6.2.8 Send Data

| Command data for Send Data proactive command | |
|--|--|
| <p>Result Code</p> <p>+STUD:</p> <p>43,<length>,<data>[,<alphaId>[,<iconId>,<dispMode>]]</p> | <p>Parameters</p> <p>43 hex notation: Command Type value.</p> <p>See Section 6.2 for values.</p> <p><length> integer type: number of bytes of data transmitted</p> <p><data> string type: channel data – coded as 8bit data.</p> <p>This appears in BCD notation with two TE characters representing one byte of actual data.</p> <p><alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction.</p> <p>‘0’ : Special case indicating SIM provided a null alphaId and the user should not be informed of the current transaction.</p> <p>If alphaId field is not present it is up to the ME to decide whether or not to inform the user.</p> <p><iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM</p> <p>0 No icon</p> <p>1..255 Icon tag</p> <p><dispMode> integer: denotes use of associated icon</p> <p>0 display icon only (replaces any text string or alphaId)</p> <p>1 display with alphaId or text string</p> |
| Reference | Note |

6.2.9 Language Notification

| Command data for Language Notification proactive command | |
|--|--|
| <p>Result Code</p> <p>+STUD:</p> | <p>Parameters</p> <p>35 hex notation: Command Type value.</p> |

| | |
|-------------------------|--|
| 35 [,<language>] | See Section 6.2 for values. <language> language code: coded as pair of alphanumeric characters, as given in ISO 639 [12]. |
| Reference | Note The language parameter is optional. Its inclusion in the result code indicates a specific language notification. Omission from the result code indicates a non-specific language notification, which cancels a previous specific language notification |

6.2.10 Run AT

Command data for Run AT Command proactive command

| | |
|--|---|
| Result Code +STUD: 34 [,<alphaId>[,<iconId>,<dispMode>]] | Parameters 34 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. ‘0’ : Special case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM. 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.2.11 Refresh

Command data for Refresh proactive command

| | |
|--|---|
| Result Code +STUD: 01 ,<refMode>[,<numFiles>,<fileList>] | Parameters 01 hex notation: Command Type value. See Section 6.2 for values. <refMode> hex notation: command Qualifier information giving the type of Refresh to be performed. 00 SIM Initialisation and Full File Change Notification 01 File Change Notification 02 SIM Initialisation and File Change Notification 03 SIM Initialisation |
|--|---|

| | |
|-----------|--|
| | <p>04 SIM Reset</p> <p><numFiles> integer: gives number of Files in the list</p> <p><fileList> string type, hex notation: gives the full paths for the SIM files, each file being delimited by commas within the string</p> |
| Reference | <p>Note</p> <p>For <refMode> values '01' and '02' file list data must be provided by the SIM. For all other <refMode> values any included file list information will be ignored. If the optional <fileList> parameter is not present in the result code, we assume that <refMode>s '01' and '02' cannot occur.</p> |

6.3 ME Initialisation Procedure

On powering up the ME the SIM's Phase file (EF 0x6FAE) is read. If this indicates the SIM is of Phase 2+ or greater the ME sends a Terminal Profile command (see [3]) to the SIM to inform it of the SIM Application Toolkit capabilities of the ME. The SIM then limits its instruction set based on this profile. This terminal profile data is configurable and resides in an application layer configuration file for ease of customisation. On sending the Profile Download command The SIM will respond with signals that will provide the ME with information on whether the SIM has a SIM Toolkit application present.

If on completing ME initialisation the stack determines that the SIM has no STK capability an unsolicited result code +STC: 0 will be issued to indicate to the user that there is no SIM toolkit availability during the current session.

However, if STK information is available for use by the ME/application then the lower layers of the SIMCom Protocol Stack are informed and the first proactive command to be sent from the SIM to the user will be the Set Up Menu command to allow the available STK menu to be added to the ME's own menu structure (i.e. unsolicited result code +STC: 25 will be issued by the CI Task after it has received this proactive command from the SIMAT task.

6.4 Definition of AT Commands

This section details the AT commands for driving an STK application on the SIM.

6.4.1 AT+STGC SIM Toolkit Get Command parameters

| Get proactive Command parameters | |
|----------------------------------|--|
| Write Command | Response |
| AT+STGC=<cmdId> | +STGC: <cmdId>,<data> |
| | Parameter |
| | <cmdId> hex notation: Command Type value See Section 6.2 for values. |
| | <data> proactive command specific data, dependent on <cmdId> |
| Reference | |

The <data> information varies between proactive SIM commands, according to the type of command issued by the SIM, as given by <cmdId>. This reflects the useful part of the proactive command from a user's perspective. The result codes returned to the application on a command by command basis are outlined in the following subsections:

6.4.1.1 Display Text

| Command data for Display Text proactive command | |
|--|--|
| Result Code +STGC: 21,<dc>,<text>,<priority>,<clear>[,<iconId>,<dispMode>[,<response>]] | Parameters 21 hex notation: Command Type value. See Section 6.2 for values. <dc> integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet <text> string format: text string in <dc> format <priority> integer: display priority information 0 Normal priority 1 High priority <clear> integer: mode of clearing message 0 Clear after delay 1 User clears message <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 Display icon only (replaces any text string or alphaId) 1 Display with alpha Id or text string <response> 0 normal response expected 1 immediate response expected. |
| Reference | Note |

6.4.1.2 Get Inkey

| Command data for Get Inkey proactive command | |
|---|---|
| Result Code +STGC: 22,<dc>,<text>,<response>,<helpInfo>[,<iconId>] | Parameters 22 hex notation: Command Type value. See Section 6.2 for values. <dc> integer: data coding scheme used for <text> The schemes used are as per GSM 03.38 for |

| | |
|--------------|--|
| ,<dispMode>] | <p>SMS</p> <p>0 7bit GSM default alphabet (packed)</p> <p>4 8bit data</p> <p>8 UCS2 alphabet</p> <p><text> string format: text string in <dcs> format</p> <p><response> integer: expected response character format.</p> <p>0 Digits (0-9, *, # and +) only</p> <p>1 SMS default alphabet</p> <p>2 UCS2 alphabet</p> <p>3 Yes/No response only</p> <p><helpInfo> 0 no help information available</p> <p>1 help information available</p> <p><iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM</p> <p>0 No icon</p> <p>1..255 Icon tag</p> <p><dispMode> integer: denotes use of associated icon</p> <p>0 display icon only (replaces any text string or alphaId)</p> <p>1 display with alpha Id or text string</p> |
| Reference | <p>Note</p> <p>Entry of the Digits only response is the same regardless of alphabet set – coding of this response is performed within the SIMCOM Protocol Stack when creating the Terminal Response</p> |

6.4.1.3 Get Input

| Command data for Get Input proactive command | |
|--|--|
| <p>Result Code</p> <p>+STGC:</p> <p>23,<dcs>,<text>,<response>,<echo>,<helpInfo>,<minLgth>,<maxLgth>,<dcs>,<default>,<iconId>,<dispMode>]]</p> | <p>Parameters</p> <p>23 hex notation: Command Type value.</p> <p>See Section 6.2 for values.</p> <p><dcs> integer: data coding scheme used for <text> or <default>. The schemes used are as per GSM 03.38 for SMS.</p> <p>0 7bit GSM default alphabet (packed)</p> <p>4 8bit data</p> <p>8 UCS2 alphabet</p> <p><text> string format: text string in <dcs> format</p> <p><response> integer: expected response characters and their format.</p> <p>1 Digits (0-9, *, # and +) only from SMS default alphabet (unpacked)</p> <p>2 Digits (0-9, *, # and +) only from SMS default alphabet (packed)</p> <p>3 Digits from UCS2 alphabet</p> |

| | |
|-----------|---|
| | 4 SMS default alphabet (unpacked) 5 SMS default alphabet (packed) 6 UCS2 alphabet <echo> 0 echo input to display 1 no echo allowed (see Note) <helpInfo> 0 no help information available 1 help information available <minLgth> Integer: minimum length of expected response, in range 0..255 0 indicates no minimum length requirement <maxLgth> Integer: maximum length of expected response, in range 1..255 255 indicates no maximum length requirement <iconId> Numeric tag for the icon to be displayed –corresponds to the index in the Image file on the SIM (see [10]) 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alpha Id or text string |
| Reference | Note Actual input string may not be displayed in this case but can alternatively be masked to indicate key entry using characters from the set (0-9, * and #). If <minLgth> and <maxLgth> are equal, the response string is to be of fixed length. |

6.4.1.4 Play Tone

Command data for Play Tone proactive command

| | |
|---|---|
| Result Code | Parameters |
| +STGC: | 20 hex notation: Command Type value. See Section 6.2 for values. |
| 20[,<alphaId>[,<tone>[,<duration>]]] | <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <tone> integer: identifies requested tone type. SST denotes a Standard Supervisory Tone, MPT denotes an ME Proprietary Tone. |
| | 1 Dial (SST) 2 Called subscriber busy (SST) 3 Congestion (SST) 4 Radio Path acknowledge (SST) 5 Radio path not available / Call dropped (SST) 6 Error / Special information (SST) 7 Call waiting (SST) 8 Ringing Tone (SST) 16 General Beep (MPT) |

| | |
|-----------|---|
| | 17 Positive ack (MPT) 18 Negative ack or Error (MPT) <duration> integer: duration of the tone to be played, given in milliseconds. |
| Reference | Note If no tone is specified the ME shall default to the General Beep SST. If no duration is specified the ME default of 500ms is chosen. |

6.4.1.5 Set Up Menu

| Command data for Set Up Menu proactive command | |
|---|---|
| Result Code +STGC: 25,<numItems>,<selection>,<helpInfo>,<removeMenu><alphaId>,<iconId>,<dispMode>]<CR><LF> +STGC: <itemId>,<itemText>,<iconId>,<dispMode>,<nai>]<CR><LF> [...]]] | Parameters 25 hex notation: Command Type value. See Section 6.2 for values. <numItems> integer: indicates the number of items accessible in the menu structure. 0 is a special case, indicating the existing menu is to be removed from the ME's menu structure. <selection> integer: gives preferred user selection method 0 no selection preference 1 soft key selection preferred <helpInfo> 0 no help information available 1 help information available <removeMenu> 0 do not remove the current menu 1 remove the current menu <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alpha Id or text string <itemId> integer: denotes the identifier of the item <itemText> string format: using either SMS default alphabet or UCS2 alpha field coding <nai> hex notation: next action indicator – this takes one of the allowed values from the Command Type (see section 5.2) range, as specified in [9], section 13.4 |
| Reference | Note |

6.4.1.6 Select Item

| Command data for Select Item proactive command | |
|--|---|
| Result Code +STGC: 24,<numItems>,<selection>,<helpInfo>,<alphaId>,<iconId>,<dispMode>]<CR><LF> +STGC: <itemId>,<itemText>,<iconId>,<dispMode>,<nextActionIndicator>]<CR><LF> [+STGC: <itemId>,<itemText>,<iconId>,<dispMode>,<nextActionIndicator>]<CR><LF> [...]]] | Parameters 24 hex notation: Command Type value. See Section 6.2 for values. <numItems> integer: indicates the number of items accessible in the menu structure. 0 is a special case, indicating the existing menu is to be removed from the ME's menu structure. <selection> integer: gives preferred user selection method 0 no selection preference 1 soft key selection preferred <helpInfo> 0 no help information available 1 help information available <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 2 display with alpha Id or text string <itemId> integer: denotes the identifier of the item <itemText> string format: using either SMS default alphabet or UCS2 alpha field coding <nextActionIndicator> hex notation: next action indicator – this takes one of the allowed values from the Command Type (see section 6.2) range |
| Reference | Note |

6.4.1.7 Get Acknowledgement For Set Up Call

| Command data for Set Up Call proactive command | |
|---|--|
| Result Code +STGC: 10,<alphaId>,<iconId>,<dispMode>] | Parameters 10 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon |

| | |
|-----------|--|
| | 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.4.1.8 Set Up Idle Mode Text

Command data for Set Up Idle Mode Text proactive command

| | |
|--|---|
| Result Code +STGC: 28,<dc>,<text>[, <iconId>,<dispM ode>] | Parameters 28 hex notation: Command Type value. See Section 6.2 for values. <dc> integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS. 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet <text> string format: text string in <dc> format See Note below. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note If the text string given in the result code is Null (i.e. zero length and set as "" in the result code) it implies the existing Idle Mode Text is to be removed. |

6.4.1.9 Send DTMF

Command data for Send DTMF proactive command

| | |
|---|--|
| Result Code +STGC: 14,<alphaId>[,< iconId>,<dispMo de>]] | Parameters 14 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0' : Special case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM |
|---|--|

| | |
|-----------|---|
| | 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.4.1.10 Launch Browser

