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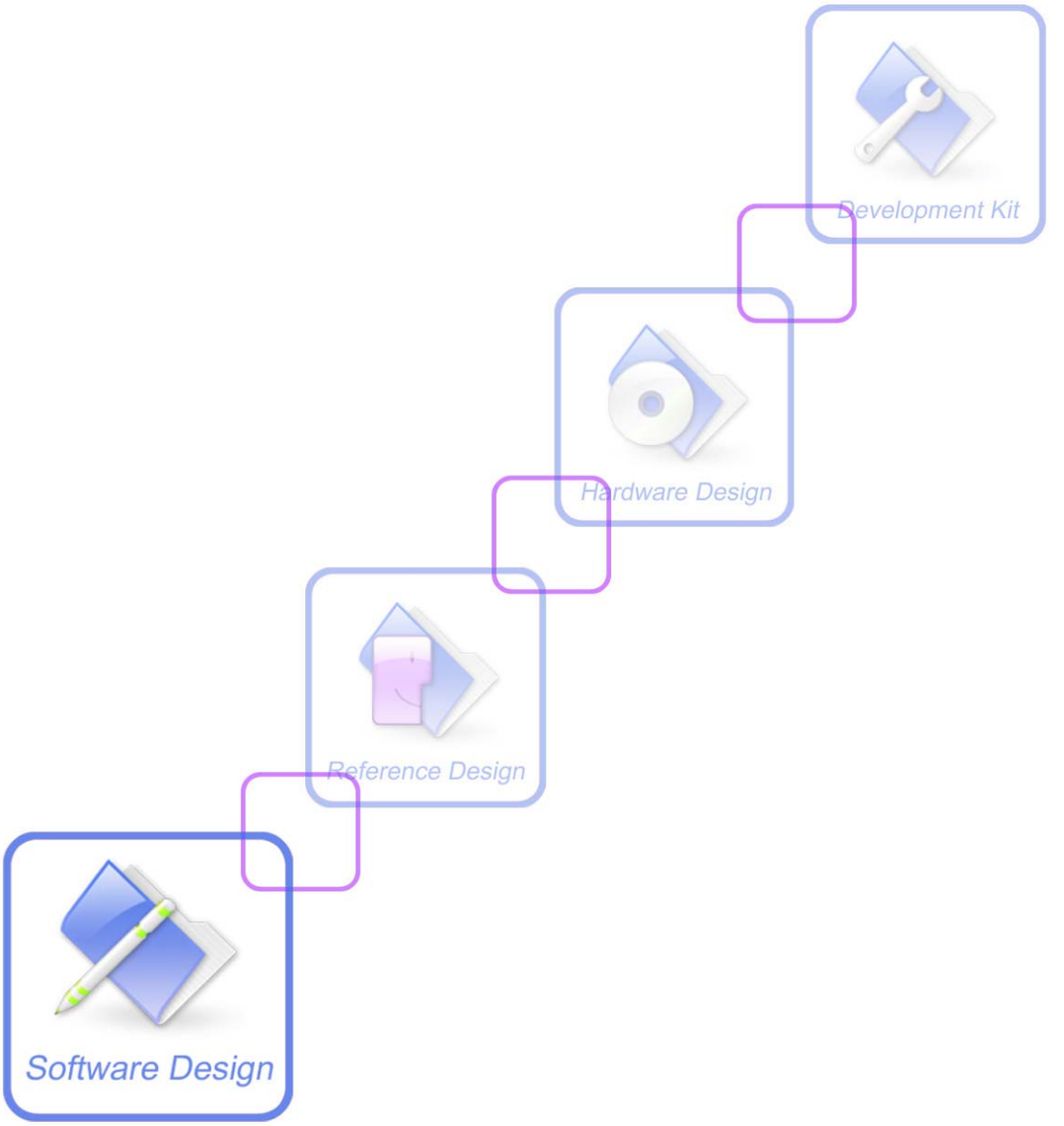
SIM900 AT Commands Manual_V1.09



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General Notes

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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+CALS	Added new command
	6.2.27 AT+CBTE	Added new command
	6.2.30 AT+STTONE	Added new command
	8.2.21 AT+CIPDPDP	Added new command
	8.2.25AT+CIPUDPMODE	Added new command
	6.2.45 AT+SGPIO	Added new command
	6.2.46 AT+SPWM	Added new command
	6.2.47 AT+ECHO	Added new command
V1.02	3.2.16 AT+CLCC	Added write command
	3.2.30 AT+CR	Added parameter GPRS
V1.03	6.2.47 AT+SPWM	Modified the command
	6.2.48 AT+ECHO	Modified the parameter scope
	6.2.50 AT+GSMBUSY	Added new command
	8.2.26 AT+CIPRXGET	Added new command
	8.2.27 AT+CIPQRCLOSE	Added new command
	8.2.28 AT+CIPSCONT	Added new command
	9.2.1 AT+SAPBR	Added new command
	10.2.x HTTP commands	Added new commands
	11.2.x FTP commands	Added new commands
V1.04	6.2.51 AT+CEMNL	Added new command
	6.2.52 AT*CELLLOCK	Added new command
	8.2.29 AT+CIPTXISS	Added new command
	6.2.53 AT+SLEDS	Added new command
V1.05	10.2.3 AT+HTTPPARA	Added new values of <HTTPParamTag>.
	8.2.29 AT+CIPTXISS	Added new command
	6.2.54 AT+CCHGMODE	Added new command
	6.2.55 AT+CBUZZERRING	Added new command
	6.2.56 AT+CEXTERNTONE	Added new command
	6.2.57 AT+CNETLIGHT	Added new command
	6.2.58 AT+CWHITELIST	Added new command
	11.2.17 AT+FTPDELE	Added new command
	11.2.18 AT+FTPSIZE	Added new command
	11.2.19 AT+FTPSTATE	Added new command
	6.2.59 AT+CUSACC	Added new command

V1.06	3.2.42 AT+CMUX	Changed the scope of parameter <T1> to 1-254.
	4.2.6 AT+CMGW	Added optional parameter <stat>.
	4.2.17 AT+CMGS=”><index>”	Added new function AT+CMGS=”><index>”.
	6.2.5 AT+CALA	Added description of URC “+CALV”.
	6.2.16 AT+CLDTMF	Added one parameter
	6.2.20 AT+CBAND	Added “GSM850_MODE” of parameter <op_band>.
	6.2.40 AT+EXUNSOL	Added parameter value “UR” of “AT+EXUNSOL” command.
	6.2.49 AT+SVR	Added description of parameter value “17”
	6.2.51 AT+CEMNL	Modified “AT+CEMNL?” read command.
	6.2.60 AT+CNETSCAN	Added new command
	6.2.61 AT+CSGS	Added new command
	8.2.6 AT+CIPCLOSE	Modified the parameter <n> to be optional. AT+CIPCLOSE=[<n>]
	8.2.23 AT+CIPCCFG	Added three parameters
	8.2.26 AT+CIPRXGET	Added description
	8.2.30 AT+CIPRDTIMER	Added new command
	10.2.8 AT+HTTPSTATUS	Added new command
	11.2.11 AT+FTPGETPATH	Extended the maximum length of
	11.2.13 AT+FTPPUTPATH	FTPGETPATH and FTPPUTPATH to 256 bytes
	11.2.21 AT+FTPMKD	Added new command
	11.2.22 AT+FTPRMD	Added new command
	11.2.23 AT+FTPLIST	Added new command
	13.7 SMS Commands	Modified the example of sending SMS using Chinese characters.
	13.9AT+CNETSCAN Command	Added CNETSCAN sample.
1.07	3.2.57 AT+CUSD	Added URC description
	6.2.21 AT+CHF	Added URC description
	6.2.62 AT+SKPD command	Added new command
	12.3 Summary of Unsolicited Result Codes	Added URC chapter
1.08	10.2.6 AT+HTTPREAD	Modified the scope of <start address> from “1-318976 or 1-102400” to “0-318976 or 0-102400”
	6.2.31 AT+STTONE	Modified the write command format to: AT+STTONE=<mode>[,<tone>,<duration>]
	6.2.63 AT+CUSD	Added new command
	1.2 Related documents	Added related standard documents
	3.2.22 AT+COPS	Added value 3 of parameter <mode>
	8.2.31 AT+CIPSTTIMER	Added new command
	8.2.3 AT+CIPSEND	Optimized the description

	8.2.28 AT+CIPSCONT	Added parameters.
	8.2.25 AT+CIPUDPMODE	Modified test command
	8.2.18 AT+CIPSERVER	Modified test command
	3.2.4 AT+CBST	Added 4800bps of parameter <speed>
	6.2.16 AT+CLDTMF	Added one parameter and extend the function
	11.2.18 AT+FTPSIZE	Modified the response of executing command
	8.2.32 AT+CIPTKA	Added new command
	8.2.33 AT+CIPOPTION	Added new command
1.09	10.2.3 AT+HTTPPARA	Added length limits descriptions of parameter "URL" and "UA".
	11.2.20 AT+FTPEXTPUT	Added value 3 of parameter <mode>
	11.2.24 AT+FTPEXTGET	Added new command
	11.2.25 AT+FTPETGET	Added new command
	11.2.26 AT+FTPETPUT	Added new command
	11.2.27 AT+FTPQUIT	Added new command
	6.2.64 AT+NETLOCK	Added new command
	6.2.65 AT+CLNWPLMN	Added new command
	8.2.29 AT+CIPTXISS	Added value 2 of parameter <mode>
	8.2.8 AT+CLPORT	Added muti-IP mode
	8.2.25 AT+CIPUDPMODE	Added muti-IP mode
	8.2.34 AT+CIPSENDHEX	Added new command

Contents

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

The present document is based on the following standards:
[1] 3GPP TS 27.005: Use of Data Terminal Equipment – Data Circuit terminating Equipment (DTE – DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS).
[2] 3GPP TS 27.007: AT command set for User Equipment (UE).
[3] ITU-T V.25 ter: Data communication over the telephone network – Serial asynchronous automatic dialing and control.
[4] TIA/EIA-578-A: Facsimile Digital Interfaces – Asynchronous Facsimile DCE Control Standard, Service Class
[5] 3GPP 27.010: Terminal Equipment to Mobile Station (TE-MS) Multiplexer protocol

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 recommend 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 **A/**	Response Re-issues the previous Command
Reference V.25ter	Note

2.2.2 ATA Answer an Incoming Call

ATA Answer an Incoming Call	
Execution Command **ATA**	Response TA sends off-hook to the remote station. Note1: Any additional commands on the same Command line are ignored. 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. Response in case of data call, if successfully connected

	CONNECT<text> TA switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>**>0 When TA returns to Command mode after call release **OK** Response in case of voice call, if successfully connected **OK** Response if no connection **NO CARRIER**
Reference V.25ter	Note See also **ATX**

2.2.3 ATD Mobile Originated Call to Dial A Number

ATD Mobile Originated Call to Dial A Number	
Execution Command **ATD<n>[<mgsm>[;]**	Response This Command can be used to set up outgoing *voice, data or fax calls*. It also serves to control *supplementary services*. Note: This Command may be aborted generally by receiving an **ATH** Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. If error is related to ME functionality **+CME ERROR: <err>** If no dial tone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY** If a connection cannot be established **NO CARRIER** If the remote station does not answer **NO ANSWER** If connection successful and non-voice call. **CONNECT<text>** TA switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>** >0

	When TA returns to Command mode after call release **OK** If connection successful and voice call **OK**
	Parameters **<n>** String of dialing digits and optionally V.25ter modifiers dialing digits: **0-9, * , #, +, A, B, C** Following V.25ter modifiers are ignored: **,(comma), T, P, !, W, @** **Emergency call:** **<n>** Standardized emergency number 112 (no SIM needed) **<mgsm>** String of **GSM** modifiers: **I** Actives **CLIR** (Disables presentation of own number to called party) **i** Deactivates **CLIR** (Enable presentation of own number to called party) **G** Activates Closed User Group invocation for this call only **g** Deactivates Closed User Group invocation for this call only **<;>** Only required to set up voice call , return to Command state
Reference V.25ter	Note ● Parameter "I" and "i" only if no *# code is within the dial string ● **<n>** is default for last number that can be dialed by **ATDL** ● *# codes sent with **ATD** are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";" ● See **ATX** Command for setting result code and call monitoring parameters. Responses returned after dialing with **ATD** ● For voice call two different responses mode can be determined. **TA** returns "**OK**" immediately either after dialing was completed or after the call is established. The setting is controlled by **AT+COLP**. Factory default is **AT+COLP=0**, this cause the **TA** returns "**OK**" immediately after dialing was completed, otherwise **TA** will returns "**OK**", "**BUSY**", "**NO DIAL TONE**", "**NO CARRIER**". Using **ATD** during an active voice call: ● When a user originates a second voice call while there is already an

	active voice call, the first call will be automatically put on hold. ● The current states of all calls can be easily checked at any time by using the **AT+CLCC** Command.

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

ATD><n> Originate Call to Phone Number in Current Memory	
Execution Command **ATD><n>[<clir>][<cug>][;]**	Response This Command can be used to dial a phone number from current phonebook memory. Note: This Command may be aborted generally by receiving an **ATH** Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. If error is related to ME functionality **+CME ERROR: <err>** If no dial tone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY** If a connection cannot be established **NO CARRIER** If the remote station does not answer **NO ANSWER** If connection successful and non-voice call. **CONNECT<text> TA** switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>** >0 When **TA** returns to Command mode after call release **OK** If successfully connected and voice call **OK**
	Parameters **<n>** Integer type memory location should be in the range of locations available in the memory used **<mgsm>** String of **GSM** modifiers:

	<clir> **I** Override the CLIR supplementary service subscription default value for this call Invocation (restrict CLI presentation) **i** Override the CLIR supplementary service subscription default value for this call Suppression (allow CLI presentation) **<cug>** **G** Control the CUG supplementary service information for this call CUG Not supported **g** Control the CUG supplementary service information for this call CUG Not supported **<;>** Only required to set up voice call , return to Command state
Reference V.25ter	Note ● Parameter "I" and "i" only if no *# code is within the dial string ● *# codes sent with **ATD** are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";" ● See **ATX** Command for setting result code and call monitoring parameters.

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

ATD><str> Originate Call to Phone Number in Memory Which Corresponds to Field <str>	
Execution Command **ATD><str>[<clir>][<cug>][;]**	Response This Command make the **TA** attempts to set up an outgoing call to stored number. All available memories are searched for the entry **<str>**. Note: This Command may be aborted generally by receiving an **ATH** Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. If error is related to ME functionality **+CME ERROR: <err>** If no dial tone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY**

	If a connection cannot be established **NO CARRIER** If the remote station does not answer **NO ANSWER** If connection successful and non-voice call. **CONNECT<text> TA** switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>** >0 When **TA** returns to Command mode after call release **OK** If successfully connected and voice call **OK**
	Parameters **<str>** 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. **str** formatted as current **TE** character set specified by **+CSCS**. **<mgsm>** String of **GSM** modifiers: **I** Actives **CLIR** (Disables presentation of own number to called party) **i** Deactivates **CLIR** (Enable presentation of own number to called party) **G** Activates Closed User Group invocation for this call only **g** Deactivates Closed User Group invocation for this call only **<;>** Only required to set up voice call, return to Command state
Reference V.25ter	Note ● Parameter "I" and "i" only if no "*#" code is within the dial string ● *# codes sent with **ATD** are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";" ● See **ATX** Command for setting result code and call monitoring parameters.

2.2.6 ATDL Redial Last Telephone Number Used

ATDL Redial Last Telephone Number Used	
Execution Command **ATDL**	Response This Command redials the last voice and data call number used. Note: This Command may be aborted generally by receiving an **ATH**

	Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking. If error is related to ME functionality **+CME ERROR: <err>** If no dial tone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY** If a connection cannot be established **NO CARRIER** If the remote station does not answer **NO ANSWER** If connection successful and non-voice call. **CONNECT<text> TA** switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>** >0 When **TA** returns to Command mode after call release **OK** If successfully connected and voice call **OK**
Reference V.25ter	Note ● See **ATX** Command for setting result code and call monitoring parameters. ● Return the numbers and symbols which **ATD** supports if there is no last dialing context.

2.2.7 ATE Set Command Echo Mode

ATE Set Command Echo Mode	
Execution Command **ATE<value>**	Response This setting determines whether or not the TA echoes characters received from TE during Command state. **OK**
	Parameter **<value>** 0 Echo mode off

	1 Echo mode on
Reference V.25ter	Note

2.2.8 ATH Disconnect Existing Connection

ATH Disconnect Existing Connection	
Execution Command **ATH[n]**	Response Disconnect existing call by local TE from Command line and terminate call **OK** Note: OK is issued after circuit 109(DCD) is turned off, if it was previously on.
	Parameter **<n>** 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. 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) 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) 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. 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. 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)
Reference V.25ter	Note

2.2.9 ATI Display Product Identification Information

ATI Display Product Identification Information	
Execution Command **ATI**	Response TA issues product information text

	Example: **SIM900 R11.0** **OK**
Reference V.25ter	Note

2.2.10 ATL Set Monitor speaker loudness

ATL Set Monitor speaker loudness	
Execution Command **ATL<value>**	Response **OK**
	Parameter **<value>** 0..9 Volume
Reference V.25ter	Note No effect in GSM

2.2.11 ATM Set Monitor Speaker Mode

ATM Set Monitor Speaker Mode	
Execution Command **ATM<value>**	Response **OK**
	Parameter **<value>** 0..9 Mode
Reference V.25ter	Note No effect in GSM

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

+++ Switch from Data Mode or PPP Online Mode to Command Mode	
Execution Command +++	Response 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. **OK** To prevent the +++ escape sequence from being misinterpreted as data, it should comply to following sequence: 1. No characters entered for T1 time (1 second) 2. "+++" characters entered with no characters in between (0.5 second) 3. No characters entered for T1 timer (0.5 second) 4. Switch to Command mode, otherwise go to step 1.
Reference	Note

V.25ter	To return from Command mode back to data mode: Enter **ATO**.

2.2.13 ATO Switch from Command Mode to Data Mode

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

2.2.14 ATP Select Pulse Dialling

ATP Select Pulse Dialling	
Execution Command **ATP**	Response **OK**
Reference V.25ter	Note No effect in GSM

2.2.15 ATQ Set Result Code Presentation Mode

ATQ Set Result Code Presentation Mode	
Execution Command **ATQ<n>**	Response This parameter setting determines whether or not the TA transmits any result code to the TE. Information text transmitted in response is not affected by this setting. If <n>=0: **OK** If <n>=1: (none)
	Parameter **<n>** 0 TA transmits result code 1 Result codes are suppressed and not transmitted
Reference	Note

V.25ter	

2.2.16 ATS0 Set Number of Rings before Automatically Answering the Call

ATS0 Set Number of Rings before Automatically Answering the Call	
Read Command **ATS0?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS0=<n>**	Response This parameter setting determines the number of rings before auto-answer. **OK** **ERROR**
	Parameter **<n>** 0 Automatic answering is disable. 1-255 Number of rings the modem will wait for before answering the phone if a ring is detected.
Reference V.25ter	Note If <n> is set too high, the calling party may hang up before the call can be answered automatically.

2.2.17 ATS3 Set Command Line Termination Character

ATS3 Set Command Line Termination Character	
Read Command **ATS3?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS3=<n>**	Response This parameter setting determines the character recognized by TA to terminate an incoming Command line. The TA also returns this character in output. **OK** **ERROR**
	Parameter **<n>** 13 Command line termination character
Reference	Note

V.25ter	Default 13=CR. It only supports default value.

2.2.18 ATS4 Set Response Formatting Character

ATS4 Set Response Formatting Character	
Read Command **ATS4?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS4=<n>**	Response This parameter setting determines the character generated by the TA for result code and information text. **OK** **ERROR**
	Parameter **<n>** 10 Response formatting character
Reference V.25ter	Note 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 **ATS5?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS5=<n>**	Response This parameter setting determines the character recognized by TA as a request to delete from the Command line the immediately preceding character. **OK** **ERROR**
	Parameter **<n>** 0-8-127 Response formatting character
Reference	Note

V.25ter	Default 8=Backspace.

2.2.20 ATS6 Pause Before Blind Dialling

ATS6 Pause Before Blind Dialling	
Read Command **ATS6?**	Response **ERROR**
Write Command **ATS6=<n>**	Response **OK** **ERROR**
	Parameter **<n>** 0..999 Time
Reference V.25ter	Note No effect in GSM

2.2.21 ATS7 Set Number of Seconds to Wait for Connection Completion

ATS7 Set Number of Seconds to Wait for Connection Completion	
Read Command **ATS7?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS7=<n>**	Response This parameter setting determines the amount of time to wait for the connection completion in case of answering or originating a call. **OK** **ERROR**
	Parameter **<n>** 1-60-255 Number of seconds to wait for connection completion
Reference V.25ter	Note ● If called party has specified a high value for ATS0=<n>, call setup may fail. ● The correlation between ATS7 and ATS0 is important ● Example: Call may fail if ATS7=30 and ATS0=20. ● ATS7 is only applicable to data call.

