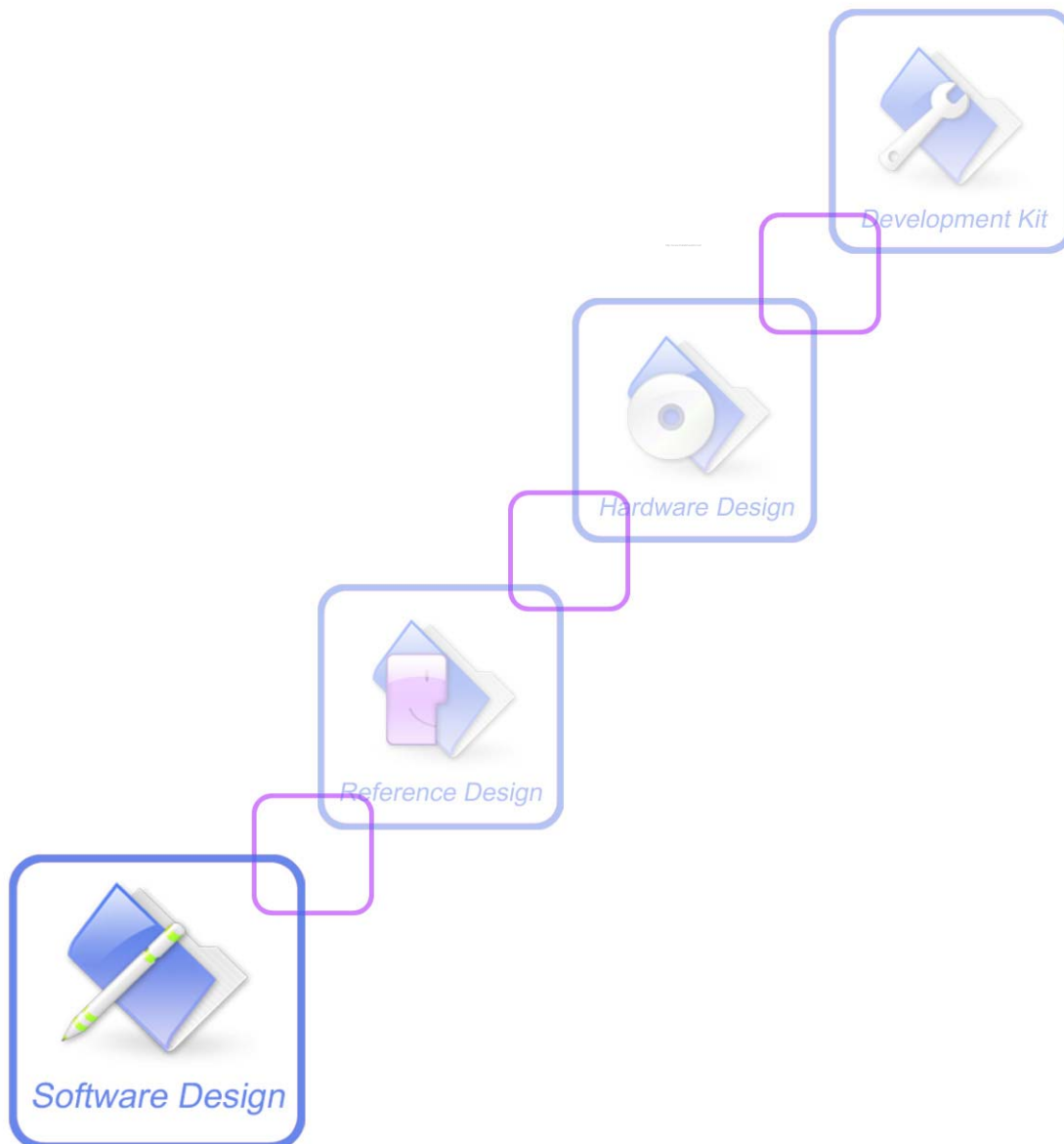




# SIM900 AT Command Manual\_V1.05



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## Version History

| Version | Chapter  | What is new  |
|---------|--|--|
| V1.00   | New version  | Created on the basis of SIM900 AT Test Result  |
| V1.01   | 3.2.50 AT+CALC<br>6.2.27 AT+CBTE<br>6.2.30 AT+STTONE<br>8.2.21 AT+CIPDPPD<br>8.2.25 AT+CIPUDPMODE<br>6.2.45 AT+SGPIO<br>6.2.46 AT+SPWM<br>6.2.47 AT+ECHO   | Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command   |
| V1.02   | 3.2.16 AT+CLCC<br>3.2.30 AT+CR   | Add write command<br>Add parameter GPRS  |
| V1.03   | 6.2.47 AT+SPWM<br>6.2.48 AT+ECHO<br>6.2.50 AT+GSMBUSY<br>8.2.26 AT+CIPRXGET<br>8.2.27 AT+CIPQRCLOSE<br>8.2.28 AT+CIPSCONT<br>9.2.1 AT+SAPBR<br>10.2.x HTTP commands<br>11.2.x FTP commands   | Modified the command<br>Modified the parameter scope<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new commands<br>Add new commands  |
| V1.04   | 6.2.51 AT+CEMNL<br>6.2.52 AT*CELLLOCK<br>8.2.29 AT+CIPTXISS<br>6.2.53 AT+SLEDS   | Add new command<br>Add new command<br>Add new command<br>Add new command   |
| V1.05   | 10.2.3 AT+HTTTPARA<br>8.2.29 AT+CIPTXISS<br>6.2.54 AT+CCHGMODE<br>6.2.55 AT+CBUZZERRING<br>6.2.56 AT+CEXTERNTONE<br>6.2.57 AT+CNETLIGHT<br>6.2.58 AT+CWHITELIST<br>11.2.17 AT+FTPDELE<br>11.2.18 AT+FTPSIZE<br>11.2.19 AT+FTPSTATE<br>6.2.59 AT+CUSACC | Added new values of <HTTTPParamTag>.<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command<br>Add new command |

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# **1 Introduction**

## **1.1 Scope of the document**

This document presents the AT Command Set for SIMCOM SIM900 series cellular engine.

## **1.2 Related documents**

You can visit the SIMCom Website using the following link:

<http://www.sim.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 SIM900 is a combination of GSM07.05, GSM07.07 and ITU-T recommendation V.25ter and the AT commands developed by SIMCom.

**Note: A HEX string such as "00 49 49 49 49 FF FF FF FF" will be sent out through serial port at the baud rate of 115200 immediately after SIM900 is powered on. The string shall be ignored since it is used for synchronization with PC tool. Only enter AT Command through serial port after SIM900 is powered on and Unsolicited Result Code "RDY" is received from serial port. If auto-bauding is enabled, the Unsolicited Result Codes "RDY" and so on are not indicated when you start up the ME, and the "AT" prefix, not "at" prefix must be set at the beginning of each command line.**

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 S Parameter 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 in the 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" the beginning of the command line. Please note to use a semicolon as the command delimiter after an extended command; in basic syntax or S parameter syntax, the semicolon need not enter, for example: ATE1Q0S0=1S3=13V1X4+IFC=0,0;+IPR=115200; &W.

The Command line buffer can accept a maximum of 556 characters. If the characters entered exceeded this number then none of the Command will 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 SIM900 AT Command interface defaults to the **IRA** character set. The SIM900 supports the following character sets:

- GSM format
- UCS2
- HEX
- IRA
- PCCP
- 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. SIM900 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.

The default flow control approach of SIM900 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**.

**NOTE:**

The AT commands listed in the table of **AT&W** chapter should be stored to user profile with **AT&W** for use after restart. Most other AT commands in V.25, 07.05, 07.07, GPRS will store parameters automatically and can be used after module restart.

Ensure that any communications software package (e.g. Hyper terminal) 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 Commands 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 THE LAST COMMAND GIVEN  |
| ATA      | ANSWER AN INCOMING CALL   |
| ATD      | MOBILE ORIGINATED CALL TO DIAL A NUMBER   |
| 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     | PAUSE BEFORE BLIND DIALLING   |
| ATS7     | SET NUMBER OF SECONDS TO WAIT FOR CONNECTION COMPLETION                                       |
| ATS8     | SET NUMBER OF SECONDS TO WAIT FOR COMMA DIAL MODIFIER ENCOUNTERED IN DIAL STRING OF D COMMAND |
| ATS10    | SET DISCONNECT DELAY AFTER INDICATING THE ABSENCE OF DATA CARRIER                             |
| ATT      | SELECT TONE DIALING   |
| ATV      | TA RESPONSE FORMAT  |
| ATX      | SET CONNECT RESULT CODE FORMAT AND MONITOR CALL   |



|          |  |
|----------|--|
|          | PROGRESS   |
| ATZ      | RESET DEFAULT CONFIGURATION                            |
| AT&C     | SET DCD FUNCTION MODE                                  |
| AT&D     | SET DTR FUNCTION MODE                                  |
| AT&F     | FACTORY DEFINED CONFIGURATION                          |
| AT&V     | DISPLAY CURRENT CONFIGURATION                          |
| AT&W     | STORE ACTIVE PROFILE                                   |
| 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+IPR   | SET TE-TA FIXED LOCAL RATE                             |
| AT+HVOIC | DISCONNECT VOICE CALL ONLY                             |

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

### 2.2.1 A/ Re-issues the Last Command Given

| A/ Re-issues the Last Command Given |  |
|-------------------------------------|--|
| Execution Command<br>A/             | Response<br>Re-issues the previous Command |
| Reference<br>V.25ter                | Note                                       |

### 2.2.2 ATA Answer an Incoming Call

| ATA Answer an Incoming Call |  |
|-----------------------------|--|
| Execution Command<br>ATA    | Response<br>TA sends off-hook to the remote station.<br><br>Note1: Any additional commands on the same Command line are ignored.<br>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.<br><br>Response in case of data call, if successfully connected<br><b>CONNECT&lt;text&gt;</b> TA switches to data mode. |

|                      |   |
|----------------------|---|
|                      | <p>Note: <b>&lt;text&gt;</b> output only if <b>ATX&lt;value&gt;</b> parameter setting with the <b>&lt;value&gt;&gt;0</b></p> <p>When TA returns to Command mode after call release</p> <p><b>OK</b></p> <p>Response in case of voice call, if successfully connected</p> <p><b>OK</b></p> <p>Response if no connection</p> <p><b>NO CARRIER</b></p> |
| Reference<br>V.25ter | <p>Note</p> <p>See also <b>ATX</b></p>  |

### 2.2.3 ATD Mobile Originated Call to Dial A Number

| <b>ATD Mobile Originated Call to Dial A Number</b>                    |   |
|---|---|
| <p>Execution<br/>Command<br/><b>ATD&lt;n&gt;[&lt;mgsml&gt;];]</b></p> | <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 <b>ATH</b> 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><b>+CME ERROR: &lt;err&gt;</b></p> <p>If no dial tone and (parameter setting <b>ATX2</b> or <b>ATX4</b>)</p> <p><b>NO DIALTONE</b></p> <p>If busy and (parameter setting <b>ATX3</b> or <b>ATX4</b>)</p> <p><b>BUSY</b></p> <p>If a connection cannot be established</p> <p><b>NO CARRIER</b></p> <p>If the remote station does not answer</p> <p><b>NO ANSWER</b></p> <p>If connection successful and non-voice call.</p> <p><b>CONNECT&lt;text&gt;</b> TA switches to data mode.</p> <p>Note: <b>&lt;text&gt;</b> output only if <b>ATX&lt;value&gt;</b> parameter setting with the <b>&lt;value&gt; &gt;0</b></p> |

|                              |  |
|------------------------------|--|
|                              | <p>When TA returns to Command mode after call release<br/><b>OK</b></p> <p>If connection successful and voice call<br/><b>OK</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b> String of dialing digits and optionally V.25ter modifiers dialing digits:<br/><b>0-9, *, #, +, A, B, C</b><br/>Following V.25ter modifiers are ignored:<br/><b>,(comma), T, P, !, W, @</b></p> <p><b>Emergency call:</b></p> <p><b>&lt;n&gt;</b> Standardized emergency number 112 (no SIM needed)</p> <p><b>&lt;mgsn&gt;</b> String of <b>GSM</b> modifiers:</p> <p><b>I</b> Activates <b>CLIR</b> (Disables presentation of own number to called party)</p> <p><b>i</b> Deactivates <b>CLIR</b> (Enable presentation of own number to called party)</p> <p><b>G</b> Activates Closed User Group invocation for this call only</p> <p><b>g</b> Deactivates Closed User Group invocation for this call only</p> <p><b>&lt;;&gt;</b> Only required to set up voice call , return to Command state</p>  |
| <p>Reference<br/>V.25ter</p> | <p>Note</p> <ul style="list-style-type: none"> <li>● Parameter "I" and "i" only if no *# code is within the dial string</li> <li>● &lt;n&gt; is default for last number that can be dialed by <b>ATDL</b></li> <li>● *# codes sent with <b>ATD</b> are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";"</li> <li>● See <b>ATX</b> Command for setting result code and call monitoring parameters.</li> </ul> <p>Responses returned after dialing with <b>ATD</b></p> <ul style="list-style-type: none"> <li>● For voice call two different responses mode can be determined. <b>TA</b> returns "<b>OK</b>" immediately either after dialing was completed or after the call is established. The setting is controlled by <b>AT+COLP</b>. Factory default is <b>AT+COLP=0</b>, this cause the <b>TA</b> returns "<b>OK</b>" immediately after dialing was completed, otherwise <b>TA</b> will returns "<b>OK</b>", "<b>BUSY</b>", "<b>NO DIAL TONE</b>", "<b>NO CARRIER</b>".</li> </ul> <p>Using <b>ATD</b> during an active voice call:</p> <ul style="list-style-type: none"> <li>● 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.</li> </ul> |

- The current states of all calls can be easily checked at any time by using the **AT+CLCC** Command.

#### 2.2.4 ATD<n> Originate Call to Phone Number in Current Memory

##### ATD<n> Originate Call to Phone Number in Current Memory

|  |   |
|--|---|
| <p>Execution Command<br/><b>ATD&lt;n&gt;[&lt;clir&gt;][&lt;cug&gt;];</b></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 <b>ATH</b> 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<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>If no dial tone and (parameter setting <b>ATX2</b> or <b>ATX4</b>)<br/><b>NO DIALTONE</b></p> <p>If busy and (parameter setting <b>ATX3</b> or <b>ATX4</b>)<br/><b>BUSY</b></p> <p>If a connection cannot be established<br/><b>NO CARRIER</b></p> <p>If the remote station does not answer<br/><b>NO ANSWER</b></p> <p>If connection successful and non-voice call.<br/><b>CONNECT&lt;text&gt;</b> TA switches to data mode.<br/>Note: &lt;text&gt; output only if <b>ATX&lt;value&gt;</b> parameter setting with the &lt;value&gt; &gt;0</p> <p>When <b>TA</b> returns to Command mode after call release<br/><b>OK</b></p> <p>If successfully connected and voice call<br/><b>OK</b></p> <p>Parameters</p> <p>&lt;n&gt; Integer type memory location should be in the range of locations available in the memory used</p> <p>&lt;mgsn&gt; String of <b>GSM</b> modifiers:</p> <p>&lt;clir&gt;</p> |
|--|---|

|                      |  |
|----------------------|--|
|                      | <p><b>I</b> Override the CLIR supplementary service subscription default value for this call<br/>Invocation (restrict CLI presentation)</p> <p><b>i</b> Override the CLIR supplementary service subscription default value for this call<br/>Suppression (allow CLI presentation)</p> <p><b>&lt;cug&gt;</b></p> <p><b>G</b> Control the CUG supplementary service information for this call<br/>CUG Not supported</p> <p><b>g</b> Control the CUG supplementary service information for this call<br/>CUG Not supported</p> <p><b>&lt;;&gt;</b> Only required to set up voice call , return to Command state</p> |
| Reference<br>V.25ter | <p>Note</p> <ul style="list-style-type: none"> <li>● Parameter "I" and "i" only if no *# code is within the dial string</li> <li>● *# codes sent with <b>ATD</b> are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";"</li> <li>● See <b>ATX</b> Command for setting result code and call monitoring parameters.</li> </ul>   |

### 2.2.5 ATD<<str> Originate Call to Phone Number in Memory Which Corresponds to Field <str>

|  |  |
|--|--|
| <p><b>ATD&lt;&lt;str&gt; Originate Call to Phone Number in Memory Which Corresponds to Field &lt;str&gt;</b></p> |  |
| <p>Execution Command<br/><b>ATD&lt;&lt;str&gt;[&lt;clir&gt;][&lt;cug&gt;][;]</b></p>                             | <p>Response</p> <p>This Command make the <b>TA</b> attempts to set up an outgoing call to stored number.</p> <p>All available memories are searched for the entry &lt;str&gt;.</p> <p>Note: This Command may be aborted generally by receiving an <b>ATH</b> 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<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>If no dial tone and (parameter setting <b>ATX2</b> or <b>ATX4</b>)<br/><b>NO DIALTONE</b></p> <p>If busy and (parameter setting <b>ATX3</b> or <b>ATX4</b>)<br/><b>BUSY</b></p> <p>If a connection cannot be established</p> |

|                              |   |
|------------------------------|---|
|                              | <p><b>NO CARRIER</b></p> <p>If the remote station does not answer</p> <p><b>NO ANSWER</b></p> <p>If connection successful and non-voice call.<br/><b>CONNECT&lt;text&gt; TA</b> switches to data mode.<br/>Note: &lt;text&gt; output only if <b>ATX&lt;value&gt;</b> parameter setting with the &lt;value&gt; &gt;0</p> <p>When <b>TA</b> returns to Command mode after call release</p> <p><b>OK</b></p> <p>If successfully connected and voice call</p> <p><b>OK</b></p> <p>Parameters</p> <p>&lt;str&gt; String type (string should be included in quotation marks) value ("x"), which should equal to an alphanumeric field in at least one phone book entry in the searched memories. <b>str</b> formatted as current <b>TE</b> character set specified by <b>+CSCS</b>.</p> <p>&lt;mgsms&gt; String of <b>GSM</b> modifiers:</p> <ul style="list-style-type: none"> <li><b>I</b> Activates <b>CLIR</b> (Disables presentation of own number to called party) —</li> <li><b>i</b> Deactivates <b>CLIR</b> (Enable presentation of own number to called party)</li> <li><b>G</b> Activates Closed User Group invocation for this call only</li> <li><b>g</b> Deactivates Closed User Group invocation for this call only</li> </ul> <p>&lt;&gt; Only required to set up voice call, return to Command state</p> |
| <p>Reference<br/>V.25ter</p> | <p>Note</p> <ul style="list-style-type: none"> <li>● Parameter "I" and "i" only if no "*"#" code is within the dial string</li> <li>● *# codes sent with <b>ATD</b> are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";"</li> <li>● See <b>ATX</b> Command for setting result code and call monitoring parameters.</li> </ul>   |

### 2.2.6 ATDL Redial Last Telephone Number Used

| <b>ATDL Redial Last Telephone Number Used</b> |  |
|---|--|
| Execution                                     | Response   |
| Command                                       | This Command redials the last voice and data call number used.   |
| <b>ATDL</b>                                   | Note: This Command may be aborted generally by receiving an <b>ATH</b> Command or a character during execution. The aborting is not possible |

|                      |   |
|----------------------|---|
|                      | <p>during some states of connection establishment such as handshaking.</p> <p>If error is related to ME functionality<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>If no dial tone and (parameter setting <b>ATX2</b> or <b>ATX4</b>)<br/><b>NO DIALTONE</b></p> <p>If busy and (parameter setting <b>ATX3</b> or <b>ATX4</b>)<br/><b>BUSY</b></p> <p>If a connection cannot be established<br/><b>NO CARRIER</b></p> <p>If the remote station does not answer<br/><b>NO ANSWER</b></p> <p>If connection successful and non-voice call.<br/><b>CONNECT&lt;text&gt; TA</b> switches to data mode.<br/>Note: &lt;text&gt; output only if <b>ATX&lt;value&gt;</b> parameter setting with the &lt;value&gt; &gt;0</p> <p>When <b>TA</b> returns to Command mode after call release<br/><b>OK</b></p> <p>If successfully connected and voice call<br/><b>OK</b></p> |
| Reference<br>V.25ter | <p>Note</p> <ul style="list-style-type: none"> <li>● See <b>ATX</b> Command for setting result code and call monitoring parameters.</li> <li>● Return the numbers and symbols which <b>ATD</b> supports if there is no last dialing context.</li> </ul>   |

### 2.2.7 ATE Set Command Echo Mode

| ATE Set Command Echo Mode                       |  |               |   |               |  |          |              |
|---|--|---------------|---|---------------|--|----------|--------------|
| Execution<br>Command<br><b>ATE&lt;value&gt;</b> | <p>Response</p> <p>This setting determines whether or not the TA echoes characters received from TE during Command state.<br/><b>OK</b></p>                        |               |   |               |  |          |              |
|   | <p>Parameter</p> <table> <tr> <td>&lt;value&gt;</td> <td>0</td> <td>Echo mode off</td> </tr> <tr> <td></td> <td><u>1</u></td> <td>Echo mode on</td> </tr> </table> | <value>       | 0 | Echo mode off |  | <u>1</u> | Echo mode on |
| <value>   | 0  | Echo mode off |   |               |  |          |              |
|   | <u>1</u>   | Echo mode on  |   |               |  |          |              |

|           |      |
|-----------|------|
| Reference | Note |
| V.25ter   |      |

### 2.2.8 ATH Disconnect Existing Connection

| ATH Disconnect Existing Connection |  |
|------------------------------------|--|
| Execution Command<br>ATH[n]        | <p>Response</p> <p>Disconnect existing call by local TE from Command line and terminate call<br/><b>OK</b></p> <p>Note: OK is issued after circuit 109(DCD) is turned off, if it was previously on.</p> <p>Parameter</p> <p><b>&lt;n&gt;</b></p> <ul style="list-style-type: none"> <li>0 Disconnect ALL calls on the channel the command is requested. All active or waiting calls, CS data calls, GPRS call of the channel will be disconnected.</li> <li>1 Disconnect all calls on ALL connected channels. All active or waiting calls, CSD calls, GPRS call will be disconnected. (clean up of all calls of the ME)</li> <li>2 Disconnect all connected CS data call only on the channel the command is requested. (speech calls (active or waiting) or GPRS calls are not disconnected)</li> <li>3 Disconnect all connected GPRS calls only on the channel the command is requested (speech calls (active or waiting) or CS data calls are not disconnected).</li> <li>4 Disconnect all CS calls (either speech or data) but does not disconnect waiting call (either speech or data) on the channel the command is requested.</li> <li>5 Disconnect waiting call (either speech or data) but does not disconnect other active calls (either CS speech, CS data or GPRS) on the channel the command is requested. (rejection of incoming call)</li> </ul> |
| Reference                          | Note   |
| V.25ter                            |  |

### 2.2.9 ATI Display Product Identification Information

| ATI Display Product Identification Information |   |
|--|---|
| Execution Command<br>ATI                       | <p>Response</p> <p>TA issues product information text</p> <p>Example:</p> |



|                      |                     |
|----------------------|---------------------|
|                      | <b>SIM900 R11.0</b> |
|                      | <b>OK</b>           |
| Reference<br>V.25ter | Note                |

### 2.2.10 ATL Set Monitor speaker loudness

|   |   |
|---|---|
| <b>ATL Set Monitor speaker loudness</b>         |   |
| Execution<br>Command<br><b>ATL&lt;value&gt;</b> | Response<br><b>OK</b>                         |
|   | Parameter<br><b>&lt;value&gt; 0..9 Volume</b> |
| Reference<br>V.25ter                            | Note<br>No effect in GSM                      |

### 2.2.11 ATM Set Monitor Speaker Mode

|   |   |
|---|---|
| <b>ATM Set Monitor Speaker Mode</b>             |   |
| Execution<br>Command<br><b>ATM&lt;value&gt;</b> | Response<br><b>OK</b>                       |
|   | Parameter<br><b>&lt;value&gt; 0..9 Mode</b> |
| Reference<br>V.25ter                            | Note<br>No effect in GSM                    |

### 2.2.12 +++ Switch from Data Mode or PPP Online Mode to Command Mode

|   |  |
|---|--|
| <b>+++ Switch from Data Mode or PPP Online Mode to Command Mode</b> |  |
| Execution<br>Command<br><b>+++</b>                                  | Response<br>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.<br><b>OK</b>  |
|   | To prevent the +++ escape sequence from being misinterpreted as data, it should comply to following sequence:<br><ol style="list-style-type: none"> <li>1. No characters entered for T1 time (1 second)</li> <li>2. "+++" characters entered with no characters in between (0.5 second)</li> <li>3. No characters entered for T1 timer (0.5 second)</li> <li>4. Switch to Command mode, otherwise go to step 1.</li> </ol> |
| Reference   | Note   |

|         |   |
|---------|---|
| V.25ter | To return from Command mode back to data mode: Enter <b>ATO</b> . |
|---------|---|

### 2.2.13 ATO Switch from Command Mode to Data Mode

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

### 2.2.14 ATP Select Pulse Dialling

| <b>ATP Select Pulse Dialling</b>   |                                  |
|------------------------------------|----------------------------------|
| Execution<br>Command<br><b>ATP</b> | <p>Response</p> <p><b>OK</b></p> |
| Reference<br>V.25ter               | Note<br>No effect in GSM         |

### 2.2.15 ATQ Set Result Code Presentation Mode

| <b>ATQ Set Result Code Presentation Mode</b> |  |
|--|--|
| Execution<br>Command<br><b>ATQ&lt;n&gt;</b>  | <p>Response</p> <p>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.</p> <p>    If &lt;n&gt;=0:<br/><b>OK</b></p> <p>    If &lt;n&gt;=1:<br/>(none)</p> <p>Parameter</p> <p><b>&lt;n&gt;</b>    0    TA transmits result code<br/>         1    Result codes are suppressed and not transmitted</p> |

|                      |      |
|----------------------|------|
| Reference<br>V.25ter | Note |
|----------------------|------|

### 2.2.16 ATSO Set Number of Rings before Automatically Answering the Call

| ATSO Set Number of Rings before Automatically Answering the Call |  |
|--|--|
| Read Command<br>ATSO?  | <p>Response</p> <p>&lt;n&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Write Command<br>ATSO=<n>  | <p>Response</p> <p>This parameter setting determines the number of rings before auto-answer.</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p>&lt;n&gt;    0    Automatic answering is disable.</p> <p>         1-255    Number of rings the modem will wait for before answering the phone if a ring is detected.</p> |
| Reference<br>V.25ter   | <p>Note</p> <p>If &lt;n&gt; is set too high, the calling party may hang up before the call can be answered automatically.</p>  |

### 2.2.17 AT3 Set Command Line Termination Character

| AT3 Set Command Line Termination Character |  |
|--|--|
| Read Command<br>AT3?                       | <p>Response</p> <p>&lt;n&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Write Command<br>AT3=<n>                   | <p>Response</p> <p>This parameter setting determines the character recognized by TA to terminate an incoming Command line. The TA also returns this character in output.</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p>&lt;n&gt;    <u>13</u>    Command line termination character</p> |

|                      |  |
|----------------------|--|
| Reference<br>V.25ter | Note<br>Default 13 = CR. It only supports default value. |
|----------------------|--|

### 2.2.18 ATS4 Set Response Formatting Character

| ATS4 Set Response Formatting Character |  |
|--|--|
| Read Command<br>ATS4?                  | Response<br><n><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command   |
| Write Command<br>ATS4=<n>              | Response<br>This parameter setting determines the character generated by the TA for result code and information text.<br><b>OK</b><br><br><b>ERROR</b> |
|  | Parameter<br><n> <u>10</u> Response formatting character   |
| Reference<br>V.25ter                   | Note<br>Default 10 = LF. It only supports default value.   |

### 2.2.19 ATS5 Set Command Line Editing Character

| ATS5 Set Command Line Editing Character |   |
|---|---|
| Read Command<br>ATS5?                   | Response<br><n><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br>ATS5=<n>               | Response<br>This parameter setting determines the character recognized by TA as a request to delete from the Command line the immediately preceding character.<br><b>OK</b><br><br><b>ERROR</b> |
|   | Parameter<br><n> <u>0-8-127</u> Response formatting character   |

|                      |                                |
|----------------------|--------------------------------|
| Reference<br>V.25ter | Note<br>Default 8 = Backspace. |
|----------------------|--------------------------------|

### 2.2.20 AT56 Pause Before Blind Dialling

| AT56 Pause Before Blind Dialling |                              |
|----------------------------------|------------------------------|
| Read Command<br>AT56?            | Response<br><b>ERROR</b>     |
| Write Command<br>AT56=<n>        | Response<br><b>OK</b>        |
|                                  | <b>ERROR</b>                 |
|                                  | Parameter<br><n> 0..999 Time |
| Reference<br>V.25ter             | Note<br>No effect in GSM     |

### 2.2.21 AT57 Set Number of Seconds to Wait for Connection Completion

| AT57 Set Number of Seconds to Wait for Connection Completion |   |
|--|---|
| Read Command<br>AT57?  | Response<br><n>   |
|  | <b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br>AT57=<n>                                    | Response<br>This parameter setting determines the amount of time to wait for the connection completion in case of answering or originating a call.<br><b>OK</b>   |
|  | <b>ERROR</b>  |
|  | Parameter<br><n> 1-60-255 Number of seconds to wait for connection completion   |
| Reference<br>V.25ter   | Note <ul style="list-style-type: none"> <li>● If called party has specified a high value for AT50=&lt;n&gt;, call setup may fail.</li> <li>● The correlation between AT57 and AT50 is important</li> <li>● Example: Call may fail if AT57=30 and AT50=20.</li> <li>● AT57 is only applicable to data call.</li> </ul> |

### 2.2.22 AT58 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command

| <b>AT58 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command</b> |  |
|---|--|
| Read Command<br><b>AT58?</b>  | Response<br><n><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT58=&lt;n&gt;</b>  | Response<br><b>OK</b><br><br><b>ERROR</b>  |
|   | Parameter<br><n> 0-255 The value of this register determines how long the modem should pause when it sees a comma in the dialing string. |
| Reference<br>V.25ter  | Note<br>No effect in GSM   |

### 2.2.23 AT10 Set Disconnect Delay after Indicating the Absence of Data Carrier

| <b>AT10 Set Disconnect Delay after Indicating the Absence of Data Carrier</b> |   |
|---|---|
| Read Command<br><b>AT10?</b>  | Response<br><n><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT10=&lt;n&gt;</b>  | Response<br>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 disconnecting, the TA remains connected.<br><b>OK</b><br><br><b>ERROR</b> |
|   | Parameter<br><n> 1-15-254 Number of tenths seconds of delay   |
| Reference<br>V.25ter  | Note  |

### 2.2.24 ATT Select Tone Dialing

| ATT Select Tone Dialing            |                          |
|------------------------------------|--------------------------|
| Execution<br>Command<br><b>ATT</b> | Response<br><b>OK</b>    |
| Reference<br>V.25ter               | Note<br>No effect in GSM |

### 2.2.25 ATV TA Response Format

| ATV TA Response Format                          |  |
|---|--|
| Execution<br>Command<br><b>ATV&lt;value&gt;</b> | <p>Response</p> <p>This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses.</p> <p>When &lt;value&gt;=0</p> <p><b>0</b></p> <p>When &lt;value&gt;=1</p> <p><b>OK</b></p> <p>Parameter</p> <p><b>&lt;value&gt;</b>    0    Information response: &lt;text&gt;&lt;CR&gt;&lt;LF&gt;<br/>Short result code format: &lt;numeric code&gt;&lt;CR&gt;</p> <p>              1    Information response: &lt;CR&gt;&lt;LF&gt;&lt;text&gt;&lt;CR&gt;&lt;LF&gt;<br/>Long result code format: &lt;CR&gt;&lt;LF&gt;&lt;verbose code&gt;<br/>&lt;CR&gt;&lt;LF&gt;</p> <p>The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.</p> |
| Reference<br>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) |
| PROCEEDING        | 9                     | An AT command is being processed   |
| CONNECT<br><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                          |

### 2.2.26 ATX Set CONNECT Result Code Format and Monitor Call Progress

| ATX Set CONNECT Result Code Format and Monitor Call Progress |   |
|--|---|
| Execution Command<br>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><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p>&lt;value&gt;    0    <b>CONNECT</b> result code only returned, dial tone and busy detection are both disabled.</p> <p>              1    <b>CONNECT&lt;text&gt;</b> result code only returned, dial tone and busy detection are both disabled.</p> <p>              2    <b>CONNECT&lt;text&gt;</b> result code returned, dial tone detection is enabled, busy detection is disabled.</p> <p>              3    <b>CONNECT&lt;text&gt;</b> result code returned, dial tone detection is disabled, busy detection is enabled.</p> <p>              4    <b>CONNECT&lt;text&gt;</b> result code returned, dial tone and busy detection are both enabled.</p> |
| Reference<br>V.25ter   | Note  |

### 2.2.27 ATZ Reset Default Configuration

| ATZ Reset Default Configuration   |   |
|-----------------------------------|---|
| Execution Command<br>ATZ[<value>] | <p>Response</p> <p>TA sets all current parameters to the user defined profile.</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p>&lt;value&gt;    0    Restore profile 0</p> |



|                      |                     |
|----------------------|---------------------|
|                      | 1 Restore profile 1 |
| Reference<br>V.25ter | Note                |

**Parameter impacted by Z command:**

| Command   | Parameter name | Default value |
|-----------|----------------|---------------|
| ATE       | <echo>         | 0x01          |
| ATQ       | <result>       | 0x00          |
| ATV       | <format>       | 0x01          |
| ATX       | <result>       | 0x04          |
| AT&C      | <behavior>     | 0x01          |
| AT&D      | <behavior>     | 0x01          |
| AT+IFC    | <TA_by_TE>     | 0x00          |
| AT+IFC    | <TE_by_TA>     | 0x00          |
| AT+FCLASS | <class>        | 0x00          |
| ATS0      | <num>          | 0x00          |
| ATS3      | <char>         | 0x00          |
| ATS4      | <char>         | 0x0D          |
| ATS5      | <char>         | 0x0A          |
| ATS7      | <time>         | 0x08          |
| ATS8      | <time>         | 0x32          |
| ATS10     | <time>         | 0x0E          |

**2.2.28 AT&C Set DCD Function Mode**

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

**2.2.29 AT&D Set DTR Function Mode**

| AT&D Set DTR Function Mode |
|----------------------------|
|----------------------------|

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

### 2.2.30 AT&F Factory Defined Configuration

| <b>AT&amp;F Factory Defined Configuration</b>       |  |
|---|--|
| Execution Command<br><b>AT&amp;F[&lt;value&gt;]</b> | <p>Response</p> <p>TA sets all current parameters to the manufacturer defined profile.</p> <p><b>OK</b></p> <p>Parameter</p> <p><b>&lt;value&gt;</b>    0    Set all TA parameters to manufacturer defaults.</p> |
| Reference<br>V.25ter                                | Note   |

#### Parameter impacted by &F command:

| Command | Parameter name | Default value |
|---------|----------------|---------------|
| ATE     | <echo>         | 0x01          |
| ATQ     | <result>       | 0x00          |
| ATV     | <format>       | 0x01          |
| ATX     | <result>       | 0x04          |
| AT+IFC  | <TA_by_TE>     | 0x00          |
| AT+IFC  | <TE_by_TA>     | 0x00          |
| ATS0    | <num>          | 0x00          |
| ATS3    | <char>         | 0x0D          |
| ATS4    | <char>         | 0x0A          |
| ATS5    | <char>         | 0x08          |
| ATS7    | <time>         | 0x64          |
| ATS8    | <time>         | 0x02          |
| ATS10   | <time>         | 0x0E          |

|          |           |                |
|----------|-----------|----------------|
| AT+CRLP  | <ver>     | 0x00           |
| AT+CRLP  | <T4>      | 0x07           |
| AT+CRLP  | <iws>     | 0x61           |
| AT+CRLP  | <mws>     | 0x61           |
| AT+CRLP  | <T1>      | 0x48           |
| AT+CRLP  | <N2>      | 0x06           |
| AT+CPBS  | <storage> | 0x53 0x4D 0x00 |
| AT+CSMP  | <fo>      | 0x11           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x18           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <fo>      | 0x11           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x18           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <fo>      | 0x11           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x18           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x00           |
| AT+CSMP  | <vp>      | 0x00..0x00     |
| AT+CSMP  | <pid>     | 0x00           |
| AT+CSMP  | <dcs>     | 0x00           |
| AT+CR    | <mode>    | 0x00           |
| AT+CSTA  | <type>    | 0x81           |
| AT+CBST  | <speed>   | 0x05 0x02 0x00 |
| AT+CBST  | <name>    | 0x01 0x00      |
| AT+CBST  | <ce>      | 0x01           |
| AT+CRC   | <mode>    | 0x00           |
| AT+CMOD  | <mode>    | 0x00           |
| AT+CMEE  | <n>       | 0x00           |
| AT+CREG  | <n>       | 0x00           |
| AT+CGREG | <n>       | 0x00           |
| AT+CSMS  | <service> | 0x00           |
| AT+CMGF  | <mode>    | 0x00           |
| AT+CSDH  | <show>    | 0x00           |

|         |         |      |
|---------|---------|------|
| AT+CSCS | <chset> | 0x00 |
| AT+CLIR | <n>     | 0x00 |
| AT+CLIP | <n>     | 0x00 |
| AT+COLP | <n>     | 0x00 |

### 2.2.31 AT&V Display Current Configuration

| AT&V Display Current Configuration |  |
|------------------------------------|--|
| Execution                          | Response   |
| Command                            | TA returns the current parameter setting.                      |
| AT&V[<n>]                          | <current configurations text><br><b>OK</b><br><br><b>ERROR</b> |
|                                    | Parameter  |
|                                    | <n> 0 Responses in numeric format                              |
| Reference                          | Note   |
| V.25ter                            |  |

### 2.2.32 AT&W Store Active Profile

| AT&W Store Active Profile |  |
|---------------------------|--|
| Execution                 | Response   |
| Command                   | TA stores the current parameter setting in the user defined profile.                                 |
| AT&W[<n>]                 | <b>OK</b><br><br><b>ERROR</b>  |
|                           | Parameter  |
|                           | <n> 0 Store the current configuration in profile 0<br>1 Store the current configuration in profile 1 |
| Reference                 | Note   |
| V.25ter                   | The user defined profile is stored in non volatile memory.   |

#### Parameter stored by &W

| Command | Parameter name | Displayedby &V |
|---------|----------------|----------------|
| ATE     | <echo>         | Y              |
| ATQ     | <result>       | Y              |
| ATV     | <format>       | Y              |
| ATX     | <result>       | Y              |
| AT&C    | <behavior>     | Y              |
| AT&D    | <behavior>     | Y              |
| AT+IFC  | <TA_by_TE>     | Y              |

|           |            |   |
|-----------|------------|---|
| AT+IFC    | <TE_by_TA> | Y |
| AT+FCLASS | <class>    | Y |
| ATS0      | <num>      | Y |
| ATS3      | <char>     | Y |
| ATS4      | <char>     | Y |
| ATS5      | <char>     | Y |
| ATS7      | <time>     | Y |
| ATS8      | <time>     | Y |
| ATS10     | <time>     | Y |

### 2.2.33 AT+GCAP Request Complete TA Capabilities List

| AT+GCAP Request Complete TA Capabilities List |  |
|---|--|
| Execution Command<br><b>AT+GCAP</b>           | <p>Response</p> <p>TA reports a list of additional capabilities.<br/><b>+GCAP:</b> list of supported &lt;name&gt;s</p> <p><b>OK</b></p> <p>Parameter</p> <p>&lt;name&gt; +CGSM GSM function is supported<br/>+FCLASS FAX function is supported</p> |
| Reference<br>V.25ter                          | <p>Note</p> <p>The command can be executed only when the SIM card is present.</p>  |

### 2.2.34 AT+GMI Request Manufacturer Identification

| AT+GMI Request Manufacturer Identification |   |
|--|---|
| Test Command<br><b>AT+GMI=?</b>            | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p>   |
| Execution Command<br><b>AT+GMI</b>         | <p>TA reports one or more lines of information text which permit the user to identify the manufacturer.</p> <p><b>SIMCOM_Ltd</b></p> <p><b>OK</b></p> |
| Reference<br>V.25ter                       | <p>Note</p>   |

### 2.2.35 AT+GMM Request TA Model Identification

| AT+GMM Request TA Model Identification |  |
|--|--|
|--|--|

|                                    |   |
|------------------------------------|---|
| Test Command<br><b>AT+GMM=?</b>    | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+GMM</b> | TA reports one or more lines of information text which permit the user to identify the specific model of device.<br><b>&lt;model&gt;</b><br><br><b>OK</b> |
|                                    | Parameter<br><b>&lt;model&gt;</b> Product model identification text   |
| Reference<br>V.25ter               | Note  |

### 2.2.36 AT+GMR Request TA Revision Identification of Software Release

|  |  |
|--|--|
| <b>AT+GMR Request TA Revision Identification of Software Release</b> |  |
| Test Command<br><b>AT+GMR=?</b>                                      | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+GMR</b>                                   | TA reports one or more lines of information text which permit the user to identify the revision of software release.<br><b>Revision: &lt;revision&gt;</b><br><br><b>OK</b> |
|  | Parameter<br><b>&lt;revision&gt;</b> Revision of software release  |
| Reference<br>V.25ter   | Note   |

### 2.2.37 AT+GOI Request Global Object Identification

|  |  |
|--|--|
| <b>AT+GOI Request Global Object Identification</b> |  |
| Test Command<br><b>AT+GOI=?</b>                    | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+GOI</b>                 | Response<br>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.<br><b>&lt;Object Id&gt;</b><br><br><b>OK</b> |
|  | Parameter  |

|                      |  |
|----------------------|--|
|                      | <b>&lt;Object Id&gt;</b> Identifier of device type<br>see X.208, 209 for the format of <Object Id> |
| Reference<br>V.25ter | Note   |

### 2.2.38 AT+GSN Request TA Serial Number Identification (IMEI)

| <b>AT+GSN Request TA Serial Number Identification(IMEI)</b> |  |
|---|--|
| Test Command<br><b>AT+GSN=?</b>                             | Response<br><b>OK</b>  |
| Execution<br>Command<br><b>AT+GSN</b>                       | Response<br>TA reports the IMEI (international mobile equipment identifier) number in information text which permit the user to identify the individual ME device.<br><b>&lt;sn&gt;</b><br><br><b>OK</b> |
|   | Parameter<br><b>&lt;sn&gt;</b> IMEI of the telephone(International Mobile station Equipment Identity)  |
| Reference<br>V.25ter  | Note<br>The serial number (IMEI) is varied by individual ME device.  |

### 2.2.39 AT+ICF Set TE-TA Control Character Framing

| <b>AT+ICF Set TE-TA Control Character Framing</b>              |   |
|--|---|
| Test Command<br><b>AT+ICF=?</b>                                | Response<br><b>+ICF:</b> (list of supported <b>&lt;format&gt;</b> s),(list of supported <b>&lt;parity&gt;</b> s)<br><br><b>OK</b>               |
|  | Parameters<br>See Write Command   |
| Read Command<br><b>AT+ICF?</b>                                 | Response<br><b>+ICF:</b> <b>&lt;format&gt;</b> , <b>&lt;parity&gt;</b><br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Write Command<br><b>AT+ICF=&lt;format&gt;[,&lt;parity&gt;]</b> | Response<br>This parameter setting determines the serial interface character framing format and parity received by TA from TE.<br><br><b>OK</b> |
|  | Parameters  |

|                      |   |
|----------------------|---|
|                      | <p><b>&lt;format&gt;</b>    1   8 data 0 parity 2 stop<br/>                           2   8 data 1 parity 1 stop<br/>                           3   8 data 0 parity 1 stop<br/>                           4   7 data 0 parity 2 stop<br/>                           5   7 data 1 parity 1 stop<br/>                           6   7 data 0 parity 1 stop</p> <p><b>&lt;parity&gt;</b>    0   odd<br/>                           1   even<br/>                           3   space (0)</p> |
| Reference<br>V.25ter | <p>Note</p> <ul style="list-style-type: none"> <li>● The Command is applied for Command state;</li> <li>● In <b>&lt;format&gt;</b> parameter, "0 parity" means no parity;</li> <li>● The <b>&lt;parity&gt;</b> field is ignored if the <b>&lt;format&gt;</b> field specifies no parity and string "+ICF: <b>&lt;format&gt;</b>,255" will be response to <b>AT+ICF?</b> Command.</li> </ul>  |

#### 2.2.40 AT+ICF Set TE-TA Local Data Flow Control

| AT+ICF Set TE-TA Local Data Flow Control                                 |  |
|--|--|
| Test Command<br><b>AT+ICF=?</b>  | <p>Response</p> <p><b>+ICF:</b> (list of supported <b>&lt;dce_by_dte&gt;</b>s),(list of supported <b>&lt;dte_by_dce&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Read Command<br><b>AT+ICF?</b>   | <p>Response</p> <p><b>+ICF:</b> <b>&lt;dce_by_dte&gt;</b>,<b>&lt;dte_by_dce&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br><b>AT+ICF=[&lt;dce_by_dte&gt;[,&lt;dte_by_dce&gt;]]</b> | <p>Response</p> <p>This parameter setting determines the data flow control on the serial interface for data mode.</p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;dce_by_dte&gt;</b>    Specifies the method will be used by TE at receive of data from TA</p> <p>                  0   No flow control<br/>                           1   Software flow control<br/>                           2   Hardware flow control</p> <p><b>&lt;dte_by_dce&gt;</b>    Specifies the method will be used by TA at receive of</p> |



|                      |   |
|----------------------|---|
|                      | <p>data from TE</p> <p><u>0</u> No flow control</p> <p>1 Software flow control</p> <p>2 Hardware flow control</p> |
| Reference<br>V.25ter | Note  |

#### 2.2.41 AT+IPR Set TE-TA Fixed Local Rate

| AT+IPR Set TE-TA Fixed Local Rate                      |   |
|--|---|
| <p>Test Command</p> <p><b>AT+IPR=?</b></p>             | <p>Response</p> <p><b>+IPR:</b> (list of supported auto detectable &lt;rate&gt;s),(list of supported fixed-only &lt;rate&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Read Command</p> <p><b>AT+IPR?</b></p>              | <p>Response</p> <p><b>+IPR:</b> &lt;rate&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+IPR=&lt;rate&gt;</b></p> | <p>Response</p> <p>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.</p> <p><b>OK</b></p> <p>Parameter</p> <p>&lt;rate&gt; Baud rate per second</p> <p><u>0</u> (Auto-bauding)</p> <p>1200</p> <p>2400</p> <p>4800</p> <p>9600</p> <p>19200</p> <p>38400</p> <p>57600</p> <p>115200</p> |
| Reference<br>V.25ter                                   | Note<br>Factory setting is AT+IPR=0 ( auto-bauding ) .  |

### 2.2.41.1 Auto-bauding

Synchronization between DTE and DCE ensure that DTE and DCE are correctly synchronized and the baud rate used by the DTE is detected by the DCE (= ME). To allow the baud rate to be synchronized, simply issue an "AT" string. This is necessary when you start up the module while auto-bauding 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 auto-bauding and auto-answer at the same time, you can easily enable the DTE-DCE synchronization, when you activate auto-bauding first and then configure the auto-answer mode.