Command data for Launch Browser proactive command

| Result Code | Parameters |
|--|--|
| +STGC: 15,<comQual>,<url>[,<browserId>[,<bearer>[,<numFiles>,<provFiles>[,<dcs>,<gateway>[,<alphaId>[,<iconId>,<dispMode>]]]]]] | 15 hex notation: Command Type value. See Section 6.2 for values. <comQual> hex notation: command qualifier information from Command Details Data Object: 00 launch browser without making connection, if not already launched 01 launch browser making connection, if not already launched 02 use existing browser 03 close existing browser, launch new browser, making a connection 04 close existing browser, launch new browser, using secure session <url> string format: 8bit data using GSM default 7bit alphabet. Special case: <url>="" – Null value, so use default URL <browserId> hex notation: Browser Id to use. Available values: '00' Use default browser <bearer> hex notation: list of allowed bearers in priority order. Possible values: '00' SMS '01' CSD '02' USSD '03' GPRS <numFiles> integer: denotes the number of provisioning files given <provFiles> string type, hex notation file ids: List of Provisioning File Reference ids. Full Paths are given, delimited within the string by a comma <dcs > integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS. 0 7bit GSM default alphabet (packed) |

| | |
|-----------|---|
| | 4 8bit data 8 UCS2 alphabet <gateway> string format: text string in <dc> format <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.4.1.11 Open Channel

Command data for Open Channel proactive command

| | |
|---|--|
| Result Code +STGC: 40[,<alphaId>[,<iconId>,<dispMode>]] | Parameters 40 hex notation: Command Type value. See Section 6.2 for values. <alphaId> string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. ‘0’ : Special case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. <iconId> Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag <dispMode> integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string |
| Reference | Note |

6.4.1.12 Set Up Event List

Command data for Set Up Event List proactive command

| | |
|---|--|
| Result Code +STGC: 05,<eventList> | Parameters 05 hex notation: Command Type value. See Section 6.2 for values. |
|---|--|

| | |
|-----------|--|
| | <eventList> hex: denotes applicable event identifiers. 05 User activity event 06 Idle Screen Available event 08 Language Selection event 09 Browser termination event FF Remove existing event list |
| Reference | Note <eventList> value of FF used to remove existing list of events as value 0 can be confused with event MT Call value. This command causes the application to send a GSM 11.14 [9] ENVELOPE (EVENT DOWNLOAD) command to the SIM. |

6.4.2 AT+STCR SIM Toolkit Command Response

Once a proactive command has been processed by the application a response needs to be sent to the SIM in the form of a TERMINAL RESPONSE command. It is therefore only a requirement for the application to issue command +STCR for those proactive commands it already retrieved via the +STGC AT command. The general format is shown below:

| AT+STCR SIM Toolkit Command Response data | |
|--|---|
| Write Command AT+STCR=<cmd Id>,<result>[,<data>] | Response +CME ERROR: <err> Parameter <result> hex notation: dependent on the command type – see following sections for each proactive command supported. The values given in the result field for each set of proactive command response parameters the setting of the general result parameter returned to the SIMAT task in the next phase of signaling for building the Terminal Response command. <data> additional data provided for certain commands, as required for the Terminal Response returned to the SIM after processing a proactive SIM command |
| Reference | |

For the above AT Command, the data contained within the <data> field varies depending on the current proactive SIM command being processed. The result data available for each of the proactive commands processed by the application is described in the following subsections:

6.4.2.1 Display Text

| Command response for Display Text proactive command | |
|---|---|
| Write Command AT+STCR=21,< | Parameters 21 hex notation: Command Type value. |

| | | | | | | | | | | | | | |
|-------------------|---|---|----------------------|---|-----------------------------|---|----------------------|---|----------------|---|-------------------------|---|-----------------------|
| result> | <p>See Section 6.2 for values.</p> <p><result> integer: possible values:</p> <table> <tr><td>0</td><td>Message displayed OK</td></tr> <tr><td>1</td><td>Terminate proactive session</td></tr> <tr><td>2</td><td>User cleared message</td></tr> <tr><td>3</td><td>Screen is busy</td></tr> <tr><td>4</td><td>Backward move requested</td></tr> <tr><td>5</td><td>No response from user</td></tr> </table> | 0 | Message displayed OK | 1 | Terminate proactive session | 2 | User cleared message | 3 | Screen is busy | 4 | Backward move requested | 5 | No response from user |
| 0 | Message displayed OK | | | | | | | | | | | | |
| 1 | Terminate proactive session | | | | | | | | | | | | |
| 2 | User cleared message | | | | | | | | | | | | |
| 3 | Screen is busy | | | | | | | | | | | | |
| 4 | Backward move requested | | | | | | | | | | | | |
| 5 | No response from user | | | | | | | | | | | | |
| Reference | Note | | | | | | | | | | | | |

6.4.2.2 Get Inkey

Command response for Get Inkey proactive command

| | | | | | | | | | | | | | | | | | |
|--|--|---|-----------------|---|-----------------------------|---|----------------------------|---|-------------------------|---|-----------------------|---|------------------------------------|---|-----------|---|---------------|
| <p>Write Command</p> <p>AT+STCR=22,<result>[,<dc>,<text>]</p> | <p>Parameters</p> <p>22 hex notation: Command Type value. See Section 6.2 for values.</p> <p><result> integer: possible values:</p> <table> <tr><td>0</td><td>Data entered OK</td></tr> <tr><td>1</td><td>Terminate proactive session</td></tr> <tr><td>2</td><td>Help information requested</td></tr> <tr><td>3</td><td>Backward move requested</td></tr> <tr><td>4</td><td>No response from user</td></tr> </table> <p><dc> integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS.</p> <table> <tr><td>0</td><td>7bit GSM default alphabet (packed)</td></tr> <tr><td>4</td><td>8bit data</td></tr> <tr><td>8</td><td>UCS2 alphabet</td></tr> </table> <p><text> string format: text string in <dc> format Special cases are: “00” Negative response entered “01” Positive response entered</p> | 0 | Data entered OK | 1 | Terminate proactive session | 2 | Help information requested | 3 | Backward move requested | 4 | No response from user | 0 | 7bit GSM default alphabet (packed) | 4 | 8bit data | 8 | UCS2 alphabet |
| 0 | Data entered OK | | | | | | | | | | | | | | | | |
| 1 | Terminate proactive session | | | | | | | | | | | | | | | | |
| 2 | Help information requested | | | | | | | | | | | | | | | | |
| 3 | Backward move requested | | | | | | | | | | | | | | | | |
| 4 | No response from user | | | | | | | | | | | | | | | | |
| 0 | 7bit GSM default alphabet (packed) | | | | | | | | | | | | | | | | |
| 4 | 8bit data | | | | | | | | | | | | | | | | |
| 8 | UCS2 alphabet | | | | | | | | | | | | | | | | |
| Reference | <p>Note</p> <p>The <dc> and <text> information must be provided for <result>=0 as the SIM expects the input to be provided in a Text String Data Object in the Terminal Response SIM command when data has been input.</p> | | | | | | | | | | | | | | | | |

6.4.2.3 Get Input

Command response for Get Input proactive command

| | |
|--|--|
| <p>Write Command</p> <p>AT+STCR=23,<</p> | <p>Parameters</p> <p>23 hex notation: Command Type value.</p> |
|--|--|

| | |
|---|--|
| result>[,<dc>,<text>] | <p>See Section 6.2 for values.</p> <p><result> integer: possible values:</p> <ul style="list-style-type: none"> 0 Data entered OK 1 Terminate proactive session 2 Help information requested 3 Backward move requested 4 No response from user <p><dc> integer: data coding scheme used for <text>.</p> <p>The schemes used are as per GSM 03.38 for SMS .</p> <ul style="list-style-type: none"> 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet |
| Reference | <p>Note</p> <p>If the <dc> is present but <text> is an empty string this indicates a null text string data object must be sent to the SIM. This is caused by the user making an ‘empty’ input.</p> |

6.4.2.4 Play Tone

| Command response for Play Tone proactive command | |
|--|---|
| Write Command AT+STCR=20,<result> | <p>Parameters</p> <p>20 Hex notation: Command Type value. See section 6.2 for values.</p> <p><result> integer: possible values:</p> <ul style="list-style-type: none"> 0 Command performed OK 1 Terminate proactive session 2 Tone not played 3 Specified tone not supported |
| Reference | Note |

6.4.2.5 Set Up Menu

| Command response for Set Up Menu proactive command | |
|--|--|
| Write Command AT+STCR=25,<result> | <p>Parameters</p> <p>25 hex notation: Command Type value. See Section 6.2 for values.</p> <p><result> integer: possible values:</p> <ul style="list-style-type: none"> 0 Menu successfully added/removed 1 User chosen menu item 2 Help information requested 3 Problem with menu operation |
| Reference | Note |

6.4.2.6 Select Item

| Command response for Select Item proactive command | |
|--|--|
| Write Command AT+STCR=24,<result>[,<itemId>] | Parameters 24 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 Item Selected OK 1 Terminate proactive session 2 Help information requested 3 Backward move requested 4 No response given <itemId> integer: denotes identifier of item selected |
| Reference | Note |

6.4.2.7 Get Acknowledgement For Set Up Call

| Command response for Set Up Call proactive command | |
|--|--|
| Write Command AT+STCR=10,<result> | Parameters 10 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 user accepted call (conf phase only) 1 user rejected call (conf phase only) 2 user cleared call (any phase) |
| Reference | Note |

6.4.2.8 Set Up Idle Mode Text

| Command response for Set Up Idle Mode Text proactive command | |
|--|--|
| Write Command AT+STCR=28,<result> | Parameters 28 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 Text successfully added/removed 1 Problem performing command |
| Reference | Note |

6.4.2.9 Send DTMF

| Command response for Send DTMF proactive command | |
|---|--|
| Write Command AT+STCR=13,<result> | Parameters 13 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 DTMF not accepted 1 DTMF required. |
| Reference | Note |

6.4.2.10 Launch Browser

| Command response for Launch Browser proactive command | |
|---|--|
| Write Command AT+STCR=15,<result> | Parameters 15 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 Command performed successfully 1 Command performed – partial comp 2 Command performed – missing info 3 User rejected launch 4 Error – no specific cause given 5 Bearer unavailable 6 Browser unavailable 7 ME cannot process command 8 Network cannot process command 9 Command beyond MEs capabilities. |
| Reference | Note |

6.4.2.11 Open Channel

| Command response for Open Channel proactive command | |
|---|--|
| Write Command AT+STCR=40,<result> | Parameters 40 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: 0 Channel not accepted 1 Channel required. |
| Reference | Note |

6.4.2.12 Set Up Event List

| Command response for Set Up Event List proactive command | |
|--|--|
| Write Command AT+STCR=05,<result> | Parameters 05 hex notation: Command Type value. See Section 6.2 for values. <result> integer: possible values: Command performed successfully Cannot perform command. |
| Reference | Note |

6.4.3 AT+STPD SIM Toolkit Profile Download

When an application is plugged into the serial port the command interpreter needs to have knowledge of its SAT capabilities to enable it to route all SAT related signaling to that application if required. If this command is not received it will be assumed that any attached application has no SAT capability and will therefore not send any related signals to it. If the SIM has reported that it does not have any proactive capability then an STC: 0 unsolicited response will be sent to the application.

| AT+STPD SIM Toolkit Command Response data | |
|---|---|
| Write Command AT+STPD=<length>,<data> | Response OK +CME ERROR: <err> +STC: 0 |
| | Parameter <length > Integer Determines the number of bytes of <data> used for the Profile Download data from the application. <data> List Of Hex Values, two digits each: Hexadecimal representation of the Terminal Profile data |
| Reference | Note Some octets are optional in the profile, hence the inclusion of a length parameter. For example, the following command sets all the bits in octets 3 and 4: AT+STPD=4,0000FFFF. |

6.4.4 AT+STEV SIM Toolkit Event Command

The application can inform the MS of defined MMI events using this command.

| AT+STEV SIM Toolkit Event Command | |
|-----------------------------------|--|
| Test Command AT+STEV=? | Response +STEV: (supported <event> list) +CME ERROR: <err> |

| | |
|--|---|
| Write Command AT+STEV=<event>,<language> | Response +CME ERROR: <err> |
| | Parameter <event> hex two digits: 05 User Activity Event 06 Idle Screen Event 08 Language Selection Event 09 Browser Termination Event FF Clear Current Event List <language> string type up to two characters |
| Reference | Note The <language> parameter is applicable only to Language Selection Event. For example the language can be set by: AT+STEV=09,"11" |