2.2.22 ATS8 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command

ATS8 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command	
Read Command **ATS8?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS8=<n>**	Response **OK** **ERROR**
	Parameter **<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 V.25ter	Note No effect in GSM

2.2.23 ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier

ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier	
Read Command **ATS10?**	Response **<n>** **OK**
	Parameter See Write Command
Write Command **ATS10=<n>**	Response This parameter setting determines the amount of time that the TA will remain connected in absence of data carrier. If the data carrier is once more detected before disconnecting, the TA remains connected. **OK** **ERROR**
	Parameter **<n>** 1-15-254 Number of tenths seconds of delay
Reference V.25ter	Note

2.2.24 ATT Select Tone Dialing

ATT Select Tone Dialing	
Execution Command **ATT**	Response **OK**
Reference V.25ter	Note No effect in GSM

2.2.25 ATV TA Response Format

ATV TA Response Format	
Execution Command **ATV<value>**	Response This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses. When <value>=0 **0** When <value>=1 **OK**
	Parameter **<value>** 0 Information response: <text><CR><LF> Short result code format: <numeric code><CR> 1 Information response: <CR><LF><text><CR><LF> Long result code format: <CR><LF><verbose code> <CR><LF> The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.
Reference V.25ter	Note

ATV1	ATV0	Description
OK	0	Acknowledges execution of a Command
CONNECT	1	A connection has been established; the DCE is moving from Command state to online data state
RING	2	The DCE has detected an incoming call signal from network
NO CARRIER	3	The connection has been terminated or the attempt to establish a connection failed
ERROR	4	Command not recognized, Command line maximum length exceeded, parameter value invalid, or other problem with processing the Command line
NO DIALTONE	6	No dial tone detected
BUSY	7	Engaged (busy) signal detected

NO ANSWER	8	"@" (Wait for Quiet Answer) dial modifier was used, but remote ringing followed by five seconds of silence was not detected before expiration of the connection timer (S7)
PROCEEDING	9	An AT command is being processed
CONNECT <text>	Manufacturer-specific	Same as CONNECT, but includes manufacturer-specific text that may specify DTE speed, line speed, error control, data compression, or other status

2.2.26 ATX Set CONNECT Result Code Format and Monitor Call Progress

ATX Set CONNECT Result Code Format and Monitor Call Progress	
Execution Command **ATX<value>**	Response 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. **OK** **ERROR**
	Parameter **<value>** 0 **CONNECT** result code only returned, dial tone and busy detection are both disabled. 1 **CONNECT<text>** result code only returned, dial tone and busy detection are both disabled. 2 **CONNECT<text>** result code returned, dial tone detection is enabled, busy detection is disabled. 3 **CONNECT<text>** result code returned, dial tone detection is disabled, busy detection is enabled. 4 **CONNECT<text>** result code returned, dial tone and busy detection are both enabled.
Reference V.25ter	Note

2.2.27 ATZ Reset Default Configuration

ATZ Reset Default Configuration	
Execution Command **ATZ[<value>]**	Response TA sets all current parameters to the user defined profile. **OK** **ERROR**
	Parameter **<value>** 0 Restore profile 0

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

2.2.29 AT&D Set DTR Function Mode

AT&D Set DTR Function Mode

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

2.2.30 AT&F Factory Defined Configuration

AT&F Factory Defined Configuration	
Execution Command **AT&F[<value>]**	Response TA sets all current parameters to the manufacturer defined profile. **OK**
	Parameter **<value>** 0 Set all TA parameters to manufacturer defaults.
Reference V.25ter	Note

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 Command **AT&V[<n>]**	Response TA returns the current parameter setting. <current configurations text> **OK** **ERROR**
	Parameter **<n>** 0 Responses in numeric format
Reference V.25ter	Note

2.2.32 AT&W Store Active Profile

AT&W Store Active Profile	
Execution Command **AT&W[<n>]**	Response TA stores the current parameter setting in the user defined profile. **OK** **ERROR**
	Parameter **<n>** 0 Store the current configuration in profile 0 1 Store the current configuration in profile 1
Reference V.25ter	Note 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 **AT+GCAP**	Response TA reports a list of additional capabilities. **+GCAP:** list of supported **<name>**s **OK**
	Parameter **<name>** +CGSM GSM function is supported +FCLASS FAX function is supported
Reference V.25ter	Note The command can be executed only when the SIM card is present.

2.2.34 AT+GMI Request Manufacturer Identification

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

2.2.35 AT+GMM Request TA Model Identification

AT+GMM Request TA Model Identification

Test Command **AT+GMM=?**	Response **OK**
Execution Command **AT+GMM**	TA reports one or more lines of information text which permit the user to identify the specific model of device. **<model>** **OK**
	Parameter **<model>** Product model identification text
Reference V.25ter	Note

2.2.36 AT+GMR Request TA Revision Identification of Software Release

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

2.2.37 AT+GOI Request Global Object Identification

AT+GOI Request Global Object Identification	
Test Command **AT+GOI=?**	Response **OK**
Execution Command **AT+GOI**	Response TA reports one or more lines of information text which permit the user to identify the device, based on the ISO system for registering unique object identifiers. **<Object Id>** **OK**
	Parameter

	<Object Id> Identifier of device type see X.208, 209 for the format of <Object Id>
Reference V.25ter	Note

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

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

2.2.39 AT+ICF Set TE-TA Control Character Framing

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

	<format>	1	8 data 0 parity 2 stop
		2	8 data 1 parity 1 stop
		3	8 data 0 parity 1 stop
		4	7 data 0 parity 2 stop
		5	7 data 1 parity 1 stop
		6	7 data 0 parity 1 stop
	<parity>	0	odd
		1	even
		3	space (0)
Reference V.25ter	Note ● The Command is applied for Command state; ● In **<format>** parameter, "0 parity" means no parity; ● The **<parity>** field is ignored if the **<format>** field specifies no parity and string "**+ICF: <format>,255**" will be response to **AT+ICF**? Command.		

2.2.40 AT+IFC Set TE-TA Local Data Flow Control

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

	data from TE 0 No flow control 1 Software flow control 2 Hardware flow control
Reference V.25ter	Note

2.2.41 AT+IPR Set TE-TA Fixed Local Rate

AT+IPR Set TE-TA Fixed Local Rate	
Test Command **AT+IPR=?**	Response **+IPR: (**list of supported auto detectable <**rate**>s**),(**list of supported fixed-only <**rate**>s**)** **OK**
	Parameter See Write Command
Read Command **AT+IPR?**	Response **+IPR: <rate>** **OK**
	Parameter See Write Command
Write Command **AT+IPR=<rate>**	Response This parameter setting determines the data rate of the TA on the serial interface. The rate of Command takes effect following the issuance of any result code associated with the current Command line. **OK**
	Parameter **<rate>** Baud rate per second 0 (Auto-bauding) 1200 2400 4800 9600 19200 38400 57600 115200
Reference V.25ter	Note 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 **AT+HVOIC**	Response Disconnect existing voice call by local TE from Command line and terminate call with existing PPP or CSD connection on. **OK**
Reference 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 **AT+CACM=?**	Response **OK**
Read Command **AT+CACM?**	Response TA returns the current value of ACM.

	+CACM: <acm> **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<acm>** 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) 000000 – FFFFFF
Write Command **AT+CACM=<passwd>**	Response 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. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<passwd>** String type (string should be included in quotation marks): SIM PIN2
Reference GSM 07.07 [13]	Note

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

AT+CAMM Accumulated Call Meter Maximum(ACM max) Set or Query	
Test Command **AT+CAMM=?**	Response **OK**
Read Command **AT+CAMM?**	Response TA returns the current value of ACM max. **+CAMM: <acmmax>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CAMM=<acmmax>[,<passwd**	Response TA sets the Advice of Charge related accumulated call meter maximum value in SIM file EF (ACM max). ACM max contains the maximum

>]	number of home units allowed to be consumed by the subscriber. **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<acmmax>** 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) 000000 disable ACMmax feature 000001-FFFFFF **<passwd>** String type (string should be included in quotation marks) SIM PIN2
Reference GSM 07.07 [13]	Note

3.2.3 AT+CAOC Advice of Charge

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

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

3.2.4 AT+CBST Select Bearer Service Type

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

	<speed>	0	Auto-bauding (automatic selection of the speed; this setting is possible in case of 3.1kHz modern and non-transparent service)
		6	4800 bps (V.32)
		7	9600 bps (V.32)
		71	9600 bps (V.110 or X.31 flag stuffing) Supported if UMTS_FTR is activated
	<name>	0	Data circuit asynchronous (UDI or 3.1 kHz modem)
	<ce>	1	Non-transparent
Reference GSM 07.07 [14]	Note ● GSM 02.02[1]: lists the allowed combinations of the sub parameters ● It only supports the speed of 9600bps when in non-transparent mode.		

3.2.5 AT+CCFC Call Forwarding Number and Conditions Control

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

	If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<reason>** 0 Unconditional 1 Mobile busy 2 No reply 3 Not reachable 4 All call forwarding 5 All conditional call forwarding **<mode>** 0 Disable 1 Enable 2 Query status 3 Registration 4 Erasure **<number>** String type (Phone number of forwarding address in format specified by <type>) **<type>** Type of address **<subaddr>** String type (subaddress of format specified by <satype>) **<satype>** Type of sub-address in integer **<class>** 1 Voice (telephony) 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) 4 Fax (facsimile services) 7 All classes **<time>** 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. **<status>** 0 Not active 1 Active
Reference GSM07.07	Note

3.2.6 AT+CCWA Call Waiting Control

AT+CCWA Call Waiting Control	
Test Command **AT+CCWA=?**	Response **+CCWA: (**list of supported **<n>**s**)** **OK**
	Parameter

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

	RING **+CCWA: <number>,<type>,<class>[,<alpha>]**
	Parameters **<number>** String type (string should be included in quotation marks) phone number of calling address in format specified by <type> **<type>** Type of address octet in integer format; 129 Unknown type 161 National number type 145 International number type 177 Network specific number **<alpha>** Optional string type (string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.
Reference GSM07.07	Note

3.2.7AT+CEER Extended Error Report

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

AT+CEER	**+CEER: <report>** **OK**

Parameter

<report> If AT+CEER=0, return <s>

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

3.2.8 AT+CGMI Request Manufacturer Identification

AT+CGMI Request Manufacturer Identification	
Test Command **AT+CGMI=?**	Response **OK**
Execution Command **AT+CGMI**	Response TA returns manufacturer identification text. **<manufacturer>** **OK**
	Parameter **<manufacturer>** The ID of manufacturer
Reference GSM 07.07 [13]	Note

3.2.9 AT+CGMM Request Model Identification

AT+CGMM Request Model Identification	
Test Command **AT+CGMM=?**	Response **OK**
Execution Command **AT+CGMM**	Response TA returns product model identification text. **<model>** **OK**
	Parameter **<model>** Product model identification text

Reference GSM 07.07 [13]	Note

3.2.10 AT+CGMR Request TA Revision Identification of Software Release

AT+CGMR Request TA Revision Identification of Software Release	
Test Command **AT+CGMR=?**	Response **OK**
Execution Command **AT+CGMR**	Response TA returns product software version identification text. **Revision: <revision>** **OK**
	Parameter **<revision>** Product software version identification text
Reference 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 **AT+CGSN=?**	Response **OK**
Execution Command **AT+CGSN**	Response see +GSN **<sn>** **OK**
	Parameter **<sn>** International mobile equipment identity (IMEI)
Reference GSM 07.07 [13]	Note

3.2.12 AT+CSCS Select TE Character Set

AT+CSCS Select TE Character Set	
Test Command **AT+CSCS=?**	Response **+CSCS: (**list of supported **<chset>**s**)** **OK**
	Parameter

	<chset> "GSM" GSM 7 bit default alphabet (3GPP TS 23.038); "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 "IRA" International reference alphabet (ITU-T T.50) "HEX" Character strings consist only of hexadecimal numbers from 00 to FF; "PCCP" PC character set Code "PCDN" PC Danish/Norwegian character set "8859-1" ISO 8859 Latin 1 character set
Read Command **AT+CSCS?**	Response **+CSCS: <chset>** **OK**
	Parameter See Test Command
Write Command **AT+CSCS=<chset>**	Response Sets which character set **<chset>** are used by the TE. The TA can then convert character strings correctly between the TE and ME character sets. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Test Command
Reference GSM 07.07 [13]	Note

3.2.13 AT+CSTA Select Type of Address

AT+CSTA Select Type of Address	
Test Command **AT+CSTA=?**	Response **+CSTA: (**list of supported **<type>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSTA?**	Response **+CSTA: <type>**

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

3.2.14 AT+CHLD Call Hold and Multiparty

AT+CHLD Call Hold and Multiparty	
Test Command **AT+CHLD=?**	Response **+CHLD: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CHLD=<n>**	Response TA controls the supplementary services Call Hold, Multiparty and Explicit Call Transfer. Calls can be put on hold, recovered, released, added to conversation, and transferred. Note These supplementary services are only applicable to tele service 11 (Speech: Telephony). **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<n>** 0 Releases all held calls or sets User Determined User Busy

	(UDUB) for a waiting call 1 Releases all active calls (if any exist) and accepts the other (held or waiting) call. 1x Releases a specific active call x 2 Place all active calls on hold (if any) and accept the other (held or waiting) call. 2x Places all active calls on hold except call X with which communication shall be supported. 3 Adds a held call to the conversation. 4 Connects the two calls and disconnects the subscriber from both calls(ECT) 6 Swap operation(retrieves the held call and holds the active call). Not applicable for calls engaged in a multiparty operation(+CME ERROR returned) 6x Retrieves the specified held call x. Not applicable for calls engaged in a multiparty operation (+CME ERROR returned) 7x Holds the specified active call x. Not applicable for calls engaged in a multiparty operation (+CME ERROR returned) 8x Releases the specified call x (whatever its state). 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.
Reference	Note

3.2.15 AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI Request International Mobile Subscriber Identity	
Test Command **AT+CIMI=?**	Response **OK**
Execution Command **AT+CIMI**	Response TA returns <IMSI>for identifying the individual SIM which is attached to ME. **<IMSI>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**

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

3.2.16 AT+CLCC List Current Calls of ME

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

	If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **[+CLCC:** **<id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>][** **<CR><LF>+CLCC:** **<id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>][..** **.]]]**
	Parameters **<id*x*>** 1..7 Call identification number This number can be used in +CHLD command operations **<dir>** 0 Mobile originated (MO) call 1 Mobile terminated (MT) call **<stat>** State of the call: 0 Active 1 Held 2 Dialing (MO call) 3 Alerting (MO call) 4 Incoming (MT call) 5 Waiting (MT call) 6 Disconnect **<mode>** Bearer/tele service: 0 Voice 1 Data 2 Fax **<mpty>** 0 Call is not one of multiparty (conference) call parties 1 Call is one of multiparty (conference) call parties **<number>** String type (string should be included in quotation marks) phone number in format specified by <type>. **<type>** Type of address **<alphaId>** String type (string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.
Reference GSM 07.07 [13][14]	Note

3.2.17 AT+CLCK Facility Lock

AT+CLCK Facility Lock	
Test Command	Response

AT+CLCK=?	**+CLCK: (**list of supported **<fac>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]**	Response This Command is used to lock, unlock or interrogate a ME or a network facility <fac>. Password is normally needed to do such actions. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. If <mode>≠2 and Command is successful **OK** If <mode>=2 and Command is successful **+CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<fac>** "AO" BAOC (Barr All Outgoing Calls) "OI" BOIC (Barr Outgoing International Calls) "OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" BAIC (Barr All Incoming Calls) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" All Barring services "AG" All outgoing barring services "AC" All in Coming barring services "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 <passwd>) "SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in ME power-up and when this lock command issued) Correspond to PIN1 code. "PN" Network Personalization, Correspond to NCK code "PU" Network subset Personalization Correspond to NSCK code

	"PP" Service Provider Personalization Correspond to SPCK code **<mode>** 0 unlock 1 lock 2 query status **<passwd>** String type (Shall be the same as password specified for the facility from the ME user interface or with command Change Password +CPWD) **<class>** 1 Voice (telephony) 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) 4 Fax (facsimile services) 7 All classes **<status>** 0 Not active 1 Active
Reference GSM 07.07 [14]	Note CME errors if SIM not inserted or PIN is not entered.

3.2.18 AT+CLIP Calling Line Identification Presentation

AT+CLIP Calling Line Identification Presentation	
Test Command **AT+CLIP=?**	Response **+CLIP: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CLIP?**	Response **+CLIP: <n>,<m>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CLIP=<n>**	Response TA enables or disables the presentation of the CLI at the TE. It has no effect on the execution of the supplementary service CLIP in the network. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters

	<n> 0 Disable +CLIP notification. 1 Enable +CLIP notification. **<m>** 0 CLIP not provisioned 1 CLIP provisioned 2 unknown (e.g. no network, etc.)
	Unsolicited Result Code When the presentation of the CLI at the TE is enabled (and calling subscriber allows), an unsolicited result code is returned after every RING (or +CRING: <type>) at a mobile terminating call. **+CLIP: <number>,<type> ,<subaddr>,<satype>,<alphaId>,<CLI validity>**
	Parameters **<number>** String type (string should be included in quotation marks) phone number of calling address in format specified by <type>. **<type>** Type of address octet in integer format; 129 Unknown type 161 National number type 145 International number type 177 Network specific number **<subaddr>** String type (subaddress of format specified by <satype>) **<satype>** Integer type (type of subaddress) **<alphaId>** String type (string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book. **<CLI validity>** 0 CLI valid 1 CLI has been withheld by the originator. 2 CLI is not available due to interworking problems or limitations of originating network.
Reference	Note

3.2.19 AT+CLIR Calling Line Identification Restriction

AT+CLIR Calling Line Identification Restriction	
Test Command **AT+CLIR=?**	Response **+CLIR: (**list of supported **<n>**s**)** **OK**
	Parameter

	See Write Command
Read Command **AT+CLIR?**	Response **+CLIR: <n>,<m>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CLIR=<n>**	Response TA restricts or enables the presentation of the CLI to the called party when originating a call. 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. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<n>** (parameter sets the adjustment for outgoing calls): 0 Presentation indicator is used according to the subscription of the CLIR service. 1 CLIR invocation 2 CLIR suppression **<m>** (parameter shows the subscriber CLIR service status in the network): 0 CLIR not provisioned 1 CLIR provisioned in permanent mode 2 Unknown (e.g. no network, etc.) 3 CLIR temporary mode presentation restricted 4 CLIR temporary mode presentation allowed
Reference	Note

3.2.20 AT+CMEE Report Mobile Equipment Error

AT+CMEE Report Mobile Equipment Error	
Test Command **AT+CMEE=?**	Response **+CMEE: (**list of supported **<n>**s**)** **OK**

	Parameter See Write Command
Read Command **AT+CMEE?**	Response **+CMEE: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CMEE=<n>**	Response TA disables or enables the use of result code +CME ERROR: <err> as an indication of an error relating to the functionality of the ME. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<n>** 0 Disable +CME ERROR: <err> result code and use ERROR instead. 1 Enable +CME ERROR: <err> result code and use numeric <err> 2 Enable +CME ERROR: <err> result code and use verbose <err> values
Reference GSM 07.07 [13]	Note

3.2.21 AT+COLP Connected Line Identification Presentation

AT+COLP Connected Line Identification Presentation	
Test Command **AT+COLP=?**	Response **+COLP: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+COLP?**	Response **+COLP: <n>,<m>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command	Response

AT+COLP=<n>	TA enables or disables the presentation of the COL (Connected Line) at the TE for a mobile originated call. It has no effect on the execution of the supplementary service COLR in the network. Intermediate result code is returned from TA to TE before any +CR or V.25ter responses. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<n>** (parameter sets/shows the result code presentation status in the TA): 0 Disable +COLP notification 1 Enable +COLP notification **<m>** (parameter shows the subscriber COLP service status in the network): 0 COLP not provisioned 1 COLP provisioned 2 Unknown (e.g. no network, etc.)
	Intermediate result code When enabled (and called subscriber allows), an intermediate result code is returned before any +CR or V.25ter responses: **+COLP: <number>,<type>[,<subaddr>,<satype>,<alphaId>]**
	Parameters **<number>** String type (string should be included in quotation marks) phone number of format specified by <type> **<type>** Type of address octet in integer format; 129 Unknown type 161 National number type 145 International number type 177 Network specific number **<subaddr>** String type (string should be included in quotation marks) sub address of format specified by <satype> **<satype>** Type of sub address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.8) **<alphaId>** 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

AT+COPS Operator Selection

Test Command **AT+COPS=?**	Response 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. **+COPS: (**list of supported**<stat>,**long alphanumeric**<oper>,**short alphanumeric**<oper>,**numeric **<oper>)**s**[,,(**list of supported **<mode>**s**),** **(**list of supported **<format>**s**)]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Read Command **AT+COPS?**	Response TA returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted. **+COPS: <mode>[,<format>,<oper>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+COPS= <mode>, [<format>[,<oper>]]**	Response TA forces an attempt to select and register the GSM network operator. If the selected operator is not available, no other operator shall be selected (except <mode>=4). The selected operator name format shall apply to further read commands (+COPS?). **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<stat>** 0 Unknown 1 Operator available 2 Operator current 3 Operator forbidden **<oper>** Refer to [27.007] operator in format as per <format> **<mode>** 0 Automatic mode; <oper> field is ignored 1 Manual (<oper> field shall be present, and <AcT> optionally) 3 set only <format> (for read Command +COPS?) – not

	shown in Read Command response 4 Manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered **<format>** 0 Long format alphanumeric <oper> 1 Short format alphanumeric <oper> 2 Numeric <oper>; GSM Location Area Identification number
Reference GSM 07.07 [14]	Note

3.2.23 AT+CPAS Phone Activity Status

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

3.2.24 AT+CPBF Find Phonebook Entries

AT+CPBF Find Phonebook Entries	
Test Command **AT+CPBF=?**	Response **+CPBF:** maximum length of field **<nlength>,**maximum length of field **<tlength>**

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

3.2.25 AT+CPBR Read Current Phonebook Entries

AT+CPBR Read Current Phonebook Entries

Test Command **AT+CPBR=?**	Response TA returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields. **+CPBR: (**list of supported **<index>**s**),<nlength>,<tlength>** **OK**
	Parameters **<index>** Location number **<nlength>** Max. length of phone number **<tlength>** Max. length of text for number
Write Command **AT+CPBR=<index1>** **[,<index2>]**	Response TA returns phone book entries in location number range <index1>... <index2> from the current phone book memory storage selected with +CPBS. If <index2> is left out, only location <index1> is returned. **+CPBR: <index1>,<number>,<type>,<text>** **[[…]<CR><LF>+CPBR: <index2>,<number>,<type>,<text>]** **OK**
	Parameters **<index1>** Read as of this location number **<index2>** Read to this location number **<number>** Phone number **<type>** Type of number **<text>** Text for phone number in current TE character set specified by +CSCS.
Reference GSM 07.07 [13]	Note

3.2.26 AT+CPBS Select Phonebook Memory Storage

AT+CPBS Select Phonebook Memory Storage	
Test Command **AT+CPBS=?**	Response **+CPBS: (**list of supported **<storage>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CPBS?**	Response **+CPBS: <storage>[,<used>,<total>]** **OK**
	Parameters See Write Command