#### Restrictions on auto-bauding 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" (not "aT" or "at") can be detected when auto-bauding is enabled.
- AT+IPR=0 setting to auto-bauding will take effect after module resets. If user wants to change DTE baud rate during module is running, i.e. from 57600 to 4800, DTR shall be used to urge auto-bauding progress. DTR shall be pulled up to invalid state at least 2 seconds by DTE and then pulled down to valid state. The step will urge auto-bauding progress and DCE will synchronize its baud rate after it receives data from the serial port.
- Unsolicited Result Codes that may be issued before the ME detects the new baud rate (by receiving the first AT Command string) will be sent at the previously detected baud rate.
- The Unsolicited Result Codes "RDY" and so on are not indicated when you start up the ME while auto-bauding is enabled.
- It is not recommended to switch to auto-bauding from a baud rate that cannot be detected by the auto-bauding mechanism (e.g. 300 baud). Responses to +IPR=0 and any commands on the same line might be corrupted.

#### Auto-bauding and baud rate after restart

The most recently detected baud rate can not be stored when module is powered down.

### 2.2.42 AT+HVOIC Disconnect Voice Call Only

| AT+HVOIC Disconnect Voice Call Only  |  |
|--------------------------------------|--|
| Execution Command<br><b>AT+HVOIC</b> | Response<br>Disconnect existing voice call by local TE from Command line and terminate call with existing PPP or CSD connection on.<br><b>OK</b> |
| Reference<br>V.25ter                 | Note   |

## 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(ACM MAX) SET OR QUERY               |
| AT+CAOC | ADVICE OF CHARGE   |
| AT+CBST | SELECT BEARER SERVICE TYPE   |
| AT+CCFC | CALL FORWARDING NUMBER AND CONDITIONS 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+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 | PHONE 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  |

|           |  |
|-----------|--|
| AT+CRC    | SET CELLULAR RESULT CODES FOR INCOMING CALL INDICATION |
| AT+CREG   | NETWORK REGISTRATION                                   |
| AT+CRLP   | SELECT RADIO LINK PROTOCOL PARAMETERS                  |
| 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+CALS   | ALERT SOUND SELECT                                     |
| AT+CRSL   | RINGER SOUND LEVEL                                     |
| AT+CLVL   | LOUD SPEAKER VOLUME LEVEL                              |
| AT+CMUT   | MUTE CONTROL   |
| AT+CPUC   | PRICE PER UNIT AND 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                                       | Response  |
| AT+CACM=?  | <b>OK</b> |
| Read Command                                       | Response  |

|  |   |
|--|---|
| <p><b>AT+CACM?</b></p>                                 | <p>TA returns the current value of ACM.<br/><b>+CACM: &lt;acm&gt;</b></p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;acm&gt;</b> String type (string should be included in quotation marks); three bytes of the current ACM value in hexa-decimal format (e.g. "00001E" indicates decimal value 30)<br/>000000 – FFFFFFFF</p>                 |
| <p>Write Command<br/><b>AT+CACM=&lt;passwd&gt;</b></p> | <p>Response<br/>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.<br/><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;passwd&gt;</b> String type (string should be included in quotation marks):<br/>SIM PIN2</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>                    | <p>Note</p>   |

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

| <p><b>AT+CAMM Accumulated Call Meter Maximum(ACM max) Set or Query</b></p> |  |
|--|--|
| <p>Test Command<br/><b>AT+CAMM=?</b></p>                                   | <p>Response<br/><b>OK</b></p>  |
| <p>Read Command<br/><b>AT+CAMM?</b></p>                                    | <p>Response<br/>TA returns the current value of ACM max.<br/><b>+CAMM: &lt;acmmax&gt;</b></p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Write Command<br/><b>AT+CAMM=&lt;ac</b></p>                             | <p>Response<br/>TA sets the Advice of Charge related accumulated call meter maximum</p>  |

|                                  |   |
|----------------------------------|---|
| <b>mmax&gt;[,&lt;passwd&gt;]</b> | <p>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><b>OK</b></p> <p><b>ERROR</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;acmmax&gt;</b> String type (string should be included in quotation marks); three bytes of the max. ACM value in hex-decimal format (e.g. "00001E" indicates decimal value 30)<br/>000000 disable ACMmax feature<br/>000001-FFFFFF</p> <p><b>&lt;passwd&gt;</b> String type (string should be included in quotation marks)<br/>SIM PIN2</p> |
| Reference<br>GSM 07.07 [13]      | Note  |

### 3.2.3 AT+CAOC Advice of Charge

| <b>AT+CAOC Advice of Charge</b>              |  |
|--|--|
| Test Command<br><b>AT+CAOC=?</b>             | Response<br><b>+CAOC:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b><br><br>Parameters<br>See Write Command  |
| Read Command<br><b>AT+CAOC?</b>              | Response<br><b>+CAOC:</b> <b>&lt;mode&gt;</b><br><br><b>OK</b><br><br>Parameters<br>See Write Command  |
| Write Command<br><b>AT+CAOC=&lt;mode&gt;</b> | Response<br>TA sets the Advice of Charge supplementary service function mode.<br>If <b>&lt;mode&gt;</b> =0, TA returns the current call meter value<br><b>+CAOC:</b> <b>&lt;ccm&gt;</b><br><br><b>OK</b><br>If <b>&lt;mode&gt;</b> =1, TA deactivates the unsolicited reporting of CCM value |

|                             |   |
|-----------------------------|---|
|                             | <p><b>OK</b><br/>If &lt;mode&gt;=2, TA activates the unsolicited reporting of CCM value</p> <p><b>OK</b><br/><b>ERROR</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b>    0    Query CCM value<br/>                  1    Deactivate the unsolicited reporting of CCM value<br/>                  2    Activate the unsolicited reporting of CCM value</p> <p><b>&lt;ccm&gt;</b>        String type (string should be included in quotation marks);<br/>                  three bytes of the current CCM value in hex-decimal format<br/>                  (e.g. "00001E" indicates decimal value 30); bytes are<br/>                  similarly coded as ACMmax value in the SIM<br/>                  000000-FFFFFF</p> |
| Reference<br>GSM 07.07 [13] | Note  |

### 3.2.4 AT+CBST Select Bearer Service Type

| <b>AT+CBST Select Bearer Service Type</b>                                 |  |
|---|--|
| Test Command<br><b>AT+CBST=?</b>  | Response<br><b>+CBST:</b> (list of supported <speed>s),(list of supported <name>s),(list of supported <ce>s)<br><br><b>OK</b><br><br>Parameters<br>See Write Command             |
| Read Command<br><b>AT+CBST?</b>   | Response<br><b>+CBST:</b> <speed>,<name>,<ce><br><br><b>OK</b><br><br>Parameters<br>See Write Command  |
| Write Command<br><b>AT+CBST=&lt;speed&gt;[,&lt;name&gt;][,&lt;ce&gt;]</b> | Response<br>TA selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated.<br><b>OK</b><br><b>ERROR</b> |

|                             |   |
|-----------------------------|---|
|                             | <p>Parameters</p> <p><b>&lt;speed&gt;</b>    0    Auto-bauding (automatic selection of the speed; this setting is possible in case of 3.1kHz modern and non-transparent service)</p> <p>                  7    9600 bps (V.32)</p> <p>                  71    9600 bps (V.110 or X.31 flag stuffing)</p> <p>                              Supported if UMTS_FTR is activated</p> <p><b>&lt;name&gt;</b>        0    Data circuit asynchronous (UDI or 3.1 kHz modem)</p> <p><b>&lt;ce&gt;</b>            1    Non-transparent</p> |
| Reference<br>GSM 07.07 [14] | <p>Note</p> <ul style="list-style-type: none"> <li>● GSM 02.02[1]: lists the allowed combinations of the sub parameters</li> <li>● It only supports the speed of 9600bps when in non-transparent mode.</li> </ul>   |

### 3.2.5 AT+CCFC Call Forwarding Number and Conditions Control

| AT+CCFC Call Forwarding Number and Conditions Control  |  |
|--|--|
| <p>Test Command</p> <p><b>AT+CCFC=?</b></p>  | <p>Response</p> <p><b>+CCFC:</b> (list of supported <b>&lt;reason&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CCFC =</b><br/><b>&lt;reason&gt;</b>,<br/><b>&lt;mode&gt;</b><br/><b>[, &lt;number&gt; [,</b><br/><b>&lt;type&gt; [,&lt;class&gt;</b><br/><b>[, &lt;subaddr&gt;</b><br/><b>[,&lt;satype&gt;</b><br/><b>[,&lt;time&gt;]]]]]</b></p> | <p>Response</p> <p>TA controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.</p> <p>Only ,&lt;reads&gt; and &lt;mode&gt; should be entered with mode (0-2,4)</p> <p>If &lt;mode&gt;≠2 and Command successful</p> <p><b>OK</b></p> <p>If &lt;mode&gt;=2 and Command successful (only in connection with &lt;reads&gt; 0-3)</p> <p>For registered call forwarding numbers:<br/>when &lt;mode&gt;=2 and command successful:</p> <p><b>+CCFC: &lt;status&gt;,&lt;class1&gt;</b><br/><b>[,&lt;number&gt;,&lt;type&gt;[,&lt;subaddr&gt;,&lt;satype&gt;[,&lt;time&gt;]]]</b><br/><b>[&lt;CR&gt;&lt;LF&gt;+CCFC: &lt;status&gt;,&lt;class2&gt;</b><br/><b>[,&lt;number&gt;,&lt;type&gt;[,&lt;subaddr&gt;,&lt;satype&gt;[,&lt;time&gt;]]][...]</b></p> <p><b>OK</b></p> <p>If no call forwarding numbers are registered (and therefore all classes are inactive):</p> <p><b>+CCFC: &lt;status&gt;, &lt;class&gt;</b></p> <p><b>OK</b></p> <p>where &lt;status&gt;=0 and &lt;class&gt;=7</p> <p>If error is related to ME functionality:</p> |



|                                |   |
|--------------------------------|---|
| <b>+CME ERROR: &lt;err&gt;</b> |   |
| Parameters                     |   |
| <b>&lt;reason&gt;</b>          | 0 Unconditional<br>1 Mobile busy<br>2 No reply<br>3 Not reachable<br>4 All call forwarding<br>5 All conditional call forwarding   |
| <b>&lt;mode&gt;</b>            | 0 Disable<br>1 Enable<br>2 Query status<br>3 Registration<br>4 Erasure  |
| <b>&lt;number&gt;</b>          | String type (Phone number of forwarding address in format specified by <type>)  |
| <b>&lt;type&gt;</b>            | Type of address   |
| <b>&lt;subaddr&gt;</b>         | String type (subaddress of format specified by <satype>)  |
| <b>&lt;satype&gt;</b>          | Type of sub-address in integer  |
| <b>&lt;class&gt;</b>           | 1 Voice (telephony)<br>2 Data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)<br>4 Fax (facsimile services)<br>7 All classes |
| <b>&lt;time&gt;</b>            | 1..30 When "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded, default value is 20. Supported only if it is multiples of 5.  |
| <b>&lt;status&gt;</b>          | 0 Not active<br>1 Active  |
| Reference<br>GSM07.07          | Note  |

### 3.2.6 AT+CCWA Call Waiting Control

| <b>AT+CCWA Call Waiting Control</b> |   |
|-------------------------------------|---|
| Test Command<br><b>AT+CCWA=?</b>    | Response<br><b>+CCWA:</b> (list of supported <n>s)<br><br><b>OK</b> |
|                                     | Parameter<br>See Write Command                                      |

|  |   |
|--|---|
| <p>Read Command<br/><b>AT+CCWA?</b></p>  | <p>Response<br/><b>+CCWA: &lt;n&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CCWA=&lt;n&gt;[,&lt;mode&gt;[,&lt;class&gt;]]</b></p> | <p>Response<br/>TA controls the Call Waiting supplementary service. Activation, deactivation and status query are supported.<br/>If &lt;mode&gt;≠2 and Command successful<br/><b>OK</b><br/>If &lt;mode&gt;=2 and Command successful<br/><b>+CCWA:&lt;status&gt;,&lt;class1&gt;[&lt;CR&gt;&lt;LF&gt;+CCWA:&lt;status&gt;,&lt;class2&gt;[...]]</b></p> <p><b>OK</b><br/><b>ERROR</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Note: &lt;status&gt;=0 should be returned only if service is not active for any &lt;class&gt; i.e. +CCWA: 0, 7 will be returned in this case.<br/>When mode=2, all active call waiting classes will be reported. In this mode the Command is aborted by pressing any key.</p> <p>Parameters</p> <p><b>&lt;n&gt;</b>            0    Disable presentation of an unsolicited result code<br/>                  1    Enable presentation of an unsolicited result code</p> <p><b>&lt;mode&gt;</b>        When &lt;mode&gt; parameter not given, network is not interrogated<br/>                  0    Disable<br/>                  1    Enable<br/>                  2    Query status</p> <p><b>&lt;class&gt;</b>        Is a sum of integers each representing a class of information<br/>                  1    Voice (telephony)<br/>                  2    Data (refers to all bearer services; with &lt;mode&gt;=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)<br/>                  4    Fax (facsimile services)<br/>                  7    Default(1+2+4)</p> <p><b>&lt;status&gt;</b>       0    Not active<br/>                  1    Enable</p> <p>Unsolicited result code<br/><b>RING</b></p> |

|                        |  |
|------------------------|--|
|                        | <p><b>+CCWA: &lt;number&gt;,&lt;type&gt;,&lt;class&gt;[,&lt;alpha&gt;]</b></p> <p>Parameters</p> <p><b>&lt;number&gt;</b> String type (string should be included in quotation marks) phone number of calling address in format specified by &lt;type&gt;</p> <p><b>&lt;type&gt;</b> Type of address octet in integer format;</p> <p>129 Unknown type</p> <p>161 National number type</p> <p>145 International number type</p> <p>177 Network specific number</p> <p><b>&lt;alpha&gt;</b> Optional string type (string should be included in quotation marks) alphanumeric representation of &lt;number&gt; corresponding to the entry found in phone book.</p> |
| Reference<br>GSM 07.07 | Note   |

### 3.2.7AT+CEER Extended Error Report

| <b>AT+CEER Extended Error Report</b>              |   |
|---|---|
| <p>Test Command<br/><b>AT+CEER=?</b></p>          | <p>Response</p> <p><b>+CEER:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| <p>Read Command<br/><b>AT+CEER?</b></p>           | <p>Response</p> <p><b>+CEER:</b> &lt;n&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CEER=&lt;n&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p> <p>&lt;n&gt; 0 The reason for last call release as text code</p> <p>1 The reason for last call release as number code</p> |
| <p>Execution Command<br/><b>AT+CEER</b></p>       | <p>Response</p> <p>TA returns an extended report of the reason for the last call release.</p> <p><b>+CEER:</b> &lt;report&gt;</p>   |

**OK**

Parameter

**<report>** If AT+CEER=0, return <c>  
 <c> a string that represents the Cause  
 If AT+CEER=1, return  
**CauseSelect: <cs> Cause:<c>**  
 <cs> number representing the CauseSelect  
 <c> number representing the Cause

Parameters

| CauseSelect <cs>      | Cause <c>(number)            | <c>(string)                   |                  |
|-----------------------|------------------------------|-------------------------------|------------------|
| 0 (No cause)          | 0                            | (No cause)                    |                  |
| 16 (Service provider) | 0                            | (Unknown)                     |                  |
|                       | 1                            | (Not Allowed)                 |                  |
|                       | 2                            | (No cause)                    |                  |
|                       | 6                            | (Wrong parameter)             |                  |
|                       | 9                            | (Network access not allowed)  |                  |
|                       | 20                           | (all call instances are used) |                  |
|                       | 21                           | (ACM over ACM Max)            |                  |
|                       | 22                           | (invalid AOC element)         |                  |
|                       | 23                           | (SIM increase not allowed)    |                  |
|                       | 24                           | (switch off)                  |                  |
|                       | 25                           | (Unknown call id)             |                  |
|                       | 28                           | (barred)                      |                  |
|                       | 65 (Local cause)             | 1                             | (state error)    |
|                       |                              | 2                             | (no call entity) |
| 3                     |                              | (wrong TI)                    |                  |
| 6                     |                              | (DTMF buffer overflow)        |                  |
| 7                     |                              | (call disconnected)           |                  |
| 17                    |                              | (No cell available)           |                  |
| 32                    |                              | (Local rejection)             |                  |
| 33                    |                              | (PLMN not allowed)            |                  |
| 34                    |                              | (emergency call not possible) |                  |
| 35                    |                              | (authentication rejected)     |                  |
| 36                    |                              | (network rejection)           |                  |
| 37                    |                              | (LA not allowed)              |                  |
| 38                    |                              | (Local timeout)               |                  |
| 39                    |                              | (server congestion)           |                  |
| 40                    | (local data rejection)       |                               |                  |
| 48                    | (failed replace PDP context) |                               |                  |
| 66 (MM network cause) | See [24.008]                 |                               |                  |
| 67 (CC network cause) | See [24.008]                 |                               |                  |
| 69 (RP cause)         | See [24.008]                 |                               |                  |

|                             |                |                                   |  |
|-----------------------------|----------------|-----------------------------------|--|
|                             | 71 (SIM cause) | 0<br>1<br>2<br>6<br>7<br>11<br>15 | (Unknown problem)<br>(Memory problem)<br>(File Id not found)<br>(Increase problem)<br>(Technical problem)<br>(Command not allowed)<br>(SIM card out) |
|                             | 73 (SM cause)  | See [24.008]                      |  |
| Reference<br>GSM 07.07 [13] | Note           |                                   |  |

### 3.2.8 AT+CGMI Request Manufacturer Identification

| AT+CGMI Request Manufacturer Identification |  |
|---|--|
| Test Command<br><b>AT+CGMI=?</b>            | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+CGMI</b>         | Response<br>TA returns manufacturer identification text.<br><b>&lt;manufacturer&gt;</b><br><br><b>OK</b> |
|   | Parameter<br><b>&lt;manufacturer&gt;</b> The ID of manufacturer  |
| Reference<br>GSM 07.07 [13]                 | Note   |

### 3.2.9 AT+CGMM Request Model Identification

| AT+CGMM Request Model Identification |  |
|--------------------------------------|--|
| Test Command<br><b>AT+CGMM=?</b>     | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+CGMM</b>  | Response<br>TA returns product model identification text.<br><b>&lt;model&gt;</b><br><br><b>OK</b> |
|                                      | Parameter<br><b>&lt;model&gt;</b> Product model identification text                                |
| Reference                            | Note   |

GSM 07.07 [13]

### 3.2.10 AT+CGMR Request TA Revision Identification of Software Release

| AT+CGMR Request TA Revision Identification of Software Release |  |
|--|--|
| Test Command<br>AT+CGMR=?                                      | Response<br><b>OK</b>  |
| Execution Command<br>AT+CGMR                                   | Response<br>TA returns product software version identification text.<br><b>Revision: &lt;revision&gt;</b><br><br><b>OK</b> |
|  | Parameter<br><b>&lt;revision&gt;</b> Product software version identification text  |
| Reference<br>GSM 07.07 [13]                                    | Note   |

### 3.2.11 AT+CGSN Request Product Serial Number Identification (Identical with +GSN)

| AT+CGSN Request Product Serial Number Identification (Identical with +GSN) |   |
|--|---|
| Test Command<br>AT+CGSN=?  | Response<br><b>OK</b>   |
| Execution Command<br>AT+CGSN   | Response<br>see +GSN<br><b>&lt;sn&gt;</b><br><br><b>OK</b>                    |
|  | Parameter<br><b>&lt;sn&gt;</b> International mobile equipment identity (IMEI) |
| Reference<br>GSM 07.07 [13]  | Note  |

### 3.2.12 AT+CSCS Select TE Character Set

| AT+CSCS Select TE Character Set |  |
|---------------------------------|--|
| Test Command<br>AT+CSCS=?       | Response<br><b>+CSCS: (list of supported &lt;chset&gt;s)</b><br><br><b>OK</b>        |
|                                 | Parameter<br><b>&lt;chset&gt;</b> "GSM" GSM 7 bit default alphabet (3GPP TS 23.038); |

|   |   |
|---|---|
|   | <p>"UCS2" 16-bit universal multiple-octet coded character set (ISO/IEC10646); UCS2 character strings are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99</p> <p>"IRA" International reference alphabet (ITU-T T.50)</p> <p>"HEX" Character strings consist only of hexadecimal numbers from 00 to FF;</p> <p>"PCCP" PC character set Code</p> <p>"PCDN" PC Danish/Norwegian character set</p> <p>"8859-1" ISO 8859 Latin 1 character set</p> |
| Read Command<br><b>AT+CSCS?</b>               | <p>Response</p> <p><b>+CSCS: &lt;chset&gt;</b></p> <p><b>OK</b></p> <hr/> <p>Parameter</p> <p>See Test Command</p>  |
| Write Command<br><b>AT+CSCS=&lt;chset&gt;</b> | <p>Response</p> <p>Sets which character set &lt;chset&gt; are used by the TE. The TA can then convert character strings correctly between the TE and ME character sets.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <hr/> <p>Parameter</p> <p>See Test Command</p>   |
| Reference<br>GSM 07.07 [13]                   | Note  |

### 3.2.13 AT+CSTA Select Type of Address

|                                       |   |
|---------------------------------------|---|
| <b>AT+CSTA Select Type of Address</b> |   |
| Test Command<br><b>AT+CSTA=?</b>      | <p>Response</p> <p><b>+CSTA: (list of supported &lt;type&gt;s)</b></p> <p><b>OK</b></p> <hr/> <p>Parameter</p> <p>See Write Command</p> |
| Read Command<br><b>AT+CSTA?</b>       | <p>Response</p> <p><b>+CSTA: &lt;type&gt;</b></p>   |

|   |   |
|---|---|
|   | <p><b>OK</b></p>  |
|   | <p>Parameter</p> <p>&lt;type&gt; Current address type setting.</p>  |
| <p>Write Command</p> <p><b>AT+CSTA=&lt;type&gt;</b></p> <p>&gt;</p> | <p>Response</p> <p><b>OK</b></p> <p>If &lt;type&gt; is not in the parameter range:</p> <p><b>ERROR</b></p>  |
|   | <p>Parameter</p> <p>&lt;type&gt; Type of address octet in integer format;</p> <p>129 Unknown type</p> <p>161 National number type</p> <p>145 International number type</p> <p>177 Network specific number</p> |
| <p>Reference</p> <p>GSM 07.07 [13]</p>                              | <p>Note</p> <p>The ATD Command overrides this setting when a number is dialed.</p>  |

### 3.2.14 AT+CHLD Call Hold and Multiparty

|  |  |
|--|--|
| <p><b>AT+CHLD Call Hold and Multiparty</b></p>       |  |
| <p>Test Command</p> <p><b>AT+CHLD=?</b></p>          | <p>Response</p> <p><b>+CHLD:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p>   |
|  | <p>Parameter</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+CHLD=&lt;n&gt;</b></p> | <p>Response</p> <p>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.</p> <p>Note These supplementary services are only applicable to tele service 11 (Speech: Telephony).</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> |
|  | <p>Parameter</p> <p>&lt;n&gt; 0 Releases all held calls or sets User Determined User Busy (UDUB) for a waiting call</p>  |



|           |   |
|-----------|---|
|           | <p>1 Releases all active calls (if any exist) and accepts the other (held or waiting) call.</p> <p>1x Releases a specific active call x</p> <p>2 Place all active calls on hold (if any) and accept the other (held or waiting) call.</p> <p>2x Places all active calls on hold except call X with which communication shall be supported.</p> <p>3 Adds a held call to the conversation.</p> <p>4 Connects the two calls and disconnects the subscriber from both calls(ECT)</p> <p>6 Swap operation(retrieves the held call and holds the active call). Not applicable for calls engaged in a multiparty operation(+CME ERROR returned)</p> <p>6x Retrieves the specified held call x. Not applicable for calls engaged in a multiparty operation (+CME ERROR returned)</p> <p>7x Holds the specified active call x. Not applicable for calls engaged in a multiparty operation (+CME ERROR returned)</p> <p>8x Releases the specified call x (whatever its state).</p> <p>9x Aborts MO speech call x setup without releasing other calls. Possible if OK result code is sent before call is connected: allowed if *PSCSSC mode = enabled and +COLP = disabled.</p> |
| Reference | Note  |

### 3.2.15 AT+CIMI Request International Mobile Subscriber Identity

| AT+CIMI Request International Mobile Subscriber Identity |   |
|--|---|
| Test Command<br><b>AT+CIMI=?</b>                         | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+CIMI</b>                      | Response<br>TA returns <IMSI>for identifying the individual SIM which is attached to ME.<br><IMSI><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |

|                             |   |
|-----------------------------|---|
|                             | Parameter<br><IMSI> International Mobile Subscriber Identity (string without double quotes) |
| Reference<br>GSM 07.07 [13] | Note  |

### 3.2.16 AT+CLCC List Current Calls of ME

| AT+CLCC List Current Calls of ME          |  |
|---|--|
| Test Command<br><b>AT+CLCC=?</b>          | Response<br><b>+CLCC: (0,1)</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CLCC?</b>           | Response<br><b>+CLCC: &lt;n&gt;</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CLCC=&lt;n&gt;</b> | Response<br><br><b>OK</b>  |
|   | Parameter<br><n> 0 Don't report a list of current calls of ME automatically when the current call status changes.<br>1 Report a list of current calls of ME automatically when the current call status changes.  |
| Execution Command<br><b>AT+CLCC</b>       | Response<br>TA returns a list of current calls of ME.<br>Note: If Command succeeds but no calls are available, no information response is sent to TE.<br><b>[+CLCC: &lt;id1&gt;,&lt;dir&gt;,&lt;stat&gt;,&lt;mode&gt;,&lt;mpty&gt;[,&lt;number&gt;,&lt;type&gt;,&lt;alphaID&gt;]</b><br><b>[&lt;CR&gt;&lt;LF&gt;+CLCC: &lt;id2&gt;,&lt;dir&gt;,&lt;stat&gt;,&lt;mode&gt;,&lt;mpty&gt;[,&lt;number&gt;,&lt;type&gt;,&lt;alphaID&gt;][...]]</b><br><br><b>OK</b> |

|   |   |
|---|---|
|   | <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;idx&gt;</b> 1..7 Call identification number<br/>This number can be used in +CHLD command operations</p> <p><b>&lt;dir&gt;</b> 0 Mobile originated (MO) call<br/>1 Mobile terminated (MT) call</p> <p><b>&lt;stat&gt;</b> State of the call:<br/>0 Active<br/>1 Held<br/>2 Dialing (MO call)<br/>3 Alerting (MO call)<br/>4 Incoming (MT call)<br/>5 Waiting (MT call)<br/>6 Disconnect</p> <p><b>&lt;mode&gt;</b> Bearer/tele service:<br/>0 Voice<br/>1 Data<br/>2 Fax</p> <p><b>&lt;mpty&gt;</b> 0 Call is not one of multiparty (conference) call parties<br/>1 Call is one of multiparty (conference) call parties</p> <p><b>&lt;number&gt;</b> String type (string should be included in quotation marks)<br/>phone number in format specified by &lt;type&gt;.</p> <p><b>&lt;type&gt;</b> Type of address</p> <p><b>&lt;alphaId&gt;</b> String type (string should be included in quotation marks)<br/>alphanumeric representation of &lt;number&gt; corresponding to the entry found in phone book.</p> |
| <p>Reference<br/>GSM 07.07<br/>[13][14]</p> | <p>Note</p>   |

### 3.2.17 AT+CLCK Facility Lock

|  |  |
|--|--|
| <b>AT+CLCK Facility Lock</b>             |  |
| <p>Test Command<br/><b>AT+CLCK=?</b></p> | <p>Response<br/><b>+CLCK:</b> (list of supported &lt;fac&gt;s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| <p>Write Command<br/><b>AT+CLCK=</b></p> | <p>Response<br/>This Command is used to lock, unlock or interrogate a ME or a network</p>                                  |

|   |   |
|---|---|
| <p><b>&lt;fac&gt;,&lt;mode&gt;</b><br/><b>[,&lt;passwd&gt;</b><br/><b>[,&lt;class&gt;]]</b></p> | <p>facility &lt;fac&gt;. Password is normally needed to do such actions. When querying the status of a network service (&lt;mode&gt;=2) the response line for 'not active' case (&lt;status&gt;=0) should be returned only if service is not active for any &lt;class&gt;.</p> <p>If &lt;mode&gt;≠2 and Command is successful<br/> <b>OK</b></p> <p>If &lt;mode&gt;=2 and Command is successful<br/> <b>+CLCK: &lt;status&gt;[,&lt;class1&gt;[&lt;CR&gt;&lt;LF&gt;+CLCK: &lt;status&gt;,&lt;class2&gt;[...]]</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/> <b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;fac&gt;</b></p> <ul style="list-style-type: none"> <li>"AO" BAOC (Barr All Outgoing Calls)</li> <li>"OI" BOIC (Barr Outgoing International Calls)</li> <li>"OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country)</li> <li>"AI" BAIC (Barr All Incoming Calls)</li> <li>"IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country)</li> <li>"AB" All Barring services</li> <li>"AG" All out oing barring services</li> <li>"AC" All in Coming barring services</li> <li>"FD" SIM card or active application in the UICC (GSM or USIM) fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as &lt;passwd&gt;)</li> <li>"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code.</li> <li>"PN" Network Personalization, Correspond to NCK code</li> <li>"PU" Network subset Personalization Correspond to NSCK code</li> <li>"PP" Service Provider Personalization Correspond to SPCK code</li> </ul> <p><b>&lt;mode&gt;</b></p> <ul style="list-style-type: none"> <li>0 unlock</li> <li>1 lock</li> <li>2 query status</li> </ul> <p><b>&lt;passwd&gt;</b> String type (Shall be the same as password specified for the facility from the MT user interface or with command Change</p> |
|---|---|

|                             |   |
|-----------------------------|---|
|                             | Password +CPWD)<br><b>&lt;class&gt;</b><br>1 Voice (telephony)<br>2 Data refers to all bearer services; with <b>&lt;mode&gt;=2</b> this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128)<br>4 Fax (facsimile services)<br>7 All classes<br><b>&lt;status&gt;</b><br>0 Not active<br>1 Active |
| Reference<br>GSM 07.07 [14] | Note<br>CME errors if SIM not inserted or PIN is not entered.   |

### 3.2.18 AT+CLIP Calling Line Identification Presentation

| <b>AT+CLIP Calling Line Identification Presentation</b> |   |
|---|---|
| Test Command<br><b>AT+CLIP=?</b>                        | Response<br><b>+CLIP:</b> (list of supported <b>&lt;n&gt;</b> s)<br><br><b>OK</b><br><br>Parameter<br>See Write Command   |
| Read Command<br><b>AT+CLIP?</b>                         | Response<br><b>+CLIP:</b> <b>&lt;n&gt;</b> , <b>&lt;m&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR:</b> <b>&lt;err&gt;</b><br><br>Parameters<br>See Write Command  |
| Write Command<br><b>AT+CLIP=&lt;n&gt;</b>               | Response<br>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.<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR:</b> <b>&lt;err&gt;</b><br><br>Parameters<br><b>&lt;n&gt;</b> 0 Disable +CLIP notification.<br>1 Enable +CLIP notification.<br><b>&lt;m&gt;</b> 0 CLIP not provisioned<br>1 CLIP provisioned<br>2 unknown (e.g. no network, etc.) |
|   | Unsolicited Result Code   |

|           |   |
|-----------|---|
|           | <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: &lt;type&gt;) at a mobile terminating call.</p> <p><b>+CLIP: &lt;number&gt;,&lt;type&gt; [,&lt;subaddr&gt;,&lt;satype&gt;,&lt;alphaId&gt;,&lt;CLI validity&gt;]</b></p> <p>Parameters</p> <p><b>&lt;number&gt;</b> String type (string should be included in quotation marks) phone number of calling address in format specified by &lt;type&gt;.</p> <p><b>&lt;type&gt;</b> Type of address octet in integer format;</p> <p>129 Unknown type</p> <p>161 National number type</p> <p>145 International number type</p> <p>177 Network specific number</p> <p><b>&lt;subaddr&gt;</b> String type (subaddress of format specified by &lt;satype&gt;)</p> <p><b>&lt;satype&gt;</b> Integer type (type of subaddress)</p> <p><b>&lt;alphaId&gt;</b> String type (string should be included in quotation marks) alphanumeric representation of &lt;number&gt; corresponding to the entry found in phone book.</p> <p><b>&lt;CLI validity&gt;</b></p> <p>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 | Note  |

### 3.2.19 AT+CLIR Calling Line Identification Restriction

|  |  |
|--|--|
| <b>AT+CLIR Calling Line Identification Restriction</b> |  |
| <p>Test Command</p> <p><b>AT+CLIR=?</b></p>            | <p>Response</p> <p><b>+CLIR:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>                                   |
| <p>Read Command</p> <p><b>AT+CLIR?</b></p>             | <p>Response</p> <p><b>+CLIR:</b> &lt;n&gt;, &lt;m&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR:</b> &lt;err&gt;</p> |

|  |   |
|--|---|
|  | <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+CLIR=&lt;n&gt;</b></p> | <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 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><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <hr/> <p>Parameters</p> <p><b>&lt;n&gt;</b> (parameter sets the adjustment for outgoing calls):</p> <ul style="list-style-type: none"> <li><u>0</u> Presentation indicator is used according to the subscription of the CLIR service.</li> <li>1 CLIR invocation</li> <li>2 CLIR suppression</li> </ul> <p><b>&lt;m&gt;</b> (parameter shows the subscriber CLIR service status in the network):</p> <ul style="list-style-type: none"> <li>0 CLIR not provisioned</li> <li>1 CLIR provisioned in permanent mode</li> <li>2 Unknown (e.g. no network, etc.)</li> <li>3 CLIR temporary mode presentation restricted</li> <li>4 CLIR temporary mode presentation allowed</li> </ul> |
| Reference  | Note  |

### 3.2.20 AT+CMEE Report Mobile Equipment Error

|  |  |
|--|--|
| <b>AT+CMEE Report Mobile Equipment Error</b> |  |
| <p>Test Command</p> <p><b>AT+CMEE=?</b></p>  | <p>Response</p> <p><b>+CMEE:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <hr/> <p>Parameter</p> <p>See Write Command</p> |
| <p>Read Command</p> <p><b>AT+CMEE?</b></p>   | <p>Response</p> <p><b>+CMEE: &lt;n&gt;</b></p> <p><b>OK</b></p> <hr/> <p>Parameter</p>   |

|   |   |
|---|---|
|   | See Write Command   |
| Write Command<br><b>AT+CMEE=&lt;n&gt;</b> | <p>Response</p> <p>TA disables or enables the use of result code +CME ERROR: &lt;err&gt; as an indication of an error relating to the functionality of the ME.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR:&lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;n&gt;</b>    <u>0</u>    Disable +CME ERROR: &lt;err&gt; result code and use ERROR instead.</p> <p>          1    Enable +CME ERROR: &lt;err&gt; result code and use numeric &lt;err&gt;</p> <p>          2    Enable +CME ERROR: &lt;err&gt; result code and use verbose &lt;err&gt; values</p> |
| Reference<br>GSM 07.07 [13]               | Note  |

### 3.2.21 AT+COLP Connected Line Identification Presentation

| <b>AT+COLP Connected Line Identification Presentation</b> |  |
|---|--|
| Test Command<br><b>AT+COLP=?</b>                          | <p>Response</p> <p><b>+COLP:</b> (list of supported &lt;n&gt;s)    —</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br><b>AT+COLP?</b>                           | <p>Response</p> <p><b>+COLP:</b> &lt;n&gt;,&lt;m&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br><b>AT+COLP=&lt;n&gt;</b>                 | <p>Response</p> <p>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.</p> <p>Intermediate result code is returned from TA to TE before any +CR or V.25ter responses.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> |



|   |   |
|---|---|
| <b>+CME ERROR: &lt;err&gt;</b>  |   |
| Parameters  |   |
| <b>&lt;n&gt;</b>  | (parameter sets/shows the result code presentation status in the TA):<br>0 Disable +COLP notification<br>1 Enable +COLP notification                      |
| <b>&lt;m&gt;</b>  | (parameter shows the subscriber COLP service status in the network):<br>0 COLP not provisioned<br>1 COLP provisioned<br>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: |   |
| <b>+COLP: &lt;number&gt;,&lt;type&gt;[,&lt;subaddr&gt;,&lt;satype&gt; ,&lt;alphaId&gt;]</b>                               |   |
| Parameters  |   |
| <b>&lt;number&gt;</b>   | String type (string should be included in quotation marks) phone number of format specified by <type>   |
| <b>&lt;type&gt;</b>   | Type of address octet in integer format;<br>129 Unknown type<br>161 National number type<br>145 International number type<br>177 Network specific number  |
| <b>&lt;subaddr&gt;</b>  | String type (string should be included in quotation marks) sub address of format specified by <satype>  |
| <b>&lt;satype&gt;</b>   | Type of sub address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.8)   |
| <b>&lt;alphaId&gt;</b>  | String type (string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.        |
| Reference   | Note  |

### 3.2.22 AT+COPS Operator Selection

| <b>AT+COPS Operator Selection</b> |   |
|-----------------------------------|---|
| Test Command<br><b>AT+COPS=?</b>  | Response<br>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>+<b>COPS:</b> (list of supported&lt;<b>stat</b>&gt;,long alphanumeric&lt;<b>oper</b>&gt;,short alphanumeric&lt;<b>oper</b>&gt;,numeric &lt;<b>oper</b>&gt;)s[,(list of supported &lt;<b>mode</b>&gt;s), (list of supported &lt;<b>format</b>&gt;s)]</p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+COPS?</b></p>   | <p>Response<br/>TA returns the current mode and the currently selected operator. If no operator is selected, &lt;format&gt; and &lt;oper&gt; are omitted.<br/><b>+COPS: &lt;mode&gt;[,&lt;format&gt;, &lt;oper&gt;]</b></p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+COPS = &lt;mode&gt;, [&lt;format&gt;,&lt;oper&gt;]</b></p> | <p>Response<br/>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 &lt;mode&gt;=4). The selected operator name format shall apply to further read commands (+COPS?).</p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;stat&gt;</b>      0 Unknown<br/>                  1 Operator available<br/>                  2 Operator current<br/>                  3 Operator forbidden</p> <p><b>&lt;oper&gt;</b>      Refer to [27.007]<br/>                  operator in format as per &lt;format&gt;</p> <p><b>&lt;mode&gt;</b>      0 Automatic mode; &lt;oper&gt; field is ignored<br/>                  1 Manual (&lt;oper&gt; field shall be present, and &lt;AcT&gt; optionally)<br/>                  4 Manual/automatic (&lt;oper&gt; field shall be present); if manual selection fails, automatic mode (&lt;mode&gt;=0) is entered</p> <p><b>&lt;format&gt;</b>      0 Long format alphanumeric &lt;oper&gt;<br/>                  1 Short format alphanumeric &lt;oper&gt;</p> |

|                             |   |
|-----------------------------|---|
|                             | 2 Numeric <oper>; GSM Location Area Identification number |
| Reference<br>GSM 07.07 [14] | Note  |

### 3.2.23 AT+CPAS Phone Activity Status

| AT+CPAS Phone Activity Status |  |
|-------------------------------|--|
| Test Command<br>AT+CPAS=?     | <p>Response</p> <p>+CPAS: (list of supported &lt;pas&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Execution Command</p>  |
| Execution Command<br>AT+CPAS  | <p>Response</p> <p>TA returns the activity status of ME.</p> <p>+CPAS: &lt;pas&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameter</p> <p>&lt;pas&gt;    0 Ready (MT allows commands from TA/TE)</p> <p>          2 Unknown (MT is not guaranteed to respond to instructions)</p> <p>          3 Ringing (MT is ready for commands from TA/TE, but the ringer is active)</p> <p>          4 Call in progress (MT is ready for commands from TA/TE, but a call is in progress)</p> |
| Reference<br>GSM 07.07 [13]   | Note   |

### 3.2.24 AT+CPBF Find Phonebook Entries

| AT+CPBF Find Phonebook Entries |   |
|--------------------------------|---|
| Test Command<br>AT+CPBF=?      | <p>Response</p> <p>+CPBF: maximum length of field &lt;nlength&gt;,maximum length of field &lt;tlength&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameters</p> |

|  |  |
|--|--|
|  | See Write Command  |
| Write Command<br><b>AT+CPBF=[&lt;findtext&gt;]</b> | <p>Response</p> <p>TA returns phone book entries (from the current phone book memory storage selected with +CPBS) which contains alphanumeric string &lt;findtext&gt;.</p> <p><b>[+CPBF:&lt;index1&gt;,&lt;number&gt;,&lt;type&gt;,&lt;text&gt;]</b><br/> <b>[[...]&lt;CR&gt;&lt;LF&gt;+CBPF:&lt;index2&gt;,&lt;number&gt;,&lt;type&gt;,&lt;text&gt;]</b></p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;findtext&gt;</b> String type(string should be included in quotation marks) field of maximum length &lt;tlength&gt; in current TE character set specified by +CSCS.</p> <p><b>&lt;index1&gt;</b> Integer type values in the range of location numbers of phone book memory</p> <p><b>&lt;index2&gt;</b> Integer type values in the range of location numbers of phone book memory</p> <p><b>&lt;number&gt;</b> String type (string should be included in quotation marks) phone number of format &lt;type&gt;</p> <p><b>&lt;type&gt;</b> Type of address octet in integer format ;<br/> 129 Unknown type<br/> 161 National number type<br/> 145 International number type<br/> 177 Network specific number</p> <p><b>&lt;text&gt;</b> String type (string should be included in quotation marks) field of maximum length &lt;tlength&gt; in current TE character set specified by +CSCS.</p> <p><b>&lt;nlength&gt;</b> Integer type value indicating the maximum length of field &lt;number&gt;</p> <p><b>&lt;tlength&gt;</b> Integer type value indicating the maximum length of field &lt;text&gt;</p> |
| Reference<br>GSM 07.07 [13]                        | Note   |