6.4.5 AT+STMS SIM Toolkit Main Menu Selection Command

The application may set up its main menu on receipt of the Set Up Menu SIM Toolkit event. The application can select an item from the menu by sending this AT command to the MS.

| AT+STMS SIM Toolkit Menu Selection Command | |
|---|--|
| Test Command AT+STMS=? | Response +STMS: (range of available <item>s),<0-1> +CME ERROR: <err> |
| Write Command AT+STMS=<item>[,<help>] | Response +CME ERROR: <err> |
| | Parameter <item> numeric type, giving unique identifier of menu item <help> numeric type |
| Reference | Note For example, AT+STMS=2,1 will select item 2 from the main menu with help. |

6.4.6 AT+STRT SIM Toolkit Response Timer Command

When a proactive command is received from the SIM an automatic response timer is started. If this timer expires before the application has provided a suitable response via the +STCR command, a Terminal Response is sent to the SIM containing a result of No User Response. This AT command allows the automatic response timeout period to be configured by the application at run-time, thus giving it extended time to respond to certain proactive commands (e.g. the Get Input command may request a long input string to be entered as part of the associated test case). The default setting for the response timer is ten seconds, and the maximum duration available is one hour.

| AT+STRT SIM Toolkit Response Timer Command | |
|---|--|
| Read Command AT+STRT? | Response: +STRT: <duration> +CME ERROR: <err> Parameter See Write command |
| Test Command AT+STRT=? | Response +STRT: (list of supported <duration>s) +CME ERROR: <err> |
| Write Command +STRT=<duration> | Response +CME ERROR: <err> Parameter <duration> numeric type. Minimum = 1s, maximum = 3600s |
| Reference | Note Default setting is ten seconds |

6.4.7 AT+STTONE SIM Toolkit Tone Command

The application may request a tone to played after receiving the Play Tone proactive command. The application either starts playing the tone with the requested tone Id, or stops playing the current tone depending on the <mode> parameter. Tones may be played in either idle or dedicated mode.

On completion of the current tone, unsolicited result code +STTONE: 0 will be issued by the CI Task. However, if <mode>=0 is used to terminate the tone before it has completed playing there will be no unsolicited result code but only a result code of OK generated by the CI Task.

| AT+STTONE SIM Toolkit PLAY TONE COMMAND | |
|--|--|
| Test Command AT+STTONE=? | Response +STTONE: (list of supported <mode>s),(list of supported <tone>s),<list of supported <duration>s) +CME ERROR: <err> |
| Write Command AT+STTONE=< | Response +CME ERROR: <err> |

| | |
|--------------|---|
| mode>,<tone> | Parameter <mode> 0 Stop playing tone 1 Start playing tone <tone> numeric type 1 Dial Tone 2 Called Subscriber Busy 3 Congestion 4 Radio Path Acknowledge 5 Radio Path Not Available / Call Dropped 6 Error / Special information 7 Call Waiting Tone 8 Ringing Tone 16 General Beep 17 Positive Acknowledgement Tone 18 Negative Acknowledgement or Error Tone 19 Indian Dial Tone < Duration> numeric type, in milliseconds. Max requested value = 255*60*1000 = 15300000ms (supported range = 1- 15300000) |
| Reference | Note The default <tone>, if none entered, is General Beep. The default <duration>, if none entered, is 500ms. |

6.4.8 AT+HSTK Terminate All STK action

| AT+HSTK Terminate All STK action | |
|--|---|
| Execution Command AT+HSTK | Response OK |
| Reference | Note: All STK action will be terminated after execute this command |

7 AT Commands Special for SIMCOM

7.1 Overview

| Command | Description |
|------------|---|
| AT+ECHO | ECHO CANCELLATION CONTROL |
| AT+SIDET | CHANGE THE SIDE TONE GAIN LEVEL |
| AT+CPOWD | POWER OFF |
| AT+SPIC | TIMES REMAIN TO INPUT SIM PIN/PUK |
| AT+CMIC | CHANGE THE MICROPHONE GAIN LEVEL |
| AT+UART | CONFIGURE DUAL SERIAL PORT MODE |
| AT+CALARM | SET ALARM |
| AT+CADC | READ ADC |
| AT+CSNS | SINGLE NUMBERING SCHEME |
| AT+CDSCB | RESET CELLBROADCAST |
| AT+CMOD | CONFIGRUE ALTERNATING MODE CALLS |
| AT+CFGRI | INDICATE RI WHEN USING URC |
| AT+CLTS | GET LOCAL TIMESTAMP |
| AT+CEXTHS | EXTERNAL HEADSET JACK CONTROL |
| AT+CEXTBUT | HEADSET BUTTON STATUS REPORTING |
| AT+CSMINS | SIM INSERTED STATUS REPORTING |
| AT+CLDTMF | LOCAL DTMF TONE GENERATION |
| AT+CDRIND | CS VOICE/DATA/FAX CALL OR GPRS PDP CONTEXT TERMINATION INDICATION |
| AT+CSPN | GET SERVICE PROVIDER NAME FROM SIM |
| AT+CCVM | GET AND SET THE VOICE MAIL NUMBER ON THE SIM |
| AT+CBAND | GET AND SET MOBILE OPERATION BAND |
| AT+CHF | CONFIGURES HANDS FREE OPERATION |
| AT+CHFA | SWAP THE AUDIO CHANNELS |
| AT+CSCLK | CONFIGURE SLOW CLOCK |
| AT+CENG | SWITCH ON OR OFF ENGINEERING MODE |
| AT+SCLASS0 | STORE CLASS 0 SMS TO SIM WHEN RECEIVED CLASS 0 SMS |
| AT+CCID | SHOW ICCID |
| AT+CMTE | READ TEMPERATURE OF MODULE |
| AT+CSDT | SWITCH ON OR OFF DETECTING SIM CARD |
| AT+CMGDA | DELETE ALL SMS |
| AT+SIMTONE | GENERATE SPECIFICALLY TONE |
| AT+CCPD | CONNECTED LINE IDENTIFICATION PRESENTATION WITHOUT ALPHA STRING |
| AT+CGID | GET SIM CARD GROUP IDENTIFIER |

| | |
|---------------|--|
| AT+MORING | SHOW STATE OF MOBILE ORIGINATED CALL |
| AT+CGMSCCLASS | CHANGE GPRS MULTISLOT CLASS |
| AT+CMGHEX | ENABLE TO SEND NON-ASCII CHARACTER SMS |

7.2 Detailed Descriptions of Commands

7.2.1 AT+ECHO Echo cancellation control

| AT+ECHO Echo cancellation control | |
|---|---|
| Read Command AT+ECHO? | <p>Response :</p> <p>+ECHO(NORMAL_AUDIO): <MAINvoxGain>,<MAINminMicEnergy>,<MAINsampSlncePrd> +ECHO(AUX_AUDIO): <AUXvoxGain>,<AUXminMicEnergy>,<AUXsampSlncePrd> ok</p> <p>Parameter: See write command</p> |
| Test Command AT+ECHO=? | <p>Response :</p> <p>+ECHO: (voxGain),(minMicEnergy) ,(sampSlncePrd).(channel) ok</p> <p>Parameter: See write command</p> |
| Write Command AT+ECHO= <voxGain>,<min MicEnergy>,<sa mpSlncePrd>,<c hannel> | <p>Response : ok</p> <p>Parameter: < voxGain > int: 0 – 32767 < minMicEnergy > int: 0 – 32767 < sampSlncePrd > int: 0 – 32767 <channel>int 0-1 1 AUX_AUDIO 0 NORMAL_AUDIO </p> |
| Reference | <p>Note:</p> <p>< voxGain >: the parameter models the acoustic path between ear-piece and microphone.</p> <p>< minMicEnergy >: the parameter sets the minimum microphone energy level to be attained before suppression is allowed. A typical value of this parameter is 20.</p> <p>< sampSlncePrd >: the parameter control the minimum number of speech frames that will be replace with SID frames when an echo is detected. A typical value of this parameter is 4.</p> |

7.2.2 AT+SIDET Change the side tone gain level

| AT+SIDET Change the side tone gain level | |
|--|---|
| Read Command AT+SIDET? | Response: + SIDET: < gainlevel> OK |
| | Parameter: See write command |
| Test Command AT+SIDET=? | Response: + SIDET: (gainlevel) OK |
| | Parameter: See write command |
| Write Command AT+SIDET=< gainlevel > | Response: OK |
| | Parameters < gainlevel > int: 0 – 32767 |
| Reference | Note The relation between the Side Tone Gain and <gainlevel> is $\text{Side Tone Gain/dB} = 20 * \log(\text{sideTone}/32767)$ |

7.2.3 AT+CPOWD Power Off

| AT+CPOWD Power Off | |
|--|---|
| Write Command AT+CPOWD = <n> | Response: Parameters <n> 0 Power off urgently (Will not send out NORMAL POWER DOWN) 1 Normal power off (Will send out NORMAL POWER DOWN) |
| Reference | Note |

7.2.4 AT+SPIC Times remain to input SIM PIN/PUK

| AT+SPIC Times remain to input SIM PIN/PUK | |
|---|--|
| Execution Command AT+SPIC | Response Times remain to input SIM PIN +SPIC: <chv1>,<chv2>,<puk1>,<puk2> OK |

| | |
|-----------|---|
| | Parameters <chv1>: Times remain to input chv1 <chv2>:Times remain to input chv2 <puk1>: Times remain to input puk1 <puk2>: Times remain to input puk2 |
| Reference | |

7.2.5 AT+CMIC Change the microphone gain level

| AT+CMIC Change the microphone gain level | |
|--|--|
| Read Command AT+CMIC? | Response : + CMIC: < gainlevel(Main_Mic) >, <gainlevel(Aux_Mic)> OK |
| | Parameter: See write command |
| Test Command AT+CMIC=? | Response : +CMIC: list of supported <channel >s, list of supported < gainlevel >s ok |
| | Parameter: See write command |
| Write Command AT+CMIC= | Response : Ok |

SIM300 AT Commands Set

| | |
|--|--|
| <p><channel>,<gainlevel></p> | <p>Parameter:</p> <p><channel> 0 – Main Microphone 1 – Aux Microphone</p> <p>< gainlevel > int: 0 – 15</p> <p>0 0dB 1 +1.5dB 2 +3.0 dB(default value) 3 +4.5 dB 4 +6.0 dB 5 +7.5 dB 6 +9.0 dB 7 +10.5 dB 8 +12.0 dB 9 +13.5 dB 10 +15.0 dB 11 +16.5 dB 12 +18.0 dB 13 +19.5 dB 14 +21.0 dB 15 +22.5 dB</p> |
| <p>Reference</p> | <p>Note:</p> |

7.2.6 AT+UART Configure dual serial port mode

| AT+UART Configure dual serial port mode | |
|--|--|
| <p>Read Command AT+UART?</p> | <p>Response</p> <p>+UART: <currentUart> Ok</p> <p>Parameter: See Write Command</p> |
| <p>Write Command AT+UART=<uart>[,<baud>]</p> | <p>Response</p> <p>Ok Error</p> |

| | |
|-----------|--|
| | Parameter currentUart 1 use serial line 1 2 use serial line 2(gprs) 3 use serial line 2 4 last command use serial line 1 5 last command use serial line 2 Uart 1 use serial line 1 2 use serial line 2(gprs) 3 use serial line 2 Baud (If uart is 2 or 3) 9600,19200,28800,38400,57600,115200 |
| Reference | |

7.2.7 AT+CALARM Set alarm

AT+CALARM Set alarm

| | |
|---|--|
| Read Command AT+CALARM M=? | Response : + CALARM: <state>,<time>,<repeat>,<power> ok Parameter: See write command |
| Write Command AT+CALARM M= <state>,<time >,<repeat>,<p ower> | Response : ok Parameter: < state > an integer parameter which indicates whether enable or disable alarm. 0 CLEAR ALARM 1 SET ALARM < time > a string parameter which indicates the time when alarm arrives. The format is “yy/MM/dd,hh:mm:ss+-zz” where characters indicate the last two digits of year, month, day, hour, minute, second and time zone. The time zone is expressed in quarters of an hour between the local time and GMT, ranging from -48 to +48. < repeat > an integer parameter which indicates the repeat mode 0 None 1 Daily 2 Weekly 3 Monthly |

| | |
|-----------|---|
| | <p><power> an integer parameter which indicates the method of dealing power when alarm arrives.</p> <p>0 None</p> <p>Only send "ALARM RING" to serial port</p> <p>1 Alarm power off</p> <p>Send "ALARM RING" to serial port and power off in 5 seconds</p> <p>2 Alarm power on</p> <p>Send "ALARM MODE" to serial port and enter into alarm mode</p> <p>Note: In alarm mode, protocol stack and SIM protocol is closed, only a few AT command can be executed, and system will be powered down after 90 seconds if neither power key is pressed nor functionality is changed to full functionality. If power key is pressed, system will be powered down right now.</p> |
| Reference | Note: |