Write Command **AT+CPBS=<storage>**	Response TA selects current phone book memory storage, which is used by other phone book commands. **OK**
	Parameters **<storage>** "DC" ME dialed calls list(+CPBW may not be applicable for this storage)(same as LD) "EN" SIM (or ME) emergency number (+CPBW is not be applicable for this storage) "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 "MC" ME missed (unanswered received) calls list (+CPBW may not be applicable for this storage) "ON" SIM (or ME) 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. "RC" ME received calls list (+CPBW may not be applicable for this storage) "SM" 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. "LA" Last Number All list (LND/LNM/LNR) "ME" ME phonebook "BN" SIM barred dialed number "SD" SIM service dial number "VM" SIM voice mailbox "LD" SIM last-dialing-phone book **<used>** Integer type value indicating the total number of used locations in selected memory **<total>** Integer type value indicating the total number of locations in selected memory
Reference GSM 07.07 [13]	Note

3.2.27 AT+CPBW Write Phonebook Entry

AT+CPBW Write Phonebook Entry	
Test Command	Response

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

3.2.28 AT+CPIN Enter PIN

AT+CPIN Enter PIN	
Test Command **AT+CPIN=?**	Response **OK**
Read Command **AT+CPIN?**	Response TA returns an alphanumeric string indicating whether some password is required or not. **+CPIN: <code>** **OK**
	Parameter **<code>** READY ME is not pending for any password SIM PIN ME is waiting SIM PIN to be given SIM PUK ME 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.
Write Command **AT+CPIN=<pin>[,<new pin>]**	Response TA stores a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <new pin>, is used to replace the old pin in the SIM. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<pin>** String type; password **<new pin>** String type; If the PIN required is SIM PUK or SIMPUK2: new password
Reference GSM 07.07 [13]	Note

3.2.29 AT+CPWD Change Password

AT+CPWD Change Password	
Test Command **AT+CPWD=?**	Response TA returns a list of pairs which present the available facilities and the

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

3.2.30 AT+CR Service Reporting Control

AT+CR Service Reporting Control	
Test Command **AT+CR=?**	Response **+CR: (**list of supported **<mode>**s) **OK**
	Parameter See Write Command

Read Command **AT+CR?**	Response **+CR: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CR=<mode>**	Response TA controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE at a call set up. **OK**
	Parameter **<mode>** 0 Disable 1 Enable
	Intermediate result code If enabled, an intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before any final result code (e.g. CONNECT) is transmitted. **+CR: <serv>**
	Parameter **<serv>** ASYNC Asynchronous transparent SYNC Synchronous transparent REL ASYNC Asynchronous non-transparent REL SYNC Synchronous non-transparent GPRS For GPRS
Reference GSM 07.07 [13]	Note

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

AT+CRC Set Cellular Result Codes for Incoming Call Indication	
Test Command **AT+CRC=?**	Response **+CRC: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CRC?**	Response **+CRC: <mode>**

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

3.2.32 AT+CREG Network Registration

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

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

3.2.33 AT+CRLP Select Radio Link Protocol Parameters

AT+CRLP Select Radio Link Protocol Parameters	
Test Command **AT+CRLP=?**	Response TA returns values supported. RLP versions 0 and 1 share the same parameter set. TA returns only one line for this set (where <ver*x*> is not present). **+CRLP: (**list of supported **<iws>**s**),(**list of supported **<mws>**s**),(**list of

	supported **<T1>**s**),(**list of supported **<N2>**s**),(**list of supported **<ver1>**s**),(**list of supported **<T4>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CRLP?**	Response TA returns current settings for RLP version. RLP versions 0 and 1 share the same parameter set. TA returns only one line for this set (where <verx> is not present). **+CRLP: <iws>,<mws>,<T1>,<N2>,<ver1>,<T4>** **OK**
	Parameters See Write Command
Write Command **AT+CRLP=<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]**	Response TA sets radio link protocol (RLP) parameters used when non-transparent data calls are setup. **OK**
	Parameters **<iws>** 0-61 Interworking window size (IWF to MS) **<mws>** 0-61 Mobile window size(MS to IWF) **<T1>** 44-255 Acknowledgment timer T1 in 10 ms units **<N2>** 1-255 Retransmission attempts N2 **<verx>** 0 RLP version number **<T4>** 7 Re-sequencing period in integer format, in units of 10 ms.
Reference GSM 07.07 [13]	Note

3.2.34 AT+CRSM Restricted SIM Access

AT+CRSM Restricted SIM Access	
Test Command **AT+CRSM=?**	Response **OK**
Write Command **AT+CRSM=<Command>[,<fileId>[,<P1>,<P2>,<P3>[,<data>]]]**	Response **+CRSM: <sw1>,<sw2> [,<response>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<Command>**

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

3.2.35 AT+CSQ Signal Quality Report

AT+CSQ Signal Quality Report	
Test Command **AT+CSQ=?**	Response **+CSQ: (**list of supported **<rssi>**s**),(**list of supported **<ber>**s**)** **OK**
Execution Command **AT+CSQ**	Response **+CSQ: <rssi>,<ber>** **OK** If error is related to ME functionality: **+CME ERROR: <err>** Execution Command returns received signal strength indication <rssi> and channel bit error rate <ber> from the ME. Test Command returns values supported by the TA.
	Parameters **<rssi>**

	0 -115 dBm or less 1 -111 dBm 2...30 -110... -54 dBm 31 -52 dBm or greater 99 not known or not detectable **<ber>** (in percent): 0...7 As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4 99 Not known or not detectable
Reference GSM 07.07 [13]	Note

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

AT+FCLASS FAX: Select, Read or Test Service Class	
Test Command **AT+FCLASS=?**	Response **+FCLASS: (**list of supported **<class>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+FCLASS?**	Response **+FCLASS: <class>** **OK**
	Parameter See Write Command
Write Command **AT+FCLASS=<class>**	Response TA sets a particular mode of operation (data fax). This causes the TA to process information in a manner suitable for that type of information **OK**
	Parameter **<n>** 0 data 1 fax class 1 (TIA-578-A)
Reference GSM 07.07 [13]	Note

3.2.37 AT+FMI FAX: Report Manufactured ID

AT+FMI FAX: Report Manufactured ID

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

3.2.38 AT+FMM FAX: Report Model ID

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

3.2.39 AT+FMR FAX: Report Revision ID

AT+FMR FAX: Report Revision ID	
Test Command **AT+FMR=?**	Response **OK**
Execution Command **AT+FMR**	Response TA reports one or more lines of information text which permit the user to identify the version, revision level or data or other information of the device. **Revision: <Revision Id>**

	OK
	Parameter **<Revision Id>** The version, revision level or data or other information of the device.
Reference EIA/TIA-578-D	Note

3.2.40 AT+VTD Tone Duration

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

3.2.41 AT+VTS DTMF and Tone Generation

AT+VTS DTMF and Tone Generation	
Test Command **AT+VTS=?**	Response **+VTS: (**list of supported **<dtmf>**s**),,(**list of supported **<duration>**s**)** **OK**
	Parameters See Write Command
Write Command	Response

Generate tone Duration is set by +VTD **AT+VTS=<dtmf-string>**	This Command allows the transmission of DTMF tones and arbitrary tones in voice mode. These tones may be used (for example) when announcing the start of a recording period. Note: D is used only for dialing. **OK** If error is related to ME functionality: **+CME ERROR: <err>** Note: The Command is writing only. Parameters **<dtmf-string>** Which has a max length of 20 characters, must be entered between double quotes ("") and consists of combinations of the following separated by commas. But a single character does not require quotes. 1) **<dtmf>** A single ASCII characters in the set 0-9, #,*, A-D. This is interpreted as a sequence of DTMF tones whose duration is set by the +VTD Command. 2) {**<dtmf>**,<**duration**>} This is interpreted as a DTMF tone whose duration is determined by <duration>. **<duration>** Duration of the tone in 1/10 seconds range :1-255
Reference GSM 07.07 [13]	Note

3.2.42 AT+CMUX Multiplexer Control

AT+CMUX Multiplexer Control	
Test Command **AT+CMUX=?**	Response **+CMUX:** list of supported **(<mode>**s**),(<subset>**s**),(<port_speed>**s**),(<N1>**s**),(<T1>**s**),(<N2>**s**),(<T2>**s**),(<T3>**s**),(<k>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CMUX?**	Response **+CMUX:[<mode>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]]]** **OK** **ERROR**
	Parameters See Write Command

Write Command **AT+CMUX=<mode>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]]]**	Response If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** Multiplexer transparency mechanism 0 Basic option **<subset>** The way in which the multiplexer controls channel is set up 0 UIH frames used only **<port_speed>** Transmission rate 1 9 600 bits/t 2 19 200 bits/t 3 38 400 bits/t 4 57 600 bits/t 5 115 200bit/s 6 230 400 bits/t 7 460 800 bits/t Proprietary values, available if MUX NEW PORT SPEED FTR is activated 8 921 600 bits/t Proprietary values, available if MUX NEW PORT SPEED FTR is activated **<N1>** Maximum frame size 1-255 Default: 127 **<T1>** Acknowledgement timer in units of ten milliseconds 1-254 Default:10 (100 ms) **<N2>** Maximum number of re-transmissions 0-100 Default:3 **<T2>** Response timer for the multiplexer control channel in units of ten milliseconds 2-255 Default:30 **<T3>** Wake up response timers in seconds 1-255 Default:10 **<k>** Window size, for Advanced operation with Error Recovery options 1-7 Default:2
Reference GSM 07.07 [13]	Note 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 Multiplexer control channels are listed as follows: **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 **AT+CNUM=?**	Response **OK**
Execution Command **AT+CNUM**	Response **+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>]** **[<CR><LF>+CNUM:** **[<alpha2>],<number2>,<type2>[,<speed>,<service>]** **[...]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**alphax**> Optional alphanumeric string associated with <*numberx*>; used character set should be the one selected with Command Select TE Character Set +CSCS <**numberx**> String type (string should be included in quotation marks) phone number of format specified by <type*x*> <**typex**> Type of address octet in integer format (refer GSM04.08[8] subclause 10.5.4.7) <**speed**> As defined by the +CBST Command **<service>** (service related to the phone number:) 0 Asynchronous modem 1 Synchronous modem 2 PAD Access (asynchronous) 3 Packet Access (synchronous) 4 Voice 5 Fax
Reference GSM 07.07 [13]	Note

3.2.44 AT+CPOL Preferred Operator List

AT+CPOL Preferred Operator List	
Test Command **AT+CPOL=?**	Response **+CPOL: (**list of supported **<index>**s**),(**list of supported **<format>**s**)**

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

3.2.45 AT+COPN Read Operator Names

AT+COPN Read Operator Names	
Test Command **AT+COPN=?**	Response **OK**
Execution Command **AT+COPN**	Response **+COPN: <numeric1>,<alpha1>** **[<CR><LF>+COPN: <numeric2>,<alpha2>** **[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters

	<numeric*n*> String type (string should be included in quotation marks): operator in numeric format (see +COPS) **<alpha*n*>** String type (string should be included in quotation marks): operator in long alphanumeric format (see +COPS)
Reference GSM 07.07 [13]	Note

3.2.46 AT+CFUN Set Phone Functionality

AT+CFUN Set Phone Functionality	
Test Command **AT+CFUN=?**	Response **+CFUN: (**list of supported **<fun>**s**),(**list of supported **<rst>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Read Command **AT+CFUN?**	Response **+CFUN: <fun>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CFUN=<fun>[,<rst>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<fun>** 0 Minimum functionality 1 Full functionality (Default) 4 Disable phone both transmit and receive RF circuits. **<rst>** 0 Do not reset the ME before setting it to <fun> power level 1 Reset the ME before setting it to <fun> power level.
Reference GSM 07.07 [13]	Note ● Minimum functionality mode (AT+CFUN=0) and RF disabled. Functionality mode (AT+CFUN=4) cannot be switched to each other. ● The <fun> power level will be written to flash except minimum

	functionality. ● "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. ● Module will back to full functionality automatically if "AT+CFUN=0,0,1" or "AT+CFUN=4,0,1" is inputted. The <final_cfun_status > is implemented to help customer reset the radio quickly. ● If the module is in functionality mode (AT+CFUN=4), executing "AT+CFUN=1,1" command will return error.

3.2.47 AT+CCLK Clock

AT+CCLK Clock	
Test Command **AT+CCLK=?**	Response **OK**
Read Command **AT+CCLK?**	Response **+CCLK: <time>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CCLK=<time>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<time>** 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 GSM 07.07 [13]	Note

3.2.48 AT+CSIM Generic SIM Access

AT+CSIM Generic SIM Access	
Test Command **AT+CSIM=?**	Response **OK**
Write Command **AT+CSIM=<length>,<Command>**	Response **+CSIM: <length>,<response>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<length>** Integer type: length of characters sent to the TE in <Command> or <response> (i.e. twice the number of octets in the raw data). **<Command>** String type(string should be included in quotation marks): hex format: GSM 11.11 SIM Command sent from the ME to the SIM. **<response>** String type(string should be included in quotation marks): hex format: GSM 11.11 response from SIM to <Command>.
Reference GSM 07.07 [13]	Note

3.2.49 AT+CALM Alert Sound Mode

AT+CALM Alert Sound Mode	
Test Command **AT+CALM=?**	Response **+CALM: (**list of supported **<mode>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Read Command **AT+CALM?**	Response **+CALM: <mode>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter

	See Write Command
Write Command **AT+CALM=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Normal mode 1 Silent mode (all sounds from ME are prevented)
Reference GSM 07.07 [13]	Note 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 **AT+CALS=?**	Response **+CALS: (**list of supported **<n>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Read Command **AT+CALS?**	Response **+CALS: <n>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CALS=<n>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<n>** 0-19 Alert sound type
Reference	Note

3.2.51 AT+CRSL Ringer Sound Level

AT+CRSL Ringer Sound Level	
Test Command **AT+CRSL=?**	Response **+CRSL: (**list of supported **<level>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Read Command **AT+CRSL?**	Response **+CRSL: <level>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CRSL=<level>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<level>** Integer type value (0-4) with manufacturer specific range (smallest value represents the lowest sound level) 0 LEVEL OFF 1 LEVEL LOW 2 LEVEL MEDIUM 3 LEVEL HIGH 4 LEVEL CRESCENDO
Reference GSM 07.07 [13]	Note It is related to the command AT+CLVL.

3.2.52 AT+CLVL Loud Speaker Volume Level

AT+CLVL Loud Speaker Volume Level	
Test Command **AT+CLVL=?**	Response **+CLVL: (**list of supported **<level>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**

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

3.2.53 AT+CMUT Mute Control

AT+CMUT Mute Control	
Test Command **AT+CMUT=?**	Response **+CMUT: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CMUT?**	Response **+CMUT: <n>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CMUT=<n>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

	Parameter **<n>** 0 Mute off 1 Mute on
Reference GSM 07.07 [13]	Note Only during a call this command can be set successfully.

3.2.54 AT+CPUC Price Per Unit and Currency Table

AT+CPUC Price Per Unit and Currency Table	
Test Command **AT+CPUC=?**	Response **OK**
Read Command **AT+CPUC?**	Response **+CPUC: <currency>,<ppu>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CPUC=<currency>,<ppu>[,<passwd>]**	Response **OK** **+CME ERROR: <err>**
	Parameters **<currency>** 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 **<ppu>** String type (string should be included in quotation marks); price per unit; dot is used as a decimal separator(e.g. "2.66") **<passwd>** String type (string should be included in quotation marks); SIM PIN2
Reference GSM 07.07 [13]	Note

3.2.55 AT+CCWE Call Meter Maximum Event

AT+CCWE Call Meter Maximum Event	
Test Command **AT+CCWE=?**	Response **+CCWE: (**list of supported **<mode>**s**)** **OK**

	If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Read Command **AT+CCWE?**	Response **+CCWE: <mode>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CCWE=** **<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Disable call meter warning event 1 Enable call meter warning event
	Unsolicited Result Code **+CCWV** Shortly before the ACM (Accumulated Call Meter) maximum value is reached, an unsolicited result code +CCWV will be sent, if enabled by this command. The warning is issued approximately when 5 seconds call time remains. It is also issued when starting a call if less than 5 s call time remains.
Reference GSM 07.07 [13]	Note GSM 07.07 specifies 30 seconds, so SIMCom deviates from the specification.

3.2.56 AT+CBC Battery Charge

AT+CBC Battery Charge	
Test Command **AT+CBC=?**	Response **+CBC: (**list of supported **<bcs>**s**),(**list of supported **<bcl>**s**),(<voltage>)** **OK**
	Parameters See Execution Command

Execution Command **AT+CBC**	Response **+CBC: <bcs>,<bcl>,<voltage>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<bcs>** Charge status 0 ME is not charging 1 ME is charging 2 Charging has finished **<bcl>** Battery connection level 1...100 battery has 1-100 percent of capacity remaining vent **<voltage>** Battery voltage(mV)
Reference GSM 07.07 [13]	Note 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 **AT+CUSD=?**	Response **+CUSD: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CUSD?**	Response **+CUSD: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CUSD=<n>[,<str>[,<dcs>]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CUSD: <n>[<str>[<dcs>]]**
	Parameters

	<n> A numeric parameter which indicates control of the unstructured supplementary service data 0 disable the result code presentation in the TE 1 enable the result code presentation in the TE 2 cancel session (not applicable to read Command response) **<str>** String type (string should be included in quotation marks) USSD-string **<dcs>** Cell Broadcast Data Coding Scheme in integer format (default 0)
Reference GSM 03.38 [25]	Note

3.2.58 AT+CSSN Supplementary Services Notification

AT+CSSN Supplementary Services Notification	
Test Command **AT+CSSN=?**	Response **+CSSN: (**list of supported **<n>**s**),(**list of supported **<m>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CSSN?**	Response **+CSSN: <n>,<m>** **OK**
	Parameters See Write Command
Write Command **AT+CSSN=<n>[,<m>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CSSI: <code1>[,<index>]** **+CSSU: <code2>**
	Parameters **<n>** A numeric parameter which indicates whether to show the +CSSI: <code1>[,<index>] result code presentation status after a mobile originated call setup 0 disable 1 enable **<m>** A numeric parameter which indicates whether to show the +CSSU: <code2> result code presentation status during a mobile terminated call setup or during a call, or when a

	forward check supplementary service notification is received. 0 disable 1 enable **<code1>** 0 Unconditional call forwarding is active 1 Some of the conditional call forwarding are active 2 Call has been forwarded 3 Call is waiting 4 This is a CUG call (also <index> present) 5 Outgoing calls are barred 6 Incoming calls are barred 7 CLIR suppression rejected **<index>** Closed user group index **<code2>** 0 This is a forwarded call 1 This is a CUG call (also <index> present) (MT call setup) 2 Call has been put on hold (during a voice call) 3 Call has been retrieved (during a voice call) 4 Multiparty call entered (during a voice call) 5 Call on hold has been released (this is not a SS notification) (during a voice call) 6 Forward check SS message received (can be received whenever) 7 Call is being connected (alerting) with the remote party in alerting state in explicit call transfer operation (during a voice call) 8 Call has been connected with the other remote party in explicit call transfer operation (also number and subaddress parameters may be present) (during a voice call or MT call setup) 9 This is a deflected call (MT call setup)
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
AT+CMGS="><INDEX>"	SEND SMS MESSAGE BY INDEX

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 **AT+CMGD=?**	Response **+CMGD: (**list of supported **<index>**s**),(**list of supported **<delflag>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+CMGD=<index>[,<delflag>]**	Response TA deletes message from preferred message storage <**mem1**> location <**index**>.

	OK **ERROR** If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory **<delflag>** 0 Delete the message specified in <index> 1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched 4 Delete all messages from preferred message storage including unread messages
Reference GSM 07.05	Note

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format	
Test Command **AT+CMGF=?**	Response **+CMGF: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CMGF?**	Response **+CMGF: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CMGF=[<mode>]**	Response TA sets parameter to denote which input and output format of messages to use. **OK**
	Parameter

	<mode> 0 PDU mode 1 Text mode
Reference GSM 07.05	Note

4.2.3 AT+CMGL List SMS Messages from Preferred Store

AT+CMGL List SMS Messages from Preferred Store	
Test Command **AT+CMGL=?**	Response **+CMGL: (**list of supported **<stat>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CMGL=<stat>[,<mode>]**	Parameters 1) If text mode: **<stat>** "REC UNREAD" Received unread messages "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages **<mode>** 0 Normal 1 Not change status of the specified SMS record 2) If PDU mode: **<stat>** 0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages **<mode>** 0 Normal 1 Not change status of the specified SMS record
	Response TA returns messages with status value <stat> from message storage <mem1> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (+CMGF=1) and Command successful: for SMS-SUBMITs and/or SMS-DELIVERs: **+CMGL:** **<index>,<stat>,<oa/da>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF>+CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[...]]**

for SMS-STATUS-REPORTs:
+CMGL:
<index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[<CR><LF>+CMGL:
<index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[...]]
for SMS-COMMANDs:
+CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>+CMGL:
<index>,<stat>,<fo>,<ct>[...]]
for CBM storage:
+CMGL:
<index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data><CR><LF>+CMGL:
<index>,<stat>,<sn>,<mid>,<page>,<pages><CR><LF><data>[...]]
OK

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

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

Parameters

<alpha> String type(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

- 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 <dcs> 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 <dcs> indicates that GSM 03.38 default alphabet is used:
- if TE character set other than "HEX" (refer Command +CSCS in GSM 07.07): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number
- if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number

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

<index> Integer type; value in the range of location numbers supported by the associated memory

<oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer Command +CSCS in TS 07.07); type of address given by <tooa>

<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.