### 3.2.25 AT+CPBR Read Current Phonebook Entries

|   |  |
|---|--|
| <b>AT+CPBR Read Current Phonebook Entries</b> |  |
| Test Command<br><b>AT+CPBR=?</b>              | <p>Response</p> <p>TA returns location range supported by the current storage as a compound value and the maximum lengths of &lt;number&gt; and &lt;text&gt; fields.</p> <p><b>+CPBR: (list of supported &lt;index&gt;s), &lt;nlength&gt;, &lt;tlength&gt;</b></p> |

|   |   |
|---|---|
|   | <p><b>OK</b></p> <p>Parameters</p> <p>&lt;index&gt; Location number</p> <p>&lt;nlength&gt; Max. length of phone number</p> <p>&lt;tlength&gt; Max. length of text for number</p>  |
| <p>Write Command</p> <p><b>AT+CPBR=</b></p> <p><b>&lt;index1&gt;</b></p> <p><b>[, &lt;index2&gt;]</b></p> | <p>Response</p> <p>TA returns phone book entries in location number range &lt;index1&gt;...&lt;index2&gt; from the current phone book memory storage selected with +CPBS. If &lt;index2&gt; is left out, only location &lt;index 1&gt; is returned.</p> <p><b>+CPBR:&lt;index1&gt;,&lt;number&gt;,&lt;type&gt;,&lt;text&gt;</b></p> <p><b>[[...]&lt;CR&gt;&lt;LF&gt;+CPBR: &lt;index2&gt;,&lt;number&gt;,&lt;type&gt;,&lt;text&gt;]</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>&lt;index1&gt; Read as of this location number</p> <p>&lt;index2&gt; Read to this location number</p> <p>&lt;number&gt; Phone number</p> <p>&lt;type&gt; Type of number</p> <p>&lt;text&gt; Text for phone number in current TE character set specified by +CSCS.</p> |
| <p>Reference</p> <p>GSM 07.07 [13]</p>  | <p>Note</p>   |

### 3.2.26 AT+CPBS Select Phonebook Memory Storage

|  |   |
|--|---|
| <p><b>AT+CPBS Select Phonebook Memory Storage</b></p>      |   |
| <p>Test Command</p> <p><b>AT+CPBS=?</b></p>                | <p>Response</p> <p><b>+CPBS: (list of supported &lt;storage&gt;s)</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>          |
| <p>Read Command</p> <p><b>AT+CPBS?</b></p>                 | <p>Response</p> <p><b>+CPBS: &lt;storage&gt;[,&lt;used&gt;,&lt;total&gt;]</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p> |
| <p>Write Command</p> <p><b>AT+CPBS=&lt;storage&gt;</b></p> | <p>Response</p> <p>TA selects current phone book memory storage, which is used by other phone book commands.</p> <p><b>OK</b></p>             |

|                             |  |
|-----------------------------|--|
|                             | Parameters   |
|                             | <p><b>&lt;storage&gt;</b> "DC" ME dialed calls list(+CPBW may not be applicable for this storage)(same as LD)</p> <p>"EN" SIM (or MT) emergency number (+CPBW is not be applicable for this storage)</p> <p>"FD" SIM fix dialing-phone book. If a SIM card is present or if a UICC with an active GSM application is present, the information in EFFDN under DFTelecom is selected</p> <p>"MC" MT missed (unanswered received) calls list (+CPBW may not be applicable for this storage)</p> <p>"ON" SIM (or MT) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM also). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active GSM application is present, the information in EFMSISDN under DFTelecom is selected.</p> <p>"RC" MT received calls list (+CPBW may not be applicable for this storage)</p> <p><u>"SM"</u> SIM/UICC phonebook. If a SIM card is present or if a UICC with an active GSM application is present, the EFADN under DFTelecom is selected.</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>"LD" SIM last-dialing-phone book</p> <p><b>&lt;used&gt;</b> Integer type value indicating the total number of used locations in selected memory</p> <p><b>&lt;total&gt;</b> Integer type value indicating the total number of locations in selected memory</p> |
| Reference<br>GSM 07.07 [13] | Note   |

### 3.2.27 AT+CPBW Write Phonebook Entry

| AT+CPBW Write Phonebook Entry    |  |
|----------------------------------|--|
| Test Command<br><b>AT+CPBW=?</b> | Response<br>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><b>+CPBW:</b> (list of supported <b>&lt;index&gt;</b>s), <b>&lt;nlength&gt;</b>, (list of supported <b>&lt;type&gt;</b>s), <b>&lt;tlength&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |           |                    |           |      |   |     |          |             |   |     |          |                    |     |     |          |             |      |     |          |            |
|---|---|-----------|--------------------|-----------|------|---|-----|----------|-------------|---|-----|----------|--------------------|-----|-----|----------|-------------|------|-----|----------|------------|
| <p>Write Command<br/><b>AT+CPBW=</b><br/><b>&lt;index&gt;</b><br/><b>[, &lt;number&gt;</b><br/><b>[&lt;type&gt;, [&lt;text&gt;]]]</b></p> | <p>Response</p> <p>TA writes phone book entry in location number <b>&lt;index&gt;</b> in the current phone book memory storage selected with +CPBS. Entry fields written are phone number <b>&lt;number&gt;</b> (in the format <b>&lt;type&gt;</b>) and text <b>&lt;text&gt;</b> associated with the number. If those fields are omitted, phone book entry is deleted. If <b>&lt;index&gt;</b> is left out, but <b>&lt;number&gt;</b> is given, entry is written to the first free location in the phone book.</p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;nlength&gt;</b> Max length of phone number<br/> <b>&lt;tlength&gt;</b> Max length of text for number<br/> <b>&lt;index&gt;</b> Location number<br/> <b>&lt;number&gt;</b> Phone number<br/> <b>&lt;type&gt;</b> Type of number;<br/> 129 National number type<br/> 161 National number type<br/> 145 International number type<br/> 177 Network specific number</p> <p><b>&lt;text&gt;</b> String type (string should be included in quotation marks): text for phone number in current TE character set specified by +CSCS.</p> <p>Note: The following characters in <b>&lt;text&gt;</b> must be entered via the escape sequence:</p> <table border="1"> <thead> <tr> <th>GSM char.</th> <th>Seq.</th> <th>Seq.(hex)</th> <th>Note</th> </tr> </thead> <tbody> <tr> <td>\</td> <td>\5C</td> <td>5C 35 43</td> <td>(backslash)</td> </tr> <tr> <td>"</td> <td>\22</td> <td>5C 32 32</td> <td>(string delimiter)</td> </tr> <tr> <td>BSP</td> <td>\08</td> <td>5C 30 38</td> <td>(backspace)</td> </tr> <tr> <td>NULL</td> <td>\00</td> <td>5C 30 30</td> <td>(GSM null)</td> </tr> </tbody> </table> <p>'0' (GSM null) may cause problems for application layer software when reading string lengths.</p> | 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)         |           |      |   |     |          |             |   |     |          |                    |     |     |          |             |      |     |          |            |
| <p>Reference<br/>GSM 07.07 [13]</p>   | <p>Note</p>   |           |                    |           |      |   |     |          |             |   |     |          |                    |     |     |          |             |      |     |          |            |

### 3.2.28 AT+CPIN Enter PIN

|                          |          |
|--------------------------|----------|
| <b>AT+CPIN Enter PIN</b> |          |
| Test Command             | Response |

|   |   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
|---|---|--------------------|------------------------------------|------------------------|--|---------|---------------------------------------|------------|---|------------|---------------------------------------|----------|--|----------|--|
| <p><b>AT+CPIN=?</b></p>   | <p><b>OK</b></p>  |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| <p>Read Command<br/><b>AT+CPIN?</b></p>   | <p>Response<br/>TA returns an alphanumeric string indicating whether some password is required or not.<br/><b>+CPIN: &lt;code&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/><b>&lt;code&gt;</b></p> <table border="0"> <tr> <td>READY</td> <td>MT is not pending for any password</td> </tr> <tr> <td>SIM PIN</td> <td>MT is waiting SIM PIN to be given</td> </tr> <tr> <td>SIM PUK</td> <td>MT is waiting for SIM PUK to be given</td> </tr> <tr> <td>PH_SIM PIN</td> <td>ME is waiting for phone to SIM card (antitheft)</td> </tr> <tr> <td>PH_SIM PUK</td> <td>ME is waiting for SIM PUK (antitheft)</td> </tr> <tr> <td>SIM PIN2</td> <td>PIN2, e.g. for editing the FDN book possible only if preceding Command was acknowledged with +CME ERROR:17</td> </tr> <tr> <td>SIM PUK2</td> <td>Possible only if preceding Command was acknowledged with error +CME ERROR: 18.</td> </tr> </table> | READY              | MT is not pending for any password | SIM PIN                | MT is waiting SIM PIN to be given                                    | SIM PUK | MT is waiting for SIM PUK to be given | PH_SIM PIN | ME is waiting for phone to SIM card (antitheft) | PH_SIM PUK | ME is waiting for SIM PUK (antitheft) | SIM PIN2 | PIN2, e.g. for editing the FDN book possible only if preceding Command was acknowledged with +CME ERROR:17 | SIM PUK2 | Possible only if preceding Command was acknowledged with error +CME ERROR: 18. |
| READY   | MT is not pending for any password  |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| SIM PIN   | MT is waiting SIM PIN to be given   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| SIM PUK   | MT is waiting for SIM PUK to be given   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| PH_SIM PIN  | ME is waiting for phone to SIM card (antitheft)   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| PH_SIM PUK  | ME is waiting for SIM PUK (antitheft)   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| SIM PIN2  | PIN2, e.g. for editing the FDN book possible only if preceding Command was acknowledged with +CME ERROR:17  |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| SIM PUK2  | Possible only if preceding Command was acknowledged with error +CME ERROR: 18.  |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| <p>Write Command<br/><b>AT+CPIN=&lt;pin&gt;</b><br/><b>[,&lt;new pin&gt;]</b></p> | <p>Response<br/>TA stores a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.).<br/>If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, &lt;new pin&gt;, is used to replace the old pin in the SIM.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <table border="0"> <tr> <td><b>&lt;pin&gt;</b></td> <td>String type; password</td> </tr> <tr> <td><b>&lt;new pin&gt;</b></td> <td>String type; If the PIN required is SIM PUK or SIMPUK2: new password</td> </tr> </table>   | <b>&lt;pin&gt;</b> | String type; password              | <b>&lt;new pin&gt;</b> | String type; If the PIN required is SIM PUK or SIMPUK2: new password |         |                                       |            |   |            |                                       |          |  |          |  |
| <b>&lt;pin&gt;</b>  | String type; password   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| <b>&lt;new pin&gt;</b>  | String type; If the PIN required is SIM PUK or SIMPUK2: new password  |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |
| <p>Reference<br/>GSM 07.07 [13]</p>   | <p>Note</p>   |                    |                                    |                        |  |         |                                       |            |   |            |                                       |          |  |          |  |

### 3.2.29 AT+CPWD Change Password

|  |   |
|--|---|
| <p><b>AT+CPWD Change Password</b></p>    |   |
| <p>Test Command<br/><b>AT+CPWD=?</b></p> | <p>Response<br/>TA returns a list of pairs which present the available facilities and the maximum length of their password.</p> |



|   |  |
|---|--|
|   | <p><b>+CPWD:</b> (list of supported &lt;fac&gt;s, list of supported &lt;pwdlength&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>&lt;fac&gt;                    See Write Command</p> <p>&lt;pwdlength&gt;            Integer max. length of password</p>   |
| <p>Write Command<br/><b>AT+CPWD =</b><br/><b>&lt;fac&gt;, &lt;oldpwd&gt;,</b><br/><b>&lt;newpwd&gt;</b></p> | <p>Response</p> <p>TA sets a new password for the facility lock function.</p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;fac&gt;</b></p> <p>"AO"    BAOC (Barr All Outgoing Calls)</p> <p>"OI"    BOIC (Barr Outgoing International Calls)</p> <p>"OX"    BOIC-exHC (Barr Outgoing International Calls except to Home Country)</p> <p>"AI"    BAIC (Barr All Incoming Calls)</p> <p>"IR"    BIC-Roam (Barr Incoming Calls when Roaming outside the home country)</p> <p>"AB"    All Barring services</p> <p>"P2"    SIM PIN2</p> <p>"SC"    SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code.</p> <p><b>&lt;oldpwd&gt;</b>    String type (string should be included in quotation marks): password specified for the facility from the user interface or with command. If an old password has not yet been set, &lt;oldpwd&gt; is not to enter.</p> <p><b>&lt;newpwd&gt;</b>    String type (string should be included in quotation marks): new password</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>   | <p>Note</p>  |

### 3.2.30 AT+CR Service Reporting Control

| <b>AT+CR Service Reporting Control</b> |   |
|--|---|
| <p>Test Command<br/><b>AT+CR=?</b></p> | <p>Response</p> <p><b>+CR:</b> (list of supported &lt;mode&gt;s)</p> <p><b>OK</b></p> |
|  | <p>Parameter</p> <p>See Write Command</p>   |

|  |  |
|--|--|
| <p>Read Command<br/><b>AT+CR?</b></p>              | <p>Response<br/><b>+CR: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CR=&lt;mode&gt;</b></p> | <p>Response<br/>TA controls whether or not intermediate result code +CR: &lt;serv&gt; is returned from the TA to the TE at a call set up.<br/><b>OK</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b>    0    Disable<br/>                  1    Enable</p> <p>Intermediate result code<br/>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.<br/><b>+CR:&lt;serv&gt;</b></p> <p>Parameter<br/><b>&lt;serv&gt;</b>        ASYNC        Asynchronous transparent<br/>                     SYNC            Synchronous transparent<br/>                     REL ASYNC    Asynchronous non-transparent<br/>                     REL SYNC     Synchronous non-transparent<br/>                     GPRS           For GPRS</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>                | <p>Note</p>  |

### 3.2.31 AT+CRC Set Cellular Result Codes for Incoming Call Indication

| <p><b>AT+CRC Set Cellular Result Codes for Incoming Call Indication</b></p> |  |
|---|--|
| <p>Test Command<br/><b>AT+CRC=?</b></p>                                     | <p>Response<br/><b>+CRC: (list of supported &lt;mode&gt;s)</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| <p>Read Command<br/><b>AT+CRC?</b></p>                                      | <p>Response<br/><b>+CRC: &lt;mode&gt;</b></p>  |

|   |   |
|---|---|
|   | <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CRG=[&lt;mode&gt;]</b></p> | <p>Response<br/>TA controls whether or not the extended format of incoming call indication is used.</p> <p><b>OK</b></p> <p>Parameter<br/> <b>&lt;mode&gt;</b>    0    Disable extended format<br/>                   1    Enable extended format<br/>                   Omitted Use previous value</p> <p>Unsolicited Result Code<br/>When enabled, an incoming call is indicated to the TE with unsolicited result code <b>+CRING: &lt;type&gt;</b> instead of the normal <b>RING</b>.</p> <p>Parameter<br/> <b>&lt;type&gt;</b>        ASYNC        Asynchronous transparent<br/>                      SYNC            Synchronous transparent<br/>                      REL ASYNC    Asynchronous non-transparent<br/>                      REL SYNC     Synchronous non-transparent<br/>                      FAX            Facsimile<br/>                      VOICE         Voice</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>                   | <p>Note</p>   |

### 3.2.32 AT+CREG Network Registration

| <b>AT+CREG Network Registration</b>      |  |
|--|--|
| <p>Test Command<br/><b>AT+CREG=?</b></p> | <p>Response<br/><b>+CREG:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+CREG?</b></p>  | <p>Response<br/>TA returns the status of result code presentation and an integer &lt;stat&gt; which shows whether the network has currently indicated the registration of the ME. Location information elements &lt;lac&gt; and &lt;ci&gt; are returned only when &lt;n&gt;=2 and ME is registered in the network.</p> <p><b>+CREG: &lt;n&gt;,&lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</b></p> <p><b>OK</b></p> |

|  |   |
|--|---|
|  | <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p>  |
| <p>Write Command<br/><b>AT+CREG=[&lt;n&gt;<br/>]</b></p> | <p>Response<br/>TA controls the presentation of an unsolicited result code +CREG: &lt;stat&gt; when &lt;n&gt;=1 and there is a change in the ME network registration status.<br/><b>OK</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b>      <u>0</u>    Disable network registration unsolicited result code<br/>              1    Enable network registration unsolicited result code<br/>                          +CREG: &lt;stat&gt;<br/>              2    Enable network registration unsolicited result code with location information +CREG: &lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</p> <p><b>&lt;stat&gt;</b>    0    Not registered, MT is not currently searching a new operator to register to<br/>              1    Registered, home network<br/>              2    Not registered, but MT is currently searching a new operator to register to<br/>              3    Registration denied<br/>              4    Unknown<br/>              5    Registered, roaming</p> <p><b>&lt;lac&gt;</b>      String type (string should be included in quotation marks); two byte location area code in hexadecimal format</p> <p><b>&lt;ci&gt;</b>        String type (string should be included in quotation marks); two byte cell ID in hexadecimal format</p> <p>Unsolicited Result Code<br/>If &lt;n&gt;=1 and there is a change in the MT network registration status<br/><b>+CREG: &lt;stat&gt;</b><br/>If &lt;n&gt;=2 and there is a change in the MT network registration status or a change of the network cell:<br/><b>+CREG: &lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>                      | <p>Note</p>   |

### 3.2.33 AT+CRLP Select Radio Link Protocol Parameters

| <b>AT+CRLP Select Radio Link Protocol Parameters</b> |   |
|--|---|
| <p>Test Command<br/><b>AT+CRLP=?</b></p>             | <p>Response<br/>TA returns values supported. RLP versions 0 and 1 share the same parameter set. TA returns only one line for this set (where &lt;ver.x&gt; is not present).</p> |

|   |   |
|---|---|
|   | <p>+<b>CRLP</b>: (list of supported &lt;iws&gt;s),(list of supported &lt;mws&gt;s),(list of supported &lt;T1&gt;s),(list of supported &lt;N2&gt;s),(list of supported &lt;ver1&gt;s),(list of supported &lt;T4&gt;s)</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| Read Command<br><b>AT+CRLP?</b>   | <p>Response</p> <p>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 &lt;verx&gt; is not present).</p> <p>+<b>CRLP</b>: &lt;iws&gt;,&lt;mws&gt;,&lt;T1&gt;,&lt;N2&gt;,&lt;ver1&gt;,&lt;T4&gt;</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| Write Command<br><b>AT+CRLP=&lt;iws&gt; [&gt;,&lt;mws&gt; [&gt;,&lt;T1&gt; [&gt;,&lt;N2&gt; [&gt;,&lt;ver&gt; [&gt;,&lt;T4&gt;]]]]]</b> | <p>Response</p> <p>TA sets radio link protocol (RLP) parameters used when non-transparent data calls are setup.</p> <p><b>OK</b></p> <p>Parameters</p> <p>&lt;iws&gt; 0-61 Interworking window size (IWF to MS)</p> <p>&lt;mws&gt; 0-61 Mobile window size (MS to IWF)</p> <p>&lt;T1&gt; 44-255 Acknowledgment timer T1 in 10 ms units</p> <p>&lt;N2&gt; 1-255 Retransmission attempts N2</p> <p>&lt;verx&gt; 0 RLP version number</p> <p>&lt;T4&gt; 7 Re-sequencing period in integer format, in units of 10 ms.</p> |
| Reference<br>GSM 07.07 [13]   | Note  |

### 3.2.34 AT+CRSM Restricted SIM Access

|   |   |
|---|---|
| <b>AT+CRSM Restricted SIM Access</b>  |   |
| Test Command<br><b>AT+CRSM=?</b>  | <p>Response</p> <p><b>OK</b></p>  |
| Write Command<br><b>AT+CRSM=&lt;Command&gt; [&gt;,&lt;fileId&gt; [&gt;,&lt;P1&gt;,&lt;P2&gt;,&lt;P3&gt; [&gt;,&lt;data&gt;]]]</b> | <p>Response</p> <p>+<b>CRSM</b>: &lt;sw1&gt;, &lt;sw2&gt; [&gt;,&lt;response&gt;]</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>If error is related to ME functionality:<br/>+<b>CME ERROR</b>: &lt;err&gt;</p> |

|                                     |   |
|-------------------------------------|---|
|                                     | <p>Parameters</p> <p><b>&lt;Command&gt;</b></p> <p>176 READ BINARY<br/>178 READ RECORD<br/>192 GET RESPONSE<br/>214 UPDATE BINARY<br/>220 UPDATE RECORD<br/>242 STATUS</p> <p>All other values are reserved; refer GSM 11.11.</p> <p><b>&lt;fileId&gt;</b> Integer type; this is the identifier for an elementary data file on SIM. Mandatory for every Command except STATUS</p> <p><b>&lt;P1&gt;,&lt;P2&gt;,&lt;P3&gt;</b> Integer type, range 0 – 255<br/>Parameters to be passed on by the ME to the SIM; refer GSM 11.11.</p> <p><b>&lt;data&gt;</b> Information which shall be written to the SIM (hex-decimal character format)</p> <p><b>&lt;sw1&gt;,&lt;sw2&gt;</b> Integer type, range 0 - 255<br/>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><b>&lt;response&gt;</b> Response of a successful completion of the Command previously issued (hexadecimal character format)</p> |
| Reference<br>GSM 07.07<br>GSM 11.11 | Note  |

### 3.2.35 AT+CSQ Signal Quality Report

| AT+CSQ Signal Quality Report       |   |
|------------------------------------|---|
| Test Command<br><b>AT+CSQ=?</b>    | <p>Response</p> <p><b>+CSQ:</b> (list of supported &lt;rsqi&gt;s),(list of supported &lt;ber&gt;s)</p> <p><b>OK</b></p>   |
| Execution Command<br><b>AT+CSQ</b> | <p>Response</p> <p><b>+CSQ:</b> &lt;rsqi&gt;,&lt;ber&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR:</b> &lt;err&gt;</p> <p>Execution Command returns received signal strength indication &lt;rsqi&gt; and channel bit error rate &lt;ber&gt; from the ME. Test Command returns values supported by the TA.</p> |

|                             |   |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
|-----------------------------|---|---|------------------|---|----------|--------|-----------------|----|--------------------|----|-----------------------------|-------|---|----|-----------------------------|
|                             | <p>Parameters</p> <p><b>&lt;rssi&gt;</b></p> <table> <tr><td>0</td><td>-115 dBm or less</td></tr> <tr><td>1</td><td>-111 dBm</td></tr> <tr><td>2...30</td><td>-110... -54 dBm</td></tr> <tr><td>31</td><td>-52 dBm or greater</td></tr> <tr><td>99</td><td>not known or not detectable</td></tr> </table> <p><b>&lt;ber&gt;</b> (in percent):</p> <table> <tr><td>0...7</td><td>As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4</td></tr> <tr><td>99</td><td>Not known or not detectable</td></tr> </table> | 0 | -115 dBm or less | 1 | -111 dBm | 2...30 | -110... -54 dBm | 31 | -52 dBm or greater | 99 | not known or not detectable | 0...7 | As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4 | 99 | Not known or not detectable |
| 0                           | -115 dBm or less  |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 1                           | -111 dBm  |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 2...30                      | -110... -54 dBm   |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 31                          | -52 dBm or greater  |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 99                          | not known or not detectable   |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 0...7                       | As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4   |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| 99                          | Not known or not detectable   |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |
| Reference<br>GSM 07.07 [13] | Note  |   |                  |   |          |        |                 |    |                    |    |                             |       |   |    |                             |

### 3.2.36 AT+FCLASS FAX: Select, Read or Test Service Class

| <b>AT+FCLASS FAX: Select, Read or Test Service Class</b>     |  |                  |               |  |                           |
|--|--|------------------|---------------|--|---------------------------|
| <p>Test Command<br/><b>AT+FCLASS=?</b></p>                   | <p>Response</p> <p><b>+FCLASS:</b> (list of supported <b>&lt;class&gt;s</b>)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |                  |               |  |                           |
| <p>Read Command<br/><b>AT+FCLASS?</b></p>                    | <p>Response</p> <p><b>+FCLASS:</b> <b>&lt;class&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |                  |               |  |                           |
| <p>Write Command<br/><b>AT+FCLASS=<br/>&lt;class&gt;</b></p> | <p>Response</p> <p>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</p> <p><b>OK</b></p> <p>Parameter</p> <table> <tr><td><b>&lt;n&gt;</b></td><td><u>0</u> data</td></tr> <tr><td></td><td>1 fax class 1 (TIA-578-A)</td></tr> </table> | <b>&lt;n&gt;</b> | <u>0</u> data |  | 1 fax class 1 (TIA-578-A) |
| <b>&lt;n&gt;</b>   | <u>0</u> data  |                  |               |  |                           |
|  | 1 fax class 1 (TIA-578-A)  |                  |               |  |                           |
| Reference<br>GSM 07.07 [13]                                  | Note   |                  |               |  |                           |

### 3.2.37 AT+FMI FAX: Report Manufactured ID

| <b>AT+FMI FAX: Report Manufactured ID</b> |
|---|
|---|

|                                    |   |
|------------------------------------|---|
| Test Command<br><b>AT+FMI =?</b>   | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+FMI</b> | Response<br>TA reports one or more lines of information text which permit the user to identify the manufacturer.<br><b>&lt;manufacturer Id&gt;</b><br><br><b>OK</b> |
|                                    | Parameter<br><b>&lt;manufacturer Id&gt;</b> The ID of manufacturer  |
| Reference<br>EIA/TIA-578-D         | Note  |

### 3.2.38 AT+FMM FAX: Report Model ID

|                                    |  |
|------------------------------------|--|
| <b>AT+FMM FAX: Report Model ID</b> |  |
| Test Command<br><b>AT+FMM =?</b>   | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+FMM</b> | Response<br>TA reports one or more lines of information text which permit the user to identify the specific model of device.<br><b>&lt;model Id&gt;</b><br><br><b>OK</b> |
|                                    | Parameter<br><b>&lt;model Id&gt;</b> The ID of model   |
| Reference<br>EIA/TIA-578-D         | Note   |

### 3.2.39 AT+FMR FAX: Report Revision ID

|                                       |   |
|---------------------------------------|---|
| <b>AT+FMR FAX: Report Revision ID</b> |   |
| Test Command<br><b>AT+FMR =?</b>      | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+FMR</b>    | Response<br>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.<br><b>Revision:&lt;Revision Id&gt;</b> |



|                            |   |
|----------------------------|---|
|                            | <b>OK</b>   |
|                            | Parameter<br><b>&lt;Revision Id&gt;</b> The version, revision level or data or other information of the device. |
| Reference<br>EIA/TIA-578-D | Note  |

### 3.2.40 AT+VTD Tone Duration

| <b>AT+VTD Tone Duration</b>              |   |
|--|---|
| Test Command<br><b>AT+VTD=?</b>          | Response<br><b>+VTD:</b> (list of supported <b>&lt;n&gt;s</b> )<br><br><b>OK</b><br>Parameter<br>See Write Command  |
| Read Command<br><b>AT+VTD?</b>           | Response<br><b>+VTD:</b> <b>&lt;n&gt;</b><br><br><b>OK</b><br>Parameter<br>See Write Command  |
| Write Command<br><b>AT+VTD=&lt;n&gt;</b> | Response<br>This command refers to an integer <b>&lt;n&gt;</b> that defines the length of tones emitted as a result of the <b>+VTS</b> command. This does not affect the <b>D</b> command.<br><b>OK</b><br>Parameter<br><b>&lt;n&gt;</b> 1-255 Duration of the tone in 1/10 seconds |
| Reference<br>GSM 07.07 [13]              | Note  |

### 3.2.41 AT+VTS DTMF and Tone Generation

| <b>AT+VTS DTMF and Tone Generation</b> |   |
|--|---|
| Test Command<br><b>AT+VTS=?</b>        | Response<br><b>+VTS:</b> (list of supported <b>&lt;dtmf&gt;s</b> ), (list of supported <b>&lt;duration&gt;s</b> )<br><br><b>OK</b><br>Parameters<br>See Write Command |
| Write Command                          | Response  |



| <p>Write Command<br/><b>AT+CMUX=&lt;mode&gt;[,&lt;subset&gt;[,&lt;port_speed&gt;[,&lt;N1&gt;[,&lt;T1&gt;[,&lt;N2&gt;[,&lt;T2&gt;[,&lt;T3&gt;[,&lt;k&gt;]]]]]]]</b></p> | <p>Response<br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b> Multiplexer transparency mechanism<br/>0 Basic option</p> <p><b>&lt;subset&gt;</b> The way in which the multiplexer control channel is set up<br/>0 UIH frames used only</p> <p><b>&lt;port_speed&gt;</b> Transmission rate<br/>1 9 600 bits/t<br/>2 19 200 bits/t<br/>3 38 400 bits/t<br/>4 57 600 bits/t<br/>5 115 200bit/s<br/>6 230 400 bits/t<br/>7 460 800 bits/t<br/>Proprietary values, available if MUX NEW PORT SPEED FTR is activated<br/>8 921 600 bits/t<br/>Proprietary values, available if MUX NEW PORT SPEED FTR is activated</p> <p><b>&lt;N1&gt;</b> Maximum frame size<br/>1-255 Default: 127</p> <p><b>&lt;T1&gt;</b> Acknowledgement timer in units of ten milliseconds<br/>1-255 Default: 10 (100 ms)</p> <p><b>&lt;N2&gt;</b> Maximum number of re-transmissions<br/>0-100 Default: 3</p> <p><b>&lt;T2&gt;</b> Response timer for the multiplexer control channel in units of ten milliseconds<br/>2-255 Default: 30</p> <p><b>&lt;T3&gt;</b> Wake up response timers in seconds<br/>1-255 Default: 10</p> <p><b>&lt;k&gt;</b> Window size, for Advanced operation with Error Recovery options<br/>1-7 Default: 2</p> |                |      |      |      |                     |   |   |                 |   |
|--|--|----------------|------|------|------|---------------------|---|---|-----------------|---|
| <p>Reference<br/>GSM 07.07 [13]</p>  | <p>Note<br/>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<br/>Multiplexer control channels are listed as follows:</p> <table border="1"> <thead> <tr> <th>Channel Number</th> <th>Type</th> <th>DLCI</th> </tr> </thead> <tbody> <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> </tbody> </table>  | Channel Number | Type | DLCI | None | Multiplexer Control | 0 | 1 | 07.07 and 07.05 | 1 |
| 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 |

### 3.2.43 AT+CNUM Subscriber Number

| AT+CNUM Subscriber Number           |   |
|-------------------------------------|---|
| Test Command<br><b>AT+CNUM=?</b>    | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+CNUM</b> | <p>Response</p> <p><b>+CNUM: [&lt;alpha1&gt;,&lt;number1&gt;,&lt;type1&gt;[,&lt;speed&gt;,&lt;service&gt;]</b></p> <p><b>[&lt;CR&gt;&lt;LF&gt;+CNUM:[&lt;alpha2&gt;,&lt;number2&gt;,&lt;type2&gt;[,&lt;speed&gt;,&lt;service&gt;]</b></p> <p><b>[...]]</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;alphax&gt;</b> Optional alphanumeric string associated with <b>&lt;numberx&gt;</b>; used character set should be the one selected with Command Select TE Character Set +CSCS</p> <p><b>&lt;numberx&gt;</b> String type (string should be included in quotation marks) phone number of format specified by <b>&lt;typex&gt;</b></p> <p><b>&lt;typex&gt;</b> Type of address octet in integer format (refer GSM04.08[8] subclause 10.5.4.7)</p> <p><b>&lt;speed&gt;</b> As defined by the +CBST Command</p> <p><b>&lt;service&gt;</b> (service related to the phone number:)</p> <ul style="list-style-type: none"> <li>0 Asynchronous modem</li> <li>1 Synchronous modem</li> <li>2 PAD Access (asynchronous)</li> <li>3 Packet Access (synchronous)</li> <li>4 Voice</li> <li>5 Fax</li> </ul> |
| Reference<br>GSM 07.07 [13]         | Note  |

### 3.2.44 AT+CPOL Preferred Operator List

| AT+CPOL Preferred Operator List  |  |
|----------------------------------|--|
| Test Command<br><b>AT+CPOL=?</b> | Response<br><b>+CPOL: (list of supported &lt;index&gt;s),(list of supported &lt;format&gt;s)</b> |

|   |  |
|---|--|
|   | <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+CPOL?</b></p>   | <p>Response<br/><b>+CPOL: &lt;index1&gt;,&lt;format&gt;,&lt;oper1&gt;</b><br/><b>[&lt;CR&gt;&lt;LF&gt;+CPOL: &lt;index2&gt;,&lt;format&gt;,&lt;oper2&gt;[...]]</b></p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CPOL=&lt;index&gt;[,&lt;format&gt;,&lt;oper&gt;]</b></p> | <p>Response<br/><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;index&gt;</b> Integer type: order number of operator in SIM preferred operator list</p> <p><b>&lt;format&gt;</b> Indicates whether alphanumeric or numeric format used (see +COPS Command)</p> <p>0 Long format alphanumeric &lt;oper&gt;<br/>1 Short format alphanumeric &lt;oper&gt;<br/>2 Numeric &lt;oper&gt;</p> <p><b>&lt;oper&gt;</b> String type(string should be included in quotation marks)</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>   | <p>Note</p>  |

### 3.2.45 AT+COPN Read Operator Names

| <b>AT+COPN Read Operator Names</b>          |   |
|---|---|
| <p>Test Command<br/><b>AT+COPN=?</b></p>    | <p>Response<br/><b>OK</b></p>   |
| <p>Execution Command<br/><b>AT+COPN</b></p> | <p>Response<br/><b>+COPN: &lt;numeric1&gt;,&lt;alpha1&gt;</b><br/><b>[&lt;CR&gt;&lt;LF&gt;+COPN: &lt;numeric2&gt;,&lt;alpha2&gt;</b><br/><b>[...]]</b></p> <p><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> |

|                             |  |
|-----------------------------|--|
|                             | <p><b>&lt;numeric&gt;</b> String type (string should be included in quotation marks):<br/>operator in numeric format (see +COPS)</p> <p><b>&lt;alphan&gt;</b> String type (string should be included in quotation marks):<br/>operator in long alphanumeric format (see +COPS)</p> |
| Reference<br>GSM 07.07 [13] | Note   |

### 3.2.46 AT+CFUN Set Phone Functionality

| AT+CFUN Set Phone Functionality  |   |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|--|---|--|---|-----------------------|--|---|------------------------------|--|---|--|--------------------|----------|--|--|---|--|
| Test Command<br><b>AT+CFUN=?</b>   | Response<br><b>+CFUN:</b> (list of supported <b>&lt;fun&gt;</b> s),(list of supported <b>&lt;rst&gt;</b> s)<br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | Parameters<br>See Write Command   |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
| Read Command<br><b>AT+CFUN?</b>  | Response<br><b>+CFUN: &lt;fun&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | Parameters<br>See Write Command   |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
| Write Command<br><b>AT+CFUN=&lt;fun&gt;</b><br><b>&gt;[,&lt;rst&gt;]</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | Parameters<br><table border="0"> <tr> <td><b>&lt;fun&gt;</b></td> <td>0</td> <td>Minimum functionality</td> </tr> <tr> <td></td> <td>1</td> <td>Full functionality (Default)</td> </tr> <tr> <td></td> <td>4</td> <td>Disable phone both transmit and receive RF circuits.</td> </tr> <tr> <td><b>&lt;rst&gt;</b></td> <td><u>0</u></td> <td>Do not reset the MT before setting it to &lt;fun&gt; power level</td> </tr> <tr> <td></td> <td>1</td> <td>Reset the MT before setting it to &lt;fun&gt; power level.</td> </tr> </table> | <b>&lt;fun&gt;</b>   | 0 | Minimum functionality |  | 1 | Full functionality (Default) |  | 4 | Disable phone both transmit and receive RF circuits. | <b>&lt;rst&gt;</b> | <u>0</u> | Do not reset the MT before setting it to <fun> power level |  | 1 | Reset the MT before setting it to <fun> power level. |
| <b>&lt;fun&gt;</b>   | 0   | Minimum functionality                                      |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | 1   | Full functionality (Default)                               |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | 4   | Disable phone both transmit and receive RF circuits.       |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
| <b>&lt;rst&gt;</b>   | <u>0</u>  | Do not reset the MT before setting it to <fun> power level |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
|  | 1   | Reset the MT before setting it to <fun> power level.       |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |
| Reference<br>GSM 07.07 [13]  | Note <ul style="list-style-type: none"> <li>● Minimum functionality mode (AT+CFUN=0)and RF disabled. functionality mode (AT+CFUN=4) cannot be switched to each other.</li> <li>● The &lt;fun&gt; power level will be written to flash except minimum functionality.</li> </ul>  |  |   |                       |  |   |                              |  |   |  |                    |          |  |  |   |  |

- AT+CFUN=1,1 can be used to reset module purposely. Response string "OK" will be returned after module resets if baud rate is set to fixed baud rate.

### 3.2.47 AT+CCLK Clock

| AT+CCLK Clock                                |  |
|--|--|
| Test Command<br><b>AT+CCLK=?</b>             | Response<br><b>OK</b>  |
| Read Command<br><b>AT+CCLK?</b>              | Response<br><b>+CCLK: &lt;time&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CCLK=&lt;time&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameter<br><b>&lt;time&gt;</b> String type(string should be included in quotation marks) value; format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits),month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -47...+48). E.g. 6th of May 2010, 00:01:52 GMT+2 hours equals to "10/05/06,00:01:52+08" |
| Reference<br>GSM 07.07 [13]                  | Note   |

### 3.2.48 AT+CSIM Generic SIM Access

| AT+CSIM Generic SIM Access                                     |   |
|--|---|
| Test Command<br><b>AT+CSIM=?</b>                               | Response<br><b>OK</b>                                     |
| Write Command<br><b>AT+CSIM=&lt;length&gt;,&lt;Command&gt;</b> | Response<br><b>+CSIM: &lt;length&gt;,&lt;response&gt;</b> |

|                             |  |
|-----------------------------|--|
|                             | <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;length&gt;</b> Integer type: length of characters sent to the TE in &lt;Command&gt; or &lt;response&gt; (i.e. twice the number of octets in the raw data).</p> <p><b>&lt;Command&gt;</b> String type(string should be included in quotation marks): hex format: GSM 11.11 SIM Command sent from the ME to the SIM.</p> <p><b>&lt;response&gt;</b> String type(string should be included in quotation marks): hex format: GSM 11.11 response from SIM to &lt;Command&gt;.</p> |
| Reference<br>GSM 07.07 [13] | Note   |

### 3.2.49 AT+CALM Alert Sound Mode

| AT+CALM Alert Sound Mode                     |  |
|--|--|
| Test Command<br><b>AT+CALM=?</b>             | Response<br><b>+CALM:</b> (list of supported <b>&lt;mode&gt;</b> s)<br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|  | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CALM?</b>              | Response<br><b>+CALM: &lt;mode&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                              |
|  | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CALM=&lt;mode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Normal mode<br>1 Silent mode (all sounds from ME are prevented)  |



|                             |   |
|-----------------------------|---|
| Reference<br>GSM 07.07 [13] | Note<br>If CALM is set to silent mode before, when user sets CALM to normal mode during an incoming call, the module maintains silent this time. But next time the normal mode works. |
|-----------------------------|---|

### 3.2.50 AT+CALS Alert Sound Select

| AT+CALS Alert Sound Select                |  |
|---|--|
| Test Command<br><b>AT+CALS=?</b>          | <p>Response</p> <p><b>+CALS:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/>See Write Command</p> |
| Read Command<br><b>AT+CALS?</b>           | <p>Response</p> <p><b>+CALS:</b> &lt;n&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/>See Write Command</p>                      |
| Write Command<br><b>AT+CALS=&lt;n&gt;</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/>&lt;n&gt; 0-19 Alert sound type</p>                                       |
| Reference                                 | Note   |

### 3.2.51 AT+CRSL Ringer Sound Level

| AT+CRSL Ringer Sound Level       |  |
|----------------------------------|--|
| Test Command<br><b>AT+CRSL=?</b> | <p>Response</p> <p><b>+CRSL:</b> (list of supported &lt;level&gt;s)</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> |

|   |  |
|---|--|
|   | See Write Command  |
| Read Command<br><b>AT+CRSL?</b>               | <p>Response</p> <p><b>+CRSL: &lt;level&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br><b>AT+CRSL=&lt;level&gt;</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;level&gt;</b> Integer type value (0-4) with manufacturer specific range (smallest value represents the lowest sound level)</p> <p>0 LEVEL OFF</p> <p>1 LEVEL LOW</p> <p>2 LEVEL MEDIUM</p> <p>3 LEVEL HIGH</p> <p>4 LEVEL CRESCENDO</p> |
| Reference<br>GSM 07.07 [13]                   | <p>Note</p> <p>It is related to the command AT+CLVL.</p>   |

### 3.2.52 AT+CLVL Loud Speaker Volume Level

| <b>AT+CLVL Loud Speaker Volume Level</b> |   |
|--|---|
| Test Command<br><b>AT+CLVL=?</b>         | <p>Response</p> <p><b>+CLVL: (list of supported &lt;level&gt;s)</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p>See Write Command</p> |
| Read Command<br><b>AT+CLVL?</b>          | <p>Response</p> <p><b>+CLVL: &lt;level&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p>   |

|   |   |
|---|---|
|   | See Write Command   |
| Write Command<br><b>AT+CLVL=&lt;level&gt;</b><br><b>I&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |
|   | Parameter<br><b>&lt;level&gt;</b> 0-100 Integer type value with manufacturer specific range<br>(smallest value represents the lowest sound level) |
| Reference<br>GSM 07.07 [13]                                   | Note  |

### 3.2.53 AT+CMUT Mute Control

|   |  |
|---|--|
| <b>AT+CMUT Mute Control</b>               |  |
| Test Command<br><b>AT+CMUT=?</b>          | Response<br><b>+CMUT:</b> (list of supported <b>&lt;n&gt;s</b> )<br><br><b>OK</b>  |
|   | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CMUT?</b>           | Response<br><b>+CMUT: &lt;n&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CMUT=&lt;n&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                                |
|   | Parameter<br><b>&lt;n&gt;</b> 0 Mute off<br>1 Mute on  |
| Reference<br>GSM 07.07 [13]               | Note<br>Only during a call this command can be set successfully.   |

### 3.2.54 AT+CPUC Price Per Unit and Currency Table

|  |
|--|
| <b>AT+CPUC Price Per Unit and Currency Table</b> |
|--|

|   |   |
|---|---|
| Test Command<br><b>AT+CPUC=?</b>  | Response<br><b>OK</b>   |
| Read Command<br><b>AT+CPUC?</b>   | Response<br><b>+CPUC: &lt;currency&gt;,&lt;ppu&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |
|   | Parameters<br>See Write Command   |
| Write Command<br><b>AT+CPUC=&lt;currency&gt;,&lt;ppu&gt;[,&lt;passwd&gt;]</b> | Response<br><b>OK</b><br><b>+CME ERROR: &lt;err&gt;</b>   |
|   | Parameters<br><b>&lt;currency&gt;</b> String type (string should be included in quotation marks); three-character currency code (e.g. "GBP", "DEM"); character set as specified by Command Select TE Character Set+CSCS<br><b>&lt;ppu&gt;</b> String type (string should be included in quotation marks); price per unit; dot is used as a decimal separator(e.g. "2.66")<br><b>&lt;passwd&gt;</b> String type (string should be included in quotation marks); SIM PIN2 |
| Reference<br>GSM 07.07 [13]   | Note  |

### 3.2.55 AT+CCWE Call Meter Maximum Event

|   |  |
|---|--|
| <b>AT+CCWE Call Meter Maximum Event</b> |  |
| Test Command<br><b>AT+CCWE=?</b>        | Response<br><b>+CCWE: (list of supported &lt;mode&gt;s)</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CCWE?</b>         | Response<br><b>+CCWE: &lt;mode&gt;</b><br><br><b>OK</b>  |

|  |  |
|--|--|
|  | <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CCWE=</b><br/><b>&lt;mode&gt;</b></p> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b>    <u>0</u>    Disable call meter warning event<br/>                  1    Enable call meter warning event</p> <p>Unsolicited result codes supported:</p> <p><b>+CCWV</b>    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.</p> |
| <p>Reference<br/>GSM 07.07 [13]</p>                              | <p>Note<br/>GSM 07.07 specifies 30 seconds, so SIMCom deviates from the specification.</p>   |