7.2.8 AT+CADC Read ADC

| AT+CADC Read ADC | |
|---------------------------|---|
| Read Command AT+ CADC? | <p>Response :</p> <p>+ CADC: < status>,<value></p> <p>OK</p> <p>Parameter:</p> <p>See test command</p> |
| Test Command AT+CADC=? | <p>Response :</p> <p>+ CADC: list of supported <status>s, list of supported <value>s</p> <p>OK</p> <p>Parameter:</p> <p><status></p> <p>1 success</p> <p>0 fail</p> <p><value> integer 0-2400</p> <p>Note:</p> |

7.2.9 AT+CSNS Single numbering scheme

| AT+CSNS Single numbering scheme | |
|---------------------------------|--|
| Test command AT+ CSNS =? | <p>Response :</p> <p>+CSNS:(list of supported modes)</p> |
| | Parameter |

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| | |
|-------------------------------------|--|
| Read command AT+ CSNS? | Response : +CSNS:<mode> |
| | Parameter: |
| Write Command AT+ CSNS=<mode> | Response : Ok Error |
| | Parameter: <mode> 0 voice 2 fax 4 data |
| Reference | Note |

7.2.10 AT+CDSCB Reset cell broadcast

| AT+CDSCB Reset cell broadcast | |
|-----------------------------------|-----------------------------|
| Execution Command AT+ CDSCB | Response : OK |
| | Parameter: |
| Reference | Note Reset the CB module |

7.2.11 AT+CMOD Configure alternating mode calls

| AT+CMOD Configure alternating mode calls | |
|--|---|
| Test command AT+ CMOD =? | Response : +CMOD: (0) |
| | Parameter: |
| Write Command AT+CMOD=<mode> | Response : OK |
| | Parameter: <mode>0 Only single mode is supported |
| Reference | Note |

7.2.12 AT+CFGRI Indicate RI when using URC

| AT+CFGRI Indicate RI when using URC | |
|--|---|
| Read command AT+ CFGRI ? | Response : +CFGRI: <status> ok |
| | Parameter: See write command |
| Write Command AT+ CFGRI=<status> | Response : OK |
| | Parameter: <status> 0 on 1 off |
| Reference | Note |

7.2.13 AT+CLTS Get local timestamp

| AT+CLTS Get local timestamp | |
|------------------------------|--|
| Test command AT+CLTS=? | Response +CLTS: (the format of timestamp) |
| | Parameters See write command |
| | Parameter <i>See write command</i> |
| Execution command AT+CLTS | Response +CLTS:(timestamp) |
| | Parameters <timestamp> a string parameter which indicates the local timestamp. The format of timestamp is "yy/MM/dd,hh:mm:ss+/-zz" yy: year MM: month dd: day hh: hour mm: minute ss: second zz: time zone |
| Reference | Note Support for this command will be network dependant |

7.2.14 AT+CEXTHS External headset jack control

| AT+ CEXTHS External headset jack control | |
|--|--|
| Test command AT+CEXTHS=? | Response +CEXTHS: <mode> |
| | Parameters See write command |
| Read command AT+CEXTHS? | Response +CEXTHS:<mode>,<headset attach> |
| | Parameter See write command |
| Write command AT+CEXTHS=<mode> | Response OK ERROR |
| | Unsolicited result code: +CEXTHS:<mode>,<headset attach> |
| | Parameters <div> <div><mode></div> <div>a numeric parameter which indicates whether an unsolicited event code (indicating whether the headset has been attached/detached) should be sent to the terminal.</div> <div>0 not send unsolicited event code</div> <div>1 send unsolicited event code</div> </div> <div> <div><headset attach></div> <div>a numeric parameter which indicates whether a headset has been attached or not</div> <div>0 not attached</div> <div>1 attached</div> </div> |
| Reference | Note Support for this command will be hardware dependant |

7.2.15 AT+CEXTBUT Headset button status reporting

| AT+ CEXTBUT Headset button status reporting | |
|---|--|
| Test command AT+CEXTBUT=? | Response +CEXTBUT: <mode> |
| | Parameters See write command |
| Read command AT+CEXTBUT? | Response +CEXTBUT:<mode>,<headset button press> |

7.2.16 AT+CSMINS SIM inserted status reporting

| | |
|--------------|-----------------------------------|
| Test command | Response |
| AT+CSMINS=? | +CSMINS: (list of supported <n>s) |

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| | |
|-----------|---|
| | Parameters <p><n> a numeric parameter which indicates whether to show an unsolicited event code indicating whether the SIM has just been inserted or removed.</p> <p>0 disable</p> <p>1 enable</p> <p>< SIM inserted> a numeric parameter which indicates whether SIM card has been inserted.</p> <p>0 not inserted</p> <p>1 inserted</p> |
| Reference | Note |

7.2.17 AT+CLDTMF Local DTMF tone generation

| AT+ CLDTMF Local DTMF tone generation | |
|---|--|
| Write command AT+CLDTMF=[<n>[,<DTMF string>]] | Response OK ERROR Parameters <p><n> a numeric parameter(1-255(ms)) which indicates the duration of all DTMF tones in < DTMF -string> in 1/10 secs</p> <p>< DTMF -string> a string parameter which has a max length of 20 chars of form < DTMF >, separated by commas.</p> <p>< DTMF > A single ASCII chars in the set 0-9,#,*,A-D.</p> |
| Execution command AT+CLDTMF | Response OK Aborts any DTMF tone currently being generated and any DTMF tone sequence. |
| Reference GSM07.07 | Note |

7.2.18 AT+CDRIND CS voice/data/fax call or GPRS PDP context termination indication

| AT+ CDRIND CS voice/data/fax call or GPRS PDP context termination indication | |
|---|--|
| Test command AT+CDRIND=? | Response +CDRIND: (list of supported <n>s) Parameters See write command |
| Read command AT+CDRIND? | Response +CDRIND:<n> |

| | |
|-------------------------------------|---|
| | Parameter See write command |
| Write command AT+CDRIND=<n> > | Response OK ERROR Parameters <n> a numeric parameter which indicates whether to enable an unsolicited event code indicating whether a CS voice call, CS data, fax call or GPRS session has been terminated. 0 disable 1 enable Unsolicited result code When enabled, an unsolicited result code is returned after the connection has been terminated +CDRIND: < type > Parameters < type > connection type 0 CSV connection 1 CSD connection 2 PPP connection |
| Reference | Note |

7.2.19 AT+CSPN Get Service Provider Name from SIM

AT+CSPN Get Service Provider Name from SIM

| | |
|--------------------------|--|
| Read Command AT+CSPN? | Response: +CSPN: <spn>,<display mode> +CME ERROR: <err> Parameters <spn> string type; service provider name on SIM <display mode> 0 – don't display PLMN. Already registered on PLMN 1 – display PLMN |
| Reference | Note CME errors possible if SIM not inserted or PIN not entered. |

7.2.20 AT+CCVM Get and set the voice mail number on the SIM

AT+CCVM Get and set the voice mail number on the SIM

| | |
|--------------------------|--|
| Read Command AT+CCVM? | Response +CCVM: <vm number>[,<alpha string>] |
|--------------------------|--|

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| | |
|--|--|
| | Parameter See Write Command |
| Test Command AT+CCVM=? | Response +CCVM: <vm number>[,<alpha string>] |
| | Parameter See Write Command |
| Write Command AT+CCVM=<vm number>[,<alpha string>] | Response +CME ERROR: <err> |
| | Parameters <vm number> String Type -The voice mail number to write to the SIM <alpha-string> String Type -The alpha-string to write to the SIM |
| Reference | Note: CPHS voice mail only currently available on Orange SIMS |

7.2.21 AT+CBAND Get and Set Mobile Operating Band

| AT+CBAND Get and Set Mobile Operating Band | |
|---|---|
| Read Command AT+CBAND? | Response +CBAND: < op_band > |
| | Parameter See Write Command |
| Test Command AT+CBAND=? | Response +CBAND: (list of supported <op_band>s) |
| | Parameter See Write Command |
| Write Command AT+CBAND=<op_band> | Response OK ERROR |
| | Parameters <op_band> PGSM_MODE DCS_MODE PCS_MODE EGSM_DCS_MODE GSM850_PCS_MODE |
| Reference | Note: Radio settings following updates are stored in non-volatile memory. |

7.2.22 AT+CHF Configures hands free operation

| AT+CHF Configures hands free operation | |
|--|--|
| Read Command AT+CHF? | Response +CHF: <ind>,<state> Unsolicited result code: +CHF: <state> |
| | Parameters See write command. |
| Test Command AT+CHF=? | Response +CHF: (0-1),(0-1) |
| Write Command AT+CHF=<ind>,<state> | Response +CME ERROR: <err> |
| | Parameters <ind> 0 Unsolicited result code disabled 1 Unsolicited result code enabled (non-volatile) <state> 0 Hands free operation disabled 1 Hands free operation enabled (volatile) |
| Reference | |

7.2.23 AT+CHFA Swap the audio channels

| AT+ CHFA Swap the audio channels | |
|----------------------------------|---|
| Read Command AT+ CHFA? | Response + CHFA: <n> |
| | Parameters See write command. |
| Test Command AT+ CHFA=? | Response +CHFA: (0 = NORMAL_AUDIO, 1 = AUX_AUDIO) |
| | Parameters See write command. |
| Write Command AT+CHFA=<n> | Response OK +CME ERROR: <err> |
| | Parameters <n> 0 – Normal audio channel(default) 1 – Aux audio channel |
| Reference | NOTE This command swaps the audio channels between the normal channel and |

| | |
|--|------------------|
| | the aux channel. |
|--|------------------|

7.2.24 AT+CSCLK Configure Slow Clock

| AT+ CSCLK Configure Slow Clock | |
|------------------------------------|--|
| Read Command AT+ CSCLK? | Response +CSCLK: <n> |
| | Parameters See write command. |
| Test Command AT+ CSCLK=? | Response +CSCLK: (0,1) |
| | Parameters See write command. |
| Write Command AT+ CSCLK =<n> | Response OK ERROR |
| | Parameters <n> 0 – disable slow clock 1 – enable slow clock |
| Reference | NOTE |

7.2.25 AT+CENG Switch On or Off Engineering Mode

| AT+ CENG Switch On or Off Engineering Mode | |
|--|--|
| Read Command AT+ CENG? | Response Engineering Mode is designed to allow a field engineer to view and test the network information received by a handset, when the handset is either in idle mode or dedicated mode (that is: with a call active). In each mode, the engineer is able to view network interaction for the “serving cell” (the cell the handset is currently registered with) or for the neighbouring cells. TA returns the current engineering mode. The network information including serving cell and neighbouring cells are returned only when <mode>=1 or <mode> = 2. <cell> carry with them corresponding network interaction. +CENG:<mode> [+CENG: <cell>,”<arfcn>,<rxl>,<rxq>,<mcc>,<mnc>,<bsic>,<cellid>,< rla>,< txp >” <CR><LF>+CENG: <cell>,”<arfcn>,<rxl>,<bsic>” ...] |
| | |

| | |
|--|--|
| | Parameters See write command. |
| Test Command AT+ CENG=? | Response TA returns the list of supported modes. +CENG: list of supported <mode>s OK Parameters See write command. |
| Write Command AT+ CENG =<mode> | Response TA attempt to switch on or off engineering mode.GSM network operator. TA controls the presentation of an unsolicited result code +CENG: (network information) when <mode>=2 and there is a change of network information . OK ERROR Parameters <mode> 0 switch off engineering mode 1 switch on engineering mode 2 switch on engineering mode, and activate the unsolicited reporting of network information. <cell> 0 the serving cell 1-6 the index of the neighbouring cell. <arfcn> absolute radio frequency channel number. <rxl> receive level. <rxq> receive quality. <mcc> mobile country code. <mnc> mobile network code. <bsic> base station identity code. <cellid> cell id. <rla> receive level access minimum. <txp> transmit power maximum CCCH. |
| Reference | NOTE |