<scts> GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer <dt>)

	<toda> GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129) **<tooa>** GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<toda>)
Execution Command **AT+CMGL**	1) If text mode: the same as AT+CMGL="REC UNREAD", received unread messages 2) If PDU mode: the same as AT+CMGL=0, received unread messages See more messages please refer to Write Command.
	Parameters See Write Command
Reference GSM 07.05	Note

4.2.4 AT+CMGR Read SMS Message

AT+CMGR Read SMS Message	
Test Command **AT+CMGR=?**	Response **OK**
Write Command **AT+CMGR=<index>[,<mode>]**	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory **<mode>** 0 Normal 1 Not change status of the specified SMS record
	Response TA returns SMS message with location value <index> from message storage <mem1> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (+CMGF=1) and Command successful: for SMS-DELIVER: **+CMGR: <stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>** for SMS-SUBMIT: **+CMGR: <stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data>** for SMS-STATUS-REPORTs: **+CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>** for SMS-COMMANDs: **+CMGR: <stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length><CR><LF><cdata>]**

for CBM storage:

+CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>

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 <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
- 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 <dcs> 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 <dcs> indicates that GSM 03.38 default alphabet is used:
- if TE character set other than "HEX" (refer Command +CSCS in GSM 07.07): ME/TA converts GSM alphabet into

	current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number
	<dcs> Depending on the Command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format
	<fo> Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format
	<length> integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)
	<mid> GSM 03.41 CBM Message Identifier in integer format
	<oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <tooa>
	<pdu> In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.
	<pid> GSM 03.40 TP-Protocol-Identifier in integer format (default 0)
	<sca> GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in TS 07.07); type of address given by <tosca>
	<scts> GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)
	<stat> 0 "REC UNREAD" Received unread messages 1 "REC READ" Received read messages 2 "STO UNSENT" Stored unsent messages 3 "STO SENT" Stored sent messages

		4 "ALL" All messages
	<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)
	<tooa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<toda>)
	<tosca>	GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>)
	<vp>	Depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>)
Reference GSM 07.05	Note	

4.2.5 AT+CMGS Send SMS Message

AT+CMGS Send SMS Message		
Test Command **AT+CMGS=?**	Response **OK**	
Write Command 1) If text mode (+CMGF=1): **+CMGS=<da>[,<toda>]<CR>** **text is entered** **<ctrl-Z/ESC>** ESC quits without sending 2) If PDU mode (+CMGF=0): **+CMGS=<length><CR>** **PDU is given** **<ctrl-Z/ESC>**	Parameters **<da>**	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 <toda>
	<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)
	<length>	Integer type value (not exceed 160 bytes) 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)
	Response TA sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(+CMGF=1) and sending successful: **+CMGS: <mr>**	

	OK 2) If PDU mode(+CMGF=0) and sending successful: **+CMGS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameter **<mr>** GSM 03.40 TP-Message-Reference in integer format
Reference GSM 07.05	Note If TE Character Set is GSM, it supports 160-byte maximum; If TE Character Set is UCS2, it supports 70-word maximum.

4.2.6 AT+CMGW Write SMS Message to Memory

AT+CMGW Write SMS Message to Memory	
Test Command **AT+CMGW=?**	Response **OK**
Write Command 1) If text mode (+CMGF=1): **AT+CMGW=<oa/da>[,<tooa/toda> [,<stat>]]** <CR> **text is entered** **<ctrl-Z/ESC>** <ESC> quits without sending 2) If PDU mode (+CMGF=0): **AT+CMGW=<length>[,<stat>]<CR>** **PDU is given** **<ctrl-Z/ESC>**	Response 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. If writing is successful: **+CMGW: <index>** **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<oa>** 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> **<da>** 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 <toda>
	<tooa> GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)
	<toda> GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129) 129 Unknown type (IDSN format number) 161 National number type (IDSN format) 145 International number type (ISDN format) 177 Network specific number (ISDN format)
	<length> Integer type value (not exceed 160 bytes) 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)
	<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.
	<index> Index of message in selected storage <mem2>
	<stat> 1) If text mode: (+CMGF=1) "REC UNREAD" Received unread messages "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages 2) If PDU mode: (+CMGF=0) 0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages
Execution Command **AT+CMGW**	Response 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.

	If writing is successful: **+CMGW: <index>** **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
Reference GSM 07.05	Note

4.2.7 AT+CMSS Send SMS Message from Storage

AT+CMSS Send SMS Message from Storage	
Test Command **AT+CMSS=?**	Response **OK**
Write Command **AT+CMSS=<index>,<da>[,<toda>]**	Response TA sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT). If new recipient address <da> is given, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(+CMGF=1) and sending successful: **+CMSS: <mr>** **OK** 2) If PDU mode(+CMGF=0) and sending successful: **+CMSS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory **<da>** 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 <toda> **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43)

	default is 145, otherwise default is 129) **<mr>** GSM 03.40 TP-Message-Reference in integer format
Reference GSM 07.05	Note

4.2.8 AT+CNMI New SMS Message Indications

AT+CNMI New SMS Message Indications	
Test Command **AT+CNMI=?**	Response **+CNMI: (**list of supported **<mode>**s**),(**list of supported **<mt>**s**),(**list of supported **<bm>**s**),(**list of supported **<ds>**s**),(**list of supported **<bfr>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CNMI?**	Response **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>** **OK**
	Parameters See Write Command
Write Command **AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]**	Response TA selects the procedure for how the receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF), message receiving should be done as specified in GSM 03.38. **OK** **ERROR**
	Parameters **<mode>** 0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. 3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed

		result codes and data when TA is in on-line data mode.
	<mt>	(the rules for storing received SMs depend on its data coding scheme (refer GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value): 0 No SMS-DELIVER indications are routed to the TE. 1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index> 2 SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or +CMT: <oa>, [<alpha>],<scts> *[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*<CR><LF><data> (text mode enabled; about parameters in italics, refer Command Show Text Mode Parameters +CSDH). 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.
	<bm>	(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: <length><CR><LF><pdu> (PDU mode enabled) or +CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled).
	<ds>	0 No SMS-STATUS-REPORTs are routed to the TE. 1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS: <length><CR><LF><pdu> (PDU mode enabled) or +CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)
	<bfr>	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): **+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>** 3. Indicates that new SMS status report has been received If <ds>=1 (PDU mode enabled): **+CDS: <length><CR><LF><pdu>** If <ds>=1 (text mode enabled): **+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>**
Reference GSM 07.05	Note

4.2.9 AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage	
Test Command **AT+CPMS=?**	Response **+CPMS: (**list of supported **<mem1>**s**),(**list of supported **<mem2>**s**),(**list of supported **<mem3>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CPMS?**	Response **+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3>** **OK** **ERROR**
	Parameters See Write Command

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

4.2.10 AT+CRES Restore SMS Settings

AT+CRES Restore SMS Settings	
Test Command **AT+CRES=?**	Response **+CRES: (**list of supported **<profile>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CRES=<profile>**	Response TA restores SMS settings for +CSCA, +CSMP from non-volatile memory to active memory. **OK** **ERROR**
	Parameter **<profile>** 0 Restore SM service settings from profile 0 1 Restore SM service settings from profile 1
Execution Command **AT+CRES**	Response Same as AT+CRES=0. **OK** If error is related to ME functionality:

	+CMS ERROR <err>
Reference GSM 07.05	Note

4.2.11 AT+CSAS Save SMS Settings

AT+CSAS Save SMS Settings	
Test Command **AT+CSAS=?**	Response **+CSAS: (**list of supported **<profile>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CSAS=[<profile>]**	Response TA saves SMS settings for +CSCA, +CSMP from non-volatile memory to active memory. **OK** **ERROR**
	Parameter **<profile>** 0 Save SM service setting in profile 0 1 Save SM service setting in profile 1
Execution Command **AT+CSAS**	Response Same as AT+CSAS=0 **OK** If error is related to ME functionality: **+CMS ERROR <err>**
Reference GSM 07.05	Note

4.2.12 AT+CSCA SMS Service Center Address

AT+CSCA SMS Service Center Address	
Test Command **AT+CSCA=?**	Response **OK**
Read Command **AT+CSCA?**	Response **+CSCA: <sca>,<tosca>[,<scaAlpha>]** **OK**
	Parameters See Write Command
Write Command **AT+CSCA=<sca**	Response TA updates the SMSC address, through which mobile originated SMS are

>[,<tosca>]	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. Note: The Command writes the parameters in NON-VOLATILE memory. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<sca>** 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 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> **<tosca>** Service center address format GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>) **<scaAlpha>** String type(string should be included in quotation marks) Service center address alpha data
Reference GSM 07.05	Note

4.2.13 AT+CSCB Select Cell Broadcast SMS Messages

AT+CSCB Select Cell Broadcast SMS Messages	
Test Command **AT+CSCB=?**	Response **+CSCB: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSCB?**	Response **+CSCB: <mode>,<mids>,<dcss>** **OK**
	Parameters See Write Command
Write Command **AT+CSCB=<mode>[,<mids>[,<dcss>]]**	Response TA selects which types of CBMs are to be received by the ME. Note: The Command writes the parameters in NON-VOLATILE memory.

	OK If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<mode>** 0 Message types specified in <mids> and <dcss> are accepted 1 Message types specified in <mids> and <dcss> are not accepted. **<mids>** String type (string should be included in quotation marks); all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string); e.g. "0,1,5,320,922". Total 15 different <mids> values can be supported. <mids> values cannot be written consecutively, such as "100-200" **<dcss>** String type(string should be included in quotation marks); all different possible combinations of CBM data coding schemes (refer <dcs>) (default is empty string); e.g. "0,5". Total 5 different <dcss> values can be supported. <dcss> values cannot be written consecutively, such as "0-5"
Reference GSM 07.05	Note ● AT+CSCB=0 will reset <mids> and <dcss> and select no <mids> and no <dcss>. ● AT+CSCB=1 means all <dcss> are accepted but this command has no effect on the list of the <mids> accepted. "0-255" means all <dcss> are accepted. ● AT+CSCB=0,<mids> will add the <mids> values in the <mids> current list handled by module. ● AT+CSCB=0, ,<dcss> will add the <dcss> values in the <dcss> current list handled by module. ● If AT+CSCB=0,<mids> is received while the list of <mids> is full, OK is returned and new value is not added.

4.2.14 AT+CSDH Show SMS Text Mode Parameters

AT+CSDH Show SMS Text Mode Parameters	
Test Command **AT+CSDH=?**	Response **+CSDH: (**list of supported **<show>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSDH?**	Response **+CSDH: <show>**

	OK
	Parameter See Write Command
Write Command **AT+CSDH=<show>**	Response TA determines whether detailed header information is shown in text mode result codes. **OK**
	Parameter **<show>** 0 Do not show header values defined in commands +CSCA and +CSMP (<sca>,<tosca>,<fo>,<vp>,<pid> and <dcs>) nor <length>,<toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode 1 Show the values in result codes
Reference GSM 07.05	Note

4.2.15 AT+CSMP Set SMS Text Mode Parameters

AT+CSMP Set SMS Text Mode Parameters	
Test Command **AT+CSMP=?**	Response **+CSMP: (**list of supported **<fo>**s**),(**list of supported **<vp>**s**),(**list of supported **<pid>**s**),(**list of supported **<dcs>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CSMP?**	Response **+CSMP: <fo>,<vp>,<pid>,<dcs>** **OK**
	Parameters See Write Command
Write Command **AT+CSMP=[<fo>[,<vp>,<pid>,<dcs>]]**	Response TA selects values for additional parameters needed when SM is sent to the network or placed in a storage when text mode is selected (+CMGF=1). It is possible to set the validity period starting from when the SM is received by the SMSC (<vp> is in range 0... 255) or define the absolute time of the validity period termination (<vp> is a string). Note: The Command writes the parameters in NON-VOLATILE memory.

	OK
	Parameters **<fo>** Depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49. **<vp>** Depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>) **<pid>** GSM 03.40 TP-Protocol-Identifier in integer format (default 0). **<dcs>** GSM 03.38 SMS Data Coding Scheme in Integer format.
Reference GSM 07.05	Note

4.2.16 AT+CSMS Select Message Service

AT+CSMS Select Message Service	
Test Command **AT+CSMS=?**	Response **+CSMS: (**list of supported **<service>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSMS?**	Response **+CSMS: <service>,<mt>,<mo>,<bm>** **OK**
	Parameters See Write Command
Write Command **AT+CSMS=<service>**	Response **+CSMS: <mt>,<mo>,<bm>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<service>** 0 GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new Command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes))

	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 <service> setting 1 is mentioned under corresponding command descriptions) **<mt>** Mobile Terminated Messages: 0 Type not supported 1 Type supported **<mo>** Mobile Originated Messages: 0 Type not supported 1 Type supported **<bm>** Broadcast Type Messages: 0 Type not supported 1 Type supported
Reference GSM 07.05	Note

4.2.17 AT+CMGS="><index>" Send SMS Message by Index

AT+CMGS="><index>" Send SMS Message by Index	
Write Command 1) If text mode (+CMGF=1): **+CMGS="><index>"** **text is entered** **<ctrl-Z/ESC>** ESC quits without sending 2) If PDU mode (+CMGF=0): **+CMGS="><index>"** **text is entered** **<ctrl-Z/ESC>** ESC quits without sending	Parameter **<index>** Index of phone number in current storage. Response TA sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(+CMGF=1) and sending successful: **+CMGS: <mr>** **OK** 2) If PDU mode(+CMGF=0) and sending successful: **+CMGS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameter **<mr>** GSM 03.40 TP-Message-Reference in integer format
Reference	Note

5 AT Commands for SIM Application Toolkit

5.1 Overview

Command	Description
AT*PSSTKI	SIM TOOLKIT INTERFACE CONFIGURATION
AT*PSSTK	SIM TOOLKIT CONTROL

5.2 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.

5.2.1 AT*PSSTKI SIM Toolkit Interface Configuration

AT*PSSTKI SIM Toolkit interface configuration	
Test Command **AT*PSSTKI=?**	Response ***PSSTKI: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT*PSSTKI?**	Response ***PSSTKI: <mode>** **OK** **ERROR**
	Parameter See Write Command
Write Command **AT*PSSTKI=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** Integer type 0 SIM toolkit notification is disabled 1 SIM toolkit notification is enabled
Reference	Note

	If AT*PSSTKI=1 is set, *PSSTK: "SETUP MENU" string will be sent out after power on.

5.2.2 AT*PSSTK SIM Toolkit Control

AT*PSSTK SIM toolkit control	
Test Command **AT*PSSTK=?**	Response ***PSSTK: (**list of supported **<response type>**s**)** **OK**
	Parameter See Write Command
Read Command **AT*PSSTK?**	Response **ERROR**
Write Command **AT*PSSTK=<response type>[,<parameter1>,…,<parametern]**	Response **OK** **ERROR**
	Parameters **<response type>** String type that represents the type of response to be sent to SIM "COMMAND REJECTED" "NOTIFICATION" "SETUP CALL" "DISPLAY TEXT" "GET INKEY" "GET INPUT" "PLAY TONE" "SELECT ITEM" "SETUP MENU" "REMOVE MENU" "MENU SELECTION" "ALL CALLS DISCONNECTED" "USER ACTIVITY" "IDLE SCREEN AVAILABLE" "SETUP CALL TERMINATED" "GET ITEM LIST" "LANGUAGE NOTIFICATION" "SETUP IDLE MODE TEXT" **<parameter*n*>** 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
AT+CNETSCAN	PERFORMING A NET SURVEY TO SHOW ALL THE CELLS INFORMATION
AT+CSGS	NETLIGHT INDICATION OF GPRS STATUS
AT+SKPD	ENABLE KEYPAD INDICATION
AT+CUSD	UNSTRUCTURED SUPPLEMENTARY SERVICE DATA
AT+NETLOCK	CLOSE OR OPEN THE FUNCTION OF LOCK NETWORK
AT+CLNWPLMN	SET MCC&MNC LIST FOR LOCK NETWORK

6.2 Detailed Descriptions of Commands

6.2.1 AT+SIDET Change the Side Tone Gain Level

AT+SIDET Change the Side Tone Gain Level	
Test Command **AT+SIDET=?**	Response **+SIDET: (**list of supported **<channel>**s**),(**list of supported **<gainlevel>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+SIDET?**	Response **+SIDET: (<channel0>,<gainlevel0>),…, (<channel*n*>,<gainlevel*n*>)** **OK**
	Parameters See Write Command
Write Command **AT+SIDET=<channel>,<gainlevel>**	Response **OK** **ERROR**
	Parameters **<channel>** 0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel **<gainlevel>** Int: 0 – 16
Reference	Note ● Please refer to actual model for channel number. ● <gainlevel*n*> value of read command is related to <channel> specific.

6.2.2 AT+CPOWD Power Off

AT+CPOWD Power Off	
Write Command **AT+CPOWD=<n>**	Response **[NORMAL POWER DOWN]**
	Parameter **<n>** 0 Power off urgently (Will not send out NORMAL POWER DOWN) 1 Normal power off (Will send out NORMAL POWER DOWN)
Reference	Note

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

AT+SPIC Times Remained to Input SIM PIN/PUK	
Execution Command **AT+SPIC**	Response Times remained to input SIM PIN **+SPIC: <pin1>,<pin2>,<puk1>,<puk2>** **OK**
	Parameters **<pin1>** Times remained to input chv1 **<pin2>** Times remained to input chv2 **<puk1>** Times remained to input puk1 **<puk2>** Times remained to input puk2
Reference	Note

6.2.4 AT+CMIC Change the Microphone Gain Level

AT+CMIC Change the Microphone Gain Level	
Test Command **AT+CMIC=?**	Response **+CMIC: (**list of supported **<channel>**s**),(**list of supported **<gainlevel>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CMIC?**	Response **+CMIC: (<channel0>,<gainlevel0>),…,(<channel*n*>,<gainlevel*n*>)** **OK**
	Parameters See Write Command
Write Command **AT+CMIC=<channel>,<gainlevel>**	Response **OK** **ERROR**
	Parameters **<channel>** 0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel **<gainlevel>** Int: 0 – 15 0 0dB 1 +1.5dB

	2 +3.0 dB 3 +4.5 dB 4 +6.0 dB 5 +7.5 dB 6 +9.0 dB 7 +10.5 dB 8 +12.0 dB 9 +13.5 dB 10 +15.0 dB 11 +16.5 dB 12 +18.0 dB 13 +19.5 dB 14 +21.0 dB 15 +22.5 dB
Reference	Note ● Please refer to actual model for channel number. ● <gainlevel*n*> value is related to <channel> specific.

6.2.5 AT+CALA Set Alarm Time

AT+CALA Set Alarm Time	
Test Command **AT+CALA=?**	Response **+CALA: ("yy/mm/dd,hh:mm:ss","hh:mm:ss"),(1-5),(0-7)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Read Command **AT+CALA?**	Response **[+CALA: <time>,<n1>[,<recurr>]** **[<CR><LF> +CALA: <time>,<n2>[,<recurr>]** …**]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CALA=<time>[,<n>[,<recurr>]]**	Response **OK** If error is related to ME functionality:

	+CME ERROR: <err>
	Unsolicited Result Code Indicate the index of expired alarm. **+CALV: <n>**
	Parameters **<time>** 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. **<n>** Index of the alarm (range 1 to 5 for now). **<recurr>** "0", "1"**---**"7" String type value indicating day of week for the alarm in one of the following formats: "<1..7>[,<1..7>[…]]" – 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). Example: The string "1,2,3,4,5" may be used to set an alarm for all weekdays. "0" – Set a recurrent alarm for all days in the week.
Reference	Note ● If user sets recurr function, the string of <time> should not enter "yy/MM/dd", for example: set Monday to Friday alarm at the time of 16PM of alarm 2. AT+CALA="16:00:00",2,1,2,3,4,5

6.2.6 AT+CALD Delete Alarm

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

6.2.7 AT+CADC Read ADC

AT+CADC Read ADC	
Test Command **AT+CADC=?**	Response **+CADC: (**list of supported **<status>**s**),(**list of supported **<value>**s**)** **OK**
	Parameters **<status>** 1 Success 0 Fail **<value>** Integer 0-2800
Read Command **AT+CADC?**	Response **+CADC: <status>,<value>** **OK**
	Parameters See Test Command
Reference	Note

6.2.8 AT+CSNS Single Numbering Scheme

AT+CSNS Single Numbering Scheme	
Test Command **AT+CSNS=?**	Response **+CSNS: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSNS?**	Response **+CSNS: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CSNS=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Voice 2 Fax

	4 Data
Reference	Note

6.2.9 AT+CDSCB Reset Cell Broadcast

AT+CDSCB Reset Cell Broadcast	
Execution Command **AT+CDSCB**	Response **OK**
Reference	Note Please also refer to AT+CSCB.

6.2.10 AT+CMOD Configure Alternating Mode Calls

AT+CMOD Configure Alternating Mode Calls	
Test Command **AT+CMOD=?**	Response **+CMOD: (0)** **OK**
	Parameter See Write Command
Read Command **AT+CMOD?**	Response **+CMOD: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CMOD=[<mode>]**	Response **OK** **ERROR**
	Parameter **<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 **AT+CFGRI?**	Response **+CFGRI: <status>**

	OK
	Parameter See Write Command
Write Command **AT+CFGRI=<status>**	Response **OK** **ERROR**
	Parameter **<status>** 1 On 0 Off
Reference	Note

6.2.12 AT+CLTS Get Local Timestamp

AT+CLTS Get Local Timestamp	
Test Command **AT+CLTS=?**	Response **+CLTS: "yy/MM/dd,hh:mm:ss+/-zz"** **OK**
Write Command **AT+CLTS=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Disable 1 Enable
	Unsolicited Result Code 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. 1. Refresh network name by network: ***PSNWID: "<mcc>", "<mnc>", "<full network name>",<full network name CI>, "<short network name>",<short network name CI>** 2. Refresh time and time zone by network: This is UTC time, the time queried by AT+CCLK command is local time. ***PSUTTZ: <year>,<month>,<day>,<hour>,<min>,<sec>, "<time zone>",<dst>** 3. Refresh network time zone by network:

	+CTZV: "<time zone>" 4. Refresh Network Daylight Saving Time by network: **DST: <dst>**
	Parameters **<mcc>** String type; mobile country code **<mnc>** String type; mobile network code **<full network name>** String type; name of the network in full length. **<full network name CI>** Integer type; indicates whether to add CI. 0 The MS will not add the initial letters of the Country's Name to the text string. 1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string. **<short network name>** String type; abbreviated name of the network **<short network name CI>** Integer type; indicates whether to add CI. 0 The MS will not add the initial letters of the Country's Name to the text string. 1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string. **<year>** 4 digits of year (from network) **<month>** Month (from network) **<day>** Day (from network) **<hour>** Hour (from network) **<min>** Minute (from network) **<sec>** Second (from network) **<time zone>** 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 <dst> (Network Daylight Saving Time) **<dst>** Network Daylight Saving Time; the content of this indicates the value that used to adjust the network time zone 0 No adjustment for Daylight Saving Time 1 +1 hour adjustment for Daylight Saving 2 +2 hours adjustment for Daylight Saving Time 3 Reserved
Reference	Note ● Support for this Command will be network dependent. ● Set AT+CLTS=1, it means user can receive network time updating and use AT+CCLK to show current time.