### 3.2.56 AT+CBC Battery Charge

|  |   |
|--|---|
| <b>AT+CBC Battery Charge</b>               |   |
| <p>Test Command<br/><b>AT+CBC=?</b></p>    | <p>Response<br/><b>+CBC: (list of supported &lt;bcs&gt;s),(list of supported &lt;bcl&gt;s),(&lt;voltage&gt;)</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Execution Command</p>               |
| <p>Execution Command<br/><b>AT+CBC</b></p> | <p>Response<br/><b>+CBC: &lt;bcs&gt;, &lt;bcl&gt;,&lt;voltage&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> |

|                             |   |
|-----------------------------|---|
|                             | <p><b>&lt;bc&gt;</b> Charge status</p> <p>0 ME is not charging</p> <p>1 ME is charging</p> <p>2 Charging has finished</p> <p><b>&lt;bcl&gt;</b> Battery connection level</p> <p>1...100 battery has 1-100 percent of capacity remaining</p> <p>vent</p> <p><b>&lt;voltage&gt;</b> Battery voltage(mV)</p> |
| Reference<br>GSM 07.07 [13] | Note<br>This command depends on hardware and only be used when battery is charging.   |

### 3.2.57 AT+CUSD Unstructured Supplementary Service Data

| AT+CUSD Unstructured Supplementary Service Data                       |   |
|---|---|
| Test Command<br><b>AT+CUSD=?</b>                                      | <p>Response</p> <p><b>+CUSD:</b> (list of supported <b>&lt;n&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Read Command<br><b>AT+CUSD?</b>                                       | <p>Response</p> <p><b>+CUSD: &lt;n&gt;</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br><b>AT+CUSD=&lt;n&gt;[,&lt;str&gt;[,&lt;dcs&gt;]]</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b> A numeric parameter which indicates control of the unstructured supplementary service data</p> <p>0 disable the result code presentation in the TE</p> <p>1 enable the result code presentation in the TE</p> <p>2 cancel session (not applicable to read Command response)</p> <p><b>&lt;str&gt;</b> String type (string should be included in quotation marks)</p> <p>USSD-string</p> <p><b>&lt;dcs&gt;</b> Cell Broadcast Data Coding Scheme in integer format (default 0)</p> |
| Reference   | Note  |

### 3.2.58 AT+CSSN Supplementary Services Notification

| AT+CSSN Supplementary Services Notification           |   |
|---|---|
| Test Command<br><b>AT+CSSN=?</b>                      | <p>Response<br/><b>+CSSN:</b> (list of supported &lt;n&gt;s),(list of supported &lt;m&gt;s)</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Read Command<br><b>AT+CSSN?</b>                       | <p>Response<br/><b>+CSSN:</b> &lt;n&gt;,&lt;m&gt;</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Write Command<br><b>AT+CSSN=&lt;n&gt;[,&lt;m&gt;]</b> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b> A numeric parameter which indicates whether to show the +CSSI:&lt;code1&gt;[,&lt;index&gt;] result code presentation status after a mobile originated call setup</p> <p>0 disable<br/>1 enable</p> <p><b>&lt;m&gt;</b> A numeric parameter which indicates whether to show the +CSSU:&lt;code2&gt; result code presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received.</p> <p>0 disable<br/>1 enable</p> <p><b>&lt;code1&gt;</b> 0 Unconditional call forwarding is active<br/>1 Some of the conditional call forwarding are active<br/>2 Call has been forwarded<br/>3 Call is waiting<br/>4 This is a CUG call (also &lt;index&gt; present)<br/>5 Outgoing calls are barred<br/>6 Incoming calls are barred<br/>7 CLIR suppression rejected</p> <p><b>&lt;index&gt;</b> Closed user group index</p> <p><b>&lt;code2&gt;</b> 0 This is a forwarded call</p> |

|           |   |
|-----------|---|
|           | <ol style="list-style-type: none"> <li>1 This is a CUG call (also &lt;index&gt; present) (MT call setup)</li> <li>2 Call has been put on hold (during a voice call)</li> <li>3 Call has been retrieved (during a voice call)</li> <li>4 Multiparty call entered (during a voice call)</li> <li>5 Call on hold has been released (this is not a SS notification) (during a voice call)</li> <li>6 Forward check SS message received (can be received whenever)</li> <li>7 Call is being connected (alerting) with the remote party in alerting state in explicit call transfer operation (during a voice call)</li> <li>8 Call has been connected with the other remote party in explicit call transfer operation (also number and subaddress parameters may be present) (during a voice call or MT call setup)</li> <li>9 This is a deflected call (MT call setup)</li> </ol> |
| Reference | Note  |



## 4 AT Commands According to GSM07.05

The GSM 07.05 commands are for performing SMS and CBS related operations. SIM900 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+CNMI | NEW SMS MESSAGE INDICATIONS            |
| AT+CPMS | PREFERRED SMS MESSAGE STORAGE          |
| AT+CRES | 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                   |   |
|--|---|
| Test Command<br>AT+CMGD=?                    | Response<br>+CMGD: (list of supported <index>s),(list of supported <delflag>s)<br><br><b>OK</b>                     |
|  | Parameters<br>See Write Command   |
| Write Command<br>AT+CMGD=<index>[,<delflag>] | Response<br>TA deletes message from preferred message storage <mem1> location <index>.<br><b>OK</b><br><b>ERROR</b> |

|                        |  |
|------------------------|--|
|                        | <p>If error is related to ME functionality:<br/><b>+CMS ERROR:&lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;index&gt;</b> Integer type; value in the range of location numbers supported by the associated memory</p> <p><b>&lt;delflag&gt;</b></p> <ul style="list-style-type: none"> <li>0 Delete the message specified in &lt;index&gt;</li> <li>1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched</li> <li>2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched</li> <li>3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched</li> <li>4 Delete all messages from preferred message storage including unread messages</li> </ul> |
| Reference<br>GSM 07.05 | Note   |

#### 4.2.2 AT+CMGF Select SMS Message Format

| AT+CMGF Select SMS Message Format                      |  |
|--|--|
| <p>Test Command<br/><b>AT+CMGF=?</b></p>               | <p>Response<br/><b>+CMGF:</b> (list of supported <b>&lt;mode&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+CMGF?</b></p>                | <p>Response<br/><b>+CMGF:</b> <b>&lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CMGF=[&lt;mode&gt;]</b></p> | <p>Response<br/>TA sets parameter to denote which input and output format of messages to use.<br/><b>OK</b></p> <p>Parameter</p> <p><b>&lt;mode&gt;</b></p> <ul style="list-style-type: none"> <li><u>0</u> PDU mode</li> <li>1 Text mode</li> </ul> |

|           |      |
|-----------|------|
| Reference | Note |
| GSM 07.05 |      |