7.2.26 AT+SCLASS0 Store Class 0 SMS to SIM when received Class 0

AT+ SCLASS0 Store Class 0 SMS to SIM when received Class 0

| | |
|-------------------------------------|---|
| Read Command AT+ SCLASS0? | Response + SCLASS0: <mode> Parameters See write command. |
| Test Command AT+ | Response +SCLASS0: (0, 1) |

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| | |
|------------------------------------|--|
| SCLASS0=? | Parameters See write command. |
| Write Command AT+SCLASS0=<mode> | Response OK ERROR Parameters <mode> 0 – disable to store Class 0 SMS to SIM when received Class 0 SMS 1 – Enable to store Class 0 SMS to SIM when received Class 0 SMS |
| Reference | NOTE |

7.2.27 AT+CCID Show ICCID

| AT+CCID Show ICCID | |
|-------------------------------|---|
| Test Command AT+ CCID =? | Response: OK |
| Execution Command AT+ CCID | Response: Ccid data[ex. 8986009109030513918] OK Parameters |
| Reference | Note |

7.2.28 AT+CMTE Read Temperature Of Module

| AT+CMTE Read Temperature Of Module | |
|------------------------------------|---|
| Read Command AT+ CMTE? | Response: +CMTE:<Temperature> OK Parameters < Temperature> range of -40 to 90 |
| Reference | Note |

7.2.29 AT+CSDT Switch On Or Off Detecting SIM Card

| AT+ CSDT Switch On Or Off Detecting SIM Card | |
|--|--------------------------|
| Read Command AT+ CSDT? | Response +CSDT:<mode> |

| | |
|---------------------------------|---|
| | Parameters |
| Test Command AT+ CSDT =? | Response +CSDT: (0-1) |
| | Parameters See write command. |
| Write Command AT+CSDT=<mode> | Response OK ERROR |
| | Parameters <mode> 0 – switch off detecting SIM card 1 – switch on detecting SIM card |
| Reference | NOTE |

7.2.30 AT+CMGDA Delete All SMS

AT+ CMGDA Delete All SMS

| | |
|----------------------------------|---|
| Test Command AT+ CMGDA=? | Response: +CMGDA: listed of supported <type> s OK +CMS ERROR: NUM |
| | Parameters see write command |
| Write Command AT+CMGDA=<type> | Response: OK +CMS ERROR: NUM |
| | Parameters 1) If text mode: <div> <div>“DEL READ”</div> <div>delete all read messages</div> </div> <div> <div>“DEL UNREAD”</div> <div>delete all unread messages</div> </div> <div> <div>“DEL SENT”</div> <div>delete all sent SMS</div> </div> <div> <div>“DEL UNSENT”</div> <div>delete all unsent SMS</div> </div> <div> <div>“DEL INBOX”</div> <div>delete all received SMS</div> </div> <div> <div>“DEL ALL”</div> <div>delete all SMS</div> </div> 3) if PDU mode : <div> <div>1</div> <div>delete all read messages</div> </div> <div> <div>2</div> <div>delete all unread messages</div> </div> <div> <div>3</div> <div>delete all sent SMS</div> </div> <div> <div>4</div> <div>delete all unsent SMS</div> </div> <div> <div>5</div> <div>delete all received SMS</div> </div> <div> <div>6</div> <div>delete all SMS</div> </div> |

| Reference | Note |
|-----------|------|
|-----------|------|

7.2.31 AT+SIMTONE GENERATE SPECIFICALLY TONE

| AT+SIMTONE GENERATE SPECIFICALLY TONE | |
|---|---|
| Test Command AT+ SIMTONE =? | Response +SIMTONE: (0-1), (0-50000), (0-1000), (0-1000), (0-15300000) Parameters See write command. |
| Write Command AT+ SIMTONE =<mode>,< frequency >,< periodOn >,< periodOff >,< duration > | Response OK ERROR Parameters <mode> 0 – Stop playing tone 1 – Start playing tone < frequency > the frequency of tone to be generated <periodon> the period of generating tone <periodoff> the period of stopping tone <duration> duration of tones in milliseconds |
| Reference | NOTE |

7.2.32 AT+CCPD CONNECTED LINE IDENTIFICATION PRESENTATION WITHOUTALPHA STRING

| AT+CCPD CONNECTED LINE IDENTIFICATION PRESENTATION WITHOUTALPHA STRING | |
|--|--|
| Read Command AT+ CCPD? | Response + CCPD:<mode> Parameters |
| Write Command AT+ CCPD=<mode> | Response OK ERROR Parameters <mode> 0 – disable to present alpha string 1 – enable to present alpha string |
| Reference | NOTE |

7.2.33 AT+CGID Get SIM Card Group Identifier

| AT+CGID Get SIM Card Group Identifier | |
|---------------------------------------|--|
| Execution Command AT+ CGID | Response GID:<gid1> <gid2> OK ERROR Parameters <gid1> integer type of SIM card group identifier 1 <gid2> integer type of SIM card group identifier 2 |
| Reference | NOTE If the SIM supports GID files, the GID values were returned. Otherwise 0xff is returned. |

7.2.34 AT+MORING SHOW STATE OF MOBILE ORIGINATED CALL

| AT+MORING Show State of Mobile Originated Call | |
|--|---|
| Test Command AT+ MORING=? | Response +MORING: (0,1) Parameters See write command. |
| Write Command AT+ MORING =<mode> | Response OK ERROR Parameters <mode> 0 not show call state of mobile originated call 1 show call state of mobile originated call. After dialing call numbers, the URC strings of MO RING will be sent if the other call side is alerted and the URC strings of MO CONNECTED will be sent if the call is established. |
| Reference | NOTE |

| AT+CGMSCLASS Change GPRS multislot class | |
|---|---|
| Read Command AT+CGMSCLASS? S? | Response MULTISLOT CLASS: <class> OK |
| | Parameters see write command |
| Test Command AT+CGMSCLASS=? S=? | Response MULTISLOT CLASS: 1-10 OK |
| Write Command AT+CGMSCLASS= S=<class> | Response OK |
| | Parameters <class> GPRS multislot class |
| Reference | NOTE |

| AT+CMGHEX Enable to send non-ascii character SMS | |
|---|---|
| Read Command AT+CMGHEX? | Response CMGHEX: <mode> OK |
| | Parameters see write command |
| Test Command AT+CMGHEX=? | Response CMGHEX: (0,1) OK |
| Write Command AT+CMGHEX=<mode> | Response OK |
| | Parameters <mode> 1 Enable to send SMS varying from 0x00 to 0x7f except 0x1a and 0x1b under text mode and GSM character set 0 Send SMS in ordinary way |
| Reference | NOTE |

8 AT Commands for TCPIP Application Toolkit

8.1 Overview

| Command | Description |
|--------------|---|
| AT+CIPSTART | START UP TCP OR UDP CONNECTION |
| AT+CIPSEND | SEND DATA THROUGH TCP OR UDP CONNECTION |
| AT+CIPCLOSE | CLOSE TCP OR UDP CONNECTION |
| AT+CIPSHUT | DEACTIVATE GPRS PDP CONTEXT |
| AT+CLPORT | SET LOCAL PORT |
| AT+CSTT | START TASK AND SET APN, USER NAME, PASSWORD |
| AT+CIICR | BRING UP WIRELESS CONNECTION WITH GPRS OR CSD |
| AT+CIFSR | GET LOCAL IP ADDRESS |
| AT+CIPSTATUS | QUERY CURRENT CONNECTION STATUS |
| AT+CDNSCFG | CONFIGURE DOMAIN NAME SERVER |
| AT+CDNSGIP | QUERY THE IP ADDRESS OF GIVEN DOMAIN NAME |
| AT+CDNSORIP | CONNECT WITH IP ADDRESS OR DOMAIN NAME SERVER |
| AT+CIPHEAD | ADD AN IP HEAD WHEN RECEIVING DATA |
| AT+CIPATS | SET AUTO SENDING TIMER |
| AT+CIPSPRT | SET PROMPT OF '>' WHEN SENDING DATA |
| AT+CIPSERVER | CONFIGURE AS SERVER |
| AT+CIPCSGP | SET CSD OR GPRS FOR CONNECTION MODE |
| AT+CIPCCON | CHOOSE CONNECTION |
| AT+CIPFLP | SET WHETHER FIX THE LOCAL PORT |
| AT+CIPSRIP | SET WHETHER DISPLAY IP ADDRESS AND PORT OF SENDER WHEN RECEIVE DATA |
| AT+CIPDPDP | SET WHETHER CHECK STATE OF GPRS NETWORK TIMING |
| AT+CIPSCONT | SAVE TCPIP APPLICATION CONTEXT |
| AT+CIPMODE | SELECT TCPIP APPLICATION MODE |
| AT+CIPCCFG | CONFIGURE TRANSPARENT TRANSFER MODE |

8.2 Detailed Descriptions of Commands

8.2.1 AT+CIPSTART Start up TCP or UDP connection

| AT+CIPSTART Start up TCP or UDP connection | |
|--|---|
| Test command | Response |
| AT+CIPSTART=? | +CIPSTART: (list of supported <mode>),(IP address range),(port range) <CR><LF>+CIPSTART: (list of supported <mode>),(domain name),(port range) OK |

| | |
|---|---|
| | Parameter See write command |
| Write command AT+CIPSTART= <mode>,[<IP address>,<domain name>],<port> | Response If format is right response OK, otherwise response ERROR If connect successfully response CONNECT OK Otherwise STATE:<state> CONNECT FAIL Parameter <mode> a string parameter which indicates the connection type "TCP" Establish a TCP connection "UDP" Establish a UDP connection <IP address> remote server IP address <port> remote server port <domain name> remote server domain name <state> a string parameter which indicates the progress of connecting 0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP IND 4 IP GPRSACT 5 IP STATUS 6 TCP/UDP CONNECTING 7 IP CLOSE 8 CONNECT OK |
| Reference | Parameter |

8.2.2 AT+CIPSEND Send data through TCP or UDP connection

| AT+CIPSEND Send data through TCP or UDP connection | |
|--|---|
| Test command AT+CIPSEND=? | Response +CIPSEND=: <length> OK |
| Execution command AT+CIPSEND response"> ", then type data for send, tap CTRL+Z to send | Response This command is used to send changeable length data. If connection is not established or disconnection: ERROR If sending successfully: SEND OK If sending fail: SEND FAIL |

| | |
|---|---|
| | <p>Note</p> <p>This command is used to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. There are at most 1024 bytes that can be sent at a time.</p> |
| <p>Write command</p> <p>AT+CIPSEND=<length></p> | <p>Response</p> <p>This command is used to send fixed length data.</p> <p>If connection is not established or disconnect:</p> <p>ERROR</p> <p>If sending successfully:</p> <p>SEND OK</p> <p>If sending fail:</p> <p>SEND FAIL</p> <p>Parameter</p> <p><length> a numeric parameter which indicates the length of sending data, it must less than 1024</p> |
| Reference | <p>Note</p> <ol style="list-style-type: none"> 1. There are at most 1024 bytes that can be sent each time. 2. Set the time that send data automatically with the command of AT+CIPATS. 3. Only send data at the status of established connection, otherwise Response ERROR |

8.2.3 AT+CIPCLOSE Close TCP or UDP Connection

| AT+CIPCLOSE Close TCP or UDP Connection | |
|---|--|
| <p>Test command</p> <p>AT+CIPCLOSE=?</p> | <p>Response</p> <p>OK</p> |
| <p>Execution command</p> <p>AT+CIPCLOSE</p> | <p>Response</p> <p>If close successfully:</p> <p>CLOSE OK</p> <p>If close fail:</p> <p>ERROR</p> |
| Reference | <p>Note</p> <p>AT+CIPCLOSE only close connection at the status of TCP/UDP CONNECTING or CONNECT OK, otherwise response ERROR, after close the connection, the status is IP CLOSE</p> |

8.2.4 AT+CIPSHUT Deactivate GPRS PDP context

| AT+CIPSHUT Deactivate GPRS PDP context | |
|--|--|
| Test command AT+CIPSHUT=? | Response OK |
| Execution command AT+CIPSHUT | Response If close successfully: SHUT OK If close fail: ERROR Note Except at the status of IP INITIAL, you can close moving scene by AT+CIPSHUT. After closed, the status is IP INITIAL. |
| Reference | Note |

8.2.5 AT+CLPORT Set local port

| AT+CLPORT Set local port | |
|--|---|
| Test command AT+CLPORT=? | Response +CLPORT: (list of supported <port>s) Parameter See write command |
| Read command AT+CLPORT? | Response <mode>:<port> <CR><LF><mode>:<port> Parameter See write command |
| Write command AT+CLPORT=<mode>,<port> | Response OK ERROR Parameter <mode> a string parameter which indicates the connection type "TCP" TCP local port "UDP" UDP local port <port> 0-65535 a numeric parameter which indicates the local port |
| Reference | Note |