6.2.13 AT+CEXTHS External Headset Jack Control

AT+CEXTHS External Headset Jack Control	
Test Command **AT+CEXTHS=?**	Response **+CEXTHS: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CEXTHS?**	Response **+CEXTHS: <mode>,<headset attach>** **OK**
	Parameters See Write Command
Write Command **AT+CEXTHS=<mode>**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CEXTHS: <mode>,<headset attach>**
	Parameters **<mode>** A numeric parameter which indicates whether an unsolicited event code (indicating whether the headset has been attached/detached) should be sent to the terminal. 0 Not send unsolicited event code 1 Send unsolicited event code **<headset attach>** A numeric parameter which indicates whether a headset has been attached or not. 0 Not attached 1 Attached
Reference	Note This command is related to the actual module.

6.2.14 AT+CEXTBUT Headset Button Status Reporting

AT+CEXTBUT Headset Button Status Reporting	
Test Command **AT+CEXTBUT=?**	Response **+CEXTBUT: (**list of supported **<mode>**s**)** **OK**
	Parameter

	See Write Command
Read Command **AT+CEXTBUT?**	Response **+CEXTBUT: <mode>,<headset button press>** **OK**
	Parameters See Write Command
Write Command **AT+CEXTBUT=<mode>**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CEXTBUT: <mode>,<headset button press>**
	Parameters **<mode>** A numeric parameter which indicates whether an unsolicited event code (indicating whether the headset button has been pressed) should be sent to the terminal. 0 Not send unsolicited event code 1 Send unsolicited event code **<headset button press>** A numeric parameter which indicates whether a headset button has been pressed or not. 0 Not pressed 1 Pressed
Reference	Note This command is related to the actual module.

6.2.15 AT+CSMINS SIM Inserted Status Reporting

AT+CSMINS SIM Inserted Status Reporting	
Test Command **AT+CSMINS=?**	Response **+CSMINS: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSMINS?**	Response **+CSMINS: <n>,<SIM inserted>** **OK**
	Parameters See Write Command

Write Command **AT+CSMINS=<n>**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CSMINS: <n>,<SIM inserted>**
	Parameters **<n>** A numeric parameter to show an unsolicited event code indicating whether the SIM has been inserted or removed. 0 Disable 1 Enable **<SIM inserted>** A numeric parameter which indicates whether SIM card has been inserted. 0 Not inserted 1 Inserted
Reference	Note

6.2.16 AT+CLDTMF Local DTMF Tone Generation

AT+CLDTMF Local DTMF Tone Generation	
Test Command **AT+CLDTMF=?**	Response **+CLDTMF: (1-100),(0-9,A,B,C,D,*,#,E,F,G),(40-500),(0,1,2)** **OK**
Write Command **AT+CLDTMF=<n>,<DTMF string>[,<basicdur>[,<side>]]**	Response **OK** **ERROR**
	Parameters **<n>** (1-100) A numeric parameter measured in units of <basicdur> which indicates the duration of all DTMF tones in <DTMF string>. **<DTMF string>** A string parameter (string should be included in quotation marks) which has a max length of 20 chars of form <DTMF>, separated by commas. **<DTMF>** A single ASCII chars in the set 0-9,#,*,A-G. "E" represents 1400HZ, "F" represents 2300HZ, and "G" represents 1000HZ. <**basicdur**> (40-500) A numeric parameter in terms of ms which indicates the basic duration time, default value is 500. **<side>** Indicates which side the tone will be played on. 0 local side 1 remote side

	2 both sides
Execution Command **AT+CLDTMF**	Response **OK** Abort any DTMF tone currently being generated and any DTMF tone sequence.
Reference	Note

6.2.17 AT+CDRIND CS Voice/Data Call Termination Indication

AT+CDRIND CS Voice/Data Call Termination Indication	
Test Command **AT+CDRIND=?**	Response **+CDRIND: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CDRIND?**	Response **+CDRIND: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CDRIND=<n>**	Response **OK** **ERROR**
	Parameter **<n>** A numeric parameter to enable an unsolicited event code indicating whether a CS voice call, CS data has been terminated. 0 Disable 1 Enable
	Unsolicited Result Code When enabled, an unsolicited result code is returned after the connection has been terminated **+CDRIND: <type>**
	Parameter **<type>** Connection type 0 CSV connection 1 CSD connection 2 PPP connection

Reference	Note

6.2.18 AT+CSPN Get Service Provider Name from SIM

AT+CSPN Get Service Provider Name from SIM	
Read Command **AT+CSPN?**	Response **+CSPN: <spn>,<display mode>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<spn>** String type(string should be included in quotation marks); service provider name on SIM **<display mode>** 0 Not display PLMN. Already registered on PLMN 1 Display PLMN
Reference	Note 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 **AT+CCVM=?**	Response **+CCVM:** maximum length of field **<vm number>,** maximum length of field **<alpha string>** **OK**
	Parameters See Write Command
Read Command **AT+CCVM?**	Response If voice mail number is not set: **OK** If voice mail number is set: **+CCVM: <vm number>[,<alpha string>]** **OK**
	Parameters See Write Command
Write Command **AT+CCVM=<vm number>[,<alpha string>]**	Response **OK** **ERROR** If error is related to ME functionality:

	+CME ERROR: <err>
	Parameters **<vm number>** String type (string should be included in quotation marks) -The voice mail number to write to the SIM **<alpha string>** String type (string should be included in quotation marks) -The alpha-string to write to the SIM
Reference	Note

6.2.20 AT+CBAND Get and Set Mobile Operation Band

AT+CBAND Get and Set Mobile Operation Band	
Test Command **AT+CBAND=?**	Response **+CBAND: (**list of supported **<op_band>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CBAND?**	Response **+CBAND: <op_band>[,<ALL_BAND>]** **OK**
	Parameter See Write Command
Write Command **AT+CBAND=<op_band>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<op_band>** A string parameter which indicate the operation band. And the following strings should be included in quotation marks. EGSM_MODE PGSM_MODE DCS_MODE GSM850_MODE PCS_MODE EGSM_DCS_MODE GSM850_PCS_MODE EGSM_PCS_MODE ALL_BAND

Reference	Note Radio settings are stored in non-volatile memory.

6.2.21 AT+CHF Configure Hands Free Operation

AT+CHF Configure Hands Free Operation	
Test Command **AT+CHF=?**	Response **+CHF: (**list of supported **<ind>**s**),(**list of supported **<state>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CHF?**	Response **+CHF: <ind>,<state>** **OK**
	Parameters See Write Command
Write Command **AT+CHF=<ind>** **[,<state>]**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+CHF: <state>**
	Parameters **<ind>** 0 Unsolicited result code disabled 1 Unsolicited result code enabled (non-volatile) **<state>** 0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel (volatile)
Reference	Note This command is related to the actual module.

6.2.22 AT+CHFA Swap the Audio Channels

AT+CHFA Swap the Audio Channels

Test Command **AT+CHFA=?**	Response **+CHFA: (0 = NORMAL_AUDIO, 1 = HEADSET_AUDIO, 2 = HANDFREE_AUDIO, 3 = HEADSET_HANDFREE_AUDIO)** **OK**
Read Command **AT+CHFA?**	Response **+CHFA: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CHFA=<n>**	Response **OK** If error is related to ME functionality: **+CME ERROR:** <**err**>
	Parameter **<n>** 0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel
Reference	Note ● This Command swaps the audio channels among different channels. ● This command is related to the actual module.

6.2.23 AT+CSCLK Configure Slow Clock

AT+CSCLK Configure Slow Clock	
Test Command **AT+CSCLK=?**	Response **+CSCLK: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSCLK?**	Response **+CSCLK: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CSCLK=<n**	Response **OK**

>	**ERROR**
	Parameter **<n>** 0 Disable slow clock, module will not enter sleep mode. 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. 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.
Reference	Note

6.2.24 AT+CENG Switch On or Off Engineering Mode

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

	if <mode>=3 **+CENG: <mode>,<Ncell>** **[+CENG: <cell>,<mcc>,<mnc>,<lac>,<cellid>,<bsic>,<rxl>** **<CR><LF>+CENG: <cell>,<mcc>,<mnc>,<lac>,<cellid>,** **<bsic>,<rxl>…]** **OK**
	Parameters See Write Command
Write Command **AT+CENG=<mode>[,<Ncell>]**	Response Switch on or off engineering mode. It will report +CENG: (network information) automatically if <mode>=2. **OK** **ERROR**
	Parameters **<mode>** 0 Switch off engineering mode 1 Switch on engineering mode 2 Switch on engineering mode, and activate the URC report of network information 3 Switch on engineering mode, with limited URC report **<Ncell>** 0 Un-display neighbor cell ID 1 Display neighbor cell ID If <mode>=3, ignore this parameter. **<cell>** 0 The serving cell 1-6 The index of the neighboring cell **<arfcn>** Absolute radio frequency channel number **<rxl>** Receive level **<rxq>** Receive quality **<mcc>** Mobile country code **<mnc>** Mobile network code **<bsic>** Base station identity code **<cellid>** Cell id **<lac>** Location area code **<rla>** Receive level access minimum **<txp>** Transmit power maximum CCCH **<TA>** Timing Advance
Reference	Note

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

AT+SCLASS0 Store Class 0 SMS to SIM When Module Received Class 0 SMS	
Test Command **AT+SCLASS0=?**	Response **+SCLASS0: (0, 1)** **OK**
	Parameter See Write Command
Read Command **AT+SCLASS0?**	Response **+SCLASS0: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+SCLASS0=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Disable to store Class 0 SMS to SIM when module receives Class 0 SMS 1 Enable to store Class 0 SMS to SIM when module receives Class 0 SMS
Reference	Note

6.2.26 AT+CCID Show ICCID

AT+CCID Show ICCID	
Test Command **AT+CCID=?**	Response **OK**
Execution Command **AT+CCID**	Response **Ccid data** [ex. 898600810906F8048812] **OK**
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	Response

AT+CMTE?	**+CMTE: <mode>,<Temperature>** **OK**
	Parameters See Write Command
Write Command **AT+CMTE=** **<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Disable temperature detection 1 Enable temperature detection **<Temperature>** range from -40 to 90
Reference	Note ● When temperature is extremely high or low, product will power off. ● 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. ● Level "2" or "-2" URCs are followed by immediate shutdown.

6.2.28 AT+CBTE Battery Temperature Query

AT+CBTE Battery Temperature Query	
Read Command **AT+CBTE ?**	Response **+CBTE: <voltage>** **OK**
	Parameter **<voltage>** Battery voltage(mV)
Reference	Note ● The temperature can be calculated according to the resistance of NTC and the voltage supported by this command.

6.2.29 AT+CSDT Switch On or Off Detecting SIM Card

AT+CSDT Switch On or Off Detecting SIM Card	
Test Command **AT+CSDT=?**	Response **+CSDT: (0-1)** **OK**
	Parameter See Write Command

Read Command **AT+CSDT?**	Response **+CSDT: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CSDT=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Switch off detecting SIM card 1 Switch on detecting SIM card
Reference	Note User should select 8-pin SIM card holder to implement SIM card detection function.

6.2.30 AT+CMGDA Delete All SMS

AT+CMGDA Delete All SMS	
Test Command **AT+CMGDA=?**	Response **+CMGDA: (**list of supported **<type>**s**)** **OK** **+CMS ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CMGDA=<type>**	Response **OK** **ERROR** **+CMS ERROR: <err>**
	Parameter **<type>** 1) If text mode: "DEL READ" Delete all read messages "DEL UNREAD" Delete all unread messages "DEL SENT" Delete all sent SMS "DEL UNSENT" Delete all unsent SMS "DEL INBOX" Delete all received SMS "DEL ALL" Delete all SMS 2) If PDU mode: 1 Delete all read messages 2 Delete all unread messages

	3 Delete all sent SMS 4 Delete all unsent SMS 5 Delete all received SMS 6 Delete all SMS
Reference	Note

6.2.31 AT+STTONE Play SIM Toolkit Tone

AT+STTONE Play SIM Toolkit Tone	
Test Command **AT+STTONE=?**	Response **+STTONE: (**list of supported **<mode>**s**),(**list of supported **<tone>**s**),(**list of supported **<duration>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+STTONE=<mode>[,<tone>,<duration>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code The playing is stopped or completed. **+STTONE: 0**
	Parameters **<mode>** 0 Stop playing tone 1 Start playing tone **<tone>** Numeric type 1 Dial Tone 2 Called Subscriber Busy 3 Congestion 4 Radio Path Acknowledge 5 Radio Path Not Available / Call Dropped 6 Error / Special information 7 Call Waiting Tone 8 Ringing Tone 16 General Beep 17 Positive Acknowledgement Tone 18 Negative Acknowledgement or Error Tone 19 Indian Dial Tone 20 American Dial Tone

	<duration> Numeric type, in milliseconds. Max requested value=255*60*1000=15300000ms (supported range=3-15300000)
Reference	Note ● The default <tone>, if none is entered, it should be General Beep. ● The default <duration>, if none is entered, it should be 500ms.

6.2.32 AT+SIMTONE Generate Specifically Tone

AT+SIMTONE	**Generate Specifically Tone**
Test Command **AT+SIMTONE=?**	Response **+SIMTONE: (0,1),(20-20000),(200-25500),(0,100-25500),(0-500000)** **OK**
	Parameters See Write Command
Write Command **AT+SIMTONE=<mode>,<frequency>,<periodOn>,<periodOff>,<duration>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code The playing is stopped or completed. **+SIMTONE: 0**
	Parameters **<mode>** 0 Stop playing tone 1 Start playing tone **<frequency>** The frequency of tone to be generated **<periodOn>** The period of generating tone, must be multiple of 100 **<periodOff>** The period of stopping tone, must be multiple of 100 **<duration>** Duration of tones in milliseconds
Reference	Note

6.2.33 AT+CCPD Enable or Disable Alpha String

AT+CCPD	**Enable or Disable Alpha String**
Test Command **AT+CCPD=?**	Response **+CCPD: (0,1)** **OK**
	Parameter See Write Command
Read Command	Response

AT+CCPD?	**+CCPD: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CCPD=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Disable to present alpha string 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 **AT+CGID**	Response **+GID: <gid1>,<gid2>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<gid1>** Integer type of SIM card group identifier 1 **<gid2>** Integer type of SIM card group identifier 2
Reference	Note If the SIM supports GID files, the GID values will be returned. Otherwise 0xff is retuned.

6.2.35 AT+MORING Show State of Mobile Originated Call

AT+MORING Show State of Mobile Originated Call	
Test Command **AT+MORING=?**	Response **+MORING: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+MORING?**	Response **+MORING: <mode>**

	OK
	Parameter See Write Command
Write Command **AT+MORING=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Not show call state of mobile originated call 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 **MO RING** the call is alerted. **MO CONNECTED** the call is established.
Reference	Note

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

AT+CMGHEX	**Enable or Disable Sending Non-ASCII Character SMS**
Test Command **AT+CMGHEX=?**	Response **+CMGHEX: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CMGHEX?**	Response **+CMGHEX: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CMGHEX=<mode>**	Response **OK** If error is related to ME functionality:

	+CME ERROR: <err>
	Parameter **<mode>** 0 Send SMS in ordinary way 1 Enable to send SMS varying from 0x00 to 0x7f except 0x1a and 0x1b under text mode and GSM character set
Reference	Note Only be available in TEXT mode and AT+CSCS="GSM".

6.2.37 AT+CCODE Configure SMS Code Mode

AT+CCODE Configure SMS Code Mode	
Test Command **AT+CCODE=?**	Response **+CCODE: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CCODE?**	Response **+CCODE: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CCODE=** **<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Code mode compatible with NOKIA 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 **AT+CIURC=?**	Response **+CIURC: (0,1)** **OK**
	Parameter

	See Write Command
Read Command **AT+CIURC?**	Response **+CIURC: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIURC=** **<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Disable URC presentation. 1 Enable URC presentation
Reference	Note When module is powered on and initialization procedure is over. URC "Call Ready" will be presented if <mode> is 1.

6.2.39 AT+CPSPWD Change PS Super Password

AT+CPSPWD Change PS Super Password	
Write Command **AT+CPSPWD=** **<oldpwd>,<newpwd>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<oldpwd>** String type(string should be included in quotation marks). Old password and length should be 8. **<newpwd>** String type(string should be included in quotation marks). New password and length should be 8.
Reference	Note ● Default value of <oldpwd> is "12345678". ● 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. ● It is not supported temporarily.

6.2.40 AT+EXUNSOL Enable or Disable Proprietary Unsolicited Indications

AT+EXUNSOL Enable or Disable Proprietary Unsolicited Indications	
Test Command	Response

AT+EXUNSOL=?	**+EXUNSOL: (**list of supported **<exunsol>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+EXUNSOL=<exunsol>,<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<exunsol>** String type(string should be included in quotation marks). Values are currently reserved by the present document "SQ" Signal Quality Report Displays signal strength and channel bit error rate (similar to AT+CSQ) in form +CSQN: <rssi>,<ber>when values change. "UR" Unsolicited result code Produces an unsolicited indication following particular call state Transitions. Multiple notifications may occur for the same transition +CGURC: <event> Where <event> describes the current call state: <event> 0 Active call terminated, at least one held call remaining 1 Attempt to make an Mobile Originated call 2 Mobile Originated Call has failed for some reason 3 Mobile Originated call is ringing 4 Mobile Terminated call is queued (Call waiting) 5 Mobile Originated Call now connected 6 Mobile Originated or Mobile Terminated call has disconnected 7 Mobile Originated or Mobile Terminated call hung up 8 Mobile Originated call to non-emergency number in emergency mode 9 Mobile Originated call no answer 10 Mobile Originated call remote number busy **<mode>** 0 Disable 1 Enable 2 Query
Reference	Note

6.2.41 AT+CGMSCLASS Change GPRS Multislot Class

AT+CGMSCLASS Change GPRS Multislot Class	
Test Command **AT+CGMSCLASS=?**	Response **MULTISLOT CLASS: (2,4,8,9,10)** **OK**
	Parameter See Write Command
Read Command **AT+CGMSCLASS?**	Response **MULTISLOT CLASS: <class>** **OK**
	Parameter See Write Command
Write Command **AT+CGMSCLASS=<class>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<class>** GPRS multi-slot class
Reference	Note

6.2.42 AT+CDEVICE View Current Flash Device Type

AT+CDEVICE View Current Flash Device Type	
Read Command **AT+CDEVICE?**	Response **Device Name: Current flash device type** **OK**
Reference V.25ter	Note

6.2.43 AT+CCALR Call Ready Query

AT+CCALR Call Ready Query	
Test Command **AT+CCALR=?**	Response **+CCALR: (**list of supported **<mode>**s**)** **OK**

	Parameter **<mode>** A numeric parameter which indicates whether the module is ready for phone call. 0 Module is not ready for phone call 1 Module is ready for phone call
Read Command **AT+CCALR?**	Response ME returns the status of result code presentation and an integer <n> which shows whether the module is currently ready for phone call. **+CCALR: <mode>** **OK**
	Parameter **<mode>** See Test Command
Reference	Note

6.2.44 AT+GSV Display Product Identification Information

AT+GSV Display Product Identification Information	
Execution Command **AT+GSV**	Response TA returns product information text Example: **SIMCOM_Ltd** **SIMCOM_SIM900** **Revision: 1137B01V01SIM900M32_ST** **OK**
Reference	Note

6.2.45 AT+SGPIO Control the GPIO

AT+SGPIO Control the GPIO	
Test Command **AT+SGPIO=?**	Response **+SGPIO: (0-1),(1-12),(0-2),(0-1)** **OK**
	Parameters See Write Command
Write Command **AT+SGPIO=<operation>,<GPI**	Response **OK** **ERROR**

O>,<function> **,<level>**	Parameters **<Operation>** 0 Set the GPIO function including the GPIO output and GPIO as the Keypad. 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". **<GPIO>** The GPIO you want to be set. (It has relations with the hardware, please refer to the hardware manual) **<function>** Only when <Operation> is set to 0, this option takes effect. 0 Set the GPIO to input. 1 Set the GPIO to output 2 Set the GPIO to keypad **<level>** 0 Set the GPIO low level 1 Set the GPIO high level
Reference	Note 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.

6.2.46 AT+SPWM Generate the Pulse-Width-Modulation

AT+SPWM Generate the Pulse-Width-Modulation	
Test Command **AT+SPWM=?**	Response **+SPWM: (**list of supported **<index>s),(**list of supported **<period>**s**),(**list of supported **<level>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+SPWM=<index>,<period>,<level>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<index>** Integer type: the index number of PWM port, which value is 0-2; 0: for buzzer (according to the hardware support or not). 1: corresponding to PWM_OUT0 in the hardware circuit 2: corresponding to PWM_OUT1 in the hardware circuit **<period>** The range of <period> is 0-126 if <index> is set to 1 or 2, the range of <period> is 0-65535 if <index> is set to 0,

	the output frequency equals to (26MHz/8)/(period+1). **<level>** 0-100: tone level, which can be converted to duty ratio.
Reference	Note ● We have a 26MHz crystal oscillator. The MAX frequency of PWM is 26/8=3.25Mhz. ● The equation of final frequency and <period> is this: frequency=3.25/(period+1), for example, if <period> is set to 100, we get a frequency: 3.25/101=32.178Khz. ● The equation of <level> and duty factor is: duty factor=(level+1).