#### 4.2.3 AT+CMGL List SMS Messages from Preferred Store

| AT+CMGL List SMS Messages from Preferred Store |   |                          |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|--|---|--------------------------|--------------|--------------------------|--|------------|------------------------|--|--------------|------------------------|--|------------|----------------------|--|-------|--------------|--------|---|--------------------------|--|---|------------------------|--|---|------------------------|--|---|----------------------|--|---|--------------|
| Test Command<br>AT+CMGL=?                      | <p>Response</p> <p>+CMGL: (list of supported &lt;stat&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |                          |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
| Write Command<br>AT+CMGL=<stat>[,<mode>]       | <p>Parameters</p> <p>1) If text mode:</p> <table border="0"> <tr> <td>&lt;stat&gt;</td> <td>"REC UNREAD"</td> <td>Received unread messages</td> </tr> <tr> <td></td> <td>"REC READ"</td> <td>Received read messages</td> </tr> <tr> <td></td> <td>"STO UNSENT"</td> <td>Stored unsent messages</td> </tr> <tr> <td></td> <td>"STO SENT"</td> <td>Stored sent messages</td> </tr> <tr> <td></td> <td>"ALL"</td> <td>All messages</td> </tr> </table> <p>&lt;mode&gt; 0 Normal<br/>1 Not change status of the specified SMS record</p> <p>2) If PDU mode:</p> <table border="0"> <tr> <td>&lt;stat&gt;</td> <td>0</td> <td>Received unread messages</td> </tr> <tr> <td></td> <td>1</td> <td>Received read messages</td> </tr> <tr> <td></td> <td>2</td> <td>Stored unsent messages</td> </tr> <tr> <td></td> <td>3</td> <td>Stored sent messages</td> </tr> <tr> <td></td> <td>4</td> <td>All messages</td> </tr> </table> <p>&lt;mode&gt; 0 Normal<br/>1 Not change status of the specified SMS record</p> <p>Response</p> <p>TA returns messages with status value &lt;stat&gt; from message storage &lt;mem1&gt; 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:<br/>for SMS-SUBMITs and/or SMS-DELIVERs:<br/>+CMGL: &lt;index&gt;,&lt;stat&gt;,&lt;oa/da&gt;[,&lt;alpha&gt;] [,&lt;scts&gt;]<br/>[,&lt;tooa/toda&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;<br/>[&lt;CR&gt;&lt;LF&gt;+CMGL: &lt;index&gt;,&lt;stat&gt;,&lt;da/oa&gt;<br/>[,&lt;alpha&gt;][,&lt;scts&gt;][,&lt;tooa/toda&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;[...]]<br/>for SMS-STATUS-REPORTs:<br/>+CMGL: &lt;index&gt;,&lt;stat&gt;,&lt;fo&gt;,&lt;mr&gt;[,&lt;ra&gt;][,&lt;tora&gt;],&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;</p> | <stat>                   | "REC UNREAD" | Received unread messages |  | "REC READ" | Received read messages |  | "STO UNSENT" | Stored unsent messages |  | "STO SENT" | Stored sent messages |  | "ALL" | All messages | <stat> | 0 | Received unread messages |  | 1 | Received read messages |  | 2 | Stored unsent messages |  | 3 | Stored sent messages |  | 4 | All messages |
| <stat>   | "REC UNREAD"  | Received unread messages |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | "REC READ"  | Received read messages   |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | "STO UNSENT"  | Stored unsent messages   |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | "STO SENT"  | Stored sent messages     |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | "ALL"   | All messages             |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
| <stat>   | 0   | Received unread messages |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | 1   | Received read messages   |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | 2   | Stored unsent messages   |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | 3   | Stored sent messages     |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |
|  | 4   | All messages             |              |                          |  |            |                        |  |              |                        |  |            |                      |  |       |              |        |   |                          |  |   |                        |  |   |                        |  |   |                      |  |   |              |

```
[<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(string should be included in quotation marks) 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 <toda>

**<data>** In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:

- if <dcs> indicates that GSM 03.38 default alphabet is used and <fo> indicates that GSM 03.40 TPUser-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

|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>- 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))</li> <li>- if &lt;dc&gt; indicates that 8-bit or UCS2 data coding scheme is used, or &lt;fo&gt; 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:</li> <li>- if &lt;dc&gt; indicates that GSM 03.38 default alphabet is used:</li> <li>- 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</li> <li>- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number</li> <li>- if &lt;dc&gt; 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</li> </ul> <p><b>&lt;length&gt;</b> Integer type value indicating in the text mode (+CMGF=1) the length of the message body &lt;data&gt; (or &lt;cdata&gt;) 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><b>&lt;index&gt;</b> Integer type; value in the range of location numbers supported by the associated memory</p> <p><b>&lt;oa&gt;</b> 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 &lt;tooa&gt;</p> <p><b>&lt;pdu&gt;</b> 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><b>&lt;scs&gt;</b> GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer &lt;dt&gt;)</p> <p><b>&lt;tda&gt;</b> GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of &lt;da&gt; is + (IRA 43)</p> |
|--|---|

|  |   |
|--|---|
|  | <p>default is 145, otherwise default is 129)</p> <p><b>&lt;tooa&gt;</b> GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer&lt;toda&gt;)</p>  |
| <p>Execution Command</p> <p><b>AT+CMGL</b></p> | <p>1) If text mode:<br/>the same as AT+CMGL="REC UNREAD", received unread messages</p> <p>2) If PDU mode:<br/>the same as AT+CMGL=0, received unread messages</p> <p>See more messages please refer to Write Command.</p> <p>Parameters<br/>See Write Command</p> |
| <p>Reference</p> <p>GSM 07.05</p>              | <p>Note</p>   |

#### 4.2.4 AT+CMGR Read SMS Message

| <b>AT+CMGR Read SMS Message</b>   |  |
|---|--|
| <p>Test Command</p> <p><b>AT+CMGR=?</b></p>                             | <p>Response</p> <p><b>OK</b></p>   |
| <p>Write Command</p> <p><b>AT+CMGR=&lt;index&gt;[,&lt;mode&gt;]</b></p> | <p>Parameters</p> <p><b>&lt;index&gt;</b> Integer type; value in the range of location numbers supported by the associated memory</p> <p><b>&lt;mode&gt;</b> 0 Normal<br/>1 Not change status of the specified SMS record</p> <p>Response</p> <p>TA returns SMS message with location value &lt;index&gt; from message storage &lt;mem1&gt; 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:<br/>for SMS-DELIVER:<br/><b>+CMGR: &lt;stat&gt;,&lt;oa&gt;[,&lt;alpha&gt;],&lt;scts&gt;[,&lt;tooa&gt;,&lt;fo&gt;,&lt;pid&gt;,&lt;dcs&gt;,&lt;sca&gt;,&lt;tosca&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</b><br/>for SMS-SUBMIT:<br/><b>+CMGR: &lt;stat&gt;,&lt;da&gt;[,&lt;alpha&gt;][,&lt;toda&gt;,&lt;fo&gt;,&lt;pid&gt;,&lt;dcs&gt;[,&lt;vp&gt;],&lt;sca&gt;,&lt;tosca&gt;,&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</b><br/>for SMS-STATUS-REPORTs:<br/><b>+CMGR: &lt;stat&gt;,&lt;fo&gt;,&lt;mr&gt;[,&lt;ra&gt;][,&lt;tora&gt;],&lt;scts&gt;,&lt;dt&gt;,&lt;st&gt;</b><br/>for SMS-COMMANDs:<br/><b>+CMGR: &lt;stat&gt;,&lt;fo&gt;,&lt;ct&gt;[,&lt;pid&gt;[,&lt;mn&gt;][,&lt;da&gt;][,&lt;toda&gt;],&lt;length&gt;]&lt;CR&gt;&lt;LF&gt;&lt;cdata&gt;]</b><br/>for CBM storage:<br/><b>+CMGR: &lt;stat&gt;,&lt;sn&gt;,&lt;mid&gt;,&lt;dcs&gt;,&lt;page&gt;,&lt;pages&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</b></p> |

2) If PDU mode (+CMGF=0) and Command successful:  
**+CMGR: <stat>[,<alpha>],<length><CR><LF><pdu>**

**OK**

3) If error is related to ME functionality:  
**+CMS ERROR: <err>**

Parameters

- <alpha>** String type (string should be included in quotation marks) alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific
- <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 <tda>
- <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 Message in text mode responses; format:
  - 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

|          |  |                          |              |                          |   |            |                        |   |              |                        |   |            |                      |   |       |              |
|----------|--|--------------------------|--------------|--------------------------|---|------------|------------------------|---|--------------|------------------------|---|------------|----------------------|---|-------|--------------|
|          | <p>character of GSM alphabet into two IRA character long hexadecimal number</p> <p>- if &lt;dc&gt; 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>   |                          |              |                          |   |            |                        |   |              |                        |   |            |                      |   |       |              |
| <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>   | <table border="0"> <tr> <td>0</td> <td>"REC UNREAD"</td> <td>Received unread messages</td> </tr> <tr> <td>1</td> <td>"REC READ"</td> <td>Received read messages</td> </tr> <tr> <td>2</td> <td>"STO UNSENT"</td> <td>Stored unsent messages</td> </tr> <tr> <td>3</td> <td>"STO SENT"</td> <td>Stored sent messages</td> </tr> <tr> <td>4</td> <td>"ALL"</td> <td>All messages</td> </tr> </table> | 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 |
| 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   |                          |              |                          |   |            |                        |   |              |                        |   |            |                      |   |       |              |



|                        |   |
|------------------------|---|
|                        | <p>in integer format (when first character of &lt;da&gt; is + (IRA 43) default is 145, otherwise default is 129)</p> <p><b>&lt;tooa&gt;</b> GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer &lt;toda&gt;)</p> <p><b>&lt;tosca&gt;</b> GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer &lt;toda&gt;)</p> <p><b>&lt;vp&gt;</b> Depending on SMS-SUBMIT &lt;fo&gt; setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer &lt;dt&gt;)</p> |
| Reference<br>GSM 07.05 | Note  |

#### 4.2.5 AT+CMGS Send SMS Message

| AT+CMGS Send SMS Message  |  |
|---|--|
| Test Command<br><b>AT+CMGS=?</b>  | Response<br><b>OK</b>  |
| Write Command<br>1) If text mode (+CMGF=1):<br><b>+CMGS=&lt;da&gt;[,&lt;toda&gt;]&lt;CR&gt;</b><br><b>text is entered</b><br><b>&lt;ctrl-Z/ESC&gt;</b><br>ESC quits without sending<br>2) If PDU mode (+CMGF=0):<br><b>+CMGS=&lt;length&gt;&gt;&lt;CR&gt;</b><br><b>PDU is given</b><br><b>&lt;ctrl-Z/ESC&gt;</b> | <p>Parameters</p> <p><b>&lt;da&gt;</b> GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); 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 &lt;toda&gt;</p> <p><b>&lt;toda&gt;</b> GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of &lt;da&gt; is + (IRA 43) default is 145, otherwise default is 129)</p> <p><b>&lt;length&gt;</b> Integer type value (not exceed 160 bytes) indicating in the text mode (+CMGF=1) the length of the message body &lt;data&gt; (or &lt;cdata&gt;) 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<br/>TA sends message from a TE to the network (SMS-SUBMIT). Message reference value &lt;mr&gt; is returned to the TE on successful message delivery. Optionally (when +CSMS &lt;service&gt; value is 1 and network supports) &lt;scts&gt; 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:<br/><b>+CMGS: &lt;mr&gt;</b></p> <p><b>OK</b></p> <p>2) If PDU mode(+CMGF=0) and sending successful:</p> |

|                        |  |
|------------------------|--|
|                        | <p>+CMGS: &lt;mr&gt;</p> <p><b>OK</b></p> <p>3)If error is related to ME functionality:<br/>+CMS ERROR: &lt;err&gt;</p>                |
|                        | <p>Parameter</p> <p>&lt;mr&gt; GSM 03.40 TP-Message-Reference in integer format</p>  |
| Reference<br>GSM 07.05 | <p>Note</p> <p>If TE Character Set is GSM, it supports 160-byte maximum; If TE Character Set is UCS2, it supports 70-word maximum.</p> |

#### 4.2.6 AT+CMGW Write SMS Message to Memory

| AT+CMGW Write SMS Message to Memory  |   |
|--|---|
| Test Command<br><b>AT+CMGW=?</b>   | Response<br><b>OK</b>   |
| Write Command<br>1) If text mode<br>(+CMGF=1):<br><b>AT+CMGW=&lt;oa/da&gt;[,&lt;tooa/toda&gt;]<br/>&lt;CR&gt; text is entered<br/>&lt;ctrl-Z/ESC&gt;<br/>&lt;ESC&gt; quits without sending</b> | Response<br>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.<br><br>If writing is successful:<br><b>+CMGW: &lt;index&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CMS ERROR: &lt;err&gt;</b>   |
| 2) If PDU mode<br>(+CMGF=0):<br><b>AT+CMGW=&lt;length&gt;&lt;CR&gt; PDU is given<br/>&lt;ctrl-Z/ESC&gt;</b>  | Parameters<br><b>&lt;oa&gt;</b> GSM 03.40 TP-Originating-Address Address-Value field in string format(string should be included in quotation marks); 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 <tooa><br><br><b>&lt;da&gt;</b> GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); 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 |

|  |  |
|--|--|
|  | <p>by &lt;toa&gt;</p> <p>&lt;toa&gt; GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer &lt;toa&gt;)</p> <p>&lt;toa&gt; GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of &lt;da&gt; is + (IRA 43) default is 145, otherwise default is 129)</p> <p>129 Unknown type(ISDN format number)</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>&lt;length&gt; Integer type value (not exceed 160 bytes) indicating in the text mode (+CMGF=1) the length of the message body &lt;data&gt; (or &lt;cdata&gt;) 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>&lt;pdu&gt; 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>&lt;index&gt; Index of message in selected storage &lt;mem2&gt;</p> |
| <p>Execution Command</p> <p><b>AT+CMGW</b></p> | <p>Response</p> <p>TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage &lt;mem2&gt;. Memory location &lt;index&gt; of the stored message is returned. By default message status will be set to 'stored unsent', but parameter &lt;stat&gt; allows also other status values to be given.</p> <p>If writing is successful:</p> <p><b>+CMGW: &lt;index&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CMS ERROR: &lt;err&gt;</b></p>   |
| <p>Reference</p> <p>GSM 07.05</p>              | <p>Note</p>  |

#### 4.2.7 AT+CMSS Send SMS Message from Storage

|  |           |
|--|-----------|
| <b>AT+CMSS Send SMS Message from Storage</b> |           |
| Test Command                                 | Response  |
| <b>AT+CMSS=?</b>                             | <b>OK</b> |

|   |   |
|---|---|
| <p>Write Command<br/><b>AT+CMSS=&lt;index&gt;,&lt;da&gt;[,&lt;toda&gt;]</b></p> | <p>Response</p> <p>TA sends message with location value &lt;index&gt; from message storage &lt;mem2&gt; to the network (SMS-SUBMIT). If new recipient address &lt;da&gt; is given, it shall be used instead of the one stored with the message. Reference value &lt;mr&gt; 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:<br/><b>+CMSS: &lt;mr&gt;</b></p> <p><b>OK</b></p> <p>2) If PDU mode(+CMGF=0) and sending successful:<br/><b>+CMSS: &lt;mr&gt;</b></p> <p><b>OK</b></p> <p>3) If error is related to ME functionality:<br/><b>+CMS ERROR: &lt;err&gt;</b></p> <hr/> <p>Parameters</p> <p><b>&lt;index&gt;</b> Integer type; value in the range of location numbers supported by the associated memory</p> <p><b>&lt;da&gt;</b> GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); 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 &lt;toda&gt;</p> <p><b>&lt;toda&gt;</b> GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of &lt;da&gt; is + (IRA 43) default is 145, otherwise default is 129)</p> <p><b>&lt;mr&gt;</b> GSM 03.40 TP-Message-Reference in integer format</p> |
| <p>Reference<br/>GSM 07.05</p>  | <p>Note</p>   |

#### 4.2.8 AT+CNMI New SMS Message Indications

| <p><b>AT+CNMI New SMS Message Indications</b></p> |  |
|---|--|
| <p>Test Command<br/><b>AT+CNMI=?</b></p>          | <p>Response</p> <p><b>+CNMI:</b> (list of supported &lt;mode&gt;s),(list of supported &lt;mt&gt;s),(list of supported &lt;bm&gt;s),(list of supported &lt;ds&gt;s),(list of supported &lt;bfr&gt;s)</p> <p><b>OK</b></p> |
|   | <p>Parameters<br/>See Write Command</p>  |

|  |  |
|--|--|
| <p>Read Command<br/><b>AT+CNMI?</b></p>  | <p>Response<br/><b>+CNMI: &lt;mode&gt;,&lt;mt&gt;,&lt;bm&gt;,&lt;ds&gt;,&lt;bfr&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CNMI=&lt;mode&gt;[,&lt;mt&gt;[,&lt;bm&gt;[,&lt;ds&gt;[,&lt;bfr&gt;]]]]</b><br/><b>]</b></p> | <p>Response<br/>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.</p> <p><b>OK</b><br/><b>ERROR</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b>    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> <p><b>&lt;mt&gt;</b>            (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: &lt;mem&gt;,&lt;index&gt;</p> <p>                 2    SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [&lt;alpha&gt;],&lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt; (PDU mode enabled) or +CMT: &lt;oa&gt;, [&lt;alpha&gt;],&lt;scts&gt; [,&lt;toa&gt;,&lt;fo&gt;,&lt;pid&gt;,&lt;dcs&gt;,&lt;sca&gt;,&lt;tosca&gt;,&lt;length&gt;]&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt; (text mode enabled; about</p> |

|                    |  |
|--------------------|--|
|                    | parameters in italics, refer Command Show Text Mode Parameters +CSDH). Class 2 messages result in indication as defined in <mt>=1.   |
|                    | 3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other classes result in indication as defined in <mt>=1.                                  |
| <b>&lt;bm&gt;</b>  | (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):  |
|                    | 0 No CBM indications are routed to the TE.   |
|                    | 2 New CBMs are routed directly to the TE using unsolicited result code: +CBM:<br><length><CR><LF><pdu> (PDU mode enabled) or +CBM:<br><sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled). |
| <b>&lt;ds&gt;</b>  | 0 No SMS-STATUS-REPORTs are routed to the TE.  |
|                    | 1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS:<br><length><CR><LF><pdu> (PDU mode enabled) or +CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st> (text mode enabled)       |
| <b>&lt;bfr&gt;</b> | 0 TA buffer of unsolicited result codes defined within this Command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes).                            |
|                    | 1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered  |

Unsolicited result code

1. Indicates that new message has been received

If <mt>=1:

**+CMTI:** <mem3>,<index>

If <mt>=2 (PDU mode enabled):

**+CMT:** <length><CR><LF><pdu>

If <mt>=2 (text mode enabled):

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

2. Indicates that new cell broadcast message has been received

If <bm>=2 (PDU mode enabled):

**+CBM:** <length><CR><LF><pdu>

If <bm>=2 (text mode enabled):

|                        |  |
|------------------------|--|
|                        | <p>+CBM: &lt;sn&gt;, &lt;mid&gt;, &lt;dc&gt;, &lt;page&gt;, &lt;pages&gt;&lt;CR&gt;&lt;LF&gt;&lt;data&gt;</p> <p>3. Indicates that new SMS status report has been received</p> <p>If &lt;ds&gt;=1 (PDU mode enabled):</p> <p>+CDS: &lt;length&gt;&lt;CR&gt;&lt;LF&gt;&lt;pdu&gt;</p> <p>If &lt;ds&gt;=1 (text mode enabled):</p> <p>+CDS: &lt;fo&gt;, &lt;mr&gt;[, &lt;ra&gt;][, &lt;tora&gt;], &lt;scts&gt;, &lt;dt&gt;, &lt;st&gt;</p> <p>If &lt;ds&gt;=2:</p> <p>+CDSI: &lt;mem3&gt;, &lt;index&gt;</p> |
| Reference<br>GSM 07.05 | Note   |

#### 4.2.9 AT+CPMS Preferred SMS Message Storage

| AT+CPMS Preferred SMS Message Storage                         |  |
|---|--|
| Test Command<br>AT+CPMS=?                                     | <p>Response</p> <p>+CPMS: (list of supported &lt;mem1&gt;s),(list of supported &lt;mem2&gt;s),(list of supported &lt;mem3&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Read Command<br>AT+CPMS?                                      | <p>Response</p> <p>+CPMS: &lt;mem1&gt;,&lt;used1&gt;,&lt;total1&gt;,&lt;mem2&gt;,&lt;used2&gt;,&lt;total2&gt;,&lt;mem3&gt;,&lt;used3&gt;,&lt;total3&gt;</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br>AT+CPMS=<br><mem1><br>[,<mem2><br>[,<mem3>]] | <p>Response</p> <p>TA selects memory storages &lt;mem1&gt;, &lt;mem2&gt; and &lt;mem3&gt; to be used for reading, writing, etc.</p> <p>+CPMS: &lt;used1&gt;,&lt;total1&gt;,&lt;used2&gt;,&lt;total2&gt;,&lt;used3&gt;,&lt;total3&gt;</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p>&lt;mem1&gt; Messages to be read and deleted from this memory storage<br/>"SM" SIM message storage</p> <p>&lt;mem2&gt; Messages will be written and sent to this memory storage</p> |

|                        |  |
|------------------------|--|
|                        | <p>"SM" SIM message storage</p> <p><b>&lt;mem3&gt;</b> 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><b>&lt;usedx&gt;</b> Integer type; Number of messages currently in &lt;memx&gt;</p> <p><b>&lt;totalx&gt;</b> Integer type; Number of messages storable in &lt;memx&gt;</p> |
| Reference<br>GSM 07.05 | Note   |

#### 4.2.10 AT+CRES Restore SMS Settings

| AT+CRES Restore SMS Settings                    |   |
|---|---|
| Test Command<br><b>AT+CRES=?</b>                | <p>Response</p> <p><b>+CRES:</b> (list of supported <b>&lt;profile&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br><b>AT+CRES=&lt;profile&gt;</b> | <p>Response</p> <p>TA restores SMS settings for +CSCA, +CSMP from non-volatile memory to active memory.</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p><b>&lt;profile&gt;</b>    <u>0</u> Restore SM service settings from profile 0<br/>                  1 Restore SM service settings from profile 1</p> |
| Execution Command<br><b>AT+CRES</b>             | <p>Response</p> <p>Same as AT+CRES=0.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CMS ERROR &lt;err&gt;</b></p>  |
| Reference<br>GSM 07.05                          | Note  |

#### 4.2.11 AT+CSAS Save SMS Settings

| AT+CSAS Save SMS Settings        |  |
|----------------------------------|--|
| Test Command<br><b>AT+CSAS=?</b> | <p>Response</p> <p><b>+CSAS:</b> (list of supported <b>&lt;profile&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> |



|   |   |
|---|---|
|   | See Write Command   |
| Write Command<br><b>AT+CSAS=[&lt;profile&gt;]</b> | Response<br>TA saves SMS settings for +CSCA, +CSMP from non-volatile memory to active memory.<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameter<br><b>&lt;profile&gt;</b> 0    Save SM service setting in profile 0<br>1    Save SM service setting in profile 1  |
| Execution Command<br><b>AT+CSAS</b>               | Response<br>Same as AT+CSAS=0<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CMS ERROR &lt;err&gt;</b> |
| Reference<br>GSM 07.05                            | Note  |

#### 4.2.12 AT+CSCA SMS Service Center Address

|   |  |
|---|--|
| <b>AT+CSCA SMS Service Center Address</b>                   |  |
| Test Command<br><b>AT+CSCA=?</b>                            | Response<br><b>OK</b>  |
| Read Command<br><b>AT+CSCA?</b>                             | Response<br><b>+CSCA: &lt;sca&gt;,&lt;tosca&gt;[,&lt;scaAlpha&gt;]</b><br><br><b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Write Command<br><b>AT+CSCA=&lt;sca&gt;[,&lt;tosca&gt;]</b> | Response<br>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.<br><br>Note: The Command writes the parameters in NON-VOLATILE memory.<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameters<br><b>&lt;sca&gt;</b> GSM 04.11 RP SC address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet  |

|                        |  |
|------------------------|--|
|                        | <p>characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by &lt;tosca&gt;</p> <p><b>&lt;tosca&gt;</b> Service center address format GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer &lt;toda&gt;)</p> <p><b>&lt;scaAlpha&gt;</b> String type(string should be included in quotation marks)<br/>Service center address alpha data</p> |
| Reference<br>GSM 07.05 | Note   |

#### 4.2.13 AT+CSCB Select Cell Broadcast SMS Messages

| AT+CSCB Select Cell Broadcast SMS Messages   |   |
|--|---|
| Test Command<br><b>AT+CSCB=?</b>   | <p>Response</p> <p><b>+CSCB:</b> (list of supported <b>&lt;mode&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br><b>AT+CSCB?</b>  | <p>Response</p> <p><b>+CSCB:</b> <b>&lt;mode&gt;</b>,<b>&lt;mids&gt;</b>,<b>&lt;dcss&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br><b>AT+CSCB=<br/>&lt;mode&gt;[,&lt;mids&gt;<br/>[,&lt;dcss&gt;]]</b> | <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.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CMS ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b>    0    Message types specified in <b>&lt;mids&gt;</b> and <b>&lt;dcss&gt;</b> are accepted</p> <p>              1    Message types specified in <b>&lt;mids&gt;</b> and <b>&lt;dcss&gt;</b> are not accepted.</p> <p><b>&lt;mids&gt;</b>    String type (string should be included in quotation marks); all different possible combinations of CBM message identifiers (refer <b>&lt;mid&gt;</b>) (default is empty string); e.g. "0,1,5,320,922". Total 15 different <b>&lt;mids&gt;</b> values can be supported. <b>&lt;mids&gt;</b></p> |

|                        |  |
|------------------------|--|
|                        | <p>values cannot be written consecutively, such as "100-200"</p> <p><b>&lt;dcss&gt;</b> String type(string should be included in quotation marks); all different possible combinations of CBM data coding schemes (refer &lt;dcss&gt;) (default is empty string); e.g. "0,5". Total 5 different &lt;dcss&gt; values can be supported. &lt;dcss&gt; values cannot be written consecutively, such as "0-5"</p>   |
| Reference<br>GSM 07.05 | <p>Note</p> <ul style="list-style-type: none"> <li>● AT+CSCB=0 will reset &lt;mids&gt; and &lt;dcss&gt; and select no &lt;mids&gt; and no &lt;dcss&gt;.</li> <li>● AT+CSCB=1 means all &lt;dcss&gt; are accepted but this command has no effect on the list of the &lt;mids&gt; accepted. "0-255" means all &lt;dcss&gt; are accepted.</li> <li>● AT+CSCB=0, &lt;mids&gt; will add the &lt;mids&gt; values in the &lt;mids&gt; current list handled by module.</li> <li>● AT+CSCB=0, &lt;dcss&gt; will add the &lt;dcss&gt; values in the &lt;dcss&gt; current list handled by module.</li> <li>● If AT+CSCB=0, &lt;mids&gt; is received while the list of &lt;mids&gt; is full, OK is returned and new value is not added.</li> </ul> |

#### 4.2.14 AT+CSDH Show SMS Text Mode Parameters

| AT+CSDH Show SMS Text Mode Parameters        |  |
|--|--|
| Test Command<br><b>AT+CSDH=?</b>             | <p>Response</p> <p><b>+CSDH:</b> (list of supported &lt;show&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br><b>AT+CSDH?</b>              | <p>Response</p> <p><b>+CSDH:</b> &lt;show&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br><b>AT+CSDH=&lt;show&gt;</b> | <p>Response</p> <p>TA determines whether detailed header information is shown in text mode result codes.</p> <p><b>OK</b></p> <p>Parameter</p> <p>&lt;show&gt;    <u>0</u> Do not show header values defined in commands +CSCA</p> |

|                        |   |
|------------------------|---|
|                        | <p>and +CSMP (&lt;sca&gt;, &lt;tosca&gt;, &lt;fo&gt;, &lt;vp&gt;, &lt;pid&gt; and &lt;dc&gt;) nor &lt;length&gt;, &lt;toda&gt; or &lt;toa&gt; in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode</p> <p>1 Show the values in result codes</p> |
| Reference<br>GSM 07.05 | Note  |

#### 4.2.15 AT+CSMP Set SMS Text Mode Parameters

| AT+CSMP Set SMS Text Mode Parameters   |  |
|--|--|
| <p>Test Command<br/><b>AT+CSMP=?</b></p>   | <p>Response<br/><b>+CSMP:</b> (list of supported &lt;fo&gt;s),(list of supported &lt;vp&gt;s),(list of supported &lt;pid&gt;s),(list of supported &lt;dc&gt;s)</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Read Command<br/><b>AT+CSMP?</b></p>  | <p>Response<br/><b>+CSMP:</b> &lt;fo&gt;,&lt;vp&gt;,&lt;pid&gt;,&lt;dc&gt;</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CSMP=[&lt;fo&gt;,&lt;vp&gt;,&lt;pid&gt;,&lt;dc&gt;]</b></p> | <p>Response<br/>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 (&lt;vp&gt; is in range 0.. 255) or define the absolute time of the validity period termination (&lt;vp&gt; is a string).</p> <p>Note: The Command writes the parameters in NON-VOLATILE memory.</p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;fo&gt;</b> 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 &lt;fo&gt; is set to 49.</p> <p><b>&lt;vp&gt;</b> Depending on SMS-SUBMIT &lt;fo&gt; setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in</p> |

|                        |   |
|------------------------|---|
|                        | time-string format (refer <dt>)                                       |
|                        | <pid> GSM 03.40 TP-Protocol-Identifier in integer format (default 0). |
|                        | <dcs> GSM 03.38 SMS Data Coding Scheme in Integer format.             |
| Reference<br>GSM 07.05 | Note  |

#### 4.2.16 AT+CSMS Select Message Service

| AT+CSMS Select Message Service         |   |
|--|---|
| Test Command<br>AT+CSMS=?              | <p>Response</p> <p>+CSMS: (list of supported &lt;service&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Read Command<br>AT+CSMS?               | <p>Response</p> <p>+CSMS: &lt;service&gt;,&lt;mt&gt;,&lt;mo&gt;,&lt;bm&gt;</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br>AT+CSMS=<br><service> | <p>Response</p> <p>+CSMS: &lt;mt&gt;,&lt;mo&gt;,&lt;bm&gt;</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameters</p> <p>&lt;service&gt;    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))</p> <p>                  1    GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2+ version; the requirement of &lt;service&gt; setting 1 is mentioned under corresponding command descriptions)</p> <p>&lt;mt&gt;            Mobile Terminated Messages:</p> <p>                  0    Type not supported</p> <p>                  1    Type supported</p> <p>&lt;mo&gt;            Mobile Originated Messages:</p> <p>                  0    Type not supported</p> <p>                  1    Type supported</p> |

|                        |  |
|------------------------|--|
|                        | <b>&lt;bm&gt;</b> Broadcast Type Messages:<br>0 Type not supported<br>1 Type supported |
| Reference<br>GSM 07.05 | Note   |

## 5 AT Commands for SIM Application Toolkit

### 5.1 STK AT Command

\*PSSTK command is defined to support SIM toolkit by AT commands. Only part of SIM toolkit commands that interact with user or MMI can be controlled. All other SIM toolkit mechanism such as terminal profile, SMS or CBM data download, call control or MO SMS control by SIM, event download and all command that does not require interaction with the user (or screen) are internally managed by the ME.

| AT*PSSTKI SIM Toolkit interface configuration             |   |
|---|---|
| Test Command<br><b>AT*PSSTKI=?</b>                        | Response<br><b>*PSSTKI:</b> (list of supported <mode>s)<br><br><b>OK</b><br><br>Parameter<br>See Write Command  |
| Read Command<br><b>AT*PSSTKI?</b>                         | Response<br><b>*PSSTKI:</b> <mode><br><br><b>OK</b><br><b>ERROR</b><br><br>Parameter<br>See Write Command   |
| Write Command<br><b>AT*PSSTKI</b><br><b>=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>Parameter<br><b>&lt;mode&gt;</b> Integer type<br>0 SIM toolkit notification is disabled<br>1 SIM toolkit notification is enabled |
| Reference   | Note<br>If AT*PSSTKI=1 is set, *PSSTK: "SETUP MENU" string will be sent out after power on.   |

| <b>AT*PSSTK SIM toolkit control</b>   |   |
|---|---|
| Test Command<br><b>AT*PSSTK=?</b>   | Response<br><b>*PSSTK:</b> (list of supported <response type>s)<br>Parameter<br>See Write Command   |
| Read Command<br><b>AT*PSSTK?</b>  | Response<br><b>ERROR</b>  |
| Write Command<br><b>AT*PSSTK</b><br><b>=&lt;response</b><br><b>type&gt;[,&lt;parameter</b><br><b>1&gt;,...,&lt;parameter</b><br><b>n&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b><br>Parameters<br><response type> String type that represents the type of response to be sent to SIM<br>"COMMAND REJECTED"<br>"NOTIFICATION"<br>"SETUP CALL"<br>"DISPLAY TEXT"<br>"GET INKEY"<br>"GET INPUT"<br>"PLAY TONE"<br>"SELECT ITEM"<br>"SETUP MENU"<br>"REMOVE MENU"<br>"MENU SELECTION"<br>"ALL CALLS DISCONNECTED"<br>"USER ACTIVITY"<br>"IDLE SCREEN AVAILABLE"<br>"SETUP CALL TERMINATED"<br>"GET ITEM LIST"<br>"LANGUAGE NOTIFICATION"<br>"SETUP IDLE MODE TEXT"<br><parameteri> integer or string type which number of parameters depends on response type. |
| Reference   | Note  |



## 6 AT Commands Special for SIMCOM

### 6.1 Overview

| Command    | Description  |
|------------|--|
| AT+SIDET   | CHANGE THE SIDE TONE GAIN LEVEL                              |
| AT+CPOWD   | POWER OFF  |
| AT+SPIC    | TIMES REMAINED TO INPUT SIM PIN/PUK                          |
| AT+CMIC    | CHANGE THE MICROPHONE GAIN LEVEL                             |
| AT+CALA    | SET ALARM TIME   |
| AT+CALD    | DELETE ALARM   |
| AT+CADC    | READ ADC   |
| AT+CSNS    | SINGLE NUMBERING SCHEME                                      |
| AT+CDSCB   | RESET CELL BROADCAST   |
| AT+CMOD    | CONFIGURE 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 CALL 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     | CONFIGURE 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    | SET CRITICAL TEMPERATURE OPERATING MODE OR QUERY TEMPERATURE |
| AT+CBTE    | BATTERY TEMPERATURE QUERY                                    |
| AT+CSDT    | SWITCH ON OR OFF DETECTING SIM CARD                          |
| AT+CMGDA   | DELETE ALL SMS   |
| AT+STTONE  | PLAY SIM TOOLKIT TONE  |

|                |   |
|----------------|---|
| AT+SIMTONE     | GENERATE SPECIFIC TONE                                |
| AT+CCPD        | ENABLE OR DISABLE ALPHA STRING                        |
| AT+CGID        | GET SIM CARD GROUP IDENTIFIER                         |
| AT+MORING      | SHOW STATE OF MOBILE ORIGINATED CALL                  |
| AT+CMGHEX      | ENABLE OR DISABLE SENDING NON-ASCII CHARACTER SMS     |
| AT+CCODE       | CONFIGURE SMS CODE MODE                               |
| AT+CIURC       | ENABLE OR DISABLE INITIAL URC PRESENTATION            |
| AT+CPSPWD      | CHANGE PS SUPER PASSWORD                              |
| AT+EXUNSOL     | ENABLE OR DISABLE PROPRIETARY UNSOLICITED INDICATIONS |
| AT+CGMSCLASS   | CHANGE GPRS MULTISLOT CLASS                           |
| AT+CDEVICE     | VIEW CURRENT FLASH DEVICE TYPE                        |
| AT+CCALR       | CALL READY QUERY                                      |
| AT+GSV         | DISPLAY PRODUCT IDENTIFICATION INFORMATION            |
| AT+SGPIO       | CONTROL THE GPIO                                      |
| AT+SPWM        | GENERATE THE PULSE-WIDTH-MODULATION                   |
| AT+ECHO        | ECHO CANCELLATION CONTROL                             |
| AT+CAAS        | CONTROL AUTO AUDIO SWITCH                             |
| AT+SVR         | CONFIGURE VOICE CODING TYPE FOR VOICE CALLS           |
| AT+GSMBUSY     | REJECT INCOMING CALL                                  |
| AT+CEMNL       | SET THE LIST OF EMERGENCY NUMBER                      |
| AT*CELLLOCK    | SET THE LIST OF ARFCN WHICH NEEDS TO BE LOCKED        |
| AT+SLEDS       | SET THE TIMER PERIOD OF NET LIGHT                     |
| AT+CCHGMODE    | INDICATES IF THE MODULE IS POWERED OFF                |
| AT+CBUZZERRING | USE THE BUZZER SOUND AS THE INCOMING CALL RING        |
| AT+CEXTERNTONE | CLOSE OR OPEN THE MICROPHONE                          |
| AT+CNETLIGHT   | CLOSE THE NET LIGHT OR OPEN IT TO SHINING             |
| AT+CWHITELIST  | SET THE WHITE LIST                                    |
| AT+CUSACC      | ACCELERATE UART RESPONSE SPEED                        |

## 6.2 Detailed Descriptions of Commands

### 6.2.1 AT+SIDET Change the Side Tone Gain Level

|   |   |
|---|---|
| <b>AT+SIDET Change the Side Tone Gain Level</b> |   |
| Test Command                                    | Response  |
| AT+SIDET=?                                      | +SIDET: (list of supported <channel>s),(list of supported <gainlevel>s) |

|  |  |
|--|--|
|  | <b>OK</b>  |
|  | Parameters<br>See Write Command  |
| Read Command<br><b>AT+SIDET?</b>                                   | Response:<br><b>+SIDET: (&lt;channel0&gt;,&lt;gainlevel0&gt;),..., (&lt;channeln&gt;,&lt;gainleveln&gt;)</b><br><br><b>OK</b>  |
|  | Parameters<br>See Write Command  |
| Write Command<br><b>AT+SIDET=&lt;channel&gt;,&lt;gainlevel&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|  | Parameters<br><b>&lt;channel&gt;</b> 0 Main audio handset channel<br>1 Aux audio headset channel<br>2 Main audio handfree channel<br>3 Aux audio handfree channel<br><b>&lt;gainlevel&gt;</b> Int: 0 – 16    |
| Reference  | Note <ul style="list-style-type: none"> <li>● Please refer to actual model for channel number.</li> <li>● &lt;gainlevel<i>n</i>&gt; value of read command is related to &lt;channel&gt; specific.</li> </ul> |

### 6.2.2 AT+CPOWD Power Off

|  |  |
|--|--|
| <b>AT+CPOWD Power Off</b>                  |  |
| Write Command<br><b>AT+CPOWD=&lt;n&gt;</b> | Response<br><b>[NORMAL POWER DOWN]</b>   |
|  | Parameter<br><b>&lt;n&gt;</b> 0 Power off urgently (Will not send out NORMAL POWER DOWN)<br>1 Normal power off (Will send out NORMAL POWER DOWN) |
| Reference                                  | Note   |

### 6.2.3 AT+SPIC Times Remained to Input SIM PIN/PUK

|  |  |
|--|--|
| <b>AT+SPIC Times Remained to Input SIM PIN/PUK</b> |  |
| Execution Command<br><b>AT+SPIC</b>                | Response<br>Times remained to input SIM PIN<br><b>+SPIC: &lt;pin1&gt;,&lt;pin2&gt;,&lt;puk1&gt;,&lt;puk2&gt;</b> |

|           |  |
|-----------|--|
|           | <p><b>OK</b></p> <p>Parameters</p> <p>&lt;pin1&gt; Times remained to input chv1</p> <p>&lt;pin2&gt; Times remained to input chv2</p> <p>&lt;puk1&gt; Times remained to input puk1</p> <p>&lt;puk2&gt; Times remained to input puk2</p> |
| Reference | Note   |

#### 6.2.4 AT+CMIC Change the Microphone Gain Level

| AT+CMIC Change the Microphone Gain Level                                     |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CMIC=?</b></p>                                  | <p>Response</p> <p>+CMIC: (list of supported &lt;channel&gt;s),(list of supported &lt;gainlevel&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>   |
| <p>Read Command</p> <p><b>AT+CMIC?</b></p>                                   | <p>Response</p> <p>+CMIC: (&lt;channel0&gt;,&lt;gainlevel0&gt;),...,&lt;channeln&gt;,&lt;gainleveln&gt;)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+CMIC=&lt;channel&gt;,&lt;gainlevel&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p>&lt;channel&gt; 0 Main audio handset channel<br/>1 Aux audio headset channel<br/>2 Main audio handfree channel<br/>3 Aux audio handfree channel</p> <p>&lt;gainlevel&gt; Int: 0 – 15<br/>0 0dB<br/>1 +1.5dB<br/>2 +3.0 dB<br/>3 +4.5 dB<br/>4 +6.0 dB<br/>5 +7.5 dB<br/>6 +9.0 dB<br/>7 +10.5 dB<br/>8 +12.0 dB</p> |

|           |   |
|-----------|---|
|           | <p>9 +13.5 dB</p> <p>10 +15.0 dB</p> <p>11 +16.5 dB</p> <p>12 +18.0 dB</p> <p>13 +19.5 dB</p> <p>14 +21.0 dB</p> <p>15 +22.5 dB</p>   |
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● Please refer to actual model for channel number.</li> <li>● &lt;gainlevel&gt; value is related to &lt;channel&gt; specific.</li> </ul> |

### 6.2.5 AT+CALA Set Alarm Time

| AT+CALA Set Alarm Time  |  |
|---|--|
| <p>Test Command</p> <p>AT+CALA=?</p>  | <p>Response:</p> <p>+CALA: ("yy/mm/dd,hh:mm:ss","hh:mm:ss"),(1-5),(0-7)</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameters</p> <p>See Write Command</p>   |
| <p>Read Command</p> <p>AT+CALA?</p>   | <p>Response:</p> <p>+CALA: &lt;time&gt;,&lt;n1&gt;[,&lt;recurr&gt;]</p> <p>[&lt;CR&gt;&lt;LF&gt; +CALA: &lt;time&gt;,&lt;n2&gt;[,&lt;recurr&gt;] ...]</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameters</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p>AT+CALA=<br/>&lt;time&gt;[,&lt;n&gt;<br/>[,&lt;recurr&gt;]]</p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p> <p>Parameters</p> <p>&lt;time&gt; A string parameter(string should be included in quotation marks) which indicates the time when alarm arrives. The format is "yy/MM/dd,hh:mm:ss" where characters indicate the last two digits of year, month, day, hour, minute, second.</p> <p>&lt;n&gt; Index of the alarm (range 1 to 5 for now).</p> <p>&lt;recurr&gt; "0", "1"---"7" String type value indicating day of week for the</p> |

|           |  |
|-----------|--|
|           | <p>alarm in one of the following formats:</p> <p>"&lt;1..7&gt;[,&lt;1..7&gt;[...]]" – Set a recurrent alarm for one or more days in the week. The digits 1 to 7 correspond to the days in the week, Monday (1), ..., Sunday (7).</p> <p>Example: The string "1,2,3,4,5" may be used to set an alarm for all weekdays.</p> <p>"0" – Set a recurrent alarm for all days in the week.</p> |
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● If user sets recurr function, the string of &lt;time&gt; should not enter "yy/MM/dd", for example: set Monday to Friday alarm at the time of 16PM of alarm 2.<br/>AT+CALA="16:00:00",2,1,2,3,4,5</li> </ul>   |

### 6.2.6 AT+CALD Delete Alarm

| AT+CALD Delete Alarm                                 |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CALD=?</b></p>          | <p>Response:</p> <p><b>+CALD:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CALD=&lt;n&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;n&gt;</b> Integer type value indicating the index of the alarm; default is manufacturer specific (range from 1 to 5 now).</p> |
| Reference  | Note  |

### 6.2.7 AT+CADC Read ADC

| AT+CADC Read ADC                            |   |
|---|---|
| <p>Test Command</p> <p><b>AT+CADC=?</b></p> | <p>Response:</p> <p><b>+CADC:</b> (list of supported &lt;status&gt;s),(list of supported &lt;value&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;status&gt;</b>    1    Success</p> <p>                  0    Fail</p> |

|                                 |  |
|---------------------------------|--|
|                                 | <value> Integer 0-2800   |
| Read Command<br><b>AT+CADC?</b> | Response:<br><b>+CADC: &lt;status&gt;,&lt;value&gt;</b><br><br><b>OK</b><br><br>Parameters<br>See Test Command |
| Reference                       | Note   |

### 6.2.8 AT+CSNS Single Numbering Scheme

|  |  |
|--|--|
| <b>AT+CSNS Single Numbering Scheme</b>       |  |
| Test Command<br><b>AT+CSNS =?</b>            | Response<br><b>+CSNS: (list of supported &lt;mode&gt;s)</b><br><br><b>OK</b><br><br>Parameter<br>See Write Command |
| Read Command<br><b>AT+CSNS?</b>              | Response<br><b>+CSNS: &lt;mode&gt;</b><br><br><b>OK</b><br><br>Parameter<br>See Write Command                      |
| Write Command<br><b>AT+CSNS=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>Parameter<br><b>&lt;mode&gt;</b><br><u>0</u> Voice<br>2 Fax<br>4 Data |
| Reference                                    | Note   |

### 6.2.9 AT+CDSCB Reset Cell Broadcast

|                                      |                           |
|--------------------------------------|---------------------------|
| <b>AT+CDSCB Reset Cell Broadcast</b> |                           |
| Execution Command<br><b>AT+CDSCB</b> | Response<br><br><b>OK</b> |

|           |                                       |
|-----------|---------------------------------------|
| Reference | Note<br>Please also refer to AT+CSCB. |
|-----------|---------------------------------------|

### 6.2.10 AT+CMOD Configure Alternating Mode Calls

| AT+CMOD Configure Alternating Mode Calls |   |
|--|---|
| Test Command<br>AT+CMOD=?                | Response<br>+CMOD: (0)<br><br><b>OK</b>             |
|  | Parameter<br>See Write Command                      |
| Read Command<br>AT+CMOD?                 | Response<br>+CMOD: <mode><br><br><b>OK</b>          |
|  | Parameter<br>See Write Command                      |
| Write Command<br>AT+CMOD=[<mode>]        | Response<br><b>OK</b><br><b>ERROR</b>               |
|  | Parameter<br><mode> 0 Only single mode is supported |
| Reference                                | Note  |

### 6.2.11 AT+CFGRI Indicate RI When Using URC

| AT+CFGRI Indicate RI When Using URC    |   |
|--|---|
| Read Command<br>AT+CFGRI?              | Response<br>+CFGRI: <status><br><br><b>OK</b> |
|  | Parameter<br>See Write Command                |
| Write Command<br>AT+CFGRI=<br><status> | Response<br><b>OK</b><br><b>ERROR</b>         |
|  | Parameter<br><status> 1 On<br>0 Off           |
| Reference                              | Note  |



## 6.2.12 AT+CLTS Get Local Timestamp

| AT+CLTS Get Local Timestamp                       |   |
|---|---|
| Test Command<br><b>AT+CLTS=?</b>                  | Response<br><b>+CLTS: "yy/MM/dd,hh:mm:ss+/-zz"</b><br><br><b>OK</b>   |
| Write Command<br><b>AT+CLTS=<br/>&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|   | Parameter<br><b>&lt;mode&gt;</b><br><br><ul style="list-style-type: none"> <li><u>0</u> Disable</li> <li>1 Enable</li> </ul>  |
|   | <p>Unsolicited Result Code</p> <p>When "get local timestamp" function is enabled, the following URC may be reported if network sends the message to the MS to provide the MS with subscriber specific information.</p> <ol style="list-style-type: none"> <li>1. Refresh network name by network:<br/><b>*PSNWID: "&lt;mcc&gt;", "&lt;mnc&gt;", "&lt;full network name&gt;", &lt;full network name CI&gt;, "&lt;short network name&gt;", &lt;short network name CI&gt;</b></li> <li>2. Refresh time and time zone by network:<br/>This is UTC time, the time queried by AT+CCLK command is local time.<br/><b>*PSUTTZ: &lt;year&gt;, &lt;month&gt;, &lt;day&gt;, &lt;hour&gt;, &lt;min&gt;, &lt;sec&gt;, "&lt;time zone&gt;", &lt;dst&gt;</b></li> <li>3. Refresh network time zone by network:<br/><b>+CTZV: "&lt;time zone&gt;"</b></li> <li>4. Refresh Network Daylight Saving Time by network:<br/><b>DST: &lt;dst&gt;</b></li> </ol> |
|   | Parameters<br><ul style="list-style-type: none"> <li><b>&lt;mcc&gt;</b> String type; mobile country code</li> <li><b>&lt;mnc&gt;</b> String type; mobile network code</li> <li><b>&lt;full network name&gt;</b> String type; name of the network in full length.</li> <li><b>&lt;full network name CI&gt;</b> Integer type; indicates whether to add CI. <ul style="list-style-type: none"> <li>0 The MS will not add the initial letters of the Country's</li> </ul> </li> </ul>   |

|           |   |
|-----------|---|
|           | <p>Name to the text string.</p> <p>1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string.</p> <p><b>&lt;short network name&gt;</b> String type; abbreviated name of the network</p> <p><b>&lt;short network name CI&gt;</b> Integer type; indicates whether to add CI.</p> <p>0 The MS will not add the initial letters of the Country's Name to the text string.</p> <p>1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string.</p> <p><b>&lt;year&gt;</b> 4 digits of year (from network)</p> <p><b>&lt;month&gt;</b> Month (from network)</p> <p><b>&lt;day&gt;</b> Day (from network)</p> <p><b>&lt;hour&gt;</b> Hour (from network)</p> <p><b>&lt;min&gt;</b> Minute (from network)</p> <p><b>&lt;sec&gt;</b> Second (from network)</p> <p><b>&lt;time zone&gt;</b> String type; network time zone. If the network time zone has been adjusted for Daylight Saving Time, the network shall indicate this by including the <b>&lt;dst&gt;</b> (Network Daylight Saving Time)</p> <p><b>&lt;dst&gt;</b> Network Daylight Saving Time; the content of this indicates the value that used to adjust the network time zone</p> <p>0 No adjustment for Daylight Saving Time</p> <p>1 +1 hour adjustment for Daylight Saving</p> <p>2 +2 hours adjustment for Daylight Saving Time</p> <p>3 Reserved</p> |
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● Support for this Command will be network dependent.</li> <li>● Set AT+CLTS=1, it means user can receive network time updating and use AT+CCLK to show current time.</li> </ul>   |

### 6.2.13 AT+CEXTHS External Headset Jack Control

| AT+CEXTHS External Headset Jack Control       |  |
|---|--|
| <p>Test Command</p> <p><b>AT+CEXTHS=?</b></p> | <p>Response</p> <p><b>+CEXTHS:</b> (list of supported <b>&lt;mode&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p> |
| <p>Read Command</p> <p><b>AT+CEXTHS?</b></p>  | <p>Response</p> <p><b>+CEXTHS:</b> <b>&lt;mode&gt;</b>,<b>&lt;headset attach&gt;</b></p>   |

|  |  |
|--|--|
|  | <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CEXTHS=</b><br/><b>&lt;mode&gt;</b></p> | <p>Response</p> <p><b>OK</b><br/><b>ERROR</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Unsolicited result code:<br/><b>+CEXTHS: &lt;mode&gt;,&lt;headset attach&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b> A numeric parameter which indicates whether an unsolicited event code (indicating whether the headset has been attached/detached) should be sent to the terminal.</p> <p>0 Not send unsolicited event code<br/>1 Send unsolicited event code</p> <p><b>&lt;headset attach&gt;</b> A numeric parameter which indicates whether a headset has been attached or not.</p> <p>0 Not attached<br/>1 Attached</p> |