8.2.6 AT+CSTT START task and Set APN、USER NAME、PASSWORD

| AT+CSTT Start task and Set APN、USER NAME、PASSWORD | |
|---|---------------------------------------|
| Test command AT+CSTT=? | Response +CSTT: "APN","USER","PWD" |

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| | |
|--|---|
| | OK |
| Read command AT+CSTT? | Response +CSTT: <apn>,<user name>,<password> OK Parameter See write command |
| Write command AT+CSTT=<apn> ,<user name>,<password > | Response OK ERROR Parameter <apn> a string parameter which indicates the GPRS access point name <user name> a string parameter which indicates the GPRS user name <password> a string parameter which indicates the GPRS password |
| Execution Command AT+CSTT | Response OK ERROR |
| Reference | Note |

8.2.7 AT+CIICR Bring up wireless connection with GPRS or CSD

AT+CIICR Bring up wireless connection with GPRS or CSD

| | |
|----------------------------------|--|
| Execution command AT+CIICR | Response OK ERROR |
| Reference | Note AT+CIICR only activate moving scene at the status of IP START, after operate this command, the state changed to IP CONFIG. If module accept the activate operation, the state changed to IP IND; after module accept the activate operation, if activate successfully, the state changed to IP GPRSACT, response OK, otherwise response ERROR. |

8.2.8 AT+CIFSR Get local IP address

AT+CIFSR Get local IP address

| | |
|---------------------------|--------------------------|
| Read command AT+CIFSR? | Response OK |
| Execution command | Response <IP address> |

| | |
|-----------|---|
| AT+CIFSR | OK ERROR Parameter <IP address> a string parameter which indicates the IP address assigned from GPRS or CSD |
| Reference | Note Only at the status of activated the moving scene: IP GPRSACT、TCP/UDP CONNECTING、CONNECT OK、IP CLOSE can get local IP Address by AT+CIFSR, otherwise response ERROR. |

8.2.9 AT+CIPSTATUS Query current connection status

| AT+CIPSTATUS | Query current connection status |
|-----------------------------------|--|
| Test command AT+CIPSTATUS=? | Response OK |
| Execution command AT+CIPSTATUS | Response STATE: <state> OK Parameter <state> referred to AT+CIPSTART |
| Reference | Note |

8.2.10 AT+CDNSCFG Configure domain name server

| AT+CDNSCFG | Configure domain name server |
|---|--|
| Test command AT+CDNSCFG=? | Response OK |
| Write command AT+CDNSCFG= <pri_dns>,<sec_dns> | Response OK ERROR Parameter <pri_dns> a string parameter which indicates the IP address of the primary domain name server <sec_dns> a string parameter which indicates the IP address of the secondary domain name server |
| Reference | Note |

8.2.11 AT+CDNSGIP Query the IP address of given domain name

| AT+CDNSGIP Query the IP address of given domain name | |
|--|---|
| Test command AT+CDNSGIP=? | Response OK |
| Write command AT+CDNSGIP=< domain name> | Response OK ERROR If successful, return: <IP address> If fail, return: ERROR: <error code> STATE: <state> Parameter <domain name> a string parameter which indicates the domain name <IP address> a string parameter which indicates the IP address corresponding to the domain name <error code> a numeric parameter which indicates the error code 1 DNS not Authorization 2 invalid parameter 3 network error 4 no server 5 time out 6 no configuration 7 no memory <state> refer to AT+CIPSTART |
| Reference | Note |

8.2.12 AT+CDNSORIP Connect with IP address or domain name server

| AT+CDNSORIP Connect with IP address or domain name server | |
|---|--|
| Test command AT+CDNSORIP= ? | Response +CDNSORIP: (list of supported <mode>s) OK Parameter See write command |
| Read command AT+CDNSORIP? | Response +CDNSORIP: <mode> OK Parameter See write command |

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| | |
|---|--|
| Write command AT+CDNSORIP= <mode> | Response OK ERROR Parameter <mode> a numeric parameter which indicates whether connecting with IP address server or domain name server 0 remote server is an IP address 1 remote server is a domain name |
| Reference | Note |

8.2.13 AT+CIPHEAD Add an IP head when receiving data

| AT+CIPHEAD Add an IP head when receiving data | |
|--|--|
| Test command AT+CIPHEAD=? | Response +CIPHEAD: (list of supported <mode>s) Parameter See write command |
| Read command AT+CIPHEAD? | Response +CIPHEAD: <mode> Parameter See write command |
| Write command AT+CIPHEAD=< mode> | Response OK ERROR Parameter <mode> a numeric parameter which indicates whether adding an IP header to received data or not 0 not add IP header 1 add IP header, the format is "+IPD(data length):" |
| Reference | Note |

8.2.14 AT+CIPATS Set auto sending timer

| AT+CIPATS Set auto sending timer | |
|-------------------------------------|--|
| Test command AT+CIPATS=? | Response +CIPATS: (list of supported <mode>s) OK Parameter See write command |
| Read command | Response |

8.2.15 AT+CIPSPRT Set prompt of '>' when sending data

| | |
|--|--|
| Test command AT+CIPSPRT=? | Response +CIPSPRT: (<send prompt>) Parameter See write command |
| Read command AT+CIPSPRT? | Response +CIPSPRT: <send prompt> Parameter See write command |
| Write command AT+CIPSPRT=<s endprompt> | Response OK ERROR Parameter <send prompt> a numeric parameter which indicates whether echo prompt '>' after issuing AT+CIPSEND command 0 no prompt and show "send ok" when send successfully 1 echo '>' prompt and show "send ok" when send successfully 2 no prompt and not show "send ok" when send successfully |
| Reference | Note |

| AT+CIPSERVER Configure as a server | |
|--|----------|
| Read command | Response |
| AT+CIPSERVER | <mode> |

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| | |
|--------------------------------------|--|
| ? | OK Parameter <mode> 0 has not been configured as a server 1 has been configured as a server |
| Execution command AT+CIPSERVER | Response OK ERROR If configuration as server success, return: SERVER OK If configuration as server fail, return: STATE:<state> CONNECT FAIL Parameter <state> refer to AT+CIPSTART |
| Reference | Note |

8.2.17 AT+CIPCSGP Set CSD or GPRS for connection mode

AT+CIPCSGP Set CSD or GPRS for connection mode

| | |
|---|---|
| Test command AT+CIPCSGP=? | Response +CIPCSGP: (list of supported connection <mode>s),[(GPRS parameters <apn>,<user name>,<password>),(CSD parameters <dial number>,<user name>,<password>,<rate>)] OK Parameter See write command |
| Read command AT+CIPCSGP? | Response +CIPCSGP: <mode> OK Parameter See write command |
| Write command AT+CIPCSGP=<mode>,[(<apn>,<user name>,<password>),(<dial number>,<user name>,<password>,<rate>)] | Response OK ERROR Parameter <mode> a numeric parameter which indicates the wireless connection mode 0 set CSD as wireless connection mode 1 set GPRS as wireless connection mode GPRS parameters: <apn> a string parameter which indicates the access point name <user name> a string parameter which indicates the user name |

| | | | | | | | | | |
|-----------|---|---|------|---|------|---|------|---|-------|
| | <p><password> a string parameter which indicates the password</p> <p>CSD parameters:</p> <p><dial number> a string parameter which indicates the CSD dial numbers</p> <p><user name> a string parameter which indicates the CSD user name</p> <p><password> a string parameter which indicates the CSD password</p> <p><rate> a numeric parameter which indicates the CSD connection rate</p> <table> <tr><td>0</td><td>2400</td></tr> <tr><td>1</td><td>4800</td></tr> <tr><td>2</td><td>9600</td></tr> <tr><td>3</td><td>14400</td></tr> </table> | 0 | 2400 | 1 | 4800 | 2 | 9600 | 3 | 14400 |
| 0 | 2400 | | | | | | | | |
| 1 | 4800 | | | | | | | | |
| 2 | 9600 | | | | | | | | |
| 3 | 14400 | | | | | | | | |
| Reference | Note | | | | | | | | |

8.2.18 AT+CIPCCON Choose connection

| AT+CIPCCON Choose connection | | | | | |
|--|--|---|-----------------------------|---|-----------------------------|
| Test command AT+CIPCCON=? | <p>Response</p> <p>+CIPCCON: (list of supported <connection>s)</p> <p>OK</p> <p>Parameter</p> <p>See write command</p> | | | | |
| Read command AT+CIPCCON? | <p>Response</p> <p>+CIPCCON: <connection></p> <p>OK</p> <p>Parameter</p> <p>See write command</p> | | | | |
| Write command AT+CIPCCON=<connection> | <p>Response</p> <p>OK</p> <p>ERROR</p> <p>Parameter</p> <p><connection> a numeric parameter which indicates the chosen connection</p> <table> <tr><td>1</td><td>choose connection as client</td></tr> <tr><td>2</td><td>choose connection as server</td></tr> </table> <p>Note that there may exist two connections at one time: one connection is as client connecting with remote server, the other connection is as server connecting with remote client. Using this command to choose through which connection data is sent.</p> | 1 | choose connection as client | 2 | choose connection as server |
| 1 | choose connection as client | | | | |
| 2 | choose connection as server | | | | |
| Reference | Note | | | | |

8.2.19 AT+CIPFLP Set whether fix the local port

| AT+CIPFLP Set whether fix the local port | |
|--|--|
| Test command AT+CIPFLP=? | Response +CIPFLP: (list of supported <mode>s) Parameter See write command |
| Read command AT+CIPFLP? | Response +CIPFLP: <mode> OK Parameter See write command |
| Write command AT+CIPFLP=<m ode> | Response OK ERROR Parameter <mode> a numeric parameter which indicates whether increasing local port automatically when establishing a new connection 0 do not fix local port, increasing local port by 1 when establishing a new connection 1 fix local port, using the same port when establishing a new connection Note that in default mode, the local port is fixed. It can speed up the connection progress if setting to not fixed local port when establishing a new connection after closing previous connection. |
| Reference | Note |

8.2.20 AT+CIPSRIP Set whether display IP address and port of sender when receive data

| AT+CIPSRIP Set whether display IP address and port of sender when receive data | |
|--|---|
| Test command AT+CIPSRIP=? | Response +CIPSRIP: (list of supported <mode>s) OK Parameter See write command |
| Read command AT+CIPSRIP? | Response <mode>: OK |

| | |
|------------------------------------|---|
| | Parameter See write command |
| Write command AT+CIPSRIP=<mode> | Response OK ERROR Parameter <mode> a numeric parameter which indicates whether show the prompt of where the data received are from or not before received data. 0 do not show the prompt 1 show the prompt, the format is as follows: RECV FROM:<IP ADDRESS>:<PORT> Note that the default mode is not to show the prompt. |
| Reference | Note |

8.2.21 AT+CIPDPPD Set Whether Check State Of GPRS Network Timing

| AT+CIPDPPD Set Whether Check State Of GPRS Network Timing | |
|--|--|
| Test command AT+CIPDPPD=? | Response +CIPDPPD:(list of supported< mode>s) OK Parameter See write command |
| Read command AT+CIPDPPD? | Response +CIPDPPD:<mode>,<interval>,<timer> OK Parameter See write command |
| Write command AT+CIPDPPD=<mode>,<interval>,<timer> | Response OK ERROR Parameter <mode> 0 not set detect PDP 1 set detect PDP <interval> 0<interval<=180(ms) <timer> 0<timer<=255 |
| Reference | Note |

8.2.22 AT+CIPSCONT Save TCPIP Application Context

AT+CIPSCONT Save TCPIP Application Context

| Read command | Response |
|--------------|---|
| AT+CIPSCONT? | <p>TA returns TCPIP Application Context, which consists of the following AT Command parameters.</p> <p>SHOW APPTCPIP CONTEXT</p> <p>+CDNSORIP:<mode></p> <p>+CIPSPRT:< sendprompt></p> <p>+CIPHEAD:<iphead></p> <p>+CIPFLP:<flp></p> <p>+CIPSRIP:<srip></p> <p>+CIPCSGP:<csgp></p> <p>Gprs Config APN:<apn></p> <p>Gprs Config UserId:<gusr></p> <p>Gprs Config Password:<gpwd></p> <p>Gprs Config inactivityTimeout:<timeout></p> <p>CSD Dial Number:<cnum></p> <p>CSD Config UserId:<cusr></p> <p>CSD Config Password:<cpwd></p> <p>CSD Config rate:<crate></p> <p>+CIPDPDP:<dmdp></p> <p>Detect PDP Inerval:<int></p> <p>Detect PDP Timer:<timer></p> <p>App Tcip Mode:<mode></p> <p>In Transparent Transfer Mode</p> <p>Number of Retry:<nmRetry></p> <p>Wait Time:<waitTm></p> <p>Send Size:<sendSz></p> <p>esc:<esc></p> <p>OK</p> |