6.2.47 AT+ECHO Echo Cancellation Control

AT+ECHO Echo Cancellation Control	
Test Command **AT+ECHO=?**	Response **+ECHO: MIC:(**list of supported **<mic>**s**), ES:(**list of supported **<es>**s**), SES:(**list of supported **<ses>**s**), MODE:(**list of supported **<mode>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+ECHO?**	Response **+ECHO:** **(<mic0>,<es0>,<ses0>,<mode0>)...,(<mic*n*>,<es*n*>,<ses*n*>,<mode*n*>)** **OK**
	Parameters See Write Command
Write Command **AT+ECHO=<mic>,<es>[,<ses>[,<mode>]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mic>** Audio channel 0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel **<es>** Echo suppression 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. **<ses>** Selective echo suppression

	0-6 (when mic=0 or1 default value is 0; when mic=2 or 3 default value is 5) **<mode>** 0 Close echo algorithm 1 Open echo algorithm
Reference	Note ● Please refer to actual model for channel number. ● <es*n*> <ses*n*> <mode*n*> values of read command are related to channel <mic*n*>specific.

6.2.48 AT+CAAS Control Auto Audio Switch

AT+CAAS Control Auto Audio Switch	
Test Command **AT+CAAS=?**	Response **+CAAS: (0-2)** **OK**
	Parameter See Write Command
Read Command **AT+CAAS?**	Response **+CAAS: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CAAS=<mode>**	Response 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. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<mode>** 0 Disable automatic audio channel switch function, the headset HOOK function is disabled; 1 Enable automatic audio channel switch function, the headset HOOK function is enabled; 2 Disable automatic audio channel switch function, the headset HOOK function is enabled.

Reference	Note ● For this command, please refer to actual model. ● The headset detection is still worked when <mode> 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.

6.2.49 AT+SVR Configure Voice Coding Type for Voice Calls

AT+SVR Configure Voice Coding Type for Voice Calls	
Test Command **AT+SVR=?**	Response **+SVR: (**list of supported **<voice_rate_coding>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+SVR?**	Response **+SVR: <voice_rate_coding>** **OK**
	Parameter See Write Command
Write Command **AT+SVR=<voice_rate_coding>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <error>**
	Parameter **<voice_rate_coding>** A number parameter which indicates the voice coding type. 0:FR 1:EFR/FR 2.HR/FR 3:FR/HR 4:HR/EFR 5:EFR/HR 6:AMR-FR/EFR,AMR-HR 7:AMR-FR/EFR,AMR-HR/HR 8:AMR-HR/HR/AMR-FR/EFR 9:AMR-HR/AMR-FR/EFR 10:AMR-HR/AMR-FR/FR 11:AMR-HR/HR/AMR-FR 12:AMR-FR/AMR-HR 13:AMR-FR/FR/AMR-HR

	14:AMR-FR/FR/AMR-HR/HR 15:AMR-FR/EFR/FR/AMR-HR/HR 16:AMR-HR/AMR-FR/EFR/FR/HR 17: AMR-FR/AMR-HR/EFR/FR/HR
Reference	Note The parameter of AT+SVR is stored in non-volatile memory.

6.2.50 AT+GSMBUSY Reject Incoming Call

AT+GSMBUSY	**Reject Incoming Call**
Test Command **AT+GSMBUSY=?**	Response **+GSMBUSY: (0,1,2)** **OK**
	Parameter See Write Command
Read Command **AT+GSMBUSY?**	Response **+GSMBUSY: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+GSMBUSY=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <error>**
	Parameter **<mode>** 0 Enable incoming call 1 Forbid all incoming calls 2 Forbid incoming voice calls but enable CSD calls
Reference	Note 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 **AT+CEMNL=?**	Response **+CEMNL: (0-1),(1-11), ("0"-"999")…** **OK**

	Parameter See Write Command
Read Command **AT+CEMNL?**	Response **+CEMNL: <mode>[,<amount>,<emergency numbers>]** **OK**
	Parameter See Write Command
Write Command **AT+CEMNL=<mode>[,<amount>,<emergency numbers>]**	Response **OK** **ERROR**
	Parameter **<mode>** 0 disable 1 enable **<amount>** Amount of emergency number to be set. Up to 11 emergency numbers supported. **<emergency numbers>** Emergency numbers to be set by user which range is 0-999
Reference	Note

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

AT*CELLLOCK Set the List of ARFCN Which Needs to Be Locked	
Test Command **AT*CELLLOCK=?**	Response ***CELLLOCK:** **(**list of supported **<mode>**s**),(**list of supported **<amount>**s**),(**list of supported **<locked arfcn list>**s**)** **OK**
	Parameter
Read Command **AT*CELLLOCK?**	Response ***CELLLOCK: <mode>[,<amount>,<locked arfcn list>[,<locked arfcn list>…]]** **OK**
	Parameter See Write Command
Write Command **AT*CELLLOCK=<mode>**	Response **OK** **ERROR**

[,<amount>,<locked arfcn list> [,<locked arfcn list>…]]	Parameter **<mode>** 0 Disable 1 Enable **<amout>** Amount of arfcn to be set. Up to 4 arfcn supported. **<locked arfcn list>** Arfcn needs to be locked by user. 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 **AT+SLEDS=?**	Response **+SLEDS: (1-3),(0,40-65535),(0,40-65535)** **OK**
	Parameters See Write Command
Read Command **AT+SLEDS?**	Response **+SLEDS: <mode>,<timer_on>,<timer_off>** **OK**
	Parameters See Write Command
Write Command **AT+SLEDS=<mode>,<timer_on>,<timer_off>**	Response **OK** **ERROR**
	Parameters **<mode>** 1 set the timer period of net light while SIM900 does not register to the network 2 set the timer period net light while SIM900 has already registered to the network 3 set the timer period net light while SIM900 is in the state of PPP communication <**timer_on**> Timer period of “LED ON” in decimal format which range is 0 or 40-65535(ms) <**timer_off**> Timer period of “LED OFF” in decimal format which range is 0 or

	40-65535(ms)
Reference	Note The default value is : **<mode>,<timer_on>,<timer_off>** 1,53,790 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 **AT+CCHGMODE?**	Response **+CCHGMOD: <mode>** **OK**
	Parameter **<mode>** 0 the module is powered off. 1 the module is powered on.
Reference	Note ● 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 **AT+CBUZZERRING?**	Response **+CBUZZERRING: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CBUZZERRING=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 disable the function of using buzzer sound as the incoming call ring 1 enable the function of using buzzer sound as the incoming call ring
Reference	Note 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	
Test Command **AT+CEXTERNTONE=?**	Response **+CEXTERNTONE: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CEXTERNTONE?**	Response **+CEXTERNTONE: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CEXTERNTONE=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 re-open the microphone 1 close the microphone
Reference	Note

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

AT+CNETLIGHT Close the Net Light or Open It to Shining	
Write Command **AT+CNETLIGHT=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 close the net light 1 open the net light to shining
Reference	Note

6.2.58 AT+CWHITELIST Set the White List

AT+CWHITELIST Set the White List

Test Command **AT+CWHITELIST=?**	Response **+CWHITELIST: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CWHITELIST?**	Response **+CWHITELIST: <mode>,<phone number1>,<phone number2>,…<phone number30>** **OK**
	Parameters See Write Command
Write Command **AT+CWHITELIST=<mode>[,<index>,<phone number>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 disable 1 enable <**index**> The index of phone number, scope: 1-30 <**phone number**> Phone number to be set
Reference	Note

6.2.59 AT+CUSACC Accelerate Uart Response Speed

AT+CUSACC Accelerate Uart Response Speed	
Test Command **AT+CUSACC=?**	Response **+CUSACC: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CUSACC?**	Response **+CUSACC: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CUSACC=<mode>**	Response **OK** **ERROR**

	Parameters **<mode>** 0 disable 1 enable, adjust the response speed of uart in low band rate.
Reference	Note

6.2.60 AT+CNETSCAN Performing A Net Survey to Show All the Cells Information

AT+CNETSCAN	**performing a net survey to show all the cells information**
Execution Command **AT+CNETSCAN**	Response **<Network_Operator_name>,<MCC>,<MNC>,<Rxlev>,<Cellid>,<Arfcn>[<CR><LF><Network_Operator_name2>,<MCC2>,<MNC2>,<Rxlev2>,<Cellid2>,<Arfcn2> […]]** **OK**
	Parameters **<Network_Operator_name>** Long format alphanumeric of Network operator <**MCC**> Mobile country code <**MNC**> Mobile network code **<Rxlev>** Receive level **<Cellid>** Cell identifier **<Arfcn>** Absolute radio frequency channel number
Reference	Note ● The cells which <Rxlev> is below 10 will be ignored.

6.2.61 AT+CSGS Netlight Indication of GPRS Status

AT+CSGS Netlight Indication of GPRS Status	
Test Command **AT+CSGS=?**	Response **+CSGS: (0-1)** **OK**
	Parameter
Read Command **AT+CSGS?**	Response **+CSGS: <mode>** **OK**
	Parameter:

Write Command **AT+CSGS=<mode>**	Response **OK** **ERROR**
	Parameter: **<mode>** 0 disable 1 enable, the netlight will be forced to enter into 64ms on/300ms off blinking state in GPRS data transmission service. Otherwise, the netlight state is not restricted.
Reference	Note

6.2.62 AT+SKPD Enable Keypad Indication

AT+SKPD Enable keypad indication	
Test Command **AT+SKPD=?**	Response **+SKPD: (0-1)** **OK**
Read Command **AT+SKPD?**	Response **+SKPD: 0** **OK**
Write Command **AT+SKPD=<state>**	Response **OK** **ERROR**
	Parameters **<state>** 0 Disable keypad indication 1 Enable keypad indication
	Unsolicited Result Code **+SKPD: <Keypad Value>, <Keypad Status>**
	Parameters **<Keypad Value>** The value of pressed or released keypad. **<Keypad Status>** The status of keypad 0 released 1 pressed
Reference	Note ● When the keypad indication is enabled, all the keypad GPIOs will be configured as keypad. ● Before keypad indication function is enabled, SGPIO command should be executed first to set any one of the keypad GPIOs as a keypad. ● This command is not supported in all versions.

6.2.63 AT+CUSD Unstructured Supplementary Service Data

AT+CUSD Unstructured supplementary service data	
Test Command **AT+CUSD=?**	Response **+CUSD: (0,1,2)** **OK**
Read Command **AT+CUSD?**	Response **+CUSD: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CUSD=<n>[,<str>[<dcs>]]**	Response **OK** **ERROR**
	Parameters **<n>** 0 Disable the result code presentation 1 Enable the result code presentation 2 Cancel session (not applicable to read command response)
	Unsolicited Result Code **+CUSD: <m>[,<str>,<dcs>]**
	Parameters **<m>** 0 no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation) 1 further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 USSD terminated by network 4 Operation not supported 5 Network time out **<str>** is network string, converted in the selected character set **<dcs>** is the data coding scheme received (GSM TS 03.38).
Reference	Note

6.2.64 AT+NETLOCK Close or Open the Function of Lock Network

AT+NETLOCK Close or open the function of lock network	
Test Command	Response

AT+NETLOCK=?	**+NETLOCK: (0-1),"old pwd","new pwd"** **OK**
	Parameter
Read Command **AT+NETLOCK?**	Response **+NETLOCK: <mode>** **OK**
	Parameter
Write Command **AT+NETLOCK=<mode>,<old pwd>[,<new pwd>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 open the function of lock network 1 close the function of lock network **<old pwd>** Password string which is necessary before open or close the function or set new password **<new pwd>** New password
Reference	Note The initial password is 123456

6.2.65 AT+CLNWPLMN Set MCC&MNC List for Lock Network

AT+CLNWPLMN Set MCC&MNC list for lock network	
Test Command **AT+CLNWPLMN=?**	Response **+CLNWPLMN: (1-36),"MCC,MNC"** **OK**
	Parameter
Read Command **AT+CLNWPLMN?**	Response **+CLNWPLMN:** **1,"MCC,MNC",** **2,"MCC,MNC",** **3,"MCC,MNC",** **……** **36,"MCC,MNC"** **OK**
	Parameter
Write Command **AT+CLNWPLMN=<index>,<mcc**	Response **OK** **ERROR**

,mnc>,<password>	Parameter **<index>** Index of network operator's MCC&MNC **<mcc,mnc>** Network operator's MCC&MNC <**password**> Password string which is necessary before modify MCC&MNC
Reference	Note ● Before modify the list, it is necessary to open AT+NETLOCK ● The default value of <mcc,mnc> is "FFF,FFF"

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 **AT+CGATT=?**	Response **+CGATT: (**list of supported **<state>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CGATT?**	Response **+CGATT: <state>** **OK**
	Parameter See Write Command
Write Command **AT+CGATT=<state>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

	Parameter **<state>** Indicates the state of GPRS attachment 0 Detached 1 Attached Other values are reserved and will result in an ERROR response to the Write Command.
Reference	Note

7.2.2 AT+CGDCONT Define PDP Context

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

	2 PDP Context Identifier 2 Definition stored in non-volatile memory 3 PDP Context Identifier 3 Default <cid> Locked in non-volatile memory and is always defined, it can not be changed by user. **<PDP_type>** (Packet Data Protocol type) IP Internet Protocol (IETF STD 5) **<APN>** (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. **<PDP_addr>** A string parameter (IP address). Format: "<n>.<n>.<n>.<n>" where <n>=0..255 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 **<d_comp>** A numeric parameter that controls PDP data compression 0 –PDP data compression off (default if value is omitted) **<h_comp>** A numeric parameter that controls PDP data compression 0 –PDP header compression off (default if value is omitted)
Reference	Note

7.2.2.1For <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 **AT+CGQMIN=?**	Response **+CGQMIN: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[<CR><LF>+CGQMIN: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[…]]** **OK**
	Parameters See Write Command
Read Command **AT+CGQMIN?**	Response **+CGQMIN: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **[<CR><LF>+CGQMIN:** **<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>** **[…]]** **OK**
	Parameters See Write Command
Write Command **AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

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

7.2.4 AT+CGQREQ Quality of Service Profile (Requested)

AT+CGQREQ Quality of Service Profile (Requested)	
Test Command **AT+CGQREQ=?**	Response **+CGQREQ: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),<**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[<CR><LF>+CGQREQ: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[…]]** **OK**
	Parameters See Write Command
Read Command **AT+CGQREQ?**	Response **+CGQREQ: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **[<CR><LF>+CGQREQ:**

	<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[…]] **OK**
	Parameters See Write Command
Write Command **AT+CGQREQ=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<cid>** A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) 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. The following parameter are defined in GSM 03.60 **<precedence>** A numeric parameter which specifies the precedence class 0 QOS precedence class subscribed value 1..3 QOS precedence class **<delay>** A numeric parameter which specifies the delay class 0 QOS delay class subscribed value 1..4 QOS delay class **<reliability>** A numeric parameter which specifies the reliability class 0 QOS reliability class subscribed value 1..5 QOS reliability class; default value: 3 **<peak>** A numeric parameter which specifies the peak throughput class 0 QOS peak throughput class subscribed value 1..9 QOS peak throughput class **<mean>** A numeric parameter which specifies the mean throughput class 0 QOS mean throughput class subscribed value 1..18 QOS mean throughput class 31 QOS mean throughput class best effort
Reference	Note

7.2.5 AT+CGACT PDP Context Activate or Deactivate

AT+CGACT PDP Context Activate or Deactivate

Test Command **AT+CGACT=?**	Response **+CGACT: (**list of supported **<state>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CGACT?**	Response **+CGACT: <cid>,<state>[<CR><LF>+CGACT: <cid>,<state>…]** **OK**
	Parameters See Write Command
Write Command **AT+CGACT=[<state> [,<cid>]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<state>** Indicates the state of PDP context activation 0 deactivated 1 activated Other values are reserved and will result in an ERROR response to the Write Command. **<cid>** A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) 1..3 PDP Context Identifier, cid 3 is reserved and is always defined, it cannot be changed by user.
Reference	Note ● This command is used to test PDPs with network simulators. Successful activation of PDP on real network is not guaranteed. ● Refer to AT+CGDATA clarification for more information.

7.2.6 AT+CGDATA Enter Data State

AT+CGDATA Enter Data State	
Test Command **AT+CGDATA=?**	Response **+CGDATA:** list of supported **<L2P>**s **OK** Parameter See Write Command

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

7.2.7 AT+CGPADDR Show PDP Address

AT+CGPADDR	**Show PDP Address**
Test Command **AT+CGPADDR=?**	Response **+CGPADDR: (**list of defined **<cid>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+CGPADDR=<cid>**	Response **+CGPADDR: <cid>,<PDP_addr>** **[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[…]]** **OK** **ERROR**
	Parameters **<cid>** A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) If <cid> is not specified, the addresses for all defined contexts will be returned. 1..3 PDP Context Identifier, cid 3 is reserved and is always defined, it cannot be changed by user.

	<PDP_addr> String type, IP address Format: "<n>.<n>.<n>.<n>" where <n>=0..255
Reference	Note Write command returns address provided by the network if a connection has been established.

7.2.8 AT+CGCLASS GPRS Mobile Station Class

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

Reference	Note It only supports Class B and CC.

7.2.9 AT+CGEREP Control Unsolicited GPRS Event Reporting

AT+CGEREP Control Unsolicited GPRS Event Reporting	
Test Command **AT+CGEREP=?**	Response **+CGEREP: (**list of supported **<mode>**s**),(**list of supported **<bfr>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CGEREP?**	Response **+CGEREP: <mode>,<bfr>** **OK**
	Parameters See Write Command
Write Command **AT+CGEREP=<mode>[,<bfr>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones is discarded. 1 Discard unsolicited result codes when MT TE link is reserved (e.g. in on line data mode); otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the MT when MT TE link is reserved (e.g. in on line data mode) and flush them to the TE when MT TE link becomes available; otherwise forward them directly to the TE. **<bfr>** 0 MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is entered. 1 MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is entered.

Reference	Note

7.2.10 AT+CGREG Network Registration Status

AT+CGREG Network Registration Status	
Test Command **AT+CGREG=?**	Response **+CGREG: (**list of supported **<n>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CGREG?**	Response **+CGREG: <n>,<stat>[,<lac>,<ci>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CGREG=[<n>]**	Response **OK** **ERROR**
	Unsolicited Result Code There is a change in the ME network registration status: **+CGREG: <stat>** There is a change in the MEnetwork registration status or a change of the network cell: **+CGREG: <stat>[,<lac>,<ci>]**
	Parameters **<n>** 0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code +CGREG: <stat> 2 Enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>] **<stat>** 0 Not registered, ME is not currently searching an

	operator to register to. The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user. 1 Registered, home network. 2 Not registered, but ME is currently trying to attach or searching an operator to register to. The GPRS service is enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available. 3 Registration denied The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user. 4 Unknown 5 Registered, roaming **<lac>** String type (string should be included in quotation marks); two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>** String type (string should be included in quotation marks); two bytes cell ID in hexadecimal format
Reference	Note

7.2.11 AT+CGSMS Select Service for MO SMS Messages

AT+CGSMS Select Service for MO SMS Messages	
Test Command **AT+CGSMS=?**	Response **+CGSMS: (**list of currently available **<service>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CGSMS?**	Response **+CGSMS: <service>** **OK**
	Parameter See Write Command
Write Command **AT+CGSMS=<service>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

	Parameter **<service>** A numeric parameter which indicates the service or service preference to be used 0 Packet Domain 1 Circuit switched 2 Packet Domain preferred (use circuit switched if GPRS not available) 3 Circuit switched preferred (use Packet Domain if circuit switched not available)
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

AT+CIPRDTIME R	SET REMOTE DELAY TIMER
AT+CIPSTTIME R	SET TIMER FOR PDP ACTIVATION/DEACTIVATION
AT+CIPTKA	SET TCP KEEPALIVE PARAMETERS
AT+CIPOPTION	SET TCP OPTION
AT+CIPSENDHE X	SET CIPSEND DATA FORMAT TO HEX

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 **AT+CIPMUX=?**	Response **+CIPMUX: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CIPMUX?**	Response **+CIPMUX: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CIPMUX=<n>**	Response **OK**
	Parameter **<n>** 0 Single IP connection 1 Multi-IP connection
Reference	Note ● Only in IP initial state, AT+CIPMUX=1 is effective; ● Only when multi-IP connection and GPRS application are both shut down, AT+CIPMUX=0 is effective.

8.2.2 AT+CIPSTART Start Up TCP or UDP Connection

AT+CIPSTART Start Up TCP or UDP Connection	
Test Command **AT+CIPSTART=**	Response 1) If AT+CIPMUX=0

?	**+CIPSTART: (**list of supported **<mode>),(<IP address>),(<port>)** **+CIPSTART: (**list of supported **<mode>),(<domain name>),(<port>)** **OK** 2) If AT+CIPMUX=1 **+CIPSTART: (**list of supported **<n>),(**list of supported **<mode>),(<IP address>),(<port>)** **+CIPSTART: (**list of supported **<n>),(**list of supported **<mode>),(<domain name>),(<port>)** **OK**
	Parameters See Write Command
Write Command 1)If single IP connection (+CIPMUX=0) **AT+CIPSTART=<mode>,<IP address>,<port>** or **AT+CIPSTART=<mode>,<domain name>,<port>** 2)If multi-IP connection (+CIPMUX=1) **AT+CIPSTART=<n>,<mode>,<address>,<port>** or **AT+CIPSTART=<n>,<mode>,<domain name>,<port>**	Response 1)If single IP connection (+CIPMUX=0) If format is right response **OK** otherwise response If error is related to ME functionality: **+CME ERROR <err>** Response when connection exists **ALREADY CONNECT** Response when connection is successful **CONNECT OK** Otherwise **STATE: <state>** **CONNECT FAIL** 2)If multi-IP connection (+CIPMUX=1) If format is right **OK**, otherwise response If error is related to ME functionality: **+CME ERROR <err>** Response when connection exists **<n>,ALREADY CONNECT** If connection is successful **<n>,CONNECT OK** Otherwise **<n>,CONNECT FAIL**

	Parameters **<n>** 0..7 A numeric parameter which indicates the connection number **<mode>** A string parameter(string should be included in quotation marks) which indicates the connection type "TCP" Establish a TCP connection "UDP" Establish a UDP connection **<IP address>** A string parameter(string should be included in quotation marks) which indicates remote server IP address **<port>** Remote server port **<domain name>** A string parameter(string should be included in quotation marks) which indicates remote server domain name **<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 5 IP PROCESSING 9 PDP DEACT
Reference	Note ● 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. ● When module is in multi-IP state, before this command is executed, it is necessary to process "AT+CSTT, AT+CIICR, AT+CIFSR".