| Reference  | <p>Note</p> <p>This command is related to the actual module.</p>   |

#### 6.2.14 AT+CEXTBUT Headset Button Status Reporting

| <b>AT+CEXTBUT Headset Button Status Reporting</b>                   |  |
|---|--|
| <p>Test Command<br/><b>AT+CEXTBUT=</b><br/><b>?</b></p>             | <p>Response</p> <p><b>+CEXTBUT: (list of supported &lt;mode&gt;s)</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>          |
| <p>Read Command<br/><b>AT+CEXTBUT?</b></p>                          | <p>Response</p> <p><b>+CEXTBUT: &lt;mode&gt;,&lt;headset button press&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Write Command<br/><b>AT+CEXTBUT=</b><br/><b>&lt;mode&gt;</b></p> | <p>Response</p> <p><b>OK</b><br/><b>ERROR</b></p> <p>If error is related to ME functionality:</p>  |

|           |   |
|-----------|---|
|           | <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Unsolicited result code</p> <p><b>+CEXTBUT: &lt;mode&gt;,&lt;headset button press&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b> A numeric parameter which indicates whether an unsolicited event code (indicating whether the headset button has been pressed) should be sent to the terminal.</p> <p>0 Not send unsolicited event code</p> <p>1 Send unsolicited event code</p> <p><b>&lt;headset button press&gt;</b> A numeric parameter which indicates whether a headset button has been pressed or not.</p> <p>0 Not pressed</p> <p>1 Pressed</p> |
| Reference | Note<br>This command is related to the actual module.   |

### 6.2.15 AT+CSMINS SIM Inserted Status Reporting

| AT+CSMINS SIM Inserted Status Reporting                     |   |
|---|---|
| <p>Test Command</p> <p><b>AT+CSMINS=?</b></p>               | <p>Response</p> <p><b>+CSMINS: (list of supported &lt;n&gt;s)</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| <p>Read Command</p> <p><b>AT+CSMINS?</b></p>                | <p>Response</p> <p><b>+CSMINS: &lt;n&gt;,&lt;SIM inserted&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CSMINS=<br/>&lt;n&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Unsolicited result code:</p> <p><b>+CSMINS:&lt;n&gt;,&lt;SIM inserted&gt;</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b> A numeric parameter to show an unsolicited event code indicating whether the SIM has been inserted or removed.</p> <p>0 Disable</p> |

|           |   |
|-----------|---|
|           | <p>1 Enable</p> <p>&lt;SIM inserted&gt; A numeric parameter which indicates whether SIM card has been inserted.</p> <p>0 Not inserted</p> <p>1 Inserted</p> |
| Reference | Note  |

### 6.2.16 AT+CLDTMF Local DTMF Tone Generation

| AT+CLDTMF Local DTMF Tone Generation                              |   |
|---|---|
| Test Command<br><b>AT+CLDTMF=?</b>                                | <p>Response</p> <p><b>+CLDTMF: (1-100),(0-9,A,B,C,D,*,#)</b></p> <p>OK</p>  |
| Write Command<br><b>AT+CLDTMF=&lt;n&gt;[,&lt;DTMF string&gt;]</b> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p>&lt;n&gt; A numeric parameter(1-100) which indicates the duration of all DTMF tones in &lt;DTMF -string&gt; in 1/10 secs</p> <p>&lt;DTMF -string&gt; A string parameter (string should be included in quotation marks) which has a max length of 20 chars of form &lt;DTMF&gt;, separated by commas.</p> <p>&lt;DTMF&gt; A single ASCII chars in the set 0-9,#,*,A-D.</p> |
| Execution Command<br><b>AT+CLDTMF</b>                             | <p>Response</p> <p><b>OK</b></p> <p>Abort any DTMF tone currently being generated and any DTMF tone sequence.</p>   |
| Reference   | Note  |

### 6.2.17 AT+CDRIND CS Voice/Data Call Termination Indication

| AT+CDRIND CS Voice/Data Call Termination Indication |   |
|---|---|
| Test Command<br><b>AT+CDRIND=?</b>                  | <p>Response</p> <p><b>+CDRIND: (list of supported &lt;n&gt;s)</b></p> <p>OK</p> <p>Parameter</p> <p>See Write Command</p> |
| Read Command<br><b>AT+CDRIND?</b>                   | <p>Response</p> <p><b>+CDRIND: &lt;n&gt;</b></p>  |

|   |  |
|---|--|
|   | <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CDRIND=&lt;n&gt;</b></p> | <p>Response</p> <p><b>OK</b><br/><b>ERROR</b></p> <p>Parameter</p> <p><b>&lt;n&gt;</b> A numeric parameter to enable an unsolicited event code indicating whether a CS voice call, CS data has been terminated.</p> <p>0 Disable<br/>1 Enable</p> <p>Unsolicited result code<br/>When enabled, an unsolicited result code is returned after the connection has been terminated</p> <p><b>+CDRIND: &lt;type&gt;</b></p> <p>Parameter</p> <p><b>&lt;type&gt;</b> Connection type</p> <p>0 CSV connection<br/>1 CSD connection<br/>2 PPP connection</p> |
| Reference   | Note   |

### 6.2.18 AT+CSPN Get Service Provider Name from SIM

|   |  |
|---|--|
| <b>AT+CSPN Get Service Provider Name from SIM</b> |  |
| <p>Read Command<br/><b>AT+CSPN?</b></p>           | <p>Response:</p> <p><b>+CSPN: &lt;spn&gt;,&lt;display mode&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;spn&gt;</b> String type(string should be included in quotation marks); service provider name on SIM</p> <p><b>&lt;display mode&gt;</b> 0 Not display PLMN. Already registered on PLMN<br/>1 Display PLMN</p> |
| Reference   | Note<br>CME errors occur if SIM is not inserted.   |

## 6.2.19 AT+CCVM Get and Set the Voice Mail Number on the SIM

| AT+CCVM Get and Set the Voice Mail Number on the SIM                     |  |
|--|--|
| Test Command<br><b>AT+CCVM=?</b>   | <p>Response</p> <p><b>+CCVM:</b> maximum length of field &lt;vm number&gt;[, maximum length of field &lt;alpha string&gt;]</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Read Command<br><b>AT+CCVM?</b>  | <p>Response</p> <p>If voice mail number is not set:</p> <p><b>OK</b></p> <p>If voice mail number is set:</p> <p><b>+CCVM:</b> &lt;vm number&gt;[,&lt;alpha string&gt;]</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Write Command<br><b>AT+CCVM=&lt;vm number&gt;[,&lt;alpha string&gt;]</b> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR:</b> &lt;err&gt;</p> <p>Parameters</p> <p>&lt;vm number&gt;      String type (string should be included in quotation marks) -The voice mail number to write to the SIM</p> <p>&lt;alpha string&gt;      String type (string should be included in quotation marks) -The alpha-string to write to the SIM</p> |
| Reference  | Note   |

## 6.2.20 AT+CBAND Get and Set Mobile Operation Band

| AT+CBAND Get and Set Mobile Operation Band |  |
|--|--|
| Test Command<br><b>AT+CBAND=?</b>          | <p>Response</p> <p><b>+CBAND:</b> (list of supported &lt;op_band&gt;s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| Read Command<br><b>AT+CBAND?</b>           | <p>Response</p> <p><b>+CBAND:</b> &lt;op_band&gt;[,&lt;ALL_BAND&gt;]</p>   |

|  |   |
|--|---|
|  | <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CBAND=&lt;op_band&gt;</b></p> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;op_band&gt;</b> A string parameter which indicate the operation band.<br/>And the following strings should be included in quotation marks.</p> <p>PGSM_MODE<br/>DCS_MODE<br/>PCS_MODE<br/>EGSM_DCS_MODE<br/>GSM850_PCS_MODE<br/>ALL_BAND</p> |
| Reference  | <p>Note<br/>Radio settings are stored in non-volatile memory.</p>   |

### 6.2.21 AT+CHF Configure Hands Free Operation

| <b>AT+CHF Configure Hands Free Operation</b>                            |   |
|---|---|
| <p>Test Command<br/><b>AT+CHF=?</b></p>                                 | <p>Response<br/><b>+CHF: (list of supported &lt;ind&gt;s),(list of supported &lt;state&gt;s)</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Read Command<br/><b>AT+CHF?</b></p>                                  | <p>Response<br/><b>+CHF: &lt;ind&gt;,&lt;state&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CHF=<br/>&lt;ind&gt;[,&lt;state&gt;]</b></p> | <p>Response<br/><b>OK</b><br/><b>ERROR</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p>                             |



|           |  |
|-----------|--|
|           | <p>Parameters</p> <p><b>&lt;ind&gt;</b> 0 Unsolicited result code disabled<br/>1 Unsolicited result code enabled<br/>(non-volatile)</p> <p><b>&lt;state&gt;</b> 0 Main audio handset channel<br/>1 Aux audio headset channel<br/>2 Main audio handfree channel<br/>3 Aux audio handfree channel<br/>(volatile)</p> |
| Reference | <p>Note</p> <p>This command is related to the actual module.</p>   |

### 6.2.22 AT+CHFA Swap the Audio Channels

| <b>AT+CHFA Swap the Audio Channels</b>               |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CHFA=?</b></p>          | <p>Response</p> <p><b>+CHFA: (0 = NORMAL_AUDIO, 1 = HEADSET_AUDIO, 2 = HANDFREE_AUDIO, 3 = HEADSET_HANDFREE_AUDIO)</b></p> <p><b>OK</b></p>   |
| <p>Read Command</p> <p><b>AT+CHFA?</b></p>           | <p>Response</p> <p><b>+CHFA: &lt;n&gt;</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CHFA=&lt;n&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;n&gt;</b> 0 Main audio handset channel<br/>1 Aux audio headset channel<br/>2 Main audio handfree channel<br/>3 Aux audio handfree channel</p> |
| Reference  | <p>Note</p> <ul style="list-style-type: none"> <li>● This Command swaps the audio channels among different channels.</li> <li>● This command is related to the actual module.</li> </ul>  |

### 6.2.23 AT+CSCLK Configure Slow Clock

| <b>AT+CSCLK Configure Slow Clock</b> |
|--------------------------------------|
|--------------------------------------|

|  |   |
|--|---|
| <p>Test Command<br/><b>AT+CSCLK=?</b></p>                      | <p>Response<br/><b>+CSCLK:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+CSCLK?</b></p>                       | <p>Response<br/><b>+CSCLK:</b> &lt;n&gt;</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CSCLK</b><br/><b>=&lt;n&gt;</b></p> | <p>Response<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameter</p> <p>&lt;n&gt;    0    Disable slow clock, module will not enter sleep mode.<br/>                1    Enable slow clock, it is controlled by DTR. When DTR is high, module can enter sleep mode. When DTR changes to low level, module can quit sleep mode.<br/>                2    The module decides by itself when it enters sleep mode. When there is no data on serial port, module can enter sleep mode. Otherwise, it will quit sleep mode.</p> |
| <p>Reference</p>   | <p>Note</p>   |

#### 6.2.24 AT+CENG Switch On or Off Engineering Mode

|   |   |
|---|---|
| <p><b>AT+CENG Switch On or Off Engineering Mode</b></p> |   |
| <p>Test Command<br/><b>AT+CENG=?</b></p>                | <p>Response<br/>TA returns the list of supported modes.<br/><b>+CENG:</b> (list of supported &lt;mode&gt;s),(list of supported &lt;Ncell&gt;s)</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Read Command<br/><b>AT+CENG?</b></p>                 | <p>Response<br/>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</p> |

|  |   |                     |  |                      |   |                     |                       |
|--|---|---------------------|--|----------------------|---|---------------------|-----------------------|
|  | <p>the handset is currently registered with) or for the neighboring cells.</p> <p>TA returns the current engineering mode. The network information including serving cell and neighboring cells are returned only when &lt;mode&gt;=1 or &lt;mode&gt; = 2. &lt;cell&gt; carry with them corresponding network interaction.</p> <p><b>+CENG: &lt;mode&gt;,&lt;Ncell&gt;</b></p> <p><b>[+CENG:</b><br/> &lt;cell&gt;,"&lt;arfcn&gt;,&lt;rxl&gt;,&lt;rxq&gt;,&lt;mcc&gt;,&lt;mnc&gt;,&lt;bsic&gt;,&lt;cellid&gt;,&lt;rla&gt;,&lt;txp&gt;,&lt;lac&gt;,&lt;TA&gt;"<br/> &lt;CR&gt;&lt;LF&gt;+CENG:<br/> &lt;cell&gt;,"&lt;arfcn&gt;,&lt;rxl&gt;,&lt;bsic&gt;[,&lt;cellid&gt;,&lt;mcc&gt;,&lt;mnc&gt;,&lt;lac&gt;"...]</p> <p><b>OK</b></p> <p>if &lt;mode&gt;=3<br/> <b>+CENG: &lt;mode&gt;,&lt;Ncell&gt;</b></p> <p><b>[+CENG: &lt;cell&gt;,&lt;mcc&gt;,&lt;mnc&gt;,&lt;lac&gt;,&lt;cellid&gt;,&lt;bsic&gt;,&lt;rxl&gt;</b><br/> &lt;CR&gt;&lt;LF&gt;+CENG: &lt;cell&gt;,&lt;mcc&gt;,&lt;mnc&gt;,&lt;lac&gt;,&lt;cellid&gt;,&lt;bsic&gt;,&lt;rxl&gt;...]</p> <p><b>OK</b></p> |                     |  |                      |   |                     |                       |
|  | <p>Parameters<br/> See Write Command</p>  |                     |  |                      |   |                     |                       |
| <p>Write Command<br/> <b>AT+CENG</b><br/> =&lt;mode&gt;[,&lt;Ncell&gt;]<br/> &gt;]</p> | <p>Response</p> <p>Switch on or off engineering mode. It will report +CENG: (network information) automatically if &lt;mode&gt;=2.</p> <p><b>OK</b><br/> <b>ERROR</b></p> <p>Parameters</p> <table border="0"> <tr> <td style="vertical-align: top;"><b>&lt;mode&gt;</b></td> <td style="vertical-align: top;">0    Switch off engineering mode<br/> 1    Switch on engineering mode<br/> 2    Switch on engineering mode, and activate the URC report of network information<br/> 3    Switch on engineering mode, with limited URC report</td> </tr> <tr> <td style="vertical-align: top;"><b>&lt;Ncell&gt;</b></td> <td style="vertical-align: top;">0    Un-display neighbor cell ID<br/> 1    Display neighbor cell ID<br/> If &lt;mode&gt; =3, ignore this parameter.</td> </tr> <tr> <td style="vertical-align: top;"><b>&lt;cell&gt;</b></td> <td style="vertical-align: top;">0    The serving cell</td> </tr> </table>  | <b>&lt;mode&gt;</b> | 0    Switch off engineering mode<br>1    Switch on engineering mode<br>2    Switch on engineering mode, and activate the URC report of network information<br>3    Switch on engineering mode, with limited URC report | <b>&lt;Ncell&gt;</b> | 0    Un-display neighbor cell ID<br>1    Display neighbor cell ID<br>If <mode> =3, ignore this parameter. | <b>&lt;cell&gt;</b> | 0    The serving cell |
| <b>&lt;mode&gt;</b>  | 0    Switch off engineering mode<br>1    Switch on engineering mode<br>2    Switch on engineering mode, and activate the URC report of network information<br>3    Switch on engineering mode, with limited URC report  |                     |  |                      |   |                     |                       |
| <b>&lt;Ncell&gt;</b>   | 0    Un-display neighbor cell ID<br>1    Display neighbor cell ID<br>If <mode> =3, ignore this parameter.   |                     |  |                      |   |                     |                       |
| <b>&lt;cell&gt;</b>  | 0    The serving cell   |                     |  |                      |   |                     |                       |

|           |   |
|-----------|---|
|           | <p>1-6 The index of the neighboring cell</p> <p><b>&lt;arfcn&gt;</b> Absolute radio frequency channel number</p> <p><b>&lt;rxl&gt;</b> Receive level</p> <p><b>&lt;rxq&gt;</b> Receive quality</p> <p><b>&lt;mcc&gt;</b> Mobile country code</p> <p><b>&lt;mnc&gt;</b> Mobile network code</p> <p><b>&lt;bsic&gt;</b> Base station identity code</p> <p><b>&lt;cellid&gt;</b> Cell id</p> <p><b>&lt;lac&gt;</b> Location area code</p> <p><b>&lt;rla&gt;</b> Receive level access minimum</p> <p><b>&lt;txp&gt;</b> Transmit power maximum CCCH</p> <p><b>&lt;TA&gt;</b> Timing Advance</p> |
| Reference | Note  |

### 6.2.25 AT+SCLASS0 Store Class 0 SMS to SIM When Received Class 0 SMS

| <b>AT+SCLASS0 Store Class 0 SMS to SIM When Module Received Class 0 SMS</b> |   |
|---|---|
| <p>Test Command</p> <p><b>AT+SCLASS0=?</b></p>                              | <p>Response</p> <p><b>+SCLASS0: (0, 1)</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Read Command</p> <p><b>AT+SCLASS0?</b></p>                               | <p>Response</p> <p><b>+SCLASS0: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+SCLASS0=<br/>&lt;mode&gt;</b></p>             | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p><b>&lt;mode&gt;</b></p> <p>0 Disable to store Class 0 SMS to SIM when module receives Class 0 SMS</p> <p>1 Enable to store Class 0 SMS to SIM when module receives Class 0 SMS</p> |
| Reference   | Note  |

### 6.2.26 AT+CCID Show ICCID

| AT+CCID Show ICCID                  |   |
|-------------------------------------|---|
| Test Command<br><b>AT+CCID=?</b>    | Response:<br><b>OK</b>  |
| Execution Command<br><b>AT+CCID</b> | Response:<br><b>Ccid data</b> [ex. 898600810906F8048812]<br><br><b>OK</b> |
| Reference                           | Note  |

### 6.2.27 AT+CMTE Set Critical Temperature Operating Mode or Query Temperature

| AT+CMTE Set Critical Temperature Operating Mode or Query Temperature |  |
|--|--|
| Read Command<br><b>AT+CMTE?</b>                                      | Response<br><b>+CMTE: &lt;mode&gt;,&lt;Temperature&gt;</b><br><br><b>OK</b>  |
|  | Parameters<br>See Write Command  |
| Write Command<br><b>AT+CMTE=<br/>&lt;mode&gt;</b>                    | Response<br><b>OK</b><br><b>ERROR</b>  |
|  | Parameters<br><b>&lt;mode&gt;</b><br><ul style="list-style-type: none"> <li>0 Disable temperature detection</li> <li>1 Enable temperature detection</li> </ul> <b>&lt;Temperature&gt;</b> range from -40 to 90   |
| Reference  | Note <ul style="list-style-type: none"> <li>● When temperature is extremely high or low, product will power off.</li> <li>● URCs indicating the alert level "1" or "-1" are intended to enable the user to take appropriate precautions, such as protecting the module from exposure to extreme conditions, or saving or backing up data etc.</li> <li>● Level "2" or "-2" URCs are followed by immediate shutdown.</li> </ul> |

### 6.2.28 AT+CBTE Battery Temperature Query

| AT+CBTE Battery Temperature Query |  |
|-----------------------------------|--|
| Read Command<br><b>AT+CBTE ?</b>  | Response:<br><b>+CBTE: &lt;voltage&gt;</b> |

|           |   |
|-----------|---|
|           | <b>OK</b>   |
|           | Parameter<br><b>&lt;voltage&gt;</b> Battery voltage(mV)   |
| Reference | Note <ul style="list-style-type: none"> <li>● Only supported in SIM900D</li> <li>● The temperature can be calculated according to the resistance of NTC and the voltage supported by this command.</li> </ul> |

### 6.2.29 AT+CSDT Switch On or Off Detecting SIM Card

| <b>AT+CSDT Switch On or Off Detecting SIM Card</b> |   |
|--|---|
| Test Command<br><b>AT+CSDT=?</b>                   | Response<br><b>+CSDT: (0-1)</b><br><br><b>OK</b>  |
|  | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CSDT?</b>                    | Response<br><b>+CSDT: &lt;mode&gt;</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CSDT=&lt;mode&gt;</b>       | Response<br><b>OK</b><br><b>ERROR</b>   |
|  | Parameter<br><b>&lt;mode&gt;</b><br>0    Switch off detecting SIM card<br>1    Switch on detecting SIM card |
| Reference  | Note<br>User should select 8-pin SIM card holder to implement SIM card detection function.                  |

### 6.2.30 AT+CMGDA Delete All SMS

| <b>AT+CMGDA Delete All SMS</b>    |  |
|-----------------------------------|--|
| Test Command<br><b>AT+CMGDA=?</b> | Response:<br><b>+CMGDA:</b> (list of supported <b>&lt;type&gt;s</b> )<br><br><b>OK</b><br><b>+CMS ERROR: &lt;err&gt;</b> |

|   |  |
|---|--|
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CMGDA=&lt;type&gt;</b> | Response:<br><b>OK</b><br><b>ERROR</b><br><b>+CMS ERROR: &lt;err&gt;</b>   |
|   | Parameter<br><b>&lt;type&gt;</b><br>1) If text mode:<br>"DEL READ"      Delete all read messages<br>"DEL UNREAD"   Delete all unread messages<br>"DEL SENT"      Delete all sent SMS<br>"DEL UNSENT"    Delete all unsent SMS<br>"DEL INBOX"     Delete all received SMS<br>"DEL ALL"       Delete all SMS<br>2) If PDU mode:<br>1 Delete all read messages<br>2 Delete all unread messages<br>3 Delete all sent SMS<br>4 Delete all unsent SMS<br>5 Delete all received SMS<br>6 Delete all SMS |
| Reference                                     | Note   |

### 6.2.31 AT+STTONE Play SIM Toolkit Tone

|  |  |
|--|--|
| <b>AT+STTONE Play SIM Toolkit Tone</b>                                       |  |
| Test Command<br><b>AT+STTONE=?</b>   | Response<br><b>+STTONE:</b> (list of supported <b>&lt;mode&gt;</b> s),(list of supported <b>&lt;tone&gt;</b> s),(list of supported <b>&lt;duration&gt;</b> s)<br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|  | Parameters<br>See Write Command  |
| Write Command<br><b>AT+STTONE=&lt;mode&gt;,&lt;tone&gt;,&lt;duration&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameters<br><b>&lt;mode&gt;</b> 0   Stop playing tone  |

|           |   |
|-----------|---|
|           | <p>1 Start playing tone</p> <p><b>&lt;tone&gt;</b> Numeric type</p> <p>1 Dial Tone</p> <p>2 Called Subscriber Busy</p> <p>3 Congestion</p> <p>4 Radio Path Acknowledge</p> <p>5 Radio Path Not Available / Call Dropped</p> <p>6 Error / Special information</p> <p>7 Call Waiting Tone</p> <p>8 Ringing Tone</p> <p>16 General Beep</p> <p>17 Positive Acknowledgement Tone</p> <p>18 Negative Acknowledgement or Error Tone</p> <p>19 Indian Dial Tone</p> <p>20 American Dial Tone</p> <p><b>&lt;duration&gt;</b> Numeric type, in milliseconds.<br/>Max requested value = 255*60*1000 = 15300000ms<br/>(supported range = 3-15300000)</p> |
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● The default &lt;tone&gt;, if none is entered, it should be General Beep.</li> <li>● The default &lt;duration&gt;, if none is entered, it should be 500ms.</li> </ul>   |

### 6.2.32 AT+SIMTONE Generate Specifically Tone

| AT+SIMTONE Generate Specifically Tone  |  |
|--|--|
| <p>Test Command</p> <p><b>AT+SIMTONE</b><br/><b>=?</b></p>   | <p>Response</p> <p><b>+SIMTONE: (0,1),(20-20000),(200-25500),(0,100-25500),(0-500000)</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+SIMTONE</b><br/><b>=&lt;mode&gt;,&lt;frequency&gt;,&lt;periodOn&gt;,&lt;periodOff&gt;[,&lt;duration&gt;]</b></p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b>      0 Stop playing tone<br/>                  1 Start playing tone</p> <p><b>&lt;frequency&gt;</b>    The frequency of tone to be generated</p> <p><b>&lt;periodOn&gt;</b>     The period of generating tone, must be multiple of 100</p> <p><b>&lt;periodOff&gt;</b>    The period of stopping tone, must be multiple of 100</p> <p><b>&lt;duration&gt;</b>     Duration of tones in milliseconds</p> |
| Reference  | Note   |



### 6.2.33 AT+CCPD Enable or Disable Alpha String

| AT+CCPD Enable or Disable Alpha String       |  |
|--|--|
| Test Command<br><b>AT+CCPD=?</b>             | Response<br><b>+CCPD: (0,1)</b><br><br><b>OK</b><br>Parameter<br>See Write Command   |
| Read Command<br><b>AT+CCPD?</b>              | Response<br><b>+CCPD: &lt;mode&gt;</b><br><br><b>OK</b><br>Parameter<br>See Write Command  |
| Write Command<br><b>AT+CCPD=&lt;mode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b><br>Parameter<br><b>&lt;mode&gt;</b><br>0 Disable to present alpha string<br>1 Enable to present alpha string |
| Reference                                    | Note   |

### 6.2.34 AT+CGID Get SIM Card Group Identifier

| AT+CGID Get SIM Card Group Identifier |   |
|---------------------------------------|---|
| Execution Command<br><b>AT+CGID</b>   | Response<br><b>+GID: &lt;gid1&gt;,&lt;gid2&gt;</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b><br>Parameters<br><b>&lt;gid1&gt;</b> Integer type of SIM card group identifier 1<br><b>&lt;gid2&gt;</b> Integer type of SIM card group identifier 2 |
| Reference                             | Note<br>If the SIM supports GID files, the GID values will be returned. Otherwise 0xff is returned.   |

### 6.2.35 AT+MORING Show State of Mobile Originated Call

| <b>AT+MORING Show State of Mobile Originated Call</b> |  |
|---|--|
| Test Command<br><b>AT+MORING=?</b>                    | Response<br><b>+MORING: (0,1)</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command   |
| Read Command<br><b>AT+MORING?</b>                     | Response<br><b>+MORING: &lt;mode&gt;</b><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+MORING<br/>=&lt;mode&gt;</b>   | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|   | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Not show call state of mobile originated call<br>1 Show call state of mobile originated call. After the call number is dialed, the URC strings of MO RING will be sent if another call is alerted and the URC strings of MO CONNECTED will be sent if the call is established. |
|   | Unsolicited Result Code<br><b>MO RING</b><br>the call is alerted.<br><br><b>MO CONNECTED</b><br>the call is established.   |
| Reference   | Note   |

### 6.2.36 AT+CMGHEX Enable or Disable Sending Non-ASCII Character SMS

| <b>AT+CMGHEX Enable or Disable Sending Non-ASCII Character SMS</b> |  |
|--|--|
| Test Command<br><b>AT+CMGHEX<br/>=?</b>                            | Response<br><b>+CMGHEX: (list of supported &lt;mode&gt;s)</b><br><br><b>OK</b> |

|   |   |
|---|---|
|   | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CMGHEX?</b>                         | Response<br><b>+CMGHEX: &lt;mode&gt;</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CMGHEX</b><br><b>=&lt;mode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |
|   | Parameter<br><b>&lt;mode&gt;</b> 0    Send SMS in ordinary way<br>1    Enable to send SMS varying from 0x00 to 0x7f except<br>0x1a and 0x1b under text mode and GSM character set |
| Reference   | Note<br>Only be available in TEXT mode and AT+CSCS="GSM".   |

### 6.2.37 AT+CCODE Configure SMS Code Mode

|  |   |
|--|---|
| <b>AT+CCODE Configure SMS Code Mode</b>                  |   |
| Test Command<br><b>AT+CCODE=?</b>                        | Response<br><b>+CCODE: (0,1)</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CCODE?</b>                         | Response<br><b>+CCODE:&lt;mode&gt;</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CCODE=</b><br><b>&lt;mode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>                 |
|  | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Code mode compatible with NOKIA<br>1    Code mode compatible with SIEMENS |

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

### 6.2.38 AT+CIURC Enable or Disable Initial URC Presentation

| AT+CIURC Enable or Disable Initial URC Presentation |  |
|---|--|
| Test Command<br><b>AT+CIURC=?</b>                   | <p>Response<br/><b>+CIURC: (0,1)</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| Read Command<br><b>AT+CIURC?</b>                    | <p>Response<br/><b>+CIURC:&lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| Write Command<br><b>AT+CIURC=<br/>&lt;mode&gt;</b>  | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b>    0    Disable URC presentation.<br/>                  1    Enable URC presentation</p> |
| Reference   | <p>Note</p> <p>When module is powered on and initialization procedure is over.<br/>URC "Call Ready" will be presented if &lt;mode&gt; is 1.</p>  |

### 6.2.39 AT+CPSPWD Change PS Super Password

| AT+CPSPWD Change PS Super Password  |  |
|---|--|
| Write Command<br><b>AT+CPSPWD=<br/>&lt;oldpwd&gt;,&lt;newp<br/>wd&gt;</b> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters<br/><b>&lt;oldpwd&gt;</b>    String type(string should be included in quotation marks).<br/>                  Old password and length should be 8.<br/><b>&lt;newpwd&gt;</b>    String type(string should be included in quotation marks).<br/>                  New password and length should be 8.</p> |

|           |  |
|-----------|--|
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● Default value of &lt;oldpwd&gt; is "12345678".</li> <li>● If module is locked to a specific SIM card through AT+CLCK and password lost or SIM state is PH-SIM PUK, user can use the super password to unlock it.</li> <li>● It is not supported temporarily.</li> </ul> |
|-----------|--|

#### 6.2.40 AT+EXUNSOL Enable or Disable Proprietary Unsolicited Indications

| AT+EXUNSOL Enable or Disable Proprietary Unsolicited Indications           |   |
|--|---|
| <p>Test Command</p> <p><b>AT+EXUNSOL=?</b></p>                             | <p>Response</p> <p><b>+EXUNSOL:</b> (list of supported &lt;exunsol&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+EXUNSOL=&lt;exunsol&gt;,&lt;mode&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;exunsol&gt;</b> String type(string should be included in quotation marks). values are currently reserved by the present document</p> <p>"SQ" Signal Quality Report<br/>Displays signal strength and channel bit error rate (similar to AT+CSQ) in form +CSQN: &lt;rssi&gt;,&lt;ber&gt;when values change.</p> <p><b>&lt;mode&gt;</b></p> <p>0 Disable</p> <p>1 Enable</p> <p>2 Query</p> |
| Reference  | Note  |

#### 6.2.41 AT+CGMSCLASS Change GPRS Multislot Class

| AT+CGMSCLASS Change GPRS Multislot Class         |  |
|--|--|
| <p>Test Command</p> <p><b>AT+CGMSCLASS=?</b></p> | <p>Response</p> <p><b>MULTISLOT CLASS: (2,4,8,9,10)</b></p> <p><b>OK</b></p> |

|  |   |
|--|---|
|  | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CGMSCLASS?</b>               | Response<br><b>MULTISLOT CLASS: &lt;class&gt;</b><br><br><b>OK</b>                                  |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CGMSCLASS=&lt;class&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|  | Parameter<br><b>&lt;class&gt;</b> GPRS multi-slot class   |
| Reference  | Note  |

#### 6.2.42 AT+CDEVICE View Current Flash Device Type

|  |  |
|--|--|
| <b>AT+CDEVICE View Current Flash Device Type</b> |  |
| Read Command<br><b>AT+CDEVICE?</b>               | Response<br><b>Device Name: Current flash device type</b><br><br><b>OK</b> |
| Reference<br>V.25ter                             | Note   |

#### 6.2.43 AT+CCALR Call Ready Query

|                                   |  |
|-----------------------------------|--|
| <b>AT+CCALR Call Ready Query</b>  |  |
| Test Command<br><b>AT+CCALR=?</b> | Response<br><b>+CCALR: (list of supported &lt;mode&gt;s)</b><br><br><b>OK</b>  |
|                                   | Parameter<br><b>&lt;mode&gt;</b> A numeric parameter which indicates whether the module is ready for phone call.<br>0 Module is not ready for phone call<br>1 Module is ready for phone call |
| Read Command<br><b>AT+CCALR?</b>  | Response<br>ME returns the status of result code presentation and an integer <n>   |

|           |  |
|-----------|--|
|           | <p>which shows whether the module is currently ready for phone call.</p> <p><b>+CCALR: &lt;mode&gt;</b></p> <p><b>OK</b></p> |
|           | <p>Parameter</p> <p><b>&lt;mode&gt;</b></p> <p>See Test Command</p>  |
| Reference | Note   |

#### 6.2.44 AT+GSV Display Product Identification Information

| <b>AT+GSV Display Product Identification Information</b> |   |
|--|---|
| <p>Execution Command</p> <p><b>AT+GSV</b></p>            | <p>Response</p> <p>TA returns product information text</p> <p>Example:</p> <p><b>SIMCOM_Ltd</b><br/><b>SIMCOM_SIM900</b><br/><b>Revision: 1137B01V01SIM900M32_ST</b></p> <p><b>OK</b></p> |
| Reference  | Note  |

#### 6.2.45 AT+SGPIO Control the GPIO

| <b>AT+SGPIO Control the GPIO</b>   |   |
|--|---|
| <p>Test Command</p> <p><b>AT+SGPIO=?</b></p>   | <p>Response</p> <p><b>+SGPIO: (0-1),(1-12),(0-2),(0-1)</b></p> <p><b>OK</b></p>   |
|  | <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+SGPIO=</b><br/><b>&lt;operation&gt;,&lt;GPIO</b><br/><b>O&gt;,&lt;function&gt;</b><br/><b>,&lt;level&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p>  |
|  | <p>Parameters</p> <p><b>&lt;Operation&gt;</b> 0 Set the GPIO function including the GPIO output and GPIO as the Keypad.</p> <p>1 Read the GPIO level. Please note that only when the gpio is set as input, user can use parameter 1 to read the GPIO level, otherwise the module will return "ERROR".</p> |

|           |  |
|-----------|--|
|           | <p><b>&lt;GPIO&gt;</b> The GPIO you want to be set. (It has relations with the hardware, please refer to the hardware manual)</p> <p><b>&lt;function&gt;</b> Only when &lt;Operation&gt; is set to 0, this option takes effect.</p> <p>0 Set the GPIO to input.<br/>1 Set the GPIO to output<br/>2 Set the GPIO to keypad</p> <p><b>&lt;level&gt;</b> 0 Set the GPIO low level<br/>1 Set the GPIO high level</p> |
| Reference | <p>Note</p> <p>Only GPIO1, GPIO2, GPIO3, GPIO4, GPIO6, GPIO7, GPIO8, GPIO9 can be used as Keypad. And if one of them is set to gpio function, others will be set to GPIO output and low level automatically.</p>   |

#### 6.2.46 AT+SPWM Generate the Pulse-Width-Modulation

| <b>AT+SPWM Generate the Pulse-Width-Modulation</b>                                    |   |
|---|---|
| <p>Test Command</p> <p><b>AT+SPWM=?</b></p>   | <p>Response</p> <p><b>+SPWM:</b> (list of supported &lt;index&gt;s),(list of supported &lt;period&gt;s),(list of supported &lt;level&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+SPWM=&lt;index&gt;,&lt;period&gt;,&lt;level&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;index&gt;</b> Integer type: the index number of PWM port, which value is 0-2;<br/>0: for buzzer (according to the hardware support or not).<br/>1: corresponding to PWM_OUT0 in the hardware circuit<br/>2: corresponding to PWM_OUT1 in the hardware circuit</p> <p><b>&lt;period&gt;</b> The range of &lt;period&gt; is 0-126 if &lt;index&gt; is set to 1 or 2, the range of &lt;period&gt; is 0-65535 if &lt;index&gt; is set to 0, the output frequency equals to (26MHz/8)/(period+1).</p> <p><b>&lt;level&gt;</b> 0-100: tone level, which can be converted to duty ratio.</p> |
| Reference   | <p>Note</p> <ul style="list-style-type: none"> <li>● We have a 26MHz crystal oscillator. The MAX frequency of PWM is 26/8=3.25Mhz.</li> <li>● The equation of final frequency and &lt;period&gt; is this: frequency</li> </ul>  |



= $3.25/(\text{period}+1)$ , for example, if <period> is set to 100, we get a frequency:  $3.25/101 = 32.178\text{Khz}$ .

- The equation of <level> and duty factor is:  $\text{duty factor} = (\text{level}+1)$ .

### 6.2.47 AT+ECHO Echo Cancellation Control

| AT+ECHO Echo Cancellation Control   |  |
|---|--|
| Test Command<br><b>AT+ECHO=?</b>  | <p>Response</p> <p><b>+ECHO: MIC:(list of supported &lt;mic&gt;s), ES:(list of supported &lt;es&gt;s), SES:(list of supported &lt;ses&gt;s), MODE:(list of supported &lt;mode&gt;s)</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| Read Command<br><b>AT+ECHO?</b>   | <p>Response</p> <p><b>+ECHO: (&lt;mic0&gt;, &lt;es0&gt;, &lt;ses0&gt;, &lt;mode0&gt;)..., (&lt;micn&gt;, &lt;esn&gt;, &lt;sesn&gt;, &lt;moden&gt;)</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Write Command<br><b>AT+ECHO=<br/>&lt;mic&gt;,&lt;es&gt;[,&lt;ses<br/>&gt;[,&lt;mode&gt;]]</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mic&gt;</b> Audio channel<br/>             0 Main audio handset channel<br/>             1 Aux audio headset channel<br/>             2 Main audio handfree channel<br/>             3 Aux audio handfree channel</p> <p><b>&lt;es&gt;</b> Echo suppression<br/>             0-8 (when mic=0or1 default value is 0; when mic=2 or 3 default value is 7) the bigger the value, the stronger the restraint.</p> <p><b>&lt;ses&gt;</b> Selective echo suppression<br/>             0-6 (when mic=0 or 1 default value is 0; when mic=2 or 3 default value is 5)</p> <p><b>&lt;mode&gt;</b> 0 Close echo algorithm<br/>             <u>1</u> Open echo algorithm</p> |
| Reference   | <p>Note</p> <ul style="list-style-type: none"> <li>● Please refer to actual model for channel number.</li> </ul>   |

- `<esn>` `<sesn>` `<modem>` values of read command are related to channel `<micn>` specific.

#### 6.2.48 AT+CAAS Control Auto Audio Switch

| AT+CAAS Control Auto Audio Switch   |  |
|-------------------------------------|--|
| Test Command<br>AT+CAAS=?           | <p>Response</p> <p><b>+CAAS: (0-2)</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br>AT+CAAS?            | <p>Response</p> <p><b>+CAAS: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br>AT+CAAS=<br><mode> | <p>Response</p> <p>This parameter setting determines whether or not the audio channel will be switched automatically to the corresponding channel in case of headset attaching or detaching.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;mode&gt;</b></p> <ul style="list-style-type: none"> <li>0 Disable automatic audio channel switch function, the headset HOOK function is disabled;</li> <li><u>1</u> Enable automatic audio channel switch function, the headset HOOK function is enabled;</li> <li>2 Disable automatic audio channel switch function, the headset HOOK function is enabled.</li> </ul> |
| Reference                           | <p>Note</p> <ul style="list-style-type: none"> <li>● For this command, please refer to actual model.</li> <li>● The headset detection is still worked when <code>&lt;mode&gt;</code> is set to 0. In other word, if "AT+CEXTHS=1" is set, the unsolicited event code (indicating whether the headset has been attached/detached) will be sent to the terminal.</li> </ul>  |

## 6.2.49 AT+SVR Configure Voice Coding Type for Voice Calls

| AT+SVR Configure Voice Coding Type for Voice Calls       |  |
|--|--|
| Test Command<br><b>AT+SVR=?</b>                          | <p>Response</p> <p><b>+SVR:</b> (list of supported &lt;voice_rate_coding&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br><b>AT+SVR?</b>                           | <p>Response</p> <p><b>+SVR:</b> &lt;voice_rate_coding&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| Write Command<br><b>AT+SVR=&lt;voice_rate_coding&gt;</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR:</b> &lt;error&gt;</p> <p>Parameter</p> <p><b>&lt;voice_rate_coding&gt;</b>      A number parameter which indicate the voice coding type.</p> <p>0:FR</p> <p>1:EFR/FR</p> <p>2:HR/FR</p> <p>3:FR/HR</p> <p>4:HR/EFR</p> <p>5:EFR/HR</p> <p>6:AMR-FR/EFR,AMR-HR</p> <p>7:AMR-FR/EFR,AMR-HR/HR</p> <p>8:AMR-HR/HR/AMR-FR/EFR</p> <p>9:AMR-HR/AMR-FR/EFR</p> <p>10:AMR-HR/AMR-FR/FR</p> <p>11:AMR-HR/HR/AMR-FR</p> <p>12:AMR-FR/AMR-HR</p> <p>13:AMR-FR/FR/AMR-HR</p> <p>14:AMR-FR/FR/AMR-HR/HR</p> <p>15:AMR-FR/EFR/FR/AMR-HR/HR</p> <p><u>16</u>:AMR-HR/AMR-FR/EFR/FR/HR</p> |
| Reference  | <p>Note</p> <p>The parameter of AT+SVR is stored in non-volatile memory.</p>   |

### 6.2.50 AT+GSMBUSY Reject Incoming Call

| AT+GSMBUSY Reject Incoming Call                 |   |
|---|---|
| Test Command<br><b>AT+GSMBUSY=?</b>             | Response<br><b>+GSMBUSY: (0,1,2)</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command  |
| Read Command<br><b>AT+GSMBUSY?</b>              | Response<br><b>+GSMBUSY: &lt;mode&gt;</b><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+GSMBUSY=&lt;mode&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;error&gt;</b>   |
|   | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Enable incoming call<br>1 Forbid all incoming calls<br>2 Forbid incoming voice calls but enable CSD calls |
| Reference                                       | Note<br>The parameter is not saved if the module power down.  |

### 6.2.51 AT+CEMNL Set the List of Emergency Number

| AT+CEMNL Set the List of Emergency Number |   |
|---|---|
| Test Command<br><b>AT+CEMNL=?</b>         | Response :<br><b>+CEMNL: (0-1),(1-11), ("0"- "999")...</b><br><br><b>OK</b>                         |
|   | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CEMNL?</b>          | Response :<br><b>+CEMNL: &lt;mode&gt;,&lt;amount&gt;,&lt;emergency numbers&gt;</b><br><br><b>OK</b> |
|   | Parameter<br>See Write Command  |

|  |   |
|--|---|
| <p>Write Command<br/><b>AT+CEMNL=&lt;mode&gt;,&lt;amount&gt;,&lt;emergency numbers&gt;</b></p> | <p>Response :<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b> 0 disable<br/>1 enable<br/><b>&lt;amount&gt;</b> Amount of emergency number to be set. Up to 11 emergency numbers supported<br/><b>&lt;emergency numbers&gt;</b><br/>Emergency numbers to be set by user which range is 0-999</p> |
| <p>Reference</p>   | <p>Note</p>   |

### 6.2.52 AT\*CELLLOCK Set the List of ARFCN Which Needs to Be Locked

|   |   |
|---|---|
| <p><b>AT*CELLLOCK Set the List of ARFCN Which Needs to Be Locked</b></p>  |   |
| <p>Test Command<br/><b>AT*CELLLOC K=?</b></p>   | <p>Response :<br/><b>*CELLLOCK:</b><br/>(list of supported <b>&lt;mode&gt;s</b>),(list of supported <b>&lt;amount&gt;s</b>),(list of supported <b>&lt;locked arfcn list&gt;s</b>)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| <p>Read Command<br/><b>AT*CELLLOC K?</b></p>  | <p>Response :<br/><b>*CELLLOCK: &lt;mode&gt;[,&lt;amount&gt;,&lt;locked arfcn list&gt;[,&lt;locked arfcn list&gt;...]]</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT*CELLLOC K=&lt;mode&gt; [,&lt;amount&gt;,&lt;locked arfcn list&gt; [,&lt;locked arfcn list&gt;...]]</b></p> | <p>Response:<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b><br/>0 Disable<br/>1 Enable<br/><b>&lt;amount&gt;</b><br/>Amount of arfcn to be set. Up to 4 arfcn supported.<br/><b>&lt;locked arfcn list&gt;</b></p>    |

|           |  |
|-----------|--|
|           | Arfcn needs to be locked by user.<br>Scope: (0-124), (128-251), (512-885) or (975-1023). |
| Reference | Note   |

### 6.2.53 AT+SLEDS Set the Timer Period of Net Light

| AT+SLEDS Set the Timer Period of Net Light  |  |
|---|--|
| Test Command<br><b>AT+SLEDS=?</b>   | Response :<br><b>+SLEDS: (1-3),(0,40-65535),(0,40-65535)</b><br><br><b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Read Command<br><b>AT+SLEDS?</b>  | Response :<br><b>+SLEDS: &lt;mode&gt;,&lt;timer_on&gt;,&lt;timer_off&gt;</b><br><br><b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Write Command<br><b>AT+SLEDS</b><br><b>=&lt;mode&gt;,&lt;timer</b><br><b>_on&gt;,&lt;timer_off</b><br><b>&gt;</b> | Response :<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameters<br><b>&lt;mode&gt;</b><br><ol style="list-style-type: none"> <li>1 set the timer period of net light while SIM900 does not register to the network</li> <li>2 set the timer period net light while SIM900 has already registered to the network</li> <li>3 set the timer period net light while SIM900 is in the state of PPP communication</li> </ol> <b>&lt;timer_on&gt;</b><br>Timer period of "LED ON" in decimal format which range is 0 or 40-65535(ms)<br><b>&lt;timer_off&gt;</b><br>Timer period of "LED OFF" in decimal format which range is 0 or 40-65535(ms) |
| Reference   | Note<br>The default value is :<br><b>&lt;mode&gt;,&lt;timer_on&gt;,&lt;timer_off&gt;</b><br>1,53,790<br>2,53,2990  |

3,53,287

#### 6.2.54 AT+CCHGMODE Indicates If the Module Is Powered Off

##### AT+CCHGMODE Indicates If the Module is Powered Off

|                                     |   |
|-------------------------------------|---|
| Read Command<br><b>AT+CCHGMODE?</b> | Response<br><b>+CCHGMOD: &lt;mode&gt;</b><br><br><b>OK</b>                                      |
|                                     | Parameter<br><b>&lt;mode&gt;</b><br>0 the module is powered off.<br>1 the module is powered on. |
| Reference                           | Note<br>● Only supported in SIM900D currently.  |

#### 6.2.55 AT+CBUZZERRING Use the Buzzer Sound as the Incoming Call Ring

##### AT+CBUZZERRING Use the Buzzer Sound as the Incoming Call Ring

|   |   |
|---|---|
| Read Command<br><b>AT+CBUZZERRING?</b>              | Response :<br><b>+CBUZZERRING: &lt;mode&gt;</b><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CBUZZERRING=&lt;mode&gt;</b> | Response :<br><b>OK</b><br><b>ERROR</b>   |
|   | Parameter<br><b>&lt;mode&gt;</b><br>0 disable the function of using buzzer sound as the incoming call ring<br>1 enable the function of using buzzer sound as the incoming call ring |
| Reference   | Note<br>This buzzer function is depending on the hardware.  |

#### 6.2.56 AT+CEXTERNTONE Close or Open the Microphone

##### AT+CEXTERNTONE Close or Open the Microphone

|  |   |
|--|---|
| <p>Test Command<br/><b>AT+CEXTERN<br/>TONE=?</b></p>             | <p>Response :<br/><b>+CEXTERN TONE: (0,1)</b><br/><br/><b>OK</b></p> <p>Parameter<br/>See Write Command</p>                                     |
| <p>Read Command<br/><b>AT+CEXTERN<br/>TONE?</b></p>              | <p>Response :<br/><b>+CEXTERN TONE: &lt;mode&gt;</b><br/><br/><b>OK</b></p> <p>Parameter<br/>See Write Command</p>                              |
| <p>Write Command<br/><b>AT+CEXTERN<br/>TONE=&lt;mode&gt;</b></p> | <p>Response<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b><br/>0 re-open the microphone<br/>1 close the microphone</p> |
| <p>Reference</p>   | <p>Note</p>   |

### 6.2.57 AT+CNETLIGHT Close the Net Light or Open It to Shining

|  |   |
|--|---|
| <p><b>AT+CNETLIGHT Close the Net Light or Open It to Shining</b></p> |   |
| <p>Write Command<br/><b>AT+CNETLIGH<br/>T=&lt;mode&gt;</b></p>       | <p>Response :<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameter<br/><b>&lt;mode&gt;</b><br/>0 close the net light<br/>1 open the net light to shining</p> |
| <p>Reference</p>   | <p>Note</p>   |

### 6.2.58 AT+CWHITELIST Set the White List

|  |  |
|--|--|
| <p><b>AT+CWHITELIST Set the White List</b></p> |  |
|--|--|



|   |  |
|---|--|
| <p>Test Command<br/><b>AT+CWHITELI<br/>ST=?</b></p>   | <p>Response :<br/><b>+CWHITELIST: (0,1)</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Read Command<br/><b>AT+CWHITELI<br/>ST?</b></p>  | <p>Response :<br/><b>+CWHITELIST: &lt;mode&gt;,&lt;phone number1&gt;,&lt;phone number2&gt;,...&lt;<br/>phone number30&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CWHITELI<br/>ST=&lt;mode&gt;[,&lt;in<br/>dex&gt;,&lt;phone<br/>number&gt;]</b></p> | <p>Response :<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameters<br/><b>&lt;mode&gt;</b><br/>0 disable<br/>1 enable<br/><b>&lt;index&gt;</b><br/>The index of phone number, scope: 1-30<br/><b>&lt;phone number&gt;</b><br/>Phone number to be set</p> |
| <p>Reference</p>  | <p>Note</p>  |

### 6.2.59 AT+CUSACC Accelerate Uart Response Speed

|  |   |
|--|---|
| <p><b>AT+CUSACC Accelerate Uart Response Speed</b></p> |   |
| <p>Test Command<br/><b>AT+CUSACC =?</b></p>            | <p>Response :<br/><b>+CUSACC: (0,1)</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>         |
| <p>Read Command<br/><b>AT+CUSACC?</b></p>              | <p>Response :<br/><b>+CUSACC: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p> |

|   |   |
|---|---|
| Write Command<br><b>AT+CUSACC=&lt;<br/>mode&gt;</b> | Response :<br><b>OK</b><br><b>ERROR</b><br><br>Parameters<br><b>&lt;mode&gt;</b><br><u>0</u> disable<br>1 enable, adjust the response speed of uart in low band rate. |
| Reference   | Note  |

## 7 AT Commands for GPRS Support

### 7.1 Overview of AT Commands for GPRS Support

| Command    | Description                                     |
|------------|---|
| AT+CGATT   | ATTACH OR 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              |

### 7.2 Detailed Descriptions of AT Commands for GPRS Support

#### 7.2.1 AT+CGATT Attach or Detach from GPRS Service

| AT+CGATT Attach or Detach from GPRS Service |   |
|---|---|
| Test Command<br>AT+CGATT=?                  | Response<br>+CGATT: (list of supported <state>s)<br><br><b>OK</b>                                   |
|   | Parameter<br>See Write Command  |
| Read Command<br>AT+CGATT?                   | Response<br>+CGATT: <state><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br>AT+CGATT=<br><state>       | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |

|           |   |
|-----------|---|
|           | <p>Parameter</p> <p><b>&lt;state&gt;</b> Indicates the state of GPRS attachment</p> <p>0 Detached</p> <p>1 Attached</p> <p>Other values are reserved and will result in an ERROR response to the Write Command.</p> |
| Reference | Note  |

### 7.2.2 AT+CGDCONT Define PDP Context

| AT+CGDCONT Define PDP Context  |  |
|--|--|
| <p>Test Command</p> <p><b>AT+CGDCONT</b></p> <p><b>=?</b></p>  | <p>Response</p> <p><b>+CGDCONT:</b> (range of supported &lt;cid&gt;s),&lt;PDP_type&gt;,,(list of supported&lt;d_comp&gt;s),(list of supported&lt;h_comp&gt;s)</p> <p><b>[&lt;CR&gt;&lt;LF&gt;+CGDCONT:</b></p> <p>(range of supported &lt;cid&gt;s), &lt;PDP_type&gt;,,(list of supported &lt;d_comp&gt;s),(list of supported &lt;h_comp&gt;s) [...]</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p> |
| <p>Read Command</p> <p><b>AT+CGDCONT</b></p> <p><b>?</b></p>   | <p>Response</p> <p><b>+CGDCONT:</b></p> <p>&lt;cid&gt;,&lt;PDP_type&gt;,&lt;APN&gt;,&lt;PDP_addr&gt;,&lt;data_comp&gt;,&lt;head_comp&gt;</p> <p><b>[&lt;CR&gt;&lt;LF&gt;+CGDCONT:</b></p> <p>&lt;cid&gt;,&lt;PDP_type&gt;,&lt;APN&gt;,&lt;PDP_addr&gt;,&lt;data_comp&gt;,&lt;head_comp&gt;</p> <p>[...]</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p><b>AT+CGDCONT</b></p> <p><b>=&lt;cid&gt;[,&lt;PDP_type&gt;[,&lt;APN&gt;[,&lt;PDP_addr&gt;[,&lt;d_comp&gt;[,&lt;h_comp&gt;]]]]]</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p><b>&lt;cid&gt;</b> (PDP Context Identifier)</p> <p>1 PDP Context Identifier 1</p> <p>Definition stored in non-volatile memory</p>  |

|           |   |
|-----------|---|
|           | <p>2 PDP Context Identifier 2<br/>Definition stored in non-volatile memory</p> <p>3 PDP Context Identifier 3<br/>Default &lt;cid&gt;<br/>Locked in non-volatile memory and is always defined, it can not be changed by user.</p> <p><b>&lt;PDP_type&gt;</b> (Packet Data Protocol type)<br/>IP Internet Protocol (IETF STD 5)</p> <p><b>&lt;APN&gt;</b> (Access Point Name) A string parameter(string should be included in quotation marks) 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.</p> <p><b>&lt;PDP_addr&gt;</b> A string parameter (IP address). Format: "&lt;n&gt;.&lt;n&gt;.&lt;n&gt;.&lt;n&gt;" where &lt;n&gt;=0..255<br/>If the value is null or equals 0.0.0.0 a dynamic address will be requested. The allocated address may be read using the +CGPADDR command</p> <p><b>&lt;d_comp&gt;</b> A numeric parameter that controls PDP data compression<br/>0 –PDP data compression off (default if value is omitted)</p> <p><b>&lt;h_comp&gt;</b> A numeric parameter that controls PDP data compression<br/>0 –PDP header compression off (default if value is omitted)</p> |