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| | |
|---|---|
| | <p>Parameters</p> <p><mode> see AT+CDNSORIP</p> <p><sendprompt> see AT+CIPSPRT</p> <p><iphead> see AT+CIPHEAD</p> <p><flp> see AT+CIPFLP</p> <p><srip> see AT+CIPSRIP</p> <p><csgp> see AT+CIPCSGP</p> <p><apn> see AT+CIPCSGP</p> <p><gusr> see AT+CIPCSGP</p> <p><gpwd> see AT+CIPCSGP</p> <p><timeout> see AT+CIPCSGP</p> <p><cnum> see AT+CIPCSGP</p> <p><usr> see AT+CIPCSGP</p> <p><cpwd> see AT+CIPCSGP</p> <p><crate> see AT+CIPCSGP</p> <p><dmdp> see AT+CIPDPDP</p> <p><int> see AT+CIPDPDP</p> <p><timer> see AT+CIPDPDP</p> |
| <p>Execution command</p> <p>AT+CIPSCONT</p> | <p>Response</p> <p>TA saves TCPIP Application Context which consist of following AT command parameters, and when system is rebooted, the parameters will be loaded automatically:</p> <p style="text-align: center;">AT+CDNSORIP, AT+CIPSPRT, AT+CIPHEAD, AT+CIPFLP,AT+CIPSRIP, AT+CIPCSGP, AT+CIPDPDP</p> <p>OK</p> <p>Parameter</p> |

8.2.23 AT+CIPMODE Select TCPIP Application mode

| AT+CIPMODE Select TCPIP Application mode | |
|--|---|
| Test command | Response |
| AT+CIPMODE=? | +CIPMODE:(0-NORMAL MODE,1-TCP CHANNEL MODE) OK |
| Read command | Response |
| AT+CIPMODE? | +CIPMODE: <mode> OK |
| | Parameter |
| | See write command |
| Write command | Response |

SIM300 AT Commands Set

| | |
|---------------------------------|--|
| AT+CIPMODE=<mode> | OK ERROR Parameter <mode> 0 normal mode 1 TCP channel mode |
| Execution Command AT+CIPMODE | Response ERROR |
| Reference | Note |

8.2.24 AT+CIPCCFG Configure Transparent Transfer mode

| | |
|---|---|
| AT+CIPCCFG Configure Transparent Transfer Mode | |
| Test command AT+CIPCCFG=? | Response +CIPCCFG: (NmRetry:3-8),(WaitTm:2-10),(SendSz:256-1024),(esc:0,1) OK |
| Read command AT+CIPCCFG? | Response +CIPCCFG: <NmRetry>,<WaitTm>,<SendSz>,<esc> OK Parameter See write command |
| Write command AT+CIPCCFG=<NmRetry>,<WaitTm>,<SendSz>,<esc> | Response OK ERROR Parameter <NmRetry> number of retries to be made for an IP packet. <WaitTm> number of 200ms intervals to wait for serial input before sending the packet. <SendSz> size in bytes of data block to be received from serial port before sending. <esc> whether turn on the escape sequence, default is TRUE. |
| Execution Command AT+CIPCCFG | Response ERROR |
| Reference | Note |

9 Supported unsolicited result codes

9.1 Summary of CME ERROR Codes

Final result code +CME 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.

<err> values used by common messaging commands:

| Code of <err> | Meaning |
|---------------|---|
| 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 personalization PIN required |
| 41 | network personalization PUK required |
| 42 | network subset personalization PIN required |
| 43 | network subset personalization PUK required |
| 44 | service provider personalization PIN required |

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| | |
|-----|---|
| 45 | service provider personalization PUK required |
| 46 | corporate personalization PIN required |
| 47 | corporate personalization PUK required |
| 100 | unknown |
| 103 | illegal MS |
| 106 | illegal ME |
| 107 | GPRS services not allowed |
| 111 | PLMN not allowed |
| 112 | location area not allowed |
| 113 | roaming not allowed in this location area |
| 132 | service option not supported |
| 133 | requested service option not subscribed |
| 134 | service option temporarily out of order |
| 148 | unspecified GPRS error |
| 149 | PDP authentication failure |
| 150 | invalid mobile class |
| 577 | GPRS - activation rejected by GGSN |
| 578 | PRS - unspecified activation rejection |
| 579 | GPRS - bad code or protocol rejection |
| 580 | GPRS - can't modify address |
| 581 | GPRS - CHAP close |
| 582 | GPRS - profile (cid) currently unavailable |
| 583 | GPRS - a profile (cid) is currently active |
| 584 | GPRS - combined services not allowed |
| 585 | GPRS - conditional IE error |
| 586 | GPRS - context activation rejected |
| 587 | GPRS - duplicate TI received |
| 588 | GPRS - feature not supported |
| 589 | GPRS - service not available |
| 590 | GPRS - unknown IE from network |
| 591 | GPRS - implicitly detached |
| 592 | GPRS - insufficient resources |
| 593 | GPRS - invalid activation state (0-1) |
| 594 | GPRS - invalid address length |
| 595 | GPRS - invalid character in address string |
| 596 | GPRS - invalid cid value |
| 597 | GPRS - invalid dial string length |
| 598 | GPRS - mode value not in range |
| 599 | GPRS - invalid MAND information |
| 600 | GPRS - SMS service preference out of range |
| 601 | GPRS - invalid TI value |
| 602 | GPRS - IPCP negotiation timeout |

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| | |
|-----|--|
| 603 | GPRS - LCP negotiation timeout |
| 604 | GPRS - LLC error |
| 605 | GPRS - LLC or SNDCP failure |
| 606 | GPRS - lower layer failure |
| 607 | GPRS - missing or unknown APN |
| 608 | GPRS - mobile not ready |
| 609 | GPRS - MS identity not in network |
| 610 | GPRS - MSC temporarily not reachable |
| 611 | GPRS - message incompatible with state |
| 612 | GPRS - message type incompatible with state |
| 613 | GPRS - unknown message from network |
| 614 | GPRS - NCP close |
| 615 | GPRS - network failure |
| 616 | PRS - no echo reply |
| 617 | GPRS - no free NSAPIs |
| 618 | GPRS - processing of multiple cids not supported |
| 619 | GPRS - no PDP context activated |
| 620 | GPRS - normal termination |
| 621 | GPRS - NSAPI already used |
| 622 | GPRS - address element out of range |
| 623 | GPRS - PAP close |
| 624 | GPRS - PDP context w/o TFT already activated |
| 625 | GPRS - PDP type not supported |
| 626 | GPRS - peer refuses our ACCM |
| 627 | GPRS - peer refuses our IP address |
| 628 | GPRS - peer refuses our MRU |
| 629 | GPRS - peer requested CHAP |
| 630 | GPRS - profile (cid) not defined |
| 631 | GPRS - unspecified protocol error |
| 632 | GPRS - QOS not accepted |
| 633 | GPRS - QOS validation fail |
| 634 | GPRS - reactivation required |
| 635 | GPRS - regular deactivation |
| 636 | GPRS - semantic error in TFT operation |
| 637 | GPRS - semantic errors in packet filter |
| 638 | GPRS - semantically incorrect message |
| 639 | GPRS - service type not yet available |
| 640 | GPRS - syntactical error in TFT operation |
| 641 | GPRS - syntactical errors in packet filter |
| 642 | PRS - too many RXJs |
| 643 | GPRS - unknown PDP address or type |
| 644 | GPRS - unknown PDP context |

SIM300 AT Commands Set

| | |
|-----|--|
| 645 | GPRS - user authorization failed |
| 646 | GPRS - QOS invalid parameter |
| 673 | audio manager not ready |
| 674 | audio format cannot be configured |
| 705 | SIM toolkit menu has not been configured |
| 706 | SIM toolkit already in use |
| 707 | SIM toolkit not enabled |
| 737 | +CSCS type not supported |
| 738 | CSCS type not found |
| 741 | must include <format> with <oper> |
| 742 | incorrect <oper> format |
| 743 | <oper> length too long |
| 744 | SIM full |
| 745 | unable to change PLMN list |
| 746 | network operator not recognized |
| 749 | invalid command length |
| 750 | invalid input string |
| 753 | missing required cmd parameter |
| 754 | invalid SIM command |
| 755 | invalid File Id |
| 756 | missing required P1/2/3 parameter |
| 757 | invalid P1/2/3 parameter |
| 758 | missing required command data |
| 759 | invalid characters in command data |
| 765 | invalid input value |
| 766 | unsupported value or mode |
| 767 | operation failed |
| 768 | multiplexer already active |
| 769 | unable to get control of required module |
| 770 | SIM invalid - network reject |
| 771 | call setup in progress |
| 772 | SIM powered down |
| 773 | SIM File not present |

9.2 Summary of CMS ERROR Codes

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.

<err> values used by common messaging commands:

| Code of <err> | Meaning |
|---------------|------------|
| 300 | ME failure |

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| | |
|-----|---|
| 301 | SMS ME reserved |
| 302 | operation not allowed |
| 303 | operation not supported |
| 304 | invalid PDU mode |
| 305 | invalid text mode |
| 310 | SIM not inserted |
| 311 | SIM pin necessary |
| 312 | PH SIM pin necessary |
| 313 | SIM failure |
| 314 | SIM busy |
| 315 | SIM wrong |
| 316 | SIM PUK required |
| 317 | SIM PIN2 required |
| 318 | SIM PUK2 required |
| 320 | memory failure |
| 321 | invalid memory index |
| 322 | memory full |
| 330 | SMSC address unknown |
| 331 | no network |
| 332 | network timeout |
| 500 | unknown |
| 512 | SIM not ready |
| 513 | unread records on SIM |
| 514 | CB error unknown |
| 515 | PS busy |
| 517 | SM BL not ready |
| 528 | Invalid (non-hex) chars in PDU |
| 529 | Incorrect PDU length |
| 530 | Invalid MTI |
| 531 | Invalid (non-hex) chars in address |
| 532 | Invalid address (no digits read) |
| 533 | Incorrect PDU length (UDL) |
| 534 | Incorrect SCA length |
| 536 | Invalid First Octet (should be 2 or 34) |
| 537 | Invalid Command Type |
| 538 | SRR bit not set |
| 539 | SRR bit set |
| 540 | Invalid User Data Header IE |

10 AT Commands Sample

10.1 Profile Commands

| Demonstration | Syntax | Expect Result |
|--|---|--|
| The AT command interpreter is actively responding to input. | AT | OK |
| Display product identification information: the manufacturer, the product name and the product revision information. | ATI | SIMCOM_Ltd SIMCOM_SIM300 Revision:1008B10SIM300M32_SPANSION |
| Display current configuration, a list of the current active profile parameters. | AT&V | [A complete listing of the active profile] |
| Reporting of mobile equipment errors. The default CME error reporting setting is disabled. Switching to verbose mode displays a string explaining the error in more details. | AT+CMEE=? AT+CMEE? AT+CSCS=? AT+CSCS="TEST" AT+CMEE=2 AT+CSCS="TEST" | +CMEE:(0,1,2) +CMEE:0 +CSCS:"GSM" +CSCS:"UCS2" ERROR OK +CME ERROR: +CSCS type not found |
| Storing the current configuration in nonvolatile memory. When the board is reset, configuration changes from the last session are loaded. | ATE0;&W AT [Reset the board] AT ATE1;&W AT | OK [No echo] OK [No echo] [Echo on] |
| Set the ME to minimum functionality | AT+CFUN=0 | OK |

| | | |
|---|----------|---------|
| ME has entered full functionality mode. | AT+CFUN? | +CFUN:1 |
|---|----------|---------|

10.2 SIM Commands

| Demonstration | Syntax | Expect Result |
|---|-------------------------------|---|
| Listing available phonebooks, and selecting the SIM phone book. | AT+CPBS=? AT+CPBS="SM" | +CPBS:("DC","FD", "LD","ON","SM","MC") OK |
| Displaying the ranges of phone book | AT+CPBR=? | +CPBR:(1-150),41,14 |