8.2.3 AT+CIPSEND Send Data Through TCP or UDP Connection

AT+CIPSEND Send Data Through TCP or UDP Connection	
Test Command **AT+CIPSEND=?**	Response 1) If single IP connection (+CIPMUX=0) **+CIPSEND: <length>** **OK** 2) If multi-IP connection (+CIPMUX=1) **+CIPSEND: <0-7>,<length>** **OK**
	Parameters See Write Command
Read Command **AT+CIPSEND?**	Response 1) If single IP connection (+CIPMUX=0) **+CIPSEND: <size>** **OK** 2) If multi-IP connection (+CIPMUX=1) **+CIPSEND: <n>,<size>** **OK**
	Parameters **<n>** A numeric parameter which indicates the connection number **<size>** A numeric parameter which indicates the data length sent at a time
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPSEND=<length>** 2) If multi-IP connection (+CIPMUX=1) **AT+CIPSEND=<n>[,<length>]**	Response This Command is used to send specified length data If single IP is connected (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **SEND OK** When +CIPQSEND=1 **DATA ACCEPT: <length>** If sending fails: **SEND FAIL** If multi-IP connection is established (+CIPMUX=1) If connection is not established or module is disconnected: If error is related to ME functionality:

	+CME ERROR <err> If sending is successful: When +CIPQSEND=0 **<n>,SEND OK** When +CIPQSEND=1 **DATA ACCEPT: <n>,<length>** If sending fails: **<n>,SEND FAIL**
	Parameters **<n>** A numeric parameter which indicates the connection number **<length>** A numeric parameter which indicates the length of sending data, it must be less than <size>
Execution Command **AT+CIPSEND** response">", then type data for send, tap CTRL+Z to send, tap ESC to cancel the operation	Response This Command is used to send changeable length data. If single IP connection is established (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **SEND OK** When +CIPQSEND=1 **DATA ACCEPT: <length>** If sending fails: **SEND FAIL** Note 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 **<size>** bytes which can be sent at a time.
Reference	Note ● The data length which can be sent depends on network status. ● Set the time that send data automatically with the Command of AT+CIPATS. ● Only send data at the status of established connection.

8.2.4 AT+CIPQSEND Select Data Transmitting Mode

AT+CIPQSEND	**Select Data Transmitting Mode**

Test Command **AT+CIPQSEND=?**	Response **+CIPQSEND: (0,1)** **OK**
	Parameter See Write Command
Read Command **AT+CIPQSEND?**	Response **+CIPQSEND: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CIPQSEND=<n>**	Response **OK**
	Parameter **<n>** 0 Normal mode – when the server receives TCP data, it will responsd SEND OK. 1 Quick send mode – when the data is sent to module, it will responsd DATA ACCEPT: <n>,<length>, while not responding SEND OK.
Reference	Note

8.2.5 AT+CIPACK Query Previous Connection Data Transmitting State

AT+CIPACK Query Previous Connection Data Transmitting State	
Test Command **AT+CIPACK=?**	Response **OK**
Write Command If multi-IP connection (+CIPMUX=1) **AT+CIPACK=<n>**	Response **+CIPACK: <txlen>,<acklen>,<nacklen>** **OK**
	Parameters **<n>** A numeric parameter which indicates the connection number **<txlen>** The data amount which has been sent **<acklen>** The data amount confirmed successfully by the server **<nacklen>** The data amount without confirmation by the server
Execution Command	Response **+CIPACK: <txlen>,<acklen>,<nacklen>**

If single IP connection (+CIPMUX=0) **AT+CIPACK**	**OK** Parameters See Write Command
Reference	Note

8.2.6 AT+CIPCLOSE Close TCP or UDP Connection

AT+CIPCLOSE	**Close TCP or UDP Connection**
Test Command **AT+CIPCLOSE=?**	Response **OK**
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPCLOSE=[<n>]** 2) If multi-IP connection (+CIPMUX=1) **AT+CIPCLOSE=<id>, [<n>]**	Response 1) If single IP connection (+CIPMUX=0) **CLOSE OK** 2) If multi-IP connection (+CIPMUX=1) **<id>, CLOSE OK** Parameters **<n>** 0 Slow close 1 Quick close **<id>** A numeric parameter which indicates the connection number
Execution Command **AT+CIPCLOSE**	If single IP connection only (+CIPMUX=0) Response If close is successfully: **CLOSE OK** If close fails: **ERROR**
Reference	Note 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

AT+CIPSHUT	**Deactivate GPRS PDP Context**
Test Command	Response

AT+CIPSHUT=?	OK
Execution Command **AT+CIPSHUT**	Response If close is successful: **SHUT OK** If close fails: **ERROR**
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 **AT+CLPORT=?**	Response 1)If single IP connection (+CIPMUX=0) **+CLPORT: (**list of supported **<mode>**s**),(**list of supported **<port>**s**)** **OK** 2)If multi-IP connection (+CIPMUX=1) **+CLPORT: (**list of supported **<id>s),(**list of supported **<mode>**s**),(**list of supported **<port>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CLPORT?**	1)If single IP connection (+CIPMUX=0) **TCP: <port>** **UDP: <port>** **OK** 2)If multi-IP connection (+CIPMUX=1) **+CLPORT: 0,<tcp port>,<udp port>** **+CLPORT: 1, <tcp port>,<udp port>** **+CLPORT: 2, <tcp port>,<udp port>** **+CLPORT: 3, <tcp port>,<udp port>** **+CLPORT: 4, <tcp port>,<udp port>** **+CLPORT: 5, <tcp port>,<udp port>**

	+CLPORT: 6, <tcp port>,<udp port> **+CLPORT: 7, <tcp port>,<udp port>** **OK**
	Parameters See Write Command
If single IP connection (+CIPMUX=0) **AT+CLPORT=<mode>,<port>** 2)If multi-IP connection (+CIPMUX=1) **AT+CLPORT=<id>,<mode>,<port>**	Response **OK** **ERROR**
	Parameters **<id>** 0-7 A numeric parameter which indicates the connection number **<mode>** A string parameter(string should be included in quotation marks) which indicates the connection type "TCP" TCP local port "UDP" UDP local port **<port>** 0-65535 A numeric parameter which indicates the local port 0 is default value, a port can be dynamically allocated a port.
Reference	Note ● Not all the SIM900 series modules support multi-IP connection.

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 **AT+CSTT=?**	Response **+CSTT: "APN","USER","PWD"** **OK**
	Parameters See Write Command
Read Command **AT+CSTT?**	Response **+CSTT: <apn>,<user name>,<password>** **OK**
	Parameters See Write Command
Write Command **AT+CSTT=<apn>,<user**	Response **OK** **ERROR**

name>,<password>	
	Parameters **<apn>** A string parameter (string should be included in quotation marks) which indicates the GPRS access point name **<user name>** A string parameter (string should be included in quotation marks) which indicates the GPRS user name **<password>** A string parameter (string should be included in quotation marks) which indicates the GPRS password
Execution Command **AT+CSTT**	Response **OK** **ERROR**
Reference	Note 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

AT+CIICR Bring Up Wireless Connection with GPRS or CSD	
Test Command **AT+CIICR=?**	Response **OK**
Execution Command **AT+CIICR**	Response **OK** **ERROR**
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 **AT+CIFSR=?**	Response **OK**
Execution Command **AT+CIFSR**	Response **<IP address>** **ERROR**

	Parameter **<IP address>** a string parameter(string should be included in quotation marks) which indicates the IP address assigned from GPRS or CSD.
Reference	Note 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 **AT+CIPSTATUS=?**	Response **OK**
Write Command If multi-IP connection mode (+CIPMUX=1) **AT+CIPSTATUS=<n>**	Response **+CIPSTATUS: <n>,<bearer>,<TCP/UDP>,<IP address>,<port>,<client state>** **OK**
	Parameters See Execution Command
Execution Command **AT+CIPSTATUS**	Response 1）If in single connection mode (+CIPMUX=0) **OK** **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 5 IP PROCESSING 9 PDP DEACT
Reference	Note

8.2.13 AT+CDNSCFG Configure Domain Name Server

AT+CDNSCFG	**Configure Domain Name Server**
Test Command **AT+CDNSCFG=?**	Response **+CDNSCFG: ("Primary DNS"),("Secondary DNS")** **OK**
	Parameter See Write Command
Read Command **AT+CDNSCFG?**	Response **PrimaryDns: <pri_dns>** **SecondaryDns: <sec_dns>**

	OK
	Parameter See Write Command
Write Command **AT+CDNSCFG=<pri_dns>[,<sec_dns>]**	Response **OK** **ERROR**
	Parameters **<pri_dns>** A string parameter(string should be included in quotation marks) which indicates the IP address of the primary domain name server **<sec_dns>** 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 **AT+CDNSGIP=?**	Response **OK**
Write Command **AT+CDNSGIP=<domain name>**	Response **OK** **ERROR** If successful, return: **+CDNSGIP: 1,<domain name>,<IP>** If fail, return: **+CDNSGIP:0,<dns error code>**
	Parameters **<domain name>** A string parameter(string should be included in quotation marks) which indicates the domain name **<IP>** A string parameter(string should be included in quotation marks) which indicates the IP address corresponding to the domain name **<dns error code>** A numeric parameter which indicates the error code 10 DNS GENERAL ERROR 11 DNS MAX RETRIES 12 DNS NO SERVER ADDR 13 DNS NO MEMORY 14 DNS INVALID NAME

	15 DNS INVALID RESP There are some other error codes as well.
Reference	Note

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

AT+CIPHEAD Add an IP Head at the Beginning of a Package Received	
Test Command **AT+CIPHEAD=?**	Response **+CIPHEAD: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPHEAD?**	Response **+CIPHEAD: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPHEAD=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** A numeric parameter which indicates whether an IP header is added to the received data or not. 0 Not add IP header 1 Add IP header, the format is "+IPD,data length:"
Reference	Note This command will be effective only in single connection mode (+CIPMUX=0) and command mode.

8.2.16 AT+CIPATS Set Auto Sending Timer

AT+CIPATS Set Auto Sending Timer	
Test Command **AT+CIPATS=?**	Response **+CIPATS: (**list of supported **<mode>**s**),(**list of supported **<time**>) **OK**

	Parameters See Write Command
Read Command **AT+CIPATS?**	Response **+CIPATS: <mode>,<time>** **OK**
	Parameters See Write Command
Write Command **AT+CIPATS=<mode>[,<time>]**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which indicates whether set timer when module is sending data 0 Not set timer when module is sending data 1 Set timer when module is sending data **<time>** 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 **AT+CIPSPRT=?**	Response **+CIPSPRT: (**list of supported **<send prompt>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPSPRT?**	Response **+CIPSPRT: <send prompt>** **OK**
	Parameter See Write Command
Write Command **AT+CIPSPRT=<**	Response **OK**

send prompt>	**ERROR**
	Parameter **<send prompt>** A numeric parameter which indicates whether to echo prompt '>' after module issues AT+CIPSEND command. 0 It shows "send ok" but does not prompt echo '>' when sending is successful. 1 It prompts echo '>' and shows "send ok" when sending is successful. 2 It neither prompts echo '>' nor shows "send ok" when sending is successful.
Reference	Note

8.2.18 AT+CIPSERVER Configure Module as Server

AT+CIPSERVER Configure Module as Server	
Test Command **AT+CIPSERVER=?**	Response **+CIPSERVER: (0-CLOSE SERVER, 1-OPEN SERVER),(1-65535)** **OK**
	Parameters See Write Command
Read Command **AT+CIPSERVER?**	Response **+CIPSERVER: <mode>[,<port>,<channel id>,<bearer>]** **OK**
	Parameters See Write Command
Write Command **AT+CIPSERVER=<mode>[,<port>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Close server 1 Open server **<port>** 1..65535 Listening port **<channel id>** Channel id **<bearer>** GPRS bearer
Reference	Note 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.

8.2.19 AT+CIPCSGP Set CSD or GPRS for Connection Mode

AT+CIPCSGP Set CSD or GPRS for Connection Mode	
Test Command **AT+CIPCSGP=?**	Response **+CIPCSGP:0-CSD,DIALNUMBER,USER NAME,PASSWORD,RATE(0-3)** **+CIPCSGP: 1-GPRS,APN,USER NAME,PASSWORD** **OK**
	Parameters See Write Command
Read Command **AT+CIPCSGP?**	Response **+CIPCSGP: <mode>,<apn>,<user name>,<password>[,<rate>]** **OK**
	Parameters See Write Command
Write Command **AT+CIPCSGP=<mode>[,(<apn>,<user name>,<password>),(<dial number>,<user name>,<password>,<rate>)]**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which indicates the wireless connection mode 0 set CSD as wireless connection mode 1 set GPRS as wireless connection mode GPRS parameters: **<apn>** A string parameter(string should be included in quotation marks) which indicates the access point name **<user name>** A string parameter(string should be included in quotation marks) which indicates the user name **<password>** A string parameter(string should be included in quotation marks) which indicates the password CSD parameters: **<dial number>** A string parameter(string should be included in quotation marks) which indicates the CSD dial numbers **<user name>** A string parameter(string should be included in quotation marks) which indicates the CSD user name **<password>** A string parameter(string should be included in quotation

	marks) which indicates the CSD password **<rate>** A numeric parameter which indicates the CSD connection rate 0 2400 1 4800 2 9600 3 14400
Reference	Note

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

AT+CIPSRIP Show Remote IP Address and Port When Received Data	
Test Command **AT+CIPSRIP=?**	Response **+CIPSRIP: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPSRIP?**	Response **+CIPSRIP**: **<mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPSRIP=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** A numeric parameter which shows remote IP address and port. 0 Do not show the prompt 1 Show the prompt, the format is as follows: RECV FROM: <IP ADDRESS>: <PORT>
Reference	Note This command will be effective only in single connection mode (+CIPMUX=0)

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

AT+CIPDPDP Set Whether to Check State of GPRS Network Timing	
Test Command **AT+CIPDPDP=?**	Response **+CIPDPDP: (**list of supported**<mode>**s,list of supported **<interval>,**list of supported **<timer>)** **OK**
	Parameters See Write Command
Read Command **AT+CIPDPDP?**	Response **+CIPDPDP: <mode>,<interval>,<timer>** **OK**
	Parameters See Write Command
Write Command **AT+CIPDPDP=<mode>[,<interval>,<timer>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Not set detect PDP 1 Set detect PDP **<interval>** 1<interval<=180(s) **<timer>** 1<timer<=10
Reference	Note 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.

8.2.22 AT+CIPMODE Select TCPIP Application Mode

AT+CIPMODE Select TCPIP Application Mode	
Test Command **AT+CIPMODE=?**	Response **+CIPMODE: (0-NORMAL MODE,1-TRANSPARENT MODE)** **OK**
	Parameter

	See Write Command
Read Command **AT+CIPMODE?**	Response **+CIPMODE: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPMODE=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Normal mode 1 Transparent mode
Reference	Note

8.2.23AT+CIPCCFG Configure Transparent Transfer Mode

AT+CIPCCFG Configure Transparent Transfer Mode	
Test Command **AT+CIPCCFG=?**	Response **+CIPCCFG: (NmRetry:3-8),(WaitTm:2-10),(SendSz:1-1460),(esc:0,1),(Rxmode:0,1),(RxSize:50-1460),(Rxtimer:20-1000)** **OK**
	Parameters See Write Command
Read Command **AT+CIPCCFG?**	Response **+CIPCCFG: <NmRetry>,<WaitTm>,<SendSz>,<esc>,<Rxmode>,<RxSize>,<Rxtimer>** **OK**
	Parameters See Write Command
Write Command **AT+CIPCCFG=<NmRetry>,<WaitTm>,<SendSz>,**	Response **OK** **ERROR**

<esc>[,<Rxmode>,<RxSize>,<Rxtimer>]	Parameters **<NmRetry>** Number of retries to be made for an IP packet. **<WaitTm>** Number of 200ms intervals to wait for serial input before sending the packet. **<SendSz>** Size in bytes of data block to be received from serial port before sending. **<esc>** Whether turn on the escape sequence, default is TRUE. 0 Turn off the escape sequence 1 Turn on the escape sequence **<Rxmode>** Whether to set time interval during output data from serial port. 0 output data to serial port without interval 1 output data to serial port within <Rxtimer> interval. **<RxSize>** Output data length for each time, default value is 1460. **<Rxtimer>** Time interval (ms) to wait for serial port to output data again. Default value: 50ms
Reference	Note 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

AT+CIPSHOWTP	**Display Transfer Protocol in IP Head When Received Data**
Test Command **AT+CIPSHOWTP=?**	Response **+CIPSHOWTP: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPSHOWTP?**	Response **+CIPSHOWTP: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPSHOWTP=<mode>**	Response **OK** **ERROR** Parameter **<mode>** A numeric parameter which indicates whether to display

	transfer protocol in IP header to received data or not 0 Not display transfer protocol 1 Display transfer protocol, the format is "+IPD, <data size>,<TCP/UDP>:<data>"
Reference	Note ● This command will be effective only in single connection mode (+CIPMUX=0) ● Only when +CIPHEAD is set to 1, the setting of this command will work.

8.2.25 AT+CIPUDPMODE UDP Extended Mode

AT+CIPUDPMODE UDP Extended Mode	
Test Command **AT+CIPUDPMODE=?**	Response 1)If single IP connection (+CIPMUX=0) **+CIPUDPMODE: (0-2),("(0-255).(0-255).(0-255).(0-255)"),(1-65535)** **OK** 2)If multi-IP connection (+CIPMUX=1) **+CIPUDPMODE:** **(0-7),(0-2),("(0-255).(0-255).(0-255).(0-255)"),(1-65535)** **OK**
	Parameters See Write Command
Read Command **AT+CIPUDPMODE?**	Response 1)If single IP connection (+CIPMUX=0) **+CIPUDPMODE: <mode> [,<IP address>,<Port>]** **OK** 2)If multi-IP connection (+CIPMUX=1) **+CIPUDPMODE: 0,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 1,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 2,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 3,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 4,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 5,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 6,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 7,<mode>[,<IP address>,<Port>]** **OK**

	Parameters See Write Command
Write Command 1)If single IP connection (+CIPMUX=0) **AT+CIPUDPMODE=<mode>[,<IP address>,<Port>]** 2)If multi-IP connection (+CIPMUX=1) **AT+CIPUDPMODE=<id>,<mode>[,<IP address>,<Port>]**	Response **OK** **ERROR**
	Parameters **<id>** 0-7 A numeric parameter which indicates the connection number **<mode>** 0 UDP Normal Mode 1 UDP Extended Mode 2 Set UDP address to be sent **<IP address>** A string parameter (string should be included in quotation marks) which indicates remote IP address **<port>** Remote port
Reference	Note ● Not all the SIM900 series modules support multi-IP connection.

8.2.26 AT+CIPRXGET Get Data from Network Manually

AT+CIPRXGET Get Data from Network Manually	
Test Command **AT+CIPRXGET=?**	Response If single IP connection (+CIPMUX=0) **+CIPRXGET: (**list of supported **<mode>**s**),(**list of supported **<reqlength>)** **OK** If multi-IP connection (+CIPMUX=1) **+CIPRXGET: (**list of supported **<mode>**s**),(**list of supported **<id>**s**),(**list of supported **<reqlength>)** **OK**
	Parameters See Write Command
Read Command **AT+CIPRXGET?**	Response **+CIPRXGET: <mode>** **OK**

	Parameters See Write Command
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPRXGET=<mode>[,<reqlength>]** 2) If multi IP connection (+CIPMUX=1) **AT+CIPRXGET=<mode>,<id>[,<reqlength >]**	Response **OK** **ERROR** 1)If single IP connection If "AT+CIPSRIP=1" is set, IP address and port are contained. if <mode>=1 **+CIPRXGET:1[,<IP ADDRESS>:<PORT>]** if <mode>=2 **+CIPRXGET:2,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **1234567890…** **OK** if <mode>=3 **+CIPRXGET:3,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **5151…** **OK** if <mode>=4 **+CIPRXGET:4, <cnflength>** **OK** 2)If multi-IP connection If "AT+CIPSRIP=1" is set, IP address and port is contained. if <mode>=1 **+CIPRXGET:1,<id>[,<IP ADDRESS>:<PORT>]** if <mode>=2 **+CIPRXGET:2,<id>,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **1234567890…** **OK** if <mode>=3 **+CIPRXGET:3,<id>,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **5151…** **OK** if <mode>=4 **+CIPRXGET:4, <id>,<cnflength>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters

	<mode> 0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly. 1 Enable getting data from network manually. 2 The module can get data, but the length of output data cannot exceed 1460 bytes at a time. 3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time. 4 Query how many data are not read with a given ID. **<id>** A numeric parameter which indicates the connection number **<reqlength>** Requested number of data bytes (1-1460 bytes)to be read **<cnflength>** Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read.
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 **AT+CIPQRCLOSE=?**	Response **+CIPQRCLOSE: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPQRCLOSE?**	Response **+CIPQRCLOSE: <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPQRCLOSE=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Module returns FIN frame after module received FIN frame from remote side. 1 Module returns RST frame after module received FIN frame

	from remote side.
Reference	Note ● If RST frame instead of FIN frame is responded to remote side, disconnection process will speed up. ● To enable this function, parameter <mode> must be set to 1 before connection.

8.2.28 AT+CIPSCONT Save TCPIP Application Context

AT+CIPSCONT	**Save TCPIP Application Context**
Read Command **AT+CIPSCONT?**	Response TA returns TCPIP Application Context, which consists of the following AT Command parameters. **+CIPSCONT: <mode0>** **+CIPCSGP: <mode>** **Gprs Config APN: <apn>** **Gprs Config UserId: <user name>** **Gprs Config Password: <password>** **+CLPORT: <port1>,<port2>** **+CIPHEAD: <mode>** **+CIPSHOWTP: <mode>** **+CIPSRIP: <mode>** **+CIPATS: <mode>,<time>** **+CIPSPRT: <send prompt>,<notshowsendok>** **+CIPQSEND: <n>** **+CIPMODE: <mode>** **+CIPCCFG: <NmRetry>,<WaitTm>,<SendSz>,<esc>,<Rxmode>,<RxSize>,<Rxtimer>** **+CIPMUX: <n>** **+CIPDPDP: <mode>,<interval>,<timer>** **+CIPRXGET: <mode>** **+CIPQRCLOSE: <mode>** **+CIPUDPMODE: <mode>** **+CIPRDTIMER : <rgsigtimer>,<rgmuxtimer>** **OK**
	Parameters **<mode0>** 0 Saved, the value from NVRAM 1 Unsaved, the value from RAM For other parameters, see the related command.