| Reference | Note  |

**7.2.2.1 For <cid> 1,2 and 3 the following parameters are stored in non volatile memory:**

| Parameter name          | Default value |
|-------------------------|---------------|
| <cid>                   | 1,2 or 3      |
| Locked                  | 0xFF..0xFF    |
| Defined                 | 0x00          |
| <precedence>            | 0x00          |
| <delay>                 | 0x00          |
| <reliability>           | 0x03          |
| <peak>                  | 0x00          |
| <mean>                  | 0x00          |
| <pdp_type>              | 0x01 (IP)     |
| <APN>                   | 0xFF..0xFF    |
| <PDP_address>           | 0x00..0x00    |
| <Guaranteed bitrate DL> | 0x00          |
| <Guaranteed bitrate UL> | 0x00          |

|                              |      |
|------------------------------|------|
| <Traffic handling priority>  | 0x00 |
| <Transfer delay>             | 0x00 |
| <SDU error ratio>            | 0x00 |
| <Residual bit error ratio>   | 0x00 |
| <Maximum bitrate DL>         | 0x00 |
| <Maximum bitrate UL>         | 0x00 |
| <Maximum SDUsize>            | 0x00 |
| <Delivery of erroneous SDUs> | 0x00 |
| <Delivery order>             | 0x00 |
| <Traffic class>              | 0x00 |

### 7.2.3 AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

| AT+CGQMIN Quality of Service Profile (Minimum Acceptable)                      |  |
|--|--|
| Test Command<br>AT+CGQMIN=?  | <p>Response</p> <p>+CGQMIN: &lt;PDP_type&gt;,(list of supported &lt;precedence&gt;s),(list of supported &lt;delay&gt;s),(list of supported &lt;reliability&gt;s),(list of supported &lt;peak&gt;s),(list of supported &lt;mean&gt;s)</p> <p>[&lt;CR&gt;&lt;LF&gt;+CGQMIN: &lt;PDP_type&gt;,(list of supported &lt;precedence&gt; s),(list of supported &lt;delay&gt;s),(list of supported &lt;reliability&gt;s),(list of supported &lt;peak&gt;s),(list of supported &lt;mean&gt;s)</p> <p>[...]]</p> <p><b>OK</b></p> |
|  | <p>Parameters</p> <p>See Write Command</p>   |
| Read Command<br>AT+CGQMIN?   | <p>Response</p> <p>+CGQMIN: &lt;cid&gt;,&lt;precedence&gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</p> <p>[&lt;CR&gt;&lt;LF&gt;+CGQMIN:</p> <p>&lt;cid&gt;,&lt;precedence&gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</p> <p>[...]]</p> <p><b>OK</b></p>   |
|  | <p>Parameters</p> <p>See Write Command</p>   |
| Write Command<br>AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: &lt;err&gt;</p>  |

|                            |  |
|----------------------------|--|
| <p>[,&lt;mean&gt;]]]]]</p> | <p>Parameters</p> <p><b>&lt;cid&gt;</b></p> <p>1..3 PDP Context Identifier<br/>Definition stored in non-volatile memory (refer to +CGDCONT). cid 3 is reserved and is always defined, it cannot be changed by user.</p> <p><b>&lt;precedence&gt;</b></p> <p><u>0</u> QOS precedence class subscribed value<br/>1..3 QOS precedence class</p> <p><b>&lt;delay&gt;</b></p> <p><u>0</u> QOS delay class subscribed value<br/>1..4 QOS delay class subscribed</p> <p><b>&lt;reliability&gt;</b></p> <p><u>0</u> QOS reliability class subscribed value<br/>1..5 QOS reliability class.</p> <p><b>&lt;peak&gt;</b></p> <p><u>0</u> QOS peak throughput class subscribed value<br/>1..9 QOS peak throughput class</p> <p><b>&lt;mean&gt;</b></p> <p><u>0</u> QOS mean throughput class subscribed value<br/>1..18 QOS mean throughput class<br/>31 QOS mean throughput class best effort</p> |
| <p>Reference</p>           | <p>Note</p>  |

#### 7.2.4 AT+CGQREQ Quality of Service Profile (Requested)

| <p><b>AT+CGQREQ Quality of Service Profile (Requested)</b></p> |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CGQREQ=?</b></p>                  | <p>Response</p> <p><b>+CGQREQ: &lt;PDP_type&gt;</b>,(list of supported <b>&lt;precedence&gt;</b>s),(list of supported <b>&lt;delay&gt;</b>s),(list of supported <b>&lt;reliability&gt;</b>s),&lt;list of supported <b>&lt;peak&gt;</b>s),(list of supported <b>&lt;mean&gt;</b>s)</p> <p>[&lt;CR&gt;&lt;LF&gt;+CGQREQ: &lt;PDP_type&gt;,(list of supported <b>&lt;precedence&gt;</b>s),(list of supported <b>&lt;delay&gt;</b>s),(list of supported <b>&lt;reliability&gt;</b>s),(list of supported <b>&lt;peak&gt;</b>s),(list of supported <b>&lt;mean&gt;</b>s)</p> <p>[...]]</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Read Command</p>  | <p>Response</p>   |

|   |   |
|---|---|
| <p><b>AT+CGQREQ?</b></p>  | <p><b>+CGQREQ: &lt;cid&gt;,&lt;precedence&gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</b><br/> <b>[&lt;CR&gt;&lt;LF&gt;+CGQREQ:</b><br/> <b>&lt;cid&gt;,&lt;precedence&gt;,&lt;delay&gt;,&lt;reliability&gt;,&lt;peak&gt;,&lt;mean&gt;</b><br/> <b>[...]]</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+CGQREQ=</b><br/> <b>&lt;cid&gt;[,&lt;precedence&gt;[,&lt;delay&gt;[,&lt;reliability&gt;[,&lt;peak&gt;[,&lt;mean&gt;]]]]]</b></p> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;cid&gt;</b> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command)<br/> 1.3 Definition stored in non-volatile memory (refer to +CGDCONT) cid 3 is reserved and is always defined, it cannot be changed by user.</p> <p>The following parameter are defined in GSM 03.60</p> <p><b>&lt;precedence&gt;</b> A numeric parameter which specifies the precedence class<br/> <u>0</u> QOS precedence class subscribed value<br/> 1.3 QOS precedence class</p> <p><b>&lt;delay&gt;</b> A numeric parameter which specifies the delay class<br/> <u>0</u> QOS delay class subscribed value<br/> 1.4 QOS delay class</p> <p><b>&lt;reliability&gt;</b> A numeric parameter which specifies the reliability class<br/> 0 QOS reliability class subscribed value<br/> 1.5 QOS reliability class; default value: <u>3</u></p> <p><b>&lt;peak&gt;</b> A numeric parameter which specifies the peak throughput class<br/> <u>0</u> QOS peak throughput class subscribed value<br/> 1.9 QOS peak throughput class</p> <p><b>&lt;mean&gt;</b> A numeric parameter which specifies the mean throughput class<br/> <u>0</u> QOS mean throughput class subscribed value<br/> 1.18 QOS mean throughput class<br/> 31 QOS mean throughput class best effort</p> |
| <p>Reference</p>  | <p>Note</p>   |



## 7.2.5 AT+CGACT PDP Context Activate or Deactivate

| AT+CGACT PDP Context Activate or Deactivate  |  |
|--|--|
| Test Command<br>AT+CGACT=?                   | <p>Response</p> <p>+CGACT: (list of supported &lt;state&gt;s)</p> <p><b>OK</b></p> <hr/> <p>Parameters</p> <p>See Write Command</p>  |
| Read Command<br>AT+CGACT?                    | <p>Response</p> <p>+CGACT: &lt;cid&gt;,&lt;state&gt;[&lt;CR&gt;&lt;LF&gt;+CGACT:&lt;cid&gt;,&lt;state&gt;...]</p> <p><b>OK</b></p> <hr/> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br>AT+CGACT=[<state> [,<cid>]] | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/>+CME ERROR: &lt;err&gt;</p> <hr/> <p>Parameters</p> <p>&lt;state&gt; Indicates the state of PDP context activation</p> <p>0 deactivated</p> <p>1 activated</p> <p>Other values are reserved and will result in an ERROR response to the Write Command.</p> <p>&lt;cid&gt; A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command)</p> <p>1..3 PDP Context Identifier, cid 3 is reserved and is always defined, it cannot be changed by user.</p> |
| Reference                                    | <p>Note</p> <ul style="list-style-type: none"> <li>● This command is used to test PDPs with network simulators. Successful activation of PDP on real network is not guaranteed.</li> <li>● Refer to AT+CGDATA clarification for more information.</li> </ul>   |

## 7.2.6 AT+CGDATA Enter Data State

| AT+CGDATA Enter Data State  |   |
|-----------------------------|---|
| Test Command<br>AT+CGDATA=? | <p>Response</p> <p>+CGDATA: list of supported &lt;L2P&gt;s</p> <p><b>OK</b></p> |

|  |  |
|--|--|
|  | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CGDATA=&lt;L2P&gt; [,&lt;cid&gt;]</b> | <p>Response</p> <p><b>CONNECT</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <hr/> <p>Parameters</p> <p><b>&lt;L2P&gt;</b> A string parameter (string should be included in quotation marks) that indicates the layer 2 protocol to be used between the TE and MT:<br/>"PPP" Point to Point protocol for a PDP such as IP<br/>Other values are not supported and will result in an ERROR response to the execution Command.</p> <p><b>&lt;cid&gt;</b> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command)<br/>1..3 PDP Context Identifier. Cid 3 is reserved and is always defined, it cannot be changed by user.</p> |
| Reference  | Note   |

### 7.2.7 AT+CGPADDR Show PDP Address

|  |   |
|--|---|
| <b>AT+CGPADDR Show PDP Address</b>             |   |
| Test Command<br><b>AT+CGPADDR=?</b>            | <p>Response</p> <p><b>+CGPADDR: (list of defined &lt;cid&gt;s)</b></p> <p><b>OK</b></p> <hr/> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br><b>AT+CGPADDR=&lt;cid&gt;</b> | <p>Response</p> <p><b>+CGPADDR: &lt;cid&gt;,&lt;PDP_addr&gt;</b><br/><b>[&lt;CR&gt;&lt;LF&gt;+CGPADDR: &lt;cid&gt;,&lt;PDP_addr&gt;[...]]</b></p> <p><b>OK</b><br/><b>ERROR</b></p> <hr/> <p>Parameters</p> <p><b>&lt;cid&gt;</b> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) If &lt;cid&gt; is not specified,</p> |

|           |  |
|-----------|--|
|           | <p>the addresses for all defined contexts will be returned.</p> <p>1..3 PDP Context Identifier, cid 3 is reserved and is always defined, it cannot be changed by user.</p> <p><b>&lt;PDP_addr&gt;</b> String type, IP address<br/>Format: "&lt;n&gt;.&lt;n&gt;.&lt;n&gt;.&lt;n&gt;" where &lt;n&gt;=0..255</p> |
| Reference | <p>Note</p> <p>Write command returns address provided by the network if a connection has been established.</p>   |

### 7.2.8 AT+CGCLASS GPRS Mobile Station Class

| AT+CGCLASS GPRS Mobile Station Class                        |  |
|---|--|
| <p>Test Command</p> <p><b>AT+CGCLASS=?</b></p>              | <p>Response</p> <p><b>+CGCLASS:</b> (list of supported &lt;class&gt;s)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| <p>Read Command</p> <p><b>AT+CGCLASS?</b></p>               | <p>Response</p> <p><b>+CGCLASS:</b> &lt;class&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CGCLASS=&lt;class&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;class&gt;</b> A string parameter(string should be included in quotation marks) which indicates the GPRS mobile class (in descending order of functionality)</p> <p><b>B</b> Class-B mode of operation (A/Gb mode), (not applicable in Iu mode) MT would operate PS and CS services but not simultaneously</p> <p><b>CC</b> Class-C mode of operation in CS only mode</p> |

|           |  |
|-----------|--|
|           | (A/Gb mode), or CS (Iu mode) (lowest mode of operation). MT would only operate CS services |
| Reference | Note<br>It only supports Class B and CC.   |

### 7.2.9 AT+CGEREP Control Unsolicited GPRS Event Reporting

| <b>AT+CGEREP Control Unsolicited GPRS Event Reporting</b>    |   |
|--|---|
| Test Command<br><b>AT+CGEREP=?</b>                           | Response<br><b>+CGEREP:</b> (list of supported <mode>s),(list of supported <bfr>s)<br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Read Command<br><b>AT+CGEREP?</b>                            | Response<br><b>+CGEREP:</b> <mode>,<bfr><br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Write Command<br><b>AT+CGEREP=&lt;mode&gt;[,&lt;bfr&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|  | Parameters<br><b>&lt;mode&gt;</b> <ul style="list-style-type: none"> <li>0 Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones is discarded.</li> <li>1 Discard unsolicited result codes when MT TE link is reserved (e.g. in on line data mode); otherwise forward them directly to the TE.</li> <li>2 Buffer unsolicited result codes in the MT when MT TE link is reserved (e.g. in on line data mode) and flush them to the TE when MT TE link becomes available; otherwise forward them directly to the TE.</li> </ul> <b>&lt;bfr&gt;</b> <ul style="list-style-type: none"> <li>0 MT buffer of unsolicited result codes defined within this command is cleared when &lt;mode&gt; 1 or 2 is entered.</li> </ul> |

|           |   |
|-----------|---|
|           | 1 MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is entered. |
| Reference | Note  |

### 7.2.10 AT+CGREG Network Registration Status

| AT+CGREG Network Registration Status                    |  |
|---|--|
| Test Command<br><b>AT+CGREG=?</b>                       | <p>Response</p> <p><b>+CGREG:</b> (list of supported &lt;n&gt;s)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>   |
| Read Command<br><b>AT+CGREG?</b>                        | <p>Response</p> <p><b>+CGREG:</b> &lt;n&gt;,&lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</p> <p><b>OK</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR:</b> &lt;err&gt;</p> <p>Parameters</p> <p>See Write Command</p>  |
| Write Command<br><b>AT+CGREG=</b><br><b>[&lt;n&gt;]</b> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b></p> <ul style="list-style-type: none"> <li>0 Disable network registration unsolicited result code</li> <li>1 Enable network registration unsolicited result code<br/>+CGREG:&lt;stat&gt;</li> <li>2 Enable network registration and location information unsolicited result code +CGREG: &lt;stat&gt;[,&lt;lac&gt;,&lt;ci&gt;]</li> </ul> <p><b>&lt;stat&gt;</b></p> <ul style="list-style-type: none"> <li>0 Not registered, MT is not currently searching an operator to register to. The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user.</li> <li>1 Registered, home network.</li> <li>2 Not registered, but MT is currently trying to attach or searching an operator to register to. The GPRS service is</li> </ul> |

|           |   |
|-----------|---|
|           | <p>enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available.</p> <p>3 Registration denied<br/>The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user.</p> <p>4 Unknown</p> <p>5 Registered, roaming</p> <p><b>&lt;lac&gt;</b> String type (string should be included in quotation marks); two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)</p> <p><b>&lt;ci&gt;</b> String type (string should be included in quotation marks); two bytes cell ID in hexadecimal format</p> |
| Reference | Note  |

### 7.2.11 AT+CGSMS Select Service for MO SMS Messages

| AT+CGSMS Select Service for MO SMS Messages      |   |
|--|---|
| Test Command<br><b>AT+CGSMS=?</b>                | Response<br><b>+CGSMS:</b> (list of currently available <b>&lt;service&gt;</b> s)<br><br><b>OK</b>  |
|  | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CGSMS?</b>                 | Response<br><b>+CGSMS:</b> <b>&lt;service&gt;</b><br><br><b>OK</b>  |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CGSMS=&lt;service&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR:</b> <b>&lt;err&gt;</b>  |
|  | Parameter<br><b>&lt;service&gt;</b> A numeric parameter which indicates the service or service preference to be used<br>0 Packet Domain<br>1 Circuit switched |

|           |   |
|-----------|---|
|           | <ol style="list-style-type: none"><li>2 Packet Domain preferred (use circuit switched if GPRS not available)</li><li>3 Circuit switched preferred (use Packet Domain if circuit switched not available)</li></ol> |
| Reference | Note  |

## 8 AT Commands for TCPIP Application Toolkit

### 8.1 Overview

| Command       | Description   |
|---------------|---|
| AT+CIPMUX     | START UP MULTI-IP CONNECTION                            |
| AT+CIPSTART   | START UP TCP OR UDP CONNECTION                          |
| AT+CIPSEND    | SEND DATA THROUGH TCP OR UDP CONNECTION                 |
| AT+CIPQSEND   | SELECT DATA TRANSMITTING MODE                           |
| AT+CIPACK     | QUERY PREVIOUS CONNECTION DATA TRANSMITTING STATE       |
| 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+CIPHEAD    | ADD AN IP HEAD AT THE BEGINNING OF A PACKAGE RECEIVED   |
| AT+CIPATS     | SET AUTO SENDING TIMER                                  |
| AT+CIPSPRT    | SET PROMPT OF '>' WHEN MODULE SENDS DATA                |
| AT+CIPSERVER  | CONFIGURE MODULE AS SERVER                              |
| AT+CIPCSGP    | SET CSD OR GPRS FOR CONNECTION MODE                     |
| AT+CIPSRIP    | SHOW REMOTE IP ADDRESS AND PORT WHEN RECEIVED DATA      |
| AT+CIPDPDP    | SET WHETHER TO CHECK STATE OF GPRS NETWORK TIMING       |
| AT+CIPMODE    | SELECT TCPIP APPLICATION MODE                           |
| AT+CIPCCFG    | CONFIGURE TRANSPARENT TRANSFER MODE                     |
| AT+CIPSHOWTP  | DISPLAY TRANSFER PROTOCOL IN IP HEAD WHEN RECEIVED DATA |
| AT+CIPUDPMODE | UDP EXTENDED MODE                                       |
| AT+CIPRXGET   | GET DATA FROM NETWORK MANUALLY                          |
| AT+CIPQRCLOSE | QUICK REMOTE CLOSE                                      |
| AT+CIPSCONT   | SAVE TCPIP APPLICATION CONTEXT                          |
| AT+CIPTXISS   | DISCARD INPUT AT DATA IN TCP DATA SEND                  |



## 8.2 Detailed Descriptions of Commands

### 8.2.1 AT+CIPMUX Start Up Multi-IP Connection

| AT+CIPMUX Start Up Multi-IP Connection |   |
|--|---|
| Test Command<br>AT+CIPMUX=?            | <p>Response</p> <p>+CIPMUX: (0,1)</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Read Command<br>AT+CIPMUX?             | <p>Response</p> <p>+CIPMUX: &lt;n&gt;</p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>  |
| Write Command<br>AT+CIPMUX=<n>         | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p> <p>&lt;n&gt;    0    Single IP connection    —</p> <p>         1    Multi IP connection</p>   |
| Reference                              | <p>Note</p> <ul style="list-style-type: none"> <li>● Only in IP initial state, AT+CIPMUX=1 is effective;</li> <li>● Only when multi IP connection and GPRS application are both shut down, AT+CIPMUX=0 is effective.</li> </ul> |

### 8.2.2 AT+CIPSTART Start Up TCP or UDP Connection

| AT+CIPSTART Start Up TCP or UDP Connection |  |
|--|--|
| Test Command<br>AT+CIPSTART=?              | <p>Response</p> <p>1) If AT+CIPMUX=0</p> <p>+CIPSTART: (list of supported &lt;mode&gt;),( &lt;IP address&gt;),( &lt;port&gt;)</p> <p>+CIPSTART: (list of supported &lt;mode&gt;),( &lt;domain name&gt;),( &lt;port&gt;)</p> <p><b>OK</b></p> <p>2) If AT+CIPMUX=1</p> <p>+CIPSTART: (list of supported &lt;n&gt;),(list of supported &lt;mode&gt;),( &lt;IP address&gt;),( &lt;port&gt;)</p> <p>+CIPSTART: (list of supported &lt;n&gt;),(list of supported &lt;mode&gt;),( &lt;domain name&gt;),( &lt;port&gt;)</p> |

|  |  |
|--|--|
|  | <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command</p> <p>1)If single IP connection (+CIPMUX=0)<br/><b>AT+CIPSTART=&lt;mode&gt;,&lt;IP address&gt;,&lt;port&gt;</b></p> <p>Or</p> <p><b>AT+CIPSTART=&lt;mode&gt;,&lt;domain name&gt;,&lt;port&gt;</b></p> <p>2)If multi-IP connection (+CIPMUX=1)<br/><b>AT+CIPSTART=&lt;n&gt;,&lt;mode&gt;,&lt;address&gt;,&lt;port&gt;</b></p> <p><b>AT+CIPSTART=&lt;n&gt;,&lt;mode&gt;,&lt;domain name&gt;,&lt;port&gt;</b></p> | <p>Response</p> <p>1)If single IP connection (+CIPMUX=0)<br/>If format is right response<br/><b>OK</b><br/>otherwise response<br/>If error is related to ME functionality:<br/><b>+CME ERROR &lt;err&gt;</b></p> <p>Response when connection exists<br/><b>ALREADY CONNECT</b></p> <p>Response when connection is successful<br/><b>CONNECT OK</b></p> <p>Otherwise<br/><b>STATE: &lt;state&gt;</b></p> <p><b>CONNECT FAIL</b></p> <p>2)If multi-IP connection (+CIPMUX=1)<br/>If format is right<br/><b>OK</b>,<br/>otherwise response<br/>If error is related to ME functionality:<br/><b>+CME ERROR &lt;err&gt;</b></p> <p>Response when connection exists<br/><b>&lt;n&gt;,ALREADY CONNECT</b></p> <p>If connection is successful<br/><b>&lt;n&gt;,CONNECT OK</b></p> <p>Otherwise<br/><b>&lt;n&gt;,CONNECT FAIL</b></p> |
|  | <p>Parameters</p> <p><b>&lt;n&gt;</b>            0..7    A numeric parameter which indicates the connection number</p> <p><b>&lt;mode&gt;</b>            A string parameter(string should be included in quotation marks) which indicates the connection type<br/>"TCP"    Establish a TCP connection<br/>"UDP"    Establish a UDP connection</p> <p><b>&lt;IP address&gt;</b>    A string parameter(string should be included in quotation marks) which indicates remote server IP address</p> <p><b>&lt;port&gt;</b>            Remote server port</p>   |

|           |  |
|-----------|--|
|           | <p><b>&lt;domain name&gt;</b> A string parameter(string should be included in quotation marks) which indicates remote server domain name</p> <p><b>&lt;state&gt;</b> A string parameter(string should be included in quotation marks) which indicates the progress of connecting</p> <ul style="list-style-type: none"> <li>0 IP INITIAL</li> <li>1 IP START</li> <li>2 IP CONFIG</li> <li>3 IP GPRSACT</li> <li>4 IP STATUS</li> <li>5 TCP CONNECTING/UDP CONNECTING/<br/>SERVER LISTENING</li> <li>6 CONNECT OK</li> <li>7 TCP CLOSING/UDP CLOSING</li> <li>8 TCP CLOSED/UDP CLOSED</li> <li>9 PDP DEACT</li> </ul> <p>In Multi-IP state:</p> <ul style="list-style-type: none"> <li>0 IP INITIAL</li> <li>1 IP START</li> <li>2 IP CONFIG</li> <li>3 IP GPRSACT</li> <li>4 IP STATUS</li> <li>5 IP PROCESSING</li> <li>9 PDP DEACT</li> </ul> |
| Reference | <p>Note</p> <ul style="list-style-type: none"> <li>● This command allows establishment of a TCP/UDP connection only when the state is IP INITIAL or IP STATUS when it is in single state. In multi-IP state, the state is in IP STATUS only. So it is necessary to process "AT+CIPSHUT" before user establishes a TCP/UDP connection with this command when the state is not IP INITIAL or IP STATUS.</li> <li>● When module is in multi-IP state, before this command is executed, it is necessary to process "AT+CSTT, AT+CIICR, AT+CIFSR".</li> </ul>   |

### 8.2.3 AT+CIPSEND Send Data Through TCP or UDP Connection

| <b>AT+CIPSEND Send Data Through TCP or UDP Connection</b> |   |
|---|---|
| <p>Test Command</p> <p><b>AT+CIPSEND=?</b></p>            | <p>Response</p> <p>1) For single IP connection (+CIPMUX=0)<br/><b>+CIPSEND: &lt;length&gt;</b></p> <p><b>OK</b></p> <p>2) For multi IP connection (+CIPMUX=1)</p> |

|   |  |
|---|--|
|   | <p><b>+CIPSEND: &lt;0-7&gt;,&lt;length&gt;</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| <p>Read Command<br/><b>AT+CIPSEND?</b></p>  | <p>Response</p> <p>1) For single IP connection (+CIPMUX=0)<br/><b>+CIPSEND:&lt;size&gt;</b></p> <p><b>OK</b></p> <p>2) For multi IP connection (+CIPMUX=1)<br/><b>+CIPSEND:&lt;n&gt;,&lt;size&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b>            A numeric parameter which indicates the connection number</p> <p><b>&lt;size&gt;</b>        A numeric parameter which indicates the data length sent at a time</p>   |
| <p>Write Command</p> <p>1) If single IP connection (+CIPMUX=0)<br/><b>AT+CIPSEND=&lt;length&gt;</b></p> <p>2) If multi IP connection (+CIPMUX=1)<br/><b>AT+CIPSEND=&lt;n&gt;[,&lt;length&gt;]</b></p> | <p>Response</p> <p>This Command is used to send changeable length data</p> <p>If single IP is connected (+CIPMUX=0)<br/>If connection is not established or module is disconnected:<br/>If error is related to ME functionality:<br/><b>+CME ERROR &lt;err&gt;</b></p> <p>If sending is successful:<br/>When +CIPQSEND=0<br/><b>SEND OK</b></p> <p>When +CIPQSEND=1<br/><b>DATA ACCEPT:&lt;length&gt;</b></p> <p>If sending fails:<br/><b>SEND FAIL</b></p> <p>If multi IP connection is established (+CIPMUX=1)<br/>If connection is not established or module is disconnected:<br/>If error is related to ME functionality:<br/><b>+CME ERROR &lt;err&gt;</b></p> <p>If sending is successful:<br/>When +CIPQSEND=0<br/><b>&lt;n&gt;,&lt;length&gt;</b></p> <p>When +CIPQSEND=1<br/><b>DATA ACCEPT:&lt;n&gt;,&lt;length&gt;</b></p> <p>If sending fails:</p> |

|  |   |
|--|---|
|  | <p><b>&lt;n&gt;,SEND FAIL</b></p> <p>Parameters</p> <p><b>&lt;n&gt;</b> A numeric parameter which indicates the connection number</p> <p><b>&lt;length&gt;</b> A numeric parameter which indicates the length of sending data, it must be less than &lt;size&gt;</p>  |
| <p>Execution Command</p> <p><b>AT+CIPSEND</b> response"&gt;", then type data for send, tap CTRL+Z to send, tap ESC to cancel the operation</p> | <p>Response</p> <p>This Command is used to send changeable length data.</p> <p>If single IP connection is established (+CIPMUX=0)</p> <p>If connection is not established or module is disconnected:</p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR &lt;err&gt;</b></p> <p>If sending is successful:</p> <p>When +CIPQSEND=0</p> <p><b>SEND OK</b></p> <p>When +CIPQSEND=1</p> <p><b>DATA ACCEPT:&lt;length&gt;</b></p> <p>If sending fails:</p> <p><b>SEND FAIL</b></p> <p>Note</p> <p>This Command can only be used in single IP connection mode (+CIPMUX=0) and to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. ESC is used to cancel sending data. There are at most &lt;size&gt; bytes which can be sent at a time.</p> |
| <p>Reference</p>   | <p>Note</p> <ul style="list-style-type: none"> <li>● The data length which can be sent depends on network status.</li> <li>● Set the time that send data automatically with the Command of AT+CIPATS.</li> <li>● Only send data at the status of established connection.</li> </ul>   |

#### 8.2.4 AT+CIPQSEND Select Data Transmitting Mode

|   |   |
|---|---|
| <p><b>AT+CIPQSEND</b></p>                       | <p><b>Select Data Transmitting Mode</b></p>                     |
| <p>Test Command</p> <p><b>AT+CIPQSEND=?</b></p> | <p>Response</p> <p><b>+CIPQSEND: (0,1)</b></p> <p><b>OK</b></p> |
|   | <p>Parameter</p>  |

|  |   |
|--|---|
|  | See Write Command   |
| Read Command<br><b>AT+CIPQSEND</b><br>?                  | Response<br><b>+CIPQSEND: &lt;n&gt;</b><br><br><b>OK</b>  |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CIPQSEND</b><br><b>=&lt;n&gt;</b> | Response<br><b>OK</b>   |
|  | Parameter<br><b>&lt;n&gt;</b> 0    Normal mode – when the server receives TCP data, it will respond SEND OK.<br>1    Quick send mode – when the data is sent to module, it will respond DATA ACCEPT:<n>,<length>, while not responding SEND OK. |
| Reference  | Note  |

### 8.2.5 AT+CIPACK Query Previous Connection Data Transmitting State

|   |   |
|---|---|
| <b>AT+CIPACK Query Previous Connection Data Transmitting State</b>                      |   |
| Test Command<br><b>AT+CIPACK=?</b>  | Response<br><b>OK</b>   |
| Write Command<br>If in multi IP connection<br>(+CIPMUX=1)<br><b>AT+CIPACK=&lt;n&gt;</b> | Response<br><b>+CIPACK: &lt;txlen&gt;, &lt;acklen&gt;, &lt;nacklen&gt;</b><br><br><b>OK</b>   |
|   | Parameters<br><b>&lt;n&gt;</b> A numeric parameter which indicates the connection number<br><b>&lt;txlen&gt;</b> The data amount which has been sent<br><b>&lt;acklen&gt;</b> The data amount confirmed successfully by the server<br><b>&lt;nacklen&gt;</b> The data amount without confirmation by the server |
| Execution Command<br>If in single IP connection<br>(+CIPMUX=0)<br><b>AT+CIPACK</b>      | Response<br><b>+CIPACK: &lt;txlen&gt;, &lt;acklen&gt;, &lt;nacklen&gt;</b><br><br><b>OK</b>   |
|   | Parameters<br>See Write Command   |
| Reference   | Note  |

### 8.2.6 AT+CIPCLOSE Close TCP or UDP Connection

| <b>AT+CIPCLOSE Close TCP or UDP Connection</b>   |  |
|--|--|
| Test Command<br><b>AT+CIPCLOSE=?</b>   | Response<br><b>OK</b>  |
| Write Command<br>1) If single IP connection<br>(+CIPMUX=0)<br><b>AT+CIPCLOSE=&lt;n&gt;</b><br>2) If multi IP connection<br>(+CIPMUX=1)<br><b>AT+CIPCLOSE=&lt;id&gt;, [&lt;n&gt;]</b> | Response:<br>1) For single IP connection (+CIPMUX=0)<br><b>CLOSE OK</b><br>2) For multi IP connection (+CIPMUX=1)<br><b>&lt;n&gt;, CLOSE OK</b><br><br>Parameters<br><b>&lt;n&gt;</b> 0    Slow close<br>1    Quick close<br><b>&lt;id&gt;</b> A numeric parameter which indicates the connection number |
| Execution Command<br><b>AT+CIPCLOSE</b>  | Response<br>If close is successfully: _____<br><b>CLOSE OK</b><br>If close fails:<br><b>ERROR</b>  |
| Reference  | Note<br>AT+CIPCLOSE only closes connection at the status of TCP/UDP which returns CONNECTING or CONNECT OK, otherwise it will return ERROR, after the connection is closed, the status is IP CLOSE in single IP mode   |

### 8.2.7 AT+CIPSHUT Deactivate GPRS PDP Context

| <b>AT+CIPSHUT Deactivate GPRS PDP Context</b> |  |
|---|--|
| Test Command<br><b>AT+CIPSHUT=?</b>           | Response<br><b>OK</b>  |
| Execution Command<br><b>AT+CIPSHUT</b>        | Response<br>If close is successful:<br><b>SHUT OK</b><br>If close fails:<br><b>ERROR</b> |
| Reference                                     | Note   |

- If this command is executed in multi-connection mode, all of the IP connection will be shut.
- User can close gprs pdp context by AT+CIPSHUT. After it is closed, the status is IP INITIAL.
- If "+PDP: DEACT" urc is reported which means the gprs is released by the network, then user still needs to execute "AT+CIPSHUT" command to make PDP context come back to original state.

### 8.2.8 AT+CLPORT Set Local Port

| AT+CLPORT Set Local Port                                    |   |
|---|---|
| Test Command<br><b>AT+CLPORT=?</b>                          | Response<br><b>+CLPORT:</b> (list of supported <port>s)<br><br><b>OK</b>  |
|   | Parameters<br>See Write Command   |
| Read Command<br><b>AT+CLPORT?</b>                           | Response<br><b>TCP:</b> <port><br><b>UDP:</b> <port><br><br><b>OK</b>   |
|   | Parameters<br>See Write Command   |
| Write Command<br><b>AT+CLPORT=&lt;mode&gt;,&lt;port&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|   | Parameters<br><b>&lt;mode&gt;</b> A string parameter(string should be included in quotation marks) which indicates the connection type<br>"TCP" TCP local port<br>"UDP" UDP local port<br><b>&lt;port&gt;</b> 0-65535 A numeric parameter which indicates the local port<br>0 is default value, a port can be dynamically allocated a port. |
| Reference   | Note<br>This command will be effective only in single connection mode (+CIPMUX=0) and when module is set as a Client  |

### 8.2.9 AT+CSTT Start Task and Set APN, USER NAME, PASSWORD

#### AT+CSTT Start Task and Set APN, USER NAME, PASSWORD



|  |   |
|--|---|
| Test Command<br><b>AT+CSTT=?</b>   | Response<br><b>+CSTT: "APN","USER","PWD"</b><br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Read Command<br><b>AT+CSTT?</b>  | Response<br><b>+CSTT: &lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;</b><br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Write Command<br><b>AT+CSTT=&lt;apn&gt;,&lt;user name&gt;,&lt;password&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|  | Parameters<br><b>&lt;apn&gt;</b> A string parameter (string should be included in quotation marks) which indicates the GPRS access point name<br><b>&lt;user name&gt;</b> A string parameter (string should be included in quotation marks) which indicates the GPRS user name<br><b>&lt;password&gt;</b> A string parameter (string should be included in quotation marks) which indicates the GPRS password |
| Execution Command<br><b>AT+CSTT</b>  | Response<br><b>OK</b><br><b>ERROR</b>   |
| Reference  | Note<br>The write command and execution command of this command is valid only at the state of IP INITIAL. After this command is executed, the state will be changed to IP START.  |

### 8.2.10 AT+CIICR Bring Up Wireless Connection with GPRS or CSD

|   |                                       |
|---|---------------------------------------|
| <b>AT+CIICR Bring Up Wireless Connection with GPRS or CSD</b> |                                       |
| Test Command<br><b>AT+CIICR=?</b>                             | Response<br><b>OK</b>                 |
| Execution Command<br><b>AT+CIICR</b>                          | Response<br><b>OK</b><br><b>ERROR</b> |
| Reference   | Note                                  |

- AT+CIICR only activates moving scene at the status of IP START, after operating this Command is executed, the state will be changed to IP CONFIG.
- After module accepts the activated operation, if it is activated successfully, module state will be changed to IP GPRSACT, and it responds OK, otherwise it will respond ERROR.

### 8.2.11 AT+CIFSR Get Local IP Address

| AT+CIFSR Get Local IP Address        |   |
|--------------------------------------|---|
| Test Command<br><b>AT+CIFSR=?</b>    | Response<br><b>OK</b>   |
| Execution Command<br><b>AT+CIFSR</b> | Response<br><b>&lt;IP address&gt;</b><br><b>ERROR</b>   |
|                                      | Parameter<br><b>&lt;IP address&gt;</b> a string parameter(string should be included in quotation marks) which indicates the IP address assigned from GPRS or CSD.                                       |
| Reference                            | Note<br>Only after PDP context is activated, local IP Address can be obtained by AT+CIFSR, otherwise it will respond ERROR. The active status are IP GPRSACT, TCP/UDP CONNECTING, CONNECT OK, IP CLOSE. |

### 8.2.12 AT+CIPSTATUS Query Current Connection Status

| AT+CIPSTATUS Query Current Connection Status  |   |
|---|---|
| Test Command<br><b>AT+CIPSTATUS=?</b>   | Response<br><b>OK</b>   |
| Write Command<br>If multi IP connection mode (+CIPMUX=1)<br><b>AT+CIPSTATUS=&lt;n&gt;</b> | Response<br><b>+CIPSTATUS: &lt;n&gt;,&lt;bearer&gt;,&lt;TCP/UDP&gt;,&lt;IP address&gt;,&lt;port&gt;,&lt;client state&gt;</b><br><b>OK</b> |
|   | Parameters<br>See Execution Command   |
| Execution Command<br><b>AT+CIPSTATUS</b>  | Response<br>1) If in single connection mode (+CIPMUX=0)<br><b>OK</b>  |

**STATE: <state>**

2) If in multi-connection mode (+CIPMUX=1)

**OK**

**STATE: <state>**

If the module is set as server

**S: 0, <bearer>, <port>, <server state>**

**C: <n>,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state>**

Parameters

**<n>** 0-7 A numeric parameter which indicates the connection number

**<bearer>** 0-1 GPRS bearer, default is 0

**<server state>** OPENING  
LISTENING  
CLOSING

**<client state>** INITIAL  
CONNECTING  
CONNECTED  
REMOTE CLOSING  
CLOSING  
CLOSED

**<state>** A string parameter(string should be included in quotation marks) which indicates the progress of connecting

- 0 IP INITIAL
- 1 IP START
- 2 IP CONFIG
- 3 IP GPRSACT
- 4 IP STATUS
- 5 TCP CONNECTING/UDP CONNECTING /SERVER LISTENING
- 6 CONNECT OK
- 7 TCP CLOSING/UDP CLOSING
- 8 TCP CLOSED/UDP CLOSED
- 9 PDP DEACT

In Multi-IP state:

- 0 IP INITIAL
- 1 IP START
- 2 IP CONFIG
- 3 IP GPRSACT
- 4 IP STATUS

|           |   |
|-----------|---|
|           | <p>5 IP PROCESSING</p> <p>9 PDP DEACT</p> |
| Reference | Note                                      |

### 8.2.13 AT+CDNSCFG Configure Domain Name Server

| AT+CDNSCFG Configure Domain Name Server                              |  |
|--|--|
| Test Command<br><b>AT+CDNSCFG=?</b>                                  | Response<br><b>+CDNSCFG: ("Primary DNS"),("Secondary DNS")</b><br><br><b>OK</b><br><br>Parameter<br>See Write Command  |
| Read Command<br><b>AT+CDNSCFG?</b>                                   | Response<br><b>PrimaryDns: &lt;pri_dns&gt;</b><br><b>SecondaryDns: &lt;sec_dns&gt;</b><br><br><b>OK</b><br><br>Parameter<br>See Write Command  |
| Write Command<br><b>AT+CDNSCFG=&lt;pri_dns&gt;[,&lt;sec_dns&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b><br><br>Parameters<br><b>&lt;pri_dns&gt;</b> A string parameter(string should be included in quotation marks) which indicates the IP address of the primary domain name server<br><br><b>&lt;sec_dns&gt;</b> A string parameter (string should be included in quotation marks) which indicates the IP address of the secondary domain name server |
| Reference  | Note   |

### 8.2.14 AT+CDNSGIP Query the IP Address of Given Domain Name

| AT+CDNSGIP Query the IP Address of Given Domain Name |                       |
|--|-----------------------|
| Test Command<br><b>AT+CDNSGIP=?</b>                  | Response<br><b>OK</b> |
| Write Command  | Response              |

|  |  |
|--|--|
| <p><b>AT+CDNSGIP=</b><br/><b>&lt;domain name&gt;</b></p> | <p><b>OK</b><br/><b>ERROR</b></p> <p>If successful, return:<br/><b>+CDNSGIP: 1, &lt;domain name&gt;, &lt;IP&gt;</b></p> <p>If fail, return:<br/><b>+CDNSGIP:0, &lt;dns error code&gt;</b></p> <p>Parameters</p> <p><b>&lt;domain name&gt;</b> A string parameter(string should be included in quotation marks) which indicates the domain name</p> <p><b>&lt;IP&gt;</b> A string parameter(string should be included in quotation marks) which indicates the IP address corresponding to the domain name</p> <p><b>&lt;dns error code&gt;</b> A numeric parameter which indicates the error code</p> <ul style="list-style-type: none"> <li>10 DNS GENERAL ERROR</li> <li>11 DNS MAX RETRIES,</li> <li>12 DNS NO SERVER ADDR,</li> <li>13 DNS NO MEMORY,</li> <li>14 DNS INVALID NAME,</li> <li>15 DNS INVALID RESP,</li> </ul> <p>There are some other error codes as well.</p> |
| <p>Reference</p>   | <p>Note</p>  |

### 8.2.15 AT+CIPHEAD Add an IP Head at the Beginning of a Package Received

|  |  |
|--|--|
| <p><b>AT+CIPHEAD Add an IP Head at the Beginning of a Package Received</b></p> |  |
| <p>Test Command<br/><b>AT+CIPHEAD=</b><br/><b>?</b></p>                        | <p>Response</p> <p><b>+CIPHEAD:</b> (list of supported <b>&lt;mode&gt;</b>s)</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| <p>Read Command<br/><b>AT+CIPHEAD?</b></p>                                     | <p>Response</p> <p><b>+CIPHEAD: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>                             |
| <p>Write Command<br/><b>AT+CIPHEAD=</b></p>                                    | <p>Response</p> <p><b>OK</b></p>   |

|                     |   |
|---------------------|---|
| <b>&lt;mode&gt;</b> | <b>ERROR</b>  |
|                     | Parameter<br><b>&lt;mode&gt;</b> A numeric parameter which indicates whether an IP header is added to the received data or not.<br><u>0</u> Not add IP header<br>1 Add IP header, the format is "+IPD,data length:" |
| Reference           | Note<br>This command will be effective only in single connection mode (+CIPMUX=0) and command mode.   |

### 8.2.16 AT+CIPATS Set Auto Sending Timer

|   |  |
|---|--|
| <b>AT+CIPATS Set Auto Sending Timer</b>                       |  |
| Test Command<br><b>AT+CIPATS=?</b>                            | Response<br><b>+CIPATS:</b> (list of supported <b>&lt;mode&gt;</b> s),(list of supported <b>&lt;time&gt;</b> )<br><br><b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Read Command<br><b>AT+CIPATS?</b>                             | Response<br><b>+CIPATS:</b> <b>&lt;mode&gt;</b> , <b>&lt;time&gt;</b><br><br><b>OK</b>   |
|   | Parameters<br>See Write Command  |
| Write Command<br><b>AT+CIPATS=&lt;mode&gt;[,&lt;time&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameters<br><b>&lt;mode&gt;</b> A numeric parameter which indicates whether set timer when module is sending data<br><u>0</u> Not set timer when module is sending data<br>1 Set timer when module is sending data<br><b>&lt;time&gt;</b> 1..100 A numeric parameter which indicates the seconds after which the data will be sent |
| Reference   | Note   |

### 8.2.17 AT+CIPSPRT Set Prompt of '>' When Module Sends Data

| AT+CIPSPRT Set Prompt of '>' When Module Sends Data    |  |
|--|--|
| Test Command<br><b>AT+CIPSPRT=?</b>                    | Response<br><b>+CIPSPRT: (list of supported &lt;send prompt&gt;s)</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CIPSPRT?</b>                     | Response<br><b>+CIPSPRT: &lt;send prompt&gt;</b><br><br><b>OK</b>  |
|  | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CIPSPRT=&lt;send prompt&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|  | Parameter<br><b>&lt;send prompt&gt;</b> A numeric parameter which indicates whether to echo prompt '>' after module issues AT+CIPSEND command. <ul style="list-style-type: none"> <li>0 It shows "send ok" but does not prompt echo '&gt;' when sending is successful.</li> <li><u>1</u> It prompts echo '&gt;' and shows "send ok" when sending is successful.</li> <li>2 It neither prompts echo '&gt;' nor shows "send ok" when sending is successful.</li> </ul> |
| Reference  | Note   |

### 8.2.18 AT+CIPSERVER Configure Module as Server

| AT+CIPSERVER Configure Module as Server |  |
|---|--|
| Test Command<br><b>AT+CIPSERVE R=?</b>  | Response<br><b>+CIPSERVER: (0-CLOSE SERVER, 1-OPEN SERVER),(1,65535)</b><br><br><b>OK</b>    |
|   | Parameters<br>See Write Command  |
| Read Command<br><b>AT+CIPSERVE</b>      | Response<br><b>+CIPSERVER: &lt;mode&gt;[,&lt;port&gt;,&lt;channel id&gt;,&lt;bearer&gt;]</b> |

|  |  |
|--|--|
| <b>R?</b>  | <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>   |
| <p>Write Command<br/><b>AT+CIPSERVE</b><br/><b>R=&lt;mode&gt;[,&lt;port&gt;]</b></p> | <p>Response<br/><b>OK</b><br/><b>ERROR</b></p> <p>Parameters<br/> <b>&lt;mode&gt;</b>    0    Close server<br/>                  1    Open server<br/> <b>&lt;port&gt;</b>    1..65535    Listening port<br/> <b>&lt;channel id&gt;</b> Channel id<br/> <b>&lt;bearer&gt;</b>    GPRS bearer</p> |
| <p>Reference</p>   | <p>Note<br/>This command is allowed to establish a TCP server only when the state is IP INITIAL or IP STATUS when it is in single state. In multi-IP state, the state is in IP STATUS only.</p>  |

### 8.2.19 AT+CIPCSGP Set CSD or GPRS for Connection Mode

|   |   |
|---|---|
| <p><b>AT+CIPCSGP Set CSD or GPRS for Connection Mode</b></p>          |   |
| <p>Test Command<br/><b>AT+CIPCSGP=?</b></p>                           | <p>Response<br/><b>+CIPCSGP:0-CSD,DIALNUMBER,USER NAME,PASSWORD,RATE(0-3)</b><br/><b>+CIPCSGP: 1-GPRS,APN,USER NAME,PASSWORD</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p> |
| <p>Read Command<br/><b>AT+CIPCSGP?</b></p>                            | <p>Response<br/><b>+CIPCSGP: &lt;mode&gt;, &lt;apn&gt;, &lt;user name&gt;, &lt;password&gt;[,&lt;rate&gt;]</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>                   |
| <p>Write Command<br/><b>AT+CIPCSGP=</b><br/><b>&lt;mode&gt;[,</b></p> | <p>Response<br/><b>OK</b><br/><b>ERROR</b></p>  |



|   |   |
|---|---|
| <p>(<b>&lt;apn&gt;</b>,<b>&lt;user name&gt;</b>,<br/><b>&lt;password&gt;</b>),(<b>&lt;dial number&gt;</b>,<br/><b>&lt;user name&gt;</b>,<br/><b>&lt;password&gt;</b>,<br/><b>&lt;rate&gt;</b>)]</p> | <p>Parameters</p> <p><b>&lt;mode&gt;</b> A numeric parameter which indicates the wireless connection mode</p> <p>0 set CSD as wireless connection mode</p> <p><u>1</u> set GPRS as wireless connection mode</p> <p>GPRS parameters:</p> <p><b>&lt;apn&gt;</b> A string parameter(string should be included in quotation marks) which indicates the access point name</p> <p><b>&lt;user name&gt;</b> A string parameter(string should be included in quotation marks) which indicates the user name</p> <p><b>&lt;password&gt;</b> A string parameter(string should be included in quotation marks) which indicates the password CSD parameters:</p> <p><b>&lt;dial number&gt;</b> A string parameter(string should be included in quotation marks) which indicates the CSD dial numbers</p> <p><b>&lt;user name&gt;</b> A string parameter(string should be included in quotation marks) which indicates the CSD user name</p> <p><b>&lt;password&gt;</b> A string parameter(string should be included in quotation marks) which indicates the CSD password</p> <p><b>&lt;rate&gt;</b> A numeric parameter which indicates the CSD connection rate</p> <p>0 2400</p> <p>1 4800</p> <p><u>2</u> 9600</p> <p>3 14400</p> |
| Reference   | Note  |

### 8.2.20 AT+CIPSRIP Show Remote IP Address and Port When Received Data

| <b>AT+CIPSRIP Show Remote IP Address and Port When Received Data</b> |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CIPSRIP=?</b></p>                       | <p>Response</p> <p><b>+CIPSRIP:</b> (list of supported <b>&lt;mode&gt;</b>s)</p> <p><b>OK</b></p> <hr/> <p>Parameter</p> <p>See Write Command</p> |
| <p>Read Command</p> <p><b>AT+CIPSRIP?</b></p>                        | <p>Response</p> <p><b>+CIPSRIP:</b> <b>&lt;mode&gt;</b></p> <p><b>OK</b></p>  |

|   |  |
|---|--|
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CIPSRIP=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameter<br><b>&lt;mode&gt;</b> A numeric parameter which shows remote IP address and port.<br>0 Do not show the prompt<br>1 Show the prompt, the format is as follows: RECV FROM:<IP ADDRESS>:<PORT> |
| Reference                                       | Note<br>This command will be effective only in single connection mode (+CIPMUX=0)  |

### 8.2.21 AT+CIPDPPD Set Whether to Check State of GPRS Network Timing

|  |   |
|--|---|
| <b>AT+CIPDPPD Set Whether to Check State of GPRS Network Timing</b>              |   |
| Test Command<br><b>AT+CIPDPPD=?</b>  | Response<br><b>+CIPDPPD:</b> (list of supported<mode>s, list of supported <interval>, list of supported <timer>)<br><br><b>OK</b> |
|  | Parameters<br>See Write Command   |
| Read Command<br><b>AT+CIPDPPD?</b>   | Response<br><b>+CIPDPPD:</b> <mode>, <interval>, <timer><br><br><b>OK</b>   |
|  | Parameters<br>See Write Command   |
| Write Command<br><b>AT+CIPDPPD=&lt;mode&gt;[,&lt;interval&gt;,&lt;timer&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|  | Parameters<br><b>&lt;mode&gt;</b><br>0 Not set detect PDP   |

|           |  |
|-----------|--|
|           | <p>1 Set detect PDP</p> <p><b>&lt;interval&gt;</b></p> <p>1&lt;interval&lt;=180(s)</p> <p><b>&lt;timer&gt;</b></p> <p>1&lt;timer&lt;=10</p>  |
| Reference | <p>Note</p> <p>If "+PDP: DEACT" urc is reported because of module not attaching to gprs for a certain time or other reasons, user still needs to execute "AT+CIPSHUT" command makes PDP context come back to original state.</p> |

### 8.2.22 AT+CIPMODE Select TCPIP Application Mode

| <b>AT+CIPMODE Select TCPIP Application Mode</b>            |   |
|--|---|
| <p>Test Command</p> <p><b>AT+CIPMODE=?</b></p>             | <p>Response</p> <p><b>+CIPMODE: (0-NORMAL MODE,1-TRANSPARENT MODE)</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>                     |
| <p>Read Command</p> <p><b>AT+CIPMODE?</b></p>              | <p>Response</p> <p><b>+CIPMODE: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameter</p> <p>See Write Command</p>   |
| <p>Write Command</p> <p><b>AT+CIPMODE=&lt;mode&gt;</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameter</p> <p><b>&lt;mode&gt;</b>    0 Normal mode</p> <p>              1 Transparent mode</p> |
| Reference  | Note  |

### 8.2.23 AT+CIPCCFG Configure Transparent Transfer Mode

| <b>AT+CIPCCFG Configure Transparent Transfer Mode</b> |   |
|---|---|
| <p>Test Command</p> <p><b>AT+CIPCCFG=?</b></p>        | <p>Response</p> <p><b>+CIPCCFG: (NmRetry:3-8),(WaitTm:2-10),(SendSz:1-1460),(esc:0,1)</b></p> |

|   |  |
|---|--|
|   | <b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Read Command<br><b>AT+CIPCCFG?</b>  | Response<br><b>+CIPCCFG: &lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt;</b>   |
|   | <b>OK</b>  |
|   | Parameters<br>See Write Command  |
| Write Command<br><b>AT+CIPCCFG=<br/>&lt;NmRetry&gt;,&lt;Wa<br/>itTm&gt;,&lt;SendSz&gt;,<br/>&lt;esc&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameters<br><b>&lt;NmRetry&gt;</b> Number of retries to be made for an IP packet.<br><b>&lt;WaitTm&gt;</b> Number of 200ms intervals to wait for serial input before sending the packet.<br><b>&lt;SendSz&gt;</b> Size in bytes of data block to be received from serial port before sending.<br><b>&lt;esc&gt;</b> Whether turn on the escape sequence, default is TRUE.<br>0      Turn off the escape sequence<br><u>1</u> Turn on the escape sequence |
| Reference   | Note<br>This command will be effective only in single connection mode (+CIPMUX=0)  |

### 8.2.24 AT+CIPSHOWTP Display Transfer Protocol in IP Head When Received Data

|   |  |
|---|--|
| <b>AT+CIPSHOWTP Display Transfer Protocol in IP Head When Received Data</b> |  |
| Test Command<br><b>AT+CIPSHOWTP<br/>=?</b>                                  | Response<br><b>+CIPSHOWTP: (list of supported &lt;mode&gt;s)</b> |
|   | <b>OK</b>  |
|   | Parameter<br>See Write Command                                   |
| Read Command<br><b>AT+CIPSHOWTP<br/>?</b>                                   | Response<br><b>+CIPSHOWTP: &lt;mode&gt;</b>                      |
|   | <b>OK</b>  |
|   | Parameter  |

|  |  |
|--|--|
|  | See Write Command  |
| Write Command<br><b>AT+CIPSHOWTP</b><br><b>=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b><br>Parameter<br><b>&lt;mode&gt;</b> A numeric parameter which indicates whether to display transfer protocol in IP header to received data or not<br><u>0</u> Not display transfer protocol<br>1 Display transfer protocol, the format is "+IPD, <data size>,<TCP/UDP>:<data>" |
| Reference  | Note <ul style="list-style-type: none"> <li>• This command will be effective only in single connection mode (+CIPMUX=0)</li> <li>• Only when +CIPHEAD is set to 1, the setting of this command will work.</li> </ul>   |

### 8.2.25 AT+CIPUDPMODE UDP Extended Mode

|   |  |
|---|--|
| <b>AT+CIPUDPMODE UDP Extended Mode</b>  |  |
| Test Command<br><b>AT+CIPUDPMOD</b><br><b>E=?</b>   | Response<br><b>+ CIPUDPMODE: (0-2),(" (0,255).(0,255).(0,255).(0,255)",(1,65535))</b><br><b>OK</b>               |
|   | Parameters<br>See Write Command  |
| Read Command<br><b>AT+CIPUDPMOD</b><br><b>E?</b>  | Response<br><b>+CIPUDPMODE: &lt;mode&gt; [,&lt;IP address&gt;,&lt;Port&gt;]</b><br><b>OK</b>                     |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CIPUDPMOD</b><br><b>E=&lt;mode&gt;[,&lt;IP</b><br><b>address&gt;,&lt;Port&gt;]</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> UDP Normal Mode<br>1 UDP Extended Mode<br>2 Set UDP address to be sent |

|           |   |
|-----------|---|
|           | <p><b>&lt;IP address&gt;</b> A string parameter (string should be included in quotation marks) which indicates remote IP address</p> <p><b>&lt;port&gt;</b> Remote port</p> |
| Reference | <p>Note</p> <p>This Command is used to set UDP extended mode, for single IP connection (+CIPMUX=0)</p>  |