SIM300 AT Commands Set

| | | |
|---|----------------------------------|--|
| entries and listing the contents of the phone book. | AT+CPBR=1,10 | [a listing of phone book contents] |
| Writing an entry to the current phonebook. | AT+CPBW=,"1391818xxxx",,"Daniel" | OK |
| | AT+CPBR=1,10 | [a listing of phone book contents] |
| Finding an entry in the current phonebook using a text search. | AT+CPBF="Daniel" | +CPBF: 5,"13918186089",129,"Daniel" |
| Deleting an entry from the current phonebook specified by its position index. | AT+CPBW=2,"" AT+CPBR=1,10 | OK [a listing of phone book contents] |

10.3 General Commands

| Demonstration | Syntax | Expect Result |
|---|---|--|
| Displays the current network operator that the handset is currently registered with. | AT+COPS? | +COPS: 0,0,"CHINA MOBILE" |
| Display a full list of network operator names. | AT+COPN | AT+COPN +COPN:"20201", "COSMO" [skip a bit] +COPN:"730100", "ENTEL PCS" OK |
| Power down the phone – reducing its functionality. This will deregister the handset from the network. | AT+CFUN=0 [wait for deregister] ATD6241xxxx; AT+CFUN=1 | OK NO CARRIER OK |
| CFUN disables access to the SIM. CSMINS shows when the SIM is available again. | AT+CSMINS=1 AT+CFUN=0 AT+CFUN=1 | OK OK +CSMINS:0 OK +CSMINS:1 |
| Emulating the MIMI keypad to make a voice call. | AT+CKPD="6241xx xxs",4,4 | OK [the voice call is connected] |
| Request the IMSI | AT+CIMI | 460008184101641 |

10.4 GPRS Commands

| Demonstration | Syntax | Expect Result |
|--|--|---|
| To establish a GPRS context. | Setup modem driver Setup dial up connection with *99# Run internet explorer | Should be able to surf the web using Internet explorer. |
| There are two GPRS Service Codes for the ATD Command: Value 98 and 99. Establish a connection by service code 99. Establish a connection by service code 99, IP address 123... and L2P=PPP and using CID 1. The CID has to be defined by AT+CGDCONT. Establish a connection by service code 99 and L2P=PPP Establish a connection by service code 99 and using CID 1 Establish a connection by service code 99 and L2P=PPP and using CID1. The CID has to be defined by AT+CGDCONT Establish an IP connection by service code 98 | ATD*99# ATD*99*123.124.125.126*PPP*1# ATD*99**PPP# ATD*99***1# ATD*99**PPP*1# ATD*98# | |
| To check if the MS is connected to the GPRS network | AT+CGATT? | +CGATT:1 |
| Detach from the GPRS network | AT+CGATT=0 | OK |
| To check if the MS is connected to the GPRS network | AT+CGATT? | +CGATT : 0 |
| To check the class of the MS | AT+CGCLASS? | +CGCLASS:B |
| Establish a context using the terminal equipment: defines CID 1 and sets the PDP type to IP, access point name and IP address aren't set. | AT+CGDCONT=1,"IP" ATD*99# | OK CONNECT <data> |
| Cancel a context using the terminal equipment | AT+CGDCONT=1,"IP" | OK |

SIM300 AT Commands Set

| | | |
|--|--|--|
| Pause data transfer and enter command mode by +++ | ATD*99# +++ | CONNECT <data> |
| Stop the GPRS data transfer | ATH | OK |
| Reconnect a context using the terminal equipment | AT+CGDCONT=1,"I P" AT*99# | OK CONNECT <data> |
| Resume the data transfer | +++ ATO | CONNECT <data> |
| Pause the data transfer and make a voice call. The release of voice call, resume the data transfer | AT+CGDCONT=1,"I P" ATD*99# +++ ATD6241xxxx; ATH ATO ATH | OK CONNECT <data> OK OK CONNECT <data> OK |

*Quality of Service (QOS) is a special parameter of a CID which consists of several parameters itself.

The QOS consists of

The precedence class

The delay class

The reliability class

The peak throughput class

The mean throughput class

And is decided in "requested QOS" and "minimum acceptable QOS".

All parameters of the QOS are initiated by default to the "network subscribed value (=0)" but the QOS itself is set to be undefined. To define a QOS use the AT+CGQREQ or AT+CGQMIN command.

| | | |
|---|---------------|-------------------------------|
| Overwrites the precedence class of QOS of CID 1 and sets the QOS of CID 1 to be present | AT+CGQREQ=1,2 | OK |
| Response: all QOS values of CID 1 Are set to network subscribed except precedence class which is set to 2 | AT+CGQREQ? | +CGQREQ:1,2,0,0,0,0 OK |
| Set the QOS of CID 1 to not present. Once defined, the CID it can be activated. | AT+CGQREQ=1 | OK |
| Activate CID 2, if the CID is already | AT+CGACT=1,2 | OK |

SIM300 AT Commands Set

| | | |
|--|-----------------------|-----------------|
| active, the mobile returns OK at once. If no CID is defined the mobile responses +CME ERROR: invalid index. Note: If the mobile is NOT attached by AT+CGATT=1 before activating, the attach is automatically done by the AT+CGACT command. | AT+CGACT=1,3 | +CME ERROR: 123 |
| Use the defined and activated CID to get online. The mobile can be connected using the parameters of appointed CID or using default parameter | AT+CGDATA="PPP", 1 | CONNECT |

The mobile supports Layer 2 Protocol(L2P) PPP only.

Note: If the mobile is NOT attached by AT+CGATT=1 and the CID is NOT activated before connecting, attaching and activating is automatically done by the AT+CGDATA command.

Some providers require to use an APN to establish a GPRS connection. So if you use the Microsoft Windows Dial-Up Network and ATD*9... to connect to GPRS you must provide the context definition as part of the modem definition (Modem properties/Connection/Advanced.../Extra settings.) As an alternative, you can define and activate the context in a terminal program (e.g. Microsoft HyperTerminal) and then use the Dial-Up Network to send only the ATD command.

10.5 Call Control Commands

| Demonstration | Syntax | Expect Result |
|---|-----------------------------|--|
| Make a voice call | ATD6241xxxx; | OK MS makes a voice call |
| Hang up a call | ATH | OK Call dropped |
| Make a voice call using the last number facility. The initial call is established then cancelled. The second call is made using the previous dial string. | ATD6241xxxx; ATH ATDL | OK OK |
| Make a circuit switch data call | ATD*99# | The dial string does not include the terminating semicolon. The call is made to a configured modem. Data can be exchanged using a terminal emulator. |
| Make a circuit switch data call, suspend the call and then resume the call | ATD*99# +++ ATO | CONNECT <text> OK CONNECT |

SIM300 AT Commands Set

| | | <text> |
|---|---|---|
| Example of a MT voice call | Make MT voice call to MS. ATA ATH | RING RING OK[accept call] OK[hang up call] |
| Call related supplementary service: AT+CHLD. This command provides support for call waiting functionality. | AT+CHLD=<N> <N>=0 RELEASE ALL HELD CALLS OR SENDS USER BUSY STATUS TO WAITING CALL <N>=1 RELEASE ALL ACTIVE CALLS AND ACCEPT OTHER CALL(WAITING OR HELD) <N>=1X RELEASE CALL X <N>=2 PLACE ALL ACTIVE CALLS ON HOLD AND ACCEPT CALL <N>=2X PLACE ALL CALLS ON HOLD EXCEPT CALL X | Return value:(0,1,1x,2,2x,3) |
| Terminate current call and accept waiting call. Establish a voice call from EVB, receive an incoming call(incoming call accepts waiting status), terminate active call and accept incoming call. Note call waiting must be active for this option – use “AT+CCWA=1,1” before running this demonstration. | AT+CCWA=1,1 ATD6241xxxx; <RX incoming call> AT+CHLD=1 | OK OK +CCWA:”62418148”, 129,1 OK <waiting call active> |
| Set current call to busy and accept waiting call. Establish a voice call from EVB, receive an incoming call(incoming call accepts waiting status), place active call on hold and switch to incoming call. Terminate active call and switch back to original call. Note call waiting must have been previously enabled for this | ATD6241xxxx; <RX incoming call> AT+CHLD=2 AT+CHLD=1 | +CCWA:”1391818 6089”,129,1 OK<waiting call active other call on hold> OK<incoming call terminated, dialed number now active> |

SIM300 AT Commands Set

| | | |
|--|--|--|
| demonstration to work. | | |
| Switch between active and held calls. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), place active call on hold and switch to incoming call. Switch between both calls, placing each in the hold state whilst the other is active before terminating each one. This feature relies on knowing each call's ID. This is done using the List Current Calls(AT+CLCC) command. A call's ID is required to switch between held and active calls. Held calls that are not automatically resumed when all other calls are terminated. They need to be made active using the AT+CHLD=2x command. Note call waiting must have been previously enabled for this demonstration to work. | ATD6241xxxx; <RX incoming call> AT+CHLD=2 AT+CHLD=21 AT+CCLC AT+CHLD=23 AT+CHLD=13 AT+CHLD=11 | OK +CCWA:"13918186089",129,1 OK <incoming call activated,original on hold> OK <original call active,incoming call held> +CLCC:1,0,0,0,0,"62418148",129 +CLCC:3,1,1,0,0,"13918186089",129 OK < note incoming call held flag set> OK <original call held, incoming call active> OK <terminate incoming call> <terminate original call> |
| Send busy status to incoming waiting caller. Establish a voice call from EVB, receive an incoming call(incoming call accepts waiting status), send 'busy' status to waiting mobile. Note call waiting must have been previously enabled for this demonstration to work. | ATD6241xxxx; <RX incoming call> AT+CHLD=0 | OK +CCWA:"13918186089",129,1 OK OK <incoming call sent busy msg, current call retained> |
| Drop all calls on hold. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), switch to incoming call and drop all waiting calls. Note call waiting must have been previously enabled for this demonstration to work. | ATD6241xxxx; <RX incoming call> AT+CHLD=2 AT+CHLD=0 | OK +CCWA:"13918186089",129,1 OK <incoming call active, original on hold> OK |

| | | |
|--|--|---|
| | | <incoming call on hold terminated, current call retained> |
|--|--|---|

10.6 SIM Toolkit Commands

| Demonstration | Syntax | Expect Result |
|--|--------------------------|----------------|
| Inform voyager that the accessory Has SAT97 capability and sets the output to TEXT mode. | AT+STPD=5,1F7FFF7 F7F | OK +STC: 25 |
| | AT+CMGF=1 | OK +STC: 81 |
| Sets the response timer | AT+STRT=200 | OK |

10.7 Audio Commands

| Demonstration | Syntax | Expect Result |
|---------------|-------------------------|-------------------------------------|
| DTMF tones | AT+CLDTMF=2,"1,2,3,4,5" | DTMF tones generated in the headset |

10.8 SMS commands

| Demonstration | Syntax | Expect Result |
|---|---|---|
| Set SMS system into text mode, as opposed to PDU mode. | AT+CMGF=1 | OK |
| Send an SMS to myself. | AT+CMGS="+861391818xxxx" >This is a test | +CMGS:34 OK |
| Unsolicited notification of the SMS arriving | | +CMTI:"SM",1 |
| Read SMS message that has just arrived. Note: the number should be the same as that given in the +CMTI notification. | AT+CMGR=1 | +CMGR: "REC UNREAD", "+8613918186089", , "02/01/30,20:40:31+00" This is a test OK |
| Reading the message again changes the status to "READ" from "UNREAD" | AT+CMGR=1 | +CMGR: "REC READ", "+8613918186089", , "02/01/30,20:40:31+00" This is a test OK |
| Send another SMS to myself. | AT+CMGS="+861391818xxxx" >Test again | +CMGS:35 OK |
| Unsolicited notification of the SMS arriving | | +CMTI:"SM",2 |
| Listing all SMS messages. | AT+CMGL="ALL" | +CMGL: 1,"REC |

SIM300 AT Commands Set

| | | |
|---|--|---|
| Note:"ALL" must be in uppercase. | | <p>READ", "+8613918186089", , "02/01/30,20:40:31+00" This is a test +CMGL: 2,"REC UNREAD", " ", "+861391818 6089", , "02/01/30,20:45:12+00" Test again</p> <p>OK</p> |
| Delete an SMS message. | AT+CMGD=1 | OK |
| List all SMS messages to show message has been deleted. | AT+CMGL="ALL" | <p>+CMGL: 2,"REC READ", "+8613918186 089", "02/01/30,20:45:12+00 " Test again</p> <p>OK</p> |
| Send SMS using Chinese characters | <p>AT+CSMP=17,0,2, 25 AT+CSCS="UCS2" AT+CMGS="0031003 300390031003800310 038003x003x003x003 x" >4E014E50</p> | <p>OK</p> <p>OK</p> <p>+CMGS:36</p> <p>OK</p> |

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