### 8.2.26 AT+CIPRXGET Get Data from Network Manually

| <b>AT+CIPRXGET Get Data from Network Manually</b>  |  |
|--|--|
| <p>Test Command</p> <p><b>AT+CIPRXGET=?</b></p>  | <p>Response</p> <p><b>+CIPRXGET:</b> (list of supported <b>&lt;mode&gt;</b>s),(list of supported <b>&lt;len&gt;</b>)</p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>   |
| <p>Read Command</p> <p><b>AT+CIPRXGET?</b></p>   | <p>Response</p> <p><b>+CIPRXGET: &lt;mode&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p>See Write Command</p>  |
| <p>Write Command</p> <p>1) If single IP connection (+CIPMUX=0)</p> <p><b>AT+CIPRXGET=&lt;mode&gt;[,&lt;len&gt;]</b></p> <p>2) If multi IP connection (+CIPMUX=1)</p> <p><b>AT+CIPRXGET=&lt;mode&gt;,&lt;id&gt;[,&lt;len&gt;]</b></p> | <p>Response</p> <p><b>OK</b></p> <p><b>ERROR</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b></p> <ul style="list-style-type: none"> <li>0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly.</li> <li>1 Enable getting data from network manually.</li> <li>2 The module can get data, but the length of output data can not exceed 1460 bytes at a time.</li> <li>3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time.</li> <li>4 Query how many data are not read with a given ID.</li> </ul> <p><b>&lt;id&gt;</b> A numeric parameter which indicates the connection number</p> <p><b>&lt;len&gt;</b> 1-1460 (bytes) The supported length of data.</p> |
| Reference  | Note   |

To enable this function, parameter <mode> must be set to 1 before connection.

### 8.2.27 AT+CIPQRCLOSE Quick Remote Close

| AT+CIPQRCLOSE Quick Remote Close                   |   |
|--|---|
| Test Command<br><b>AT+CIPQRCLOSE=?</b>             | Response<br><b>+CIPQRCLOSE:</b> (list of supported <mode>s)<br><br><b>OK</b>  |
|  | Parameter<br>See Write Command  |
| Read Command<br><b>AT+CIPQRCLOSE?</b>              | Response<br><b>+CIPQRCLOSE:</b> <mode><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+CIPQRCLOSE=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>   |
|  | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Module returns FIN frame after module received FIN frame from remote side.<br>1    Module returns RST frame after module received FIN frame from remote side.   |
| Reference  | Note <ul style="list-style-type: none"> <li>● If RST frame instead of FIN frame is responded to remote side, disconnection process will speed up.</li> <li>● To enable this function, parameter &lt;mode&gt; must be set to 1 before connection.</li> </ul> |

### 8.2.28 AT+CIPSCONT Save TCPIP Application Context

| AT+CIPSCONT Save TCPIP Application Context |  |
|--|--|
| Read Command<br><b>AT+CIPSCONT?</b>        | Response<br>TA returns TCPIP Application Context, which consists of the following AT Command parameters.<br><br><b>+CIPSCONT:&lt;mode0&gt;</b> |

|  |   |
|--|---|
|  | <pre> +CI PCSGP:&lt;mode&gt; Gprs Config APN:&lt;apn&gt; Gprs Config UserId:&lt;user name&gt; Gprs Config Password:&lt;password&gt; +CLPORT:&lt;port&gt; +CIPHEAD:&lt;mode&gt; +CIPSHOWTP:&lt;mode&gt; +CIPSRIP:&lt;mode&gt; +CIPATS:&lt;mode&gt;,&lt;time&gt; +CIPSPRT:&lt;send prompt&gt; +CIPQSEND:&lt;n&gt; +CIPMODE:&lt;mode&gt; +CIPCCFG:&lt;NmRetry&gt;,&lt;WaitTm&gt;,&lt;SendSz&gt;,&lt;esc&gt; +CIPMUX:&lt;n&gt; +CIPDPPD:&lt;mode&gt;,&lt;interval&gt;,&lt;timer&gt; +CIPRXGET:&lt;mode&gt; +CIPQRCLOSE:&lt;mode&gt; +CIPUDPMODE:&lt;mode&gt;  OK </pre> |
|  | <p>Parameters</p> <pre> &lt;mode0&gt; 0 Saved, the value from NVRAM           1 Unsaved, the value from RAM </pre> <p>For other parameters, see the related command.</p>  |
| <p>Execution Command</p> <p><b>AT+CIPSCONT</b></p> | <p>Response</p> <p>Module saves current TCPIP Application Contexts to NVRAM. When system is rebooted, the parameters will be loaded automatically.</p> <p><b>OK</b></p>   |
| <p>Reference</p>                                   | <p>Note</p>   |

### 8.2.29 AT+CIPTXISS Discard Input AT Data in TCP Data Send

|  |  |
|--|--|
| <p><b>AT+CIPTXISS Discard Input AT Data in TCP Data Send</b></p> |  |
| <p>Test Command</p> <p><b>AT+CIPTXISS</b></p> <p><b>=?</b></p>   | <p>Response</p> <p><b>+CIPTXISS</b> : (list of supported &lt;mode&gt;s)</p> <p><b>OK</b></p> |



|   |  |
|---|--|
|   | Parameter<br>See Write Command   |
| Read Command<br><b>AT+CIPTXISS?</b>                         | Response<br><b>+CIPTXISS : &lt;mode&gt;</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command   |
| Write Command<br><b>AT+CIPTXISS</b><br><b>=&lt;mode&gt;</b> | Response<br><b>OK</b><br><b>ERROR</b>  |
|   | Parameter<br><b>&lt;mode&gt;</b> <u>0</u> Disable<br>1    Enable, discard the input AT data while the TCPIP data is sent to serial port. |
| Reference   | Note   |

## 9 AT Commands for IP Application

### 9.1 Overview

| Command  | Description                                  |
|----------|--|
| AT+SAPBR | BEARER SETTINGS FOR APPLICATIONS BASED ON IP |

### 9.2 Detailed Descriptions of Commands

#### 9.2.1 AT+SAPBR Bearer Settings for Applications Based on IP

| AT+SAPBR Bearer Settings for Applications Based on IP                          |  |
|--|--|
| Test Command<br>AT+SAPBR=?   | <p>Response</p> <p><b>+SAPBR: (0-5),(1-3), "ConParamTag","ConParamValue"</b></p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Write Command<br>AT+SAPBR<br>=<cmd_type>,<cid>[,<ConParamTag>,<ConParamValue>] | <p>Response</p> <p><b>OK</b></p> <p>If &lt;cmd_type&gt; = 2<br/><b>+SAPBR: &lt;cid&gt;,&lt;Status&gt;,&lt;IP_Addr&gt;</b></p> <p><b>OK</b></p> <p>If &lt;cmd_type&gt;=4<br/><b>+SAPBR:</b><br/><b>&lt;ConParamTag&gt;,&lt;ConParamValue&gt;</b></p> <p><b>OK</b></p> <p>Unsolicited Result Code</p> <p><b>+SAPBR &lt;cid&gt;: DEACT</b></p> <p>Parameters</p> <p><b>&lt;cmd_type&gt;</b></p> <ul style="list-style-type: none"> <li>0 Close bearer</li> <li>1 Open bearer</li> <li>2 Query bearer</li> <li>3 Set bearer parameters</li> <li>4 Get bearer parameters</li> </ul> |

|           |  |
|-----------|--|
|           | <p>5 Save the values of parameters to NVRAM</p> <p><b>&lt;cid&gt;</b> Bearer profile identifier</p> <p><b>&lt;Status&gt;</b></p> <p>0 Bearer is connecting</p> <p>1 Bearer is connected</p> <p>2 Bearer is closing</p> <p>3 Bearer is closed</p> <p><b>&lt;ConParamTag&gt;</b> Bearer parameter</p> <p>"CONTYPE" Type of Internet connection. Value refer to &lt;ConParamValue_ConType&gt;</p> <p>"APN" Access point name string: maximum 50 characters</p> <p>"USER" User name string: maximum 50 characters</p> <p>"PWD" Password string: maximum 50 characters</p> <p>"PHONENUM" Phone number for CSD call</p> <p>"RATE" CSD connection rate. For value refer to &lt;ConParamValue_Rate&gt;</p> <p><b>&lt;ConParamValue&gt;</b> Bearer paramer value</p> <p><b>&lt;ConParamValue_ConType&gt;</b></p> <p>"CSD" Circuit-switched data call.</p> <p>"GPRS" GPRS connection.</p> <p><b>&lt;ConParamValue_Rate&gt;</b></p> <p>0 2400</p> <p>1 4800</p> <p>2 9600</p> <p>3 14400</p> <p><b>&lt;IP_Addr&gt;</b> The IP address of bearer</p> |
| Reference | <p>Note</p> <p>This command is applied to activate some applications such as HTTP, FTP.</p>  |

## 10 AT Commands for HTTP Application

SIM900 has an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet HTTP service. This chapter is a reference guide to all the AT commands and responses defined to use with the TCP/IP stack in HTTP Service.

### 10.1 Overview

| Command       | Description                   |
|---------------|-------------------------------|
| AT+HTTPINIT   | INITIALIZE HTTP SERVICE       |
| AT+HTTPTERM   | TERMINATE HTTP SERVICE        |
| AT+HTTPPARA   | SET HTTP PARAMETERS VALUE     |
| AT+HTTPDATA   | INPUT HTTP DATA               |
| AT+HTTPACTION | HTTP METHOD ACTION            |
| AT+HTTPREAD   | READ THE HTTP SERVER RESPONSE |
| AT+HTTPSCONT  | SAVE HTTP APPLICATION CONTEXT |

### 10.2 Detailed Descriptions of Commands

#### 10.2.1 AT+HTTPINIT Initialize HTTP Service

| AT+HTTPINIT                      | Initialize HTTP Service   |
|----------------------------------|---|
| Test Command<br>AT+HTTPINIT=?    | Response<br><b>OK</b>   |
| Execution Command<br>AT+HTTPINIT | Response<br><b>OK</b><br><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Reference                        | Note<br>HTTPINIT should first be executed to initialize the HTTP service.                               |

#### 10.2.2 AT+HTTPTERM Terminate HTTP Service

| AT+HTTPTERM | Terminate HTTP Service |
|-------------|------------------------|
|-------------|------------------------|

|   |   |
|---|---|
| Test Command<br><b>AT+HTTPTERM=?</b>    | Response<br><b>OK</b>   |
| Execution command<br><b>AT+HTTPTERM</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
| Reference                               | Note  |

### 10.2.3 AT+HTTTPARA Set HTTP Parameters Value

| <b>AT+HTTTPARA Set HTTP Parameters Value</b>                                   |  |
|--|--|
| Test Command<br><b>AT+HTTTPARA=?</b>   | Response<br><b>+HTTTPARA: "HTTPParamTag","HTTPParmValue"</b><br><b>OK</b>  |
|  | Parameters<br>See Write Command  |
| Read Command<br><b>AT+HTTTPARA?</b>  | Response<br><b>+HTTTPARA: &lt;HTTPParamTag&gt;,&lt;HTTPParmValue&gt;</b><br><b>OK</b>  |
|  | Parameters<br>See Write Command  |
| Write Command<br><b>AT+HTTTPARA=&lt;HTTPParamTag&gt;,&lt;HTTPParmValue&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameters<br><b>&lt;HTTPParamTag&gt;</b> HTTP Parameter<br><br>"CID" (Mandatory Parameter) Bearer profile identifier<br>"URL" (Mandatory Parameter) HTTP client URL<br><a href="http://server/path:tcpPort">"http://server/path:tcpPort"</a><br>"server": FQDN or IP-address<br>"path": path of file or directory |

|           |  |   |
|-----------|--|---|
|           | <p>"UA"</p> <p>"PROIP"</p> <p>"PROPORT"</p> <p>"REDIR"</p> <p>"BREAK"</p> <p>"BREAKEND"</p> <p>"TIMEOUT"</p> <p>"CONTENT"</p> <p><b>&lt;HTTPParamValue&gt;</b></p> | <p>"tcpPort": default value is 80.<br/>Refer to "IETF-RFC 2616".</p> <p>The user agent string which is set by the application to identify the mobile. Usually this parameter is set as operation system and software version information.<br/>Default value is "SIMCOM_MODULE".</p> <p>The IP address of HTTP proxy server</p> <p>The port of HTTP proxy server</p> <p>This flag controls the redirection mechanism of the SIM900 when it is acting as HTTP client (numeric). If the server sends a redirect code (range 30x), the client will automatically send a new HTTP request when the flag is set to (1).<br/>Default value is 0 (no redirection).</p> <p>Parameter for HTTP method "GET", used for resuming broken transfer.</p> <p>Parameter for HTTP method "GET", used for resuming broken transfer. which is used together with "BREAK",<br/>If the value of "BREAKEND" is bigger than "BREAK", the transfer scope is from "BREAK" to "BREAKEND".<br/>If the value of "BREAKEND" is smaller than "BREAK", the transfer scope is from "BREAK" to the end of the file.</p> <p>If both "BREAKEND" and "BREAK" are 0, the resume broken transfer function is disabled.<br/>HTTP session timeout value, scope: 30-1000 second.<br/>Default value is 120 seconds.<br/>HTTP Parameter value. Type and supported content depend on related &lt;HTTPParamTag&gt;.</p> <p>Used to set the "Content-Type" field in HTTP header.</p> <p>HTTP Parameter value. Type and supported content depend on related &lt;HTTPParamTag&gt;.</p> |
| Reference | <p>Note<br/>Not all the HTTP Server supports "BREAK" and "BREAKEND" parameters</p>   |   |

## 10.2.4 AT+HTTPDATA Input HTTP Data

| AT+HTTPDATA Input HTTP Data  |  |
|--|--|
| Test Command<br><b>AT+HTTPDATA<br/>=?</b>                          | Response<br><b>+HTTPDATA:</b> (list of supported <size>s),(list of supported <time>s)<br><br><b>OK</b>   |
|  | Parameters<br>See Write Command  |
| Write Command<br><b>AT+HTTPDATA<br/>=&lt;size&gt;,&lt;time&gt;</b> | Response<br><b>DOWNLOAD</b><br><br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |
|  | Parameters<br><b>&lt;size&gt;</b> Size in bytes of the data to POST.<br>1-102400 or 1-318976 (bytes) the maximum size depends on the module.<br>0 means delete all the content.<br><b>&lt;time&gt;</b> 1000-120000 (millisecond) Maximum time in milliseconds to input data. |
| Reference  | Note<br>It is strongly recommended to set enough time to input all data with the length of <size>.   |

## 10.2.5 AT+HTTPACTION HTTP Method Action

| AT+HTTPACTION HTTP Method Action                          |   |
|---|---|
| Test Command<br><b>AT+HTTPACTI<br/>ON=?</b>               | Response<br><b>+HTTPACTION: (0-2)</b><br><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+HTTPACTI<br/>ON=&lt;Method&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |

Unsolicited Result Code

**+HTTPACTION: <Method>,<StatusCode>,<DataLen>**

Parameter

**<Method>** HTTP method specification:

- 0 GET
- 1 POST
- 2 HEAD

**<StatusCode>** HTTP Status Code responded by remote server, it identifier refer to HTTP1.1(RFC2616)

- 100 Continue
- 101 Switching Protocols
- 200 OK
- 201 Created
- 202 Accepted
- 203 Non-Authoritative Information
- 204 No Content
- 205 Reset Content
- 206 Partial Content
- 300 Multiple Choices
- 301 Moved Permanently
- 302 Found
- 303 See Other
- 304 Not Modified
- 305 Use Proxy
- 307 Temporary Redirect
- 400 Bad Request
- 401 Unauthorized
- 402 Payment Required
- 403 Forbidden
- 404 Not Found
- 405 Method Not Allowed
- 406 Not Acceptable
- 407 Proxy Authentication Required
- 408 Request Time-out
- 409 Conflict
- 410 Gone
- 411 Length Required
- 412 Precondition Failed
- 413 Request Entity Too Large
- 414 Request-URI Too Large



|           |   |
|-----------|---|
|           | <p>415 Unsupported Media Type<br/> 416 Requested range not satisfiable<br/> 417 Expectation Failed<br/> 500 Internal Server Error<br/> 501 Not Implemented<br/> 502 Bad Gateway<br/> 503 Service Unavailable<br/> 504 Gateway Time-out<br/> 505 HTTP Version not supported<br/> 600 Not HTTP PDU<br/> 601 Network Error<br/> 602 No memory<br/> 603 DNS Error<br/> 604 Stack Busy</p> <p>&lt;DataLen&gt; the length of data got</p> |
| Reference | Note  |

### 10.2.6 AT+HTTPREAD Read the HTTP Server Response

| AT+HTTPREAD Read the HTTP Server Response                                   |  |
|---|--|
| Test Command<br><b>AT+HTTPREAD=?</b>  | <p>Response</p> <p><b>+HTTPREAD:</b> (list of supported &lt;start_address&gt;s),(list of supported &lt;byte_size&gt;s)</p> <p><b>OK</b></p> <p>Parameters<br/>See Write Command</p>  |
| Write Command<br><b>AT+HTTPREAD=&lt;start_address&gt;,&lt;byte_size&gt;</b> | <p>Response</p> <p><b>+HTTPREAD: &lt;data_len&gt;</b><br/><b>&lt;data&gt;</b></p> <p><b>OK</b></p> <p>Read data when AT+HTTPACTION=0 or AT+HTTPDATA is executed.</p> <p>If &lt;byte_size&gt; is bigger than the data size received, module will only return actual data size.</p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> |

|   |   |
|---|---|
|   | <p>Parameters</p> <p><b>&lt;data&gt;</b> Data from HTTP server or user input.</p> <p><b>&lt;start_address&gt;</b> The starting point for data output.<br/>1-318976 or 1-102400 (bytes), the max value is due to the module used.</p> <p><b>&lt;byte_size&gt;</b> The length for data output.<br/>1-318976 or 1-102400 (bytes), the max value is due to the module used.</p> <p><b>&lt;data_len&gt;</b> The actual length for data output.</p> |
| <p>Execution Command<br/><b>AT+HTTPREAD</b></p> | <p>Response</p> <p><b>+HTTPREAD:&lt;data_len&gt;</b></p> <p><b>&lt;data&gt;</b></p> <p><b>OK</b></p> <p>Read all data when AT+HTTPACTION=0 or AT+HTTPDATA is executed.</p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p>   |
| Reference                                       | Note  |

### 10.2.7 AT+HTTPSCONT Save HTTP Application Context

| <b>AT+HTTPSCONT Save HTTP Application Context</b> |   |
|---|---|
| <p>Read Command<br/><b>AT+HTTPSCONT?</b></p>      | <p>Response</p> <p>TA returns HTTP Application Context, which consists of the following AT Command parameters.</p> <p><b>+HTTPSCONT:&lt;mode&gt;</b></p> <p><b>CID:&lt;value&gt;</b></p> <p><b>URL: &lt;value&gt;</b></p> <p><b>UA: &lt;value&gt;</b></p> <p><b>PROIP: &lt;value&gt;</b></p> <p><b>PROPORT: &lt;value&gt;</b></p> <p><b>REDIR: &lt;value&gt;</b></p> <p><b>BREAK: &lt;value&gt;</b></p> <p><b>BREAKEND: &lt;value&gt;</b></p> <p><b>OK</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b>    0    Saved, the value from NVRAM<br/>                 1    Unsaved, the value from RAM</p> |

|  |  |
|--|--|
|  | For other parameters, see the related command.   |
| <p>Execution<br/>Command<br/><b>AT+HTTPSCONT</b></p> | <p>Response<br/>TA saves HTTP Application Context which consists of following AT Command parameters, and when system is rebooted, the parameters will be loaded automatically.</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> |
|  | Parameter  |
| Reference  | Note   |

## 11 AT Commands for FTP Application

SIM900 has an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet FTP service. This chapter is a reference guide to all the AT commands and responses defined for using with the TCP/IP stack in FTP Service.

### 11.1 Overview

| Command       | Description                                  |
|---------------|--|
| AT+FTPPORT    | SET FTP CONTROL PORT                         |
| AT+FTPMODE    | SET ACTIVE OR PASSIVE FTP MODE               |
| AT+FTPSTYPE   | SET THE TYPE OF DATA TO BE TRANSFERRED       |
| AT+FTPPUTOPT  | SET FTP PUT TYPE                             |
| AT+FTPCID     | SET FTP BEARER PROFILE IDENTIFIER            |
| AT+FTPREST    | SET RESUME BROKEN DOWNLOAD                   |
| AT+FTPSERV    | SET FTP SERVER ADDRESS                       |
| AT+FTPUN      | SET FTP USER NAME                            |
| AT+FTPPW      | SET FTP PASSWORD                             |
| AT+FTPGETNAME | SET DOWNLOAD FILE NAME                       |
| AT+FTPGETPATH | SET DOWNLOAD FILE PATH                       |
| AT+FTPPUTNAME | SET UPLOAD FILE NAME                         |
| AT+FTPPUTPATH | SET UPLOAD FILE PATH                         |
| AT+FTPGET     | DOWNLOAD FILE                                |
| AT+FTPPUT     | SET UPLOAD FILE                              |
| AT+FTPSCONT   | SAVE FTP APPLICATION CONTEXT                 |
| AT+FTPDELE    | DELETE SPECIFIED FILE IN FTP SERVER          |
| AT+FTPSIZE    | GET THE SIZE OF SPECIFIED FILE IN FTP SERVER |
| AT+FTPSTATE   | GET THE FTP STATE                            |

### 11.2 Detailed Descriptions of Commands

#### 11.2.1 AT+FTPPORT Set FTP Control Port

| AT+FTPPORT                       | Set FTP Control Port |
|----------------------------------|----------------------|
| Test Command<br>AT+FTPPORT<br>=? | Response<br><br>OK   |

|   |   |
|---|---|
| Read Command<br><b>AT+ FTPPORT?</b>                   | Response<br><b>+FTPPORT: &lt;value&gt;</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPPORT<br/>=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>           |
|   | Parameter<br><b>&lt;value&gt;</b> The value of FTP Control port, from 1 to 65535.<br>Default value is 21      |
| Reference   | Note<br>Numbers above 65535 are illegal as the port identification fields are 16 bits long in the TCP header. |

### 11.2.2 AT+FTPMODE Set Active or Passive FTP Mode

|   |   |
|---|---|
| <b>AT+FTPMODE</b>                                     | <b>Set Active or Passive FTP Mode</b>   |
| Test Command<br><b>AT+FTPMODE<br/>=?</b>              | Response<br><br><b>OK</b>   |
| Read Command<br><b>AT+FTPMODE?</b>                    | Response<br><b>+FTPMODE: &lt;value&gt;</b><br><br><b>OK</b>   |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPMODE<br/>=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameter<br><b>&lt;value&gt;</b> 0 Active FTP mode<br>1 Passive FTP mode                           |
| Reference   | Note  |

### 11.2.3 AT+FTPTYPE Set the Type of Data to Be Transferred

| <b>AT+FTPTYPE Set the Type of Data to Be Transferred</b> |  |
|--|--|
| Test Command<br><b>AT+FTPTYPE=?</b>                      | Response<br><b>OK</b>  |
| Read Command<br><b>AT+FTPTYPE?</b>                       | Response<br><b>+FTPTYPE: &lt;value&gt;</b><br><b>OK</b>  |
|  | Parameter<br>See Write Command   |
| Write Command<br><b>AT+FTPTYPE=&lt;value&gt;</b>         | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>  |
|  | Parameter<br><b>&lt;value&gt;</b> "A" For FTP ASCII sessions<br>"I" For FTP Binary sessions  |
| Reference  | Note<br>When this value is set to A, all the data sent by the stack to the FTP server is made of 7 bits characters (NVT-ASCII: the MSB is set to 0). As a consequence binary data containing 8 bits characters will be corrupted during the transfer if the FTPTYPE is set to A. |

### 11.2.4 AT+FTPPUTOPT Set FTP Put Type

| <b>AT+FTPPUTOPT Set FTP Put Type</b>                 |   |
|--|---|
| Test Command<br><b>AT+FTPPUTOPT=T=?</b>              | Response<br><b>OK</b>                                     |
| Read Command<br><b>AT+FTPPUTOPT=T?</b>               | Response<br><b>+FTPPUTOPT: &lt;value&gt;</b><br><b>OK</b> |
|  | Parameter<br>See Write Command                            |
| Write Command<br><b>AT+FTPPUTOPT=T=&lt;value&gt;</b> | Response<br><b>OK</b>                                     |

|           |  |
|-----------|--|
|           | <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p>   |
|           | <p>Parameter<br/> <b>&lt;value&gt;</b>    "APPE"    For appending file<br/>                   "STOU"    For storing unique file<br/>                   "<u>STOR</u>"    For storing file</p> |
| Reference | Note   |

### 11.2.5 AT+FTPCID Set FTP Bearer Profile Identifier

| <b>AT+FTPCID Set FTP Bearer Profile Identifier</b>      |   |
|---|---|
| <p>Test Command<br/><b>AT+FTPCID=?</b></p>              | <p>Response<br/><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Read Command<br/><b>AT+FTPCID?</b></p>               | <p>Response<br/><b>+ FTPCID: &lt;value&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+FTPCID=&lt;value&gt;</b></p> | <p>Response<br/><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;value&gt;</b>    Bearer profile identifier refer to AT+SAPBR</p> |
| Reference   | Note  |

### 11.2.6 AT+FTPREST Set Resume Broken Download

| <b>AT+FTPREST Set Resume Broken Download</b> |                               |
|--|-------------------------------|
| <p>Test Command<br/><b>AT+FTPREST=?</b></p>  | <p>Response<br/><b>OK</b></p> |

|  |   |
|--|---|
| Read Command<br><b>AT+FTPREST?</b>               | Response<br><b>+FTPREST: &lt;value&gt;</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPREST=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|  | Parameter<br><b>&lt;value&gt;</b> Broken point to be resumed  |
| Reference  | Note  |

### 11.2.7 AT+FTPSERV Set FTP Server Address

|  |   |
|--|---|
| <b>AT+FTPSERV Set FTP Server Address</b>         |   |
| Test Command<br><b>AT+FTPSERV=?</b>              | Response<br><br><b>OK</b>   |
| Read Command<br><b>AT+FTPSERV?</b>               | Response<br><b>+FTPSERV: &lt;value&gt;</b><br><br><b>OK</b>   |
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPSERV=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b>   |
|  | Parameter<br><b>&lt;value&gt;</b> 32-bit number in dotted-decimal notation (i.e. xxx.xxx.xxx.xxx) or alphanumeric ASCII text string up to 49 characters if DNS is available |
| Reference  | Note  |



### 11.2.8 AT+FTPUN Set FTP User Name

| AT+FTPUN Set FTP User Name                     |   |
|--|---|
| Test Command<br><b>AT+FTPUN=?</b>              | <p>Response</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| Read Command<br><b>AT+FTPUN?</b>               | <p>Response</p> <p><b>+FTPUN: &lt;value&gt;</b></p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p>   |
| Write Command<br><b>AT+FTPUN=&lt;value&gt;</b> | <p>Response</p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;value&gt;</b> Alphanumeric ASCII text string up to 49 characters.</p> |
| Reference                                      | Note  |

### 11.2.9 AT+FTPPW Set FTP Password

| AT+FTPPW Set FTP Password          |   |
|------------------------------------|---|
| Test Command<br><b>AT+FTPPW =?</b> | <p>Response</p> <p><b>OK</b></p> <p>Parameter<br/>See Write Command</p> |
| Read Command<br><b>AT+FTPPW?</b>   | <p>Response</p> <p><b>+FTPPW: &lt;value&gt;</b></p> <p><b>OK</b></p>    |

|  |   |
|--|---|
|  | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPPW</b><br>=<value> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|  | Parameter<br><value> Alphanumeric ASCII text string up to 49 characters.                            |
| Reference                                    | Note  |

### 11.2.10 AT+FTPGETNAME Set Download File Name

|   |   |
|---|---|
| <b>AT+FTPGETNAME Set Download File Name</b>         |   |
| Test Command<br><b>AT+FTPGETNAME=?</b>              | Response<br><b>OK</b>   |
| Read Command<br><b>AT+FTPGETNAME?</b>               | Response<br><b>+FTPGETNAME: &lt;value&gt;</b><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPGETNAME=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameter<br><value> Alphanumeric ASCII text string up to 99 characters                             |
| Reference   | Note  |

### 11.2.11 AT+FTPGETPATH Set Download File Path

|   |                       |
|---|-----------------------|
| <b>AT+FTPGETPATH Set Download File Path</b> |                       |
| Test Command<br><b>AT+FTPGETPATH=?</b>      | Response<br><b>OK</b> |

|   |  |
|---|--|
| <p>Read Command<br/><b>AT+FTPGETPATH?</b></p>               | <p>Response<br/><b>+FTPGETPATH: &lt;value&gt;</b><br/><br/><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+FTPGETPATH=&lt;value&gt;</b></p> | <p>Response<br/><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;value&gt;</b>     Alphanumeric ASCII text string up to 99 characters</p> |
| <p>Reference</p>  | <p>Note</p>  |

### 11.2.12 AT+FTPPUTNAME Set Upload File Name

| <p><b>AT+FTPPUTNAME Set Upload File Name</b></p>            |  |
|---|--|
| <p>Test Command<br/><b>AT+FTPPUTNAME=?</b></p>              | <p>Response<br/><br/><b>OK</b></p>   |
| <p>Read Command<br/><b>AT+FTPPUTNAME?</b></p>               | <p>Response<br/><b>+FTPPUTNAME: &lt;value&gt;</b><br/><br/><b>OK</b></p> <p>Parameter<br/>See Write Command</p>  |
| <p>Write Command<br/><b>AT+FTPPUTNAME=&lt;value&gt;</b></p> | <p>Response<br/><b>OK</b><br/>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;value&gt;</b>     Alphanumeric ASCII text string up to 99 characters</p> |
| <p>Reference</p>  | <p>Note</p>  |

### 11.2.13 AT+FTPPUTPATH Set Upload File Path

| AT+FTPPUTPATH Set Upload File Path                  |   |
|---|---|
| Test Command<br><b>AT+FTPPUTPATH=?</b>              | Response<br><b>OK</b>   |
| Read Command<br><b>AT+FTPPUTPATH?</b>               | Response<br><b>+FTPPUTPATH: &lt;value&gt;</b><br><b>OK</b>  |
|   | Parameter<br>See Write Command  |
| Write Command<br><b>AT+FTPPUTPATH=&lt;value&gt;</b> | Response<br><b>OK</b><br>If error is related to ME functionality:<br><b>+CME ERROR: &lt;err&gt;</b> |
|   | Parameter<br><b>&lt;value&gt;</b> Alphanumeric ASCII text string up to 99 characters                |
| Reference   | Note  |

### 11.2.14 AT+FTPGET Download File

| AT+FTPGET Download File  |   |
|--|---|
| Test Command<br><b>AT+FTPGET=?</b>                                 | Response<br><b>OK</b>   |
| Write Command<br><b>AT+FTPGET=&lt;mode&gt;[,&lt;reqlength&gt;]</b> | Response<br>If mode is 1 and it is a successful FTP get session:<br><b>OK</b><br><b>+FTPGET:1,1</b><br><br>If data transfer finished:<br><b>+FTPGET:1,0</b><br><br>If mode is 1 and it is a failed FTP get session:<br><b>OK</b><br><b>+FTPGET:1,&lt;error&gt;</b><br><br>If mode is 2:<br><b>+FTPGET:2,&lt;cnflength&gt;</b> |

|           |  |
|-----------|--|
|           | <p><b>012345678...</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameters</p> <p><b>&lt;mode&gt;</b> 1 For opening FTP get session<br/>2 For reading FTP download data.</p> <p><b>&lt;reqlength&gt;</b> Requested number of data bytes (1-1460)to be read</p> <p><b>&lt;cnflength&gt;</b> Confirmed number of data bytes to be read, which may be less than &lt;length&gt;. 0 indicates that no data can be read.</p> <p><b>&lt;error&gt;</b></p> <ul style="list-style-type: none"> <li>61 Net error</li> <li>62 DNS error</li> <li>63 Connect error</li> <li>64 Timeout</li> <li>65 Server error</li> <li>66 Operation not allow</li> <li>70 Replay error</li> <li>71 User error</li> <li>72 Password error</li> <li>73 Type error</li> <li>74 Rest error</li> <li>75 Passive error</li> <li>76 Active error</li> <li>77 Operate error</li> <li>78 Upload error</li> <li>79 Download error</li> </ul> |
| Reference | <p>Note</p> <p>When "+FTPGET:1,1" is shown, then use AT+FTPGET:2,&lt;reqlength&gt; to read data. If the module still has unread data, "+FTPGET:1,1" will be shown again in a certain time.</p>   |

### 11.2.15 AT+FTPPUT Set Upload File

| <b>AT+FTPPUT Set Upload File</b>  |   |
|---|---|
| Test Command<br><b>AT+FTPPUT=?</b>  | Response<br><br><b>OK</b>   |
| Write Command<br><b>AT+FTPPUT<br/>=&lt;mode&gt;[,&lt;reqlen<br/>ngth&gt;]</b> | Response<br>If mode is 1 and it is a successful FTP get session:<br><b>OK</b><br><b>+FTPPUT:1,1,&lt;maxlength&gt;</b><br><br>If mode is 1 and it is a failed FTP get session: |

|           |   |
|-----------|---|
|           | <p><b>OK</b></p> <p><b>+FTPPUT:1,&lt;error&gt;</b></p> <p>If mode is 2 and &lt;reqlength&gt; is not 0</p> <p><b>+FTPPUT:2,&lt;cnflength&gt;</b></p> <p>..... //Input data</p> <p><b>OK</b></p> <p>If mode is 2 and &lt;reqlength&gt; is 0, it will respond OK, and FTP session will be closed</p> <p><b>OK</b></p> <p>If data transfer finished.</p> <p><b>+FTPPUT:1,0</b></p> <p>If error is related to ME functionality:</p> <p><b>+CME ERROR: &lt;err&gt;</b></p>                                  |
|           | <p>Parameters</p> <p><b>&lt;mode&gt;</b>      1 For opening FTP put session<br/>                  2 For writing FTP upload data.</p> <p><b>&lt;reqlength&gt;</b>   Requested number of data bytes(0-&lt;maxlength&gt;) to be transmitted</p> <p><b>&lt;cnflength&gt;</b>   Confirmed number of data bytes to be transmitted</p> <p><b>&lt;maxlength&gt;</b>   The max. length of data can be sent at a time. It depends on the network status.</p> <p><b>&lt;error&gt;</b>        See "AT+FTPGET"</p> |
| Reference | <p>Note</p> <p>When "+FTPPUT:1,1,&lt;maxlength&gt;" is shown, then use "AT+FTPPUT=2,&lt;reqlength&gt;" to write data.</p>   |

### 11.2.16 AT+FTPSCONT Save FTP Application Context

| <b>AT+FTPSCONT Save FTP Application Context</b> |  |
|---|--|
| Read Command<br><b>AT+FTPSCONT ?</b>            | <p>Response</p> <p>TA returns FTP Application Context, which consists of the following AT Command parameters.</p> <p><b>+FTPSCONT:&lt;mode&gt;</b></p> <p><b>+FTPSERV: &lt;value&gt;</b></p> <p><b>+FTPPORT: &lt;value&gt;</b></p> <p><b>+FTPUN: &lt;value&gt;</b></p> <p><b>+FTPPW: &lt;value&gt;</b></p> |

|  |  |
|--|--|
|  | <p>+FTPCID: &lt;value&gt;<br/>         +FTPMODE: &lt;value&gt;<br/>         +FTPTYPE: &lt;value&gt;<br/>         +FTPPUTOPT: &lt;value&gt;<br/>         +FTPREST: &lt;value&gt;<br/>         +FTPGETNAME: &lt;value&gt;<br/>         +FTPGETPATH: &lt;value&gt;<br/>         +FTPPUTNAME: &lt;value&gt;<br/>         +FTPPUTPATH: &lt;value&gt;<br/>         +FTPTIMEOUT: &lt;value&gt;<br/> <b>OK</b></p> |
|  | <p>Parameter</p> <p>&lt;mode&gt;      0    Saved, the value from NVRAM<br/>                       1    Unsaved, the value from RAM</p> <p>For other parameters, see the related command.</p>   |
| <p>Execution Command<br/> <b>AT+FTPSCONT</b></p> | <p>Response</p> <p>TA saves FTP Application Context which consist of following AT Command parameters, and when system is rebooted, the parameters will be loaded automatically.</p> <p><b>OK</b></p>   |
| Reference  | Note   |

### 11.2.17 AT+FTPDELE Delete Specified File in FTP Server

|   |   |
|---|---|
| <b>AT+FTPDELE Delete Specified File in FTP Server</b> |   |
| <p>Test Command<br/> <b>AT+FTPDELE=?</b></p>          | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p>   |
| <p>Execution Command<br/> <b>AT+FTPDELE</b></p>       | <p>Response</p> <p>If succeeded:<br/> <b>OK</b><br/> <b>+FTPDELE:1,0</b></p> <p>If failed:<br/> <b>OK</b></p> |

|           |   |
|-----------|---|
|           | <p><b>+FTPDELE:1,&lt;error&gt;</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;error&gt;</b> See "AT+FTPGET"</p> |
| Reference | <p>Note</p> <p>The file to be deleted is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.</p>   |

### 11.2.18 AT+FTPSIZE Get the Size of Specified File in FTP Server

| <b>AT+FTPSIZE Get the Size of Specified File in FTP Server</b> |   |
|--|---|
| Test Command<br><b>AT+FTPSIZE=?</b>                            | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p>   |
| Execution Command<br><b>AT+FTPSIZE</b>                         | <p>Response</p> <p>If succeeded:<br/><b>OK</b><br/><b>+FTPSIZE:1,0,&lt;size&gt;</b></p> <p>If failed:<br/><b>OK</b><br/><b>+FTPSIZE:1,&lt;error&gt;,&lt;size&gt;</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter<br/><b>&lt;error&gt;</b> See "AT+FTPGET"<br/><b>&lt;size&gt;</b> The file size. Unit: byte</p> |
| Reference  | <p>Note</p> <p>The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.</p>   |

### 11.2.19 AT+FTPSTATE Get the FTP State

| <b>AT+FTPSTATE Get the FTP State</b> |
|--------------------------------------|
|--------------------------------------|



|   |   |
|---|---|
| <p>Test Command<br/><b>AT+FTPSTATE=?</b></p>    | <p>Response</p> <p><b>OK</b></p> <p>Parameter</p>   |
| <p>Execution Command<br/><b>AT+FTPSTATE</b></p> | <p>Response</p> <p><b>+FTPSTATE:&lt;state&gt;</b></p> <p><b>OK</b></p> <p>If error is related to ME functionality:<br/><b>+CME ERROR: &lt;err&gt;</b></p> <p>Parameter</p> <p><b>&lt;state&gt;</b></p> <ul style="list-style-type: none"> <li>0 idle</li> <li>1 in the FTP session, including FTPGET, FTPPUT, FTPDELE and FTPSIZE operation.</li> </ul> |
| <p>Reference</p>                                | <p>Note</p>   |

## 12 Supported Unsolicited Result Codes

### 12.1 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 call only     |
| 40  | network personalisation PIN required          |
| 41  | network personalisation PUK required          |
| 42  | network subset personalisation PIN required   |
| 43  | network subset personalisation PUK required   |
| 44  | service provider personalisation PIN required |
| 45  | service provider personalisation PUK required |
| 46  | corporate personalisation PIN required        |
| 47  | corporate personalisation PUK required        |
| 99  | resource limitation                           |
| 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                          |
| 151 | Operation barred – Fixed dialing numbers only |

## 12.2 Summary of CMS ERROR Codes

Final result code +CMS ERROR: <err> indicates an error related to message service 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              |
| 301           | SMS 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                             |
| 323 | invalid input parameter                 |
| 324 | invalid input format                    |
| 330 | SMSC address unknown                    |
| 331 | no network                              |
| 332 | network timeout                         |
| 340 | no cnma ack                             |
| 500 | Unknown                                 |
| 512 | SIM not ready                           |
| 513 | unread records on SIM                   |
| 514 | CB error unknown                        |
| 515 | PS busy                                 |
| 517 | SIM BL not ready                        |
| 528 | Invalid (non-hex) chars inPDU           |
| 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             |

|     |                                    |
|-----|------------------------------------|
| 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 mode                   |
| 767 | Operation failed                   |
| 768 | Mux already running                |
| 769 | Unable to get control              |
| 770 | SIM network reject                 |
| 771 | Call setup in progress             |
| 772 | SIM powered down                   |
| 773 | SIM file not present               |

## 13 AT Commands Sample

### 13.1 Profile Commands

| Demonstration  | Syntax                                     | Expect Result   |
|--|--|---|
| The AT Command interpreter actively responds to input.   | AT   | OK  |
| Display the product name and the product release information.  | ATI  | SIM900 R11.0  |
| Display product identification information: the manufacturer, the product name and the product revision information. | AT+GSV                                     | SIMCOM_Ltd<br>SIMCOM_SIM900<br>Revision:1137B01SIM900M32_ST<br><br>OK                                       |
| Display current configuration, a list of the current active profile parameters.                                      | AT&V                                       | [A complete listing of the active profile]<br>OK  |
| Reporting of mobile equipment errors. The default CME error reporting setting is disabled. Switch to                 | AT+CMEE=?<br><br>AT+CMEE?<br><br>AT+CSCS=? | +CMEE: (0-2)<br><br>OK<br>+CMEE: 1<br><br>OK<br>+CSCS:<br>("IRA","GSM","UCS2","HEX","PCCP","PCDN","8859-1") |

|   |   |   |
|---|---|---|
| verbose mode<br>Displays a<br>string<br>explaining the<br>error in more<br>details.   | AT+CSCS="TEST"<br>AT+CMEE=2<br>AT+CSCS="TEST"                                   | OK<br>ERROR<br>OK<br>+CME ERROR: operation not allowed  |
| Store the<br>current<br>configuration<br>in nonvolatile<br>memory. When<br>the board is<br>reset, the<br>configuration<br>changes from<br>the last session<br>are loaded. | ATE0&W<br>AT<br>[Reset the board]<br>AT<br>ATE1&W<br>AT                         | OK<br>[No echo]<br>OK<br>[No echo]<br>OK<br>[No echo]<br>OK<br>[Echo on]<br>OK                            |
| Set the ME to<br>minimum<br>functionality   | AT+IPR?<br><br>AT+CFUN=0<br><br>AT+IPR = 115200<br><br>AT+IPR?<br><br>AT+CFUN=0 | +IPR:0<br><br>OK<br>OK<br><br>+CPIN: NOT READY<br>OK<br><br>+IPR:115200<br><br>OK<br><br>+CPIN: NOT READY |

|   |          |                   |
|---|----------|-------------------|
| ME has entered full functionality mode. | AT+CFUN? | +CFUN:1<br><br>OK |
|---|----------|-------------------|

## 13.2 SIM Commands

| Demonstration   | Syntax    | Expect Result  |
|---|-----------|--|
| List available<br>phonebooks, and<br>select the SIM<br>phonebook. | AT+CPBS=? | +CPBS:<br>("MC","RC","DC","LD","LA","ME","SM","FD",<br>"ON","BN","SD","VM","EN") |

|   |                                    |   |
|---|------------------------------------|---|
|   | AT+CPBS="SM"                       | OK<br>OK                                  |
| Display the ranges of phonebook entries and list the contents of the phonebook. | AT+CPBR=?                          | +CPBR: (1-250),40,14                      |
|   | AT+CPBR=1,10                       | OK<br>[a listing of phonebook contents]   |
|   |                                    | OK  |
| Write an entry to the current phonebook.  | AT+CPBW="1391818xxxx",129,"Daniel" | OK  |
|   | AT+CPBR=1,10                       | [a listing of phonebook contents]         |
|   |                                    | OK  |
| Find an entry in the current phonebook using a text search.                     | AT+CPBF="Daniel"                   | +CPBF:5, "13918186089",129,"Daniel"<br>OK |
| Delete an entry from the current phonebook specified by its position index.     | AT+CPBW=2                          | OK  |
|   | AT+CPBR=1,10                       | [a listing of phonebook contents]         |
|   |                                    | OK  |

### 13.3 General Commands

| Demonstration   | Syntax  | Expect Result   |
|---|---|---|
| Display the current network operator that the handset is currently registered with. | AT+COPS?  | +COPS: 0,0,"CHINA MOBILE"<br>OK   |
| Display a full list of network operator names.                                      | AT+COPN   | +COPN: "20201",<br>"COSMO"<br>[skip a bit]<br>+COPN:<br>"901012","Maritime Comm Partner AS"<br>OK |
| reduce its functionality. This will deregister the handset from the network.        | AT+IPR?<br><br>AT+CFUN=0<br>[wait for deregister]<br>ATD6241xxxx; | +IPR: 0<br><br>OK<br>OK<br>ERROR  |



|                  |           |                 |
|------------------|-----------|-----------------|
|                  | AT+CFUN=1 | OK              |
| Request the IMSI | AT+CIMI   | 460008184101641 |
|                  |           | OK              |

### 13.4 Call Control Commands

| Demonstration  | Syntax   | Expect Result   |
|--|--|---|
| Make a voice call  | ATD6241xxxx;   | OK<br>MS makes a voice call   |
| Hang up a call   | ATH  | OK<br>Call dropped  |
| Make a voice call using the last number facility. The initial call is established and then cancelled. The second call is made using the previous dial string.  | ATD6241xxxx;<br>ATH<br>ATDL                                    | OK<br>OK<br>OK  |
| Example of a MT voice call<br>Make MT voice call to MS.  | ATA<br>ATH   | RING<br>RING<br>OK[accept call]<br>OK[hang up call]   |
| Call related to supplementary service: AT+CHLD. This Command provides support for call waiting functionality.  | AT+CHLD=<N>  | Return<br>value:(0,1,1x,2,2x,3,4,6,<br>6x,7x,8x,9x)   |
| Terminate current call and accept waiting call.<br>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<br>ATD6241xxxx;<br><RX incoming call><br>AT+CHLD=1 | OK<br>OK<br>RING<br>+CCWA: "62418148 ",<br>129,1,""<br>OK<br><waiting call active>  |
| Set current call to busy state and accept waiting call.<br>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;<br><RX incoming call><br>AT+CHLD=2<br>AT+CHLD=1   | RING<br>+CCWA: "1391818<br>6089",129,1,""<br>OK<br><waiting call active other<br>call on hold><br>OK<br><incoming call terminated,<br>dialed number now active> |

|   |   |  |
|---|---|--|
| demonstration to work.  |   |  |
| <p>Switch between active and held calls.</p> <p>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 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.</p> | <p>ATD6241xxxx;</p> <p>&lt;RX incoming call&gt;</p> <p>AT+CHLD=2</p> <p>AT+CHLD=21</p> <p>AT+CLCC</p> <p>AT+CHLD=22</p> <p>AT+CHLD=12</p> <p>AT+CHLD=11</p> | <p>OK</p> <p>RING</p> <p>+CCWA: "1391818 6089",129,1,""</p> <p>OK</p> <p>&lt;incoming call activated, original on hold&gt;</p> <p>OK</p> <p>&lt;original call activated, incoming call held&gt;</p> <p>+CLCC:1,0,0,0,0,"62 418148",129,""</p> <p>+CLCC:2,1,1,0,0, "139 18186089",129, ""</p> <p>OK</p> <p>&lt;Note incoming call held flag set&gt;</p> <p>OK</p> <p>&lt;original call held, incoming call active&gt;</p> <p>OK</p> <p>&lt;terminate incoming call&gt;</p> <p>&lt;terminate original call&gt;</p> |
| <p>Send busy status to incoming waiting caller.</p> <p>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.</p>  | <p>ATD6241xxxx;</p> <p>&lt;RX incoming call&gt;</p> <p>AT+CHLD=0</p>  | <p>OK</p> <p>RING</p> <p>+CCWA: "1391818 6089",129,1,""</p> <p>OK</p> <p>OK</p> <p>&lt;incoming call sent busy msg, current call retained&gt;</p>  |
| <p>Drop all calls on hold.</p> <p>Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), switch to incoming call and drop all waiting calls.</p> <p>Note call waiting must have been previously enabled for this demonstration to work.</p>  | <p>ATD6241xxxx;</p> <p>&lt;RX incoming call&gt;</p> <p>AT+CHLD=2</p> <p>AT+CHLD=0</p>   | <p>OK</p> <p>RING</p> <p>+CCWA: "1391818 6089",129,1,""</p> <p>OK</p> <p>&lt;incoming call activated, original on hold&gt;</p> <p>OK</p> <p>&lt;incoming call activated,</p>   |

|  |  |                            |
|--|--|----------------------------|
|  |  | current call<br>terminate> |
|--|--|----------------------------|

### 13.5 SIM Toolkit Commands

| Demonstration   | Syntax                         | Expect Result  |
|---|--------------------------------|--|
| Select the 1 <sup>st</sup> menu item: individual assistance | AT*PSSTK="MENU SELECTION",1    | *PSSTK: "SELECT ITEM",0,0,,0,0,1,0,0,5   |
| Go to the menu of individual assistance                     | AT*PSSTK="GET ITEM LIST",5     | *PSSTK: "GET ITEM LIST",1,1,2,5E2E52A9,0,0,0<br>*PSSTK: "GET ITEM LIST",2,2,2,752862377BA17406,0,0,0<br>*PSSTK: "GET ITEM LIST",3,3,2,52067EC47BA17406,0,0,0<br>*PSSTK: "GET ITEM LIST",4,4,2,7FA453D16D88606F,0,0,0<br>*PSSTK: "GET ITEM LIST",5,5,2,65E57A0B63D09192,0,0,0<br>OK |
| Select 1: help  | AT*PSSTK="SELECT ITEM",1,1,0,0 | *PSSTK: "NOTIFICATION",1,19,1,2,53D190014FE1606F2026,0,0   |
| Go back to main menu  | AT*PSSTK="NOTIFICATION",1,0    | *PSSTK: "END SESSION"  |

### 13.6 Audio Commands

| Demonstration | Syntax                  | Expect Result |
|---------------|-------------------------|---------------|
| DTMF tones    | AT+CLDTMF=2,"1,2,3,4,5" | OK            |

### 13.7 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+CSCS="GSM"   | OK   |
|   | AT+CMGS="+861391818xxxx"<br>>This is a test<br><Ctrl+Z> | +CMGS:34<br><br>OK   |
| Unsolicited notification of the SMS arriving  |   | +CMTI: "SM",1  |
| Read SMS message that has just arrived.<br>Note: the number should be the same as that given in the +CMTI notification. | AT+CMGR=1   | +CMGR: "REC UNREAD",<br>"+8613918186089", "", "02/01/30,20:40:31+00"<br>This is a test<br><br>OK   |
| Reading the message again and change the status to "READ" from "UNREAD"   | AT+CMGR=1   | +CMGR: "REC READ",<br>"+8613918186089", "",<br>"02/01/30,20:40:31+00"<br>This is a test<br><br>OK  |
| Send another SMS to myself.   | AT+CMGS="+861391818xxxx"<br>>Test again<Ctrl+Z>         | +CMGS:35<br><br>OK   |
| Unsolicited notification of the SMS arriving  |   | +CMTI: "SM",2  |
| List all SMS messages.<br>Note:"ALL" must be in uppercase.  | AT+CMGL="ALL"   | +CMGL: 1, "REC READ", "+8613918186089", "", "02/01/30,20:40:31+00"<br>This is a test<br><br>+CMGL: 2, "REC UNREAD", "", "+8613918186089", "", "02/01/30,20:45:12+00"<br>Test again<br><br>OK |
| Delete an SMS message.  | AT+CMGD=1   | OK   |
| List all SMS messages to show message has been deleted.   | AT+CMGL="ALL"   | +CMGL: 2, "REC READ", "+8613918186089", "", "02/01/30,20:45:12+00"<br>Test again   |

|                                   |   |                    |
|-----------------------------------|---|--------------------|
|                                   |   | OK                 |
| Send SMS using Chinese characters | AT+CSMP=17,167,2,<br>25   | OK                 |
|                                   | AT+CSCS="UCS2"  | OK                 |
|                                   | AT+CMGS="0031003<br>300390031003800310<br>038003x003x003x003<br>x"<br>>4E014E50<Ctrl+Z> | +CMGS:36<br><br>OK |

### 13.8 GPRS Commands

| Demonstration  | Syntax   | Expect Result  |
|--|--|--|
| Establish a GPRS context.  | Setup modem driver<br><br>Setup dial up<br>connection with *99#<br><br>Run internet explorer | Should be able to surf the<br>web using Internet explorer. |
| There are two GPRS Service Codes for<br>the ATD Command: Value 88 and 99.<br>Establish a connection by service code<br>99. | ATD*99#  | CONNECT  |
| Establish a connection by service code<br>99 and using CID 1   | ATD*99***1#  | CONNECT  |
| Check if the MS is connected to the<br>GPRS network  | AT+CGATT?  | +CGATT:1<br><br>OK   |
| Detach from the GPRS network   | AT+CGATT=0   | OK   |
| Check if the MS is connected to the<br>GPRS network  | AT+CGATT?  | +CGATT: 0<br><br>OK  |
| Check the class of the MS  | AT+CGCLASS?  | +CGCLASS:B<br><br>OK                                       |
| Establish a context using the terminal<br>equipment: defines CID 1   | AT+CGDCONT=1,<br>"IP","CMNET"  | OK   |

|   |  |               |
|---|--|---------------|
| and sets the PDP type to IP, access point name and IP address aren't set. | ATD*99#                                  | CONNECT       |
| Cancel a context using the terminal equipment                             | AT+CGDCONT=1,<br>"IP","CMNET"<br>ATD*99# | OK<br>CONNECT |
| Pause data transfer and enter Command mode by +++                         | +++                                      | OK            |
| Stop the GPRS data transfer   | ATH                                      | OK            |
| Reconnect a context using the terminal equipment                          | AT+CGDCONT=1,<br>"IP","CMNET"<br>ATD*99# | OK<br>CONNECT |
| Resume the data transfer  | +++<br>ATO                               | OK<br>CONNECT |

\*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.

|  |                              |  |
|--|------------------------------|--|
| Overwrite 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,,,,<br>+CGQREQ: 3,0,0,3,0,0<br>OK  |
| Set the QOS of CID 1 to not present. Once defined, the CID can be activated.   | AT+CGQREQ=1                  | OK   |
| Activate CID 1, if the CID is already active, the mobile returns OK at once. If no CID is defined the mobile responds +CME ERROR: invalid index. Note: If the mobile is NOT attached | AT+CGACT=1,1<br>AT+CGACT=1,3 | OK<br>+CME ERROR: requested service option not |

|   |                       |             |
|---|-----------------------|-------------|
| by AT+CGATT=1 before activating, the attachment is automatically done by the AT+CGACT Command.  |                       | subscribed. |
| 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",<br>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 using an APN to establish a GPRS connection. So if user uses the Microsoft Windows Dial-Up Network and ATD\*9... to connect to GPRS, user must provide the context definition as part of the modem definition (Modem properties/Connection/Advanced.../Extra settings.) As an alternative, user 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.

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