Execution Command **AT+CIPSCONT**	Response Module saves current TCPIP Application Contexts to NVRAM. When system is rebooted, the parameters will be loaded automatically. **OK**
Reference	Note

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

AT+CIPTXISS Discard Input AT Data in TCP Data Send	
Test Command **AT+CIPTXISS=?**	Response **+CIPTXISS : (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPTXISS?**	Response **+CIPTXISS : <mode>** **OK**
	Parameter See Write Command
Write Command **AT+CIPTXISS=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Disable 1 Enable, discard the input AT data while the TCPIP data is sent to serial port. 2 Enable, discard other response while the TCPIP data is sent to serial port.
Reference	Note

8.2.30 AT+CIPRDTIMER Set Remote Delay Timer

AT+CIPRDTIMER Set Remote Delay Timer	
Test Command **AT+CIPRDTIM**	Response **+CIPRDTIMER: (100-4000),(100-7000)**

ER=?	**OK**
	Parameter See Write Command
Read Command **AT+CIPRDTIMER?**	Response **+CIPRDTIMER: <rdsigtimer>,<rdmuxtimer>** **OK**
	Parameter See Write Command
Write Command **AT+CIPRDTIMER=<rdsigtimer>,<rdmuxtimer>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<rdsigtimer>** remote delay timer of single connection. **<rdmuxtimer>** remote delay timer of multi-connections.
Reference	Note This command is used to shorten the disconnect time locally when the remote server has been disconnected.

8.2.31 AT+CIPSTTIMER Set Timer For PDP Activation/Deactivation

AT+CIPSTTIMER Set Timer For PDP Activation/Deactivation	
Test Command **AT+CIPSTTIMER=?**	Response **+CIPSTTIMER: (90-255),(90-255)** **OK**
	Parameter See Write Command
Read Command **AT+CIPSTTIMER?**	Response **+CIPSTTIMER: <start trans timer>,<stop trans timer>** **OK**
	Parameter See Write Command
Write Command **AT+CIPSTTIMER=<start trans timer>,<stop trans timer>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<start trans timer>** PDP activation will be regarded as a failure if this

	time expires. **<stop trans timer>** PDP deactivation will be regarded as a failure if this time expires.
Reference	Note

8.2.32 AT+CIPTKA Set TCP Keepalive Parameters

AT+CIPTKA Set TCP Keepalive Parameters	
Test Command **AT+CIPTKA=?**	Response **+CIPTKA:** (list of supported **<mode>**s)**,**(list of supported **<keepIdle>**s)**,**(list of supported **<keepInterval>**)**,**(list of supported **<keepCount>**s) **OK**
	Parameters See Write Command
Read Command **AT+CIPTKA?**	Response **+CIPTKA: <mode>,<keepIdle>,<keepInterval>,<keepCount>** **OK**
	Parameters See Write Command
Write Command **AT+CIPTKA=<mode>[,<keepIdle>[,<keepInterval>[,<keepCount>]]]**	Response **OK** If error is related to ME functionality: **ERROR**
	Parameters **<mode>** Set TCP keepalive option. 0 Disable TCP keep alive mechanism 1 Enable TCP keep alive mechanism **<keepIdle>** Integer type; Idle time (in second) before TCP send the initial keepalive probe. 30-7200 Default: 7200 **<keepInterval>** Interval time (in second) between keepalive probes retransmission. 30-600 Default: 75 **<keepCount>** Integer type; Maximum number of keepalive probes to be sent. 1-9 Default: 9
Reference	Note

8.2.33 AT+CIPOPTION Set TCP Option

AT+CIPOPTION Set TCP Option	
Test Command **AT+CIPOPTION =?**	Response **+CIPOPTION: (**list of supported **<nodelay>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPOPTION?**	Response **+CIPOPTION: <nodelay>** **OK**
	Parameter See Write Command
Write Command **AT+CIPOPTION=<nodelay>**	Response **OK** **ERROR**
	Parameter **<nodelay>** 0 Disable 1 Enable TCP no delay function.
Reference	Note

8.2.34 AT+CIPSENDHEX Set CIPSEND Data Format to Hex

AT+CIPSENDHEX Set CIPSEND Data Format to HEX	
Test Command **AT+CIPSENDHEX=?**	Response **+CIPSENDHEX: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPSENDHEX?**	Response **+CIPSENDHEX: <mode>** **OK**

	Parameter See Write Command
Write Command **AT+CIPSENDHEX=<mode>**	Response **OK** **ERROR**
	Parameter **<mode>** 0 default 1 Set the input data in HEX format when using CIPSEND command to send data.
Reference	Note Not all the SIM900 series modules support this command.

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 **AT+SAPBR=?**	Response **+SAPBR: (0-5),(1-3), "ConParamTag","ConParamValue"** **OK**
	Parameters See Write Command
Write Command **AT+SAPBR=<cmd_type>,<cid>[,<ConParamTag>,<ConParamValue>]**	Response **OK** If<cmd_type>=2 **+SAPBR: <cid>,<Status>,<IP_Addr>** **OK** If <cmd_type>=4 **+SAPBR: <ConParamTag>,<ConParamValue>** **OK**
	Unsolicited Result Code **+SAPBR <cid>: DEACT**
	Parameters **<cmd_type>** 0 Close bearer 1 Open bearer 2 Query bearer 3 Set bearer parameters 4 Get bearer parameters 5 Save the values of parameters to NVRAM **<cid>** Bearer profile identifier **<Status>** 0 Bearer is connecting

	1 Bearer is connected 2 Bearer is closing 3 Bearer is closed **<ConParamTag>** Bearer parameter "CONTYPE" Type of Internet connection. Value refer to <ConParamValue_ConType> "APN" Access point name string: maximum 50 characters "USER" User name string: maximum 50 characters "PWD" Password string: maximum 50 characters "PHONENUM" Phone number for CSD call "RATE" CSD connection rate. For value refer to <ConParamValue_Rate> **<ConParamValue>** Bearer paramer value **<ConParamValue_ConType>** "CSD" Circuit-switched data call. "GPRS" GPRS connection. **<ConParamValue_Rate>** 0 2400 1 4800 2 9600 3 14400 **<IP_Addr>** The IP address of bearer
Reference	Note This command is applied to activate some applications such as HTTP, FTP.

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
AT+HTTPSTATUS	READ HTTP STATUS

10.2 Detailed Descriptions of Commands

10.2.1 AT+HTTPINIT Initialize HTTP Service

AT+HTTPINIT	Initialize HTTP Service
Test Command **AT+HTTPINIT=?**	Response **OK**
Execution Command **AT+HTTPINIT**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Reference	Note 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 **AT+HTTPTERM=?**	Response **OK**

Execution command **AT+HTTPTERM**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Reference	Note

10.2.3 AT+HTTPPARA Set HTTP Parameters Value

AT+HTTPPARA	**Set HTTP Parameters Value**	
Test Command **AT+HTTPPARA=?**	Response **+HTTPPARA: "HTTPParamTag","HTTPParamValue"** **OK**	
	Parameters See Write Command	
Read Command **AT+HTTPPARA?**	Response **+HTTPPARA: <HTTPParamTag>,<HTTPParamValue>** **OK**	
	Parameters See Write Command	
Write Command **AT+HTTPPARA=<HTTPParamTag>,<HTTPParamValue>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**	
	Parameters **<HTTPParamTag>**	HTTP Parameter
	"CID"	(Mandatory Parameter) Bearer profile identifier
	"URL"	(Mandatory Parameter) HTTP client URL, the maximum length is 500 bytes. "http://'server'/'path':'tcpPort' " "server": FQDN or IP-address "path": path of file or directory "tcpPort": default value is 80.
	"UA"	Refer to "IETF-RFC 2616". 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. The maximum length is 200

	"PROIP"	bytes.
	"PROPORT"	Default value is "SIMCOM_MODULE".
	"REDIR"	The IP address of HTTP proxy server
		The port of HTTP proxy server
		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
	"BREAK"	new HTTP request when the flag is set to (1).
		Default value is 0 (no redirection).
	"BREAKEND"	Parameter for HTTP method "GET", used for resuming broken transfer.
		Parameter for HTTP method "GET", used for resuming broken transfer. which is used together with "BREAK",
		If the value of "BREAKEND" is bigger than "BREAK", the transfer scope is from "BREAK" to "BREAKEND".
		If the value of "BREAKEND" is smaller than "BREAK", the transfer scope is from "BREAK" to the end of the file.
		If both "BREAKEND" and "BREAK" are 0, the resume broken transfer function is disabled.
		HTTP session timeout value, scope: 30-1000 second.
		Default value is 120 seconds.
	"TIMEOUT"	HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.
	"CONTENT"	Used to set the “Content-Type” field in HTTP header
	<HTTPParamValue>	HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.
Reference	Note Not all the HTTP Server supports "BREAK" and "BREAKEND" parameters	

10.2.4 AT+HTTPDATA Input HTTP Data

AT+HTTPDATA	**Input HTTP Data**
Test Command **AT+HTTPDATA =?**	Response **+HTTPDATA: (**list of supported **<size>**s**),(**list of supported **<time>**s**)**

	OK
	Parameters See Write Command
Write Command **AT+HTTPDATA=<size>,<time>**	Response **DOWNLOAD** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<size>** Size in bytes of the data to POST. 1-102400 or 1-318976 (bytes) the maximum size depends on the module. 0 means delete all the content. **<time>** 1000-120000 (millisecond) Maximum time in milliseconds to input data.
Reference	Note 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 **AT+HTTPACTION=?**	Response **+HTTPACTION: (0-2)** **OK**
	Parameter See Write Command
Write Command **AT+HTTPACTION=<Method>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Unsolicited Result Code **+HTTPACTION: <Method>,<StatusCode>,<DataLen>**

Parameters

<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

415 Unsupported Media Type

416 Requested range not satisfiable

417 Expectation Failed

500 Internal Server Error

501 Not Implemented

502 Bad Gateway

	503 Service Unavailable 504 Gateway Time-out 505 HTTP Version not supported 600 Not HTTP PDU 601 Network Error 602 No memory 603 DNS Error 604 Stack Busy **<DataLen>** the length of data got
Reference	Note

10.2.6 AT+HTTPREAD Read the HTTP Server Response

AT+HTTPREAD Read the HTTP Server Response	
Test Command **AT+HTTPREAD=?**	Response **+HTTPREAD: (**list of supported **<start_address>**s**),(**list of supported**<byte_size>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+HTTPREAD=<start_address>,<byte_size>**	Response **+HTTPREAD: <date_len>** **<data>** **OK** Read data when AT+HTTPACTION=0 or AT+HTTPDATA is executed. If<byte_size> is bigger than the data size received, module will only return actual data size. If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<data>** Data from HTTP server or user input. **<start_address>** The starting point for data output. 0-318976 or 0-102400 (bytes), the max value is due to the module used. **<byte_size>** The length for data output. 1-318976 or 1-102400 (bytes), the max value is due to

	the module used. **<data_len>** The actual length for data output.
Execution Command **AT+HTTPREAD**	Response **+HTTPREAD: <date_len>** **<data>** **OK** Read all data when AT+HTTPACTION=0 or AT+HTTPDATA is executed. If error is related to ME functionality: **+CME ERROR: <err>**
Reference	Note

10.2.7 AT+HTTPSCONT Save HTTP Application Context

AT+HTTPSCONT	**Save HTTP Application Context**
Read Command **AT+HTTPSCONT?**	Response TA returns HTTP Application Context, which consists of the following AT Command parameters. **+HTTPSCONT: <mode>** **CID: <value>** **URL: <value>** **UA: <value>** **PROIP: <value>** **PROPORT: <value>** **REDIR: <value>** **BREAK: <value>** **BREAKEND: <value>** **OK**
	Parameters **<mode>** 0 Saved, the value from NVRAM 1 Unsaved, the value from RAM For other parameters, see the related command.

Execution Command **AT+HTTPSCONT**	Response TA saves HTTP Application Context which consists of following AT Command parameters, and when system is rebooted, the parameters will be loaded automatically. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter
Reference	Note

10.2.8 AT+HTTPSTATUS Read HTTP Status

AT+HTTPSTATUS Read HTTP Status	
Test Command **AT+HTTPSTATUS=?**	Response **OK**
Read Command **AT+HTTPSTATUS?**	Response **+HTTPSTATUS: <mode>,<status>,<finish>,<remain>** **OK**
	Parameter: **<mode>** GET POST HEAD **<status>** 0 idle 1 receiving 2 sending **<finish>** The amount of data which have been transmitted. **<remain>** The amount of data remaining to be sent or received.

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 PORT
AT+FTPMODE	SET ACTIVE OR PASSIVE FTP MODE
AT+FTPTYPE	SET FTP TRANSFER TYPE
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	UPLOAD FILE
AT+FTPSCONT	SAVE FTP APPLICATION CONTEXT
AT+FTPDELE	DELETE REMOTE FILE
AT+FTPSIZE	GET THE SIZE OF SPECIFIED FILE ON THE REMOTE MACHINE
AT+FTPSTATE	GET FTP CURRENT STATE
AT+FTPEXTPUT	EXTEND UPLOAD FILE
AT+FTPMKD	MAKE DIRECTORY ON THE REMOTE MACHINE
AT+FTPRMD	REMOVE DIRECTORY ON THE REMOTE MACHINE
AT+FTPLIST	LIST CONTENTS OF DIRECTORY ON THE REMOTE MACHINE
AT+FTPEXTGET	DOWNLOAD FILE FROM THE REMOTE MACHINE TO FLASH
AT+FTPETGET	DOWNLOAD FILE
AT+FTPETPUT	UPLOAD FILE
AT+FTPQUIT	QUIT FTP TRANSFER SESSION

11.2 Detailed Descriptions of Commands

11.2.1 AT+FTPPORT Set FTP Port

AT+FTPPORT Set FTP Port	
Test Command **AT+FTPPORT=?**	Response **OK**
Read Command **AT+FTPPORT?**	Response **+FTPPORT: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPPORT=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** The value of FTP Control port, from 1 to 65535. Default value is 21
Reference	Note 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

AT+FTPMODE Set Active or Passive FTP Mode	
Test Command **AT+FTPMODE=?**	Response **OK**
Read Command **AT+FTPMODE?**	Response **+FTPMODE: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPMODE=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

	Parameter **<value>** 0 Active FTP mode 1 Passive FTP mode
Reference	Note

11.2.3 AT+FTPTYPE Set FTP Transfer Type

AT+FTPTYPE Set FTP Transfer Type	
Test Command **AT+FTPTYPE=?**	Response **OK**
Read Command **AT+FTPTYPE?**	Response **+FTPTYPE: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPTYPE=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** "A" For FTP ASCII sessions "I" For FTP Binary sessions
Reference	Note 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

AT+FTPPUTOPT Set FTP Put Type	
Test Command **AT+FTPPUTOPT=?**	Response **OK**
Read Command **AT+FTPPUTOPT?**	Response **+FTPPUTOPT: <value>**

	OK
	Parameter See Write Command
Write Command **AT+FTPPUTOPT=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** "APPE" For appending file "STOU" For storing unique file "STOR" For storing file
Reference	Note

11.2.5 AT+FTPCID Set FTP Bearer Profile Identifier

AT+FTPCID Set FTP Bearer Profile Identifier	
Test Command **AT+FTPCID=?**	Response **OK**
	Parameter See Write Command
Read Command **AT+FTPCID?**	Response **+FTPCID: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPCID=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Bearer profile identifier refer to AT+SAPBR
Reference	Note

11.2.6 AT+FTPREST Set Resume Broken Download

AT+FTPREST Set Resume Broken Download	
Test Command **AT+FTPREST=?**	Response **OK**
Read Command **AT+FTPREST?**	Response **+FTPREST: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPREST=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Broken point to be resumed
Reference	Note

11.2.7 AT+FTPSERV Set FTP Server Address

AT+FTPSERV Set FTP Server Address	
Test Command **AT+FTPSERV=?**	Response **OK**
Read Command **AT+FTPSERV?**	Response **+FTPSERV: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPSERV=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** 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 **AT+FTPUN=?**	Response **OK**
	Parameter See Write Command
Read Command **AT+FTPUN?**	Response **+FTPUN: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPUN=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 49 characters.
Reference	Note

11.2.9 AT+FTPPW Set FTP Password

AT+FTPPW Set FTP Password	
Test Command **AT+FTPPW=?**	Response **OK**
	Parameter See Write Command
Read Command **AT+FTPPW?**	Response **+FTPPW: <value>** **OK**

	Parameter See Write Command
Write Command **AT+FTPPW=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 49 characters.
Reference	Note

11.2.10 AT+FTPGETNAME Set Download File Name

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

11.2.11 AT+FTPGETPATH Set Download File Path

AT+FTPGETPATH Set Download File Path

Test Command **AT+FTPGETPATH=?**	Response **OK**
Read Command **AT+FTPGETPATH?**	Response **+FTPGETPATH: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPGETPATH=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 256 characters
Reference	Note

11.2.12 AT+FTPPUTNAME Set Upload File Name

AT+FTPPUTNAME Set Upload File Name	
Test Command **AT+FTPPUTNAME=?**	Response **OK**
Read Command **AT+FTPPUTNAME?**	Response **+FTPPUTNAME: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPPUTNAME=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 99 characters
Reference	Note

11.2.13 AT+FTPPUTPATH Set Upload File Path

AT+FTPPUTPATH Set Upload File Path	
Test Command **AT+FTPPUTPATH=?**	Response **OK**
Read Command **AT+FTPPUTPATH?**	Response **+FTPPUTPATH: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPPUTPATH=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 256 characters
Reference	Note

11.2.14 AT+FTPGET Download File

AT+FTPGET Download File	
Test Command **AT+FTPGET=?**	Response **OK**
Write Command **AT+FTPGET=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTPGET session: **OK** **+FTPGET:1,1** If data transfer finished: **+FTPGET:1,0** If mode is 1 and it is a failed FTPGET session: **OK** **+FTPGET:1,<error>**

	If mode is 2: **+FTPGET:2,<cnflength>** **012345678…** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 1 For opening FTP get session 2 For reading FTP download data. **<reqlength>** Requested number of data bytes (1-1460)to be read **<cnflength>** Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read. **<error>** 61 Net error 62 DNS error 63 Connect error 64 Timeout 65 Server error 66 Operation not allow 70 Replay error 71 User error 72 Password error 73 Type error 74 Rest error 75 Passive error 76 Active error 77 Operate error 78 Upload error 79 Download error 80 Quit error
Reference	Note When "+FTPGET:1,1" is shown, “AT+FTPGET:2,<reqlength>” can be used to read data. If the module still has unread data, "+FTPGET:1,1" will be shown again in a certain time.

11.2.15 AT+FTPPUT Upload File

AT+FTPPUT Upload File	
Test Command **AT+FTPPUT=?**	Response **OK**
Write Command **AT+FTPPUT=<mode>[,<reqleng**	Response If mode is 1 and it is a successful FTPPUT session: **OK**

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

11.2.16 AT+FTPSCONT Save FTP Application Context

AT+FTPSCONT	**Save FTP Application Context**
Read Command **AT+FTPSCONT?**	Response TA returns FTP application context, which consists of the following AT Command parameters. **+FTPSCONT: <mode>** **+FTPSERV: <value>** **+FTPPORT: <value>** **+FTPUN: <value>**

	+FTPPW: <value> **+FTPCID: <value>** **+FTPMODE: <value>** **+FTPTYPE: <value>** **+FTPPUTOPT: <value>** **+FTPREST: <value>** **+FTPGETNAME: <value>** **+FTPGETPATH: <value>** **+FTPPUTNAME: <value>** **+FTPPUTPATH: <value>** **+FTPTIMEOUT: <value>** **OK**
	Parameter **<mode>** 0 Saved, the value from NVRAM 1 Unsaved, the value from RAM For other parameters, see the related command.
Execution Command **AT+FTPSCONT**	Response TA saves FTP application context which consists of following AT Command parameters, and when system is rebooted, the parameters will be loaded automatically. **OK**
Reference	Note

11.2.17 AT+FTPDELE Delete Remote File

AT+FTPDELE Delete Remote File	
Test Command **AT+FTPDELE=?**	Response **OK**
	Parameter
Execution Command **AT+FTPDELE**	Response If success: **OK** **+FTPDELE:1,0** If failed: **OK**

	+FTPDELE:1,<error> If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<error>** See "AT+FTPGET"
Reference	Note The file to be deleted is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

11.2.18 AT+FTPSIZE Get the Size of Specified File on the Remote Machine

AT+FTPSIZE Get the Size of Specified File on the Remote Machine	
Test Command **AT+FTSIZE=?**	Response **OK**
	Parameter
Execution Command **AT+FTPSIZE**	Response If success: **OK** **+FTPSIZE:1,0,<size>** If failed: **OK** **+FTPSIZE:1,<error>,0** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<error>** See "AT+FTPGET" <**size**> The file size. Unit: byte
Reference	Note The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

11.2.19 AT+FTPSTATE Get FTP Current State

AT+FTPSTATE Get FTP Current State	
Test Command **AT+FTPSTATE=?**	Response **OK**

	Parameter
Execution Command **AT+FTPSTATE**	Response **+FTPSTATE: <state>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<state>** 0 idle 1 in the FTP session, including FTPGET, FTPPUT, FTPDELE and FTPSIZE operation.
Reference	Note

11.2.20 AT+FTPEXTPUT Extend Upload File

AT+FTPEXTPUT	**Extend Upload File**
Test Command **AT+FTPEXTPUT=?**	Response **OK**
Write Command 1)if mode is 0 or 1 or 2 **AT+FTPEXTPUT=<mode>[,<pos>,<len>,<timeout >]** 2)if mode is 3 **AT+FTPEXTPUT=<mode>,<file name>**	Response If mode is 0 or 1 **OK** If mode is 2 **+FTPEXTPUT:<address>,<len>** **……** //Input data **OK** If mode is 3 and file is exist in flash **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 0 use default FTPPUT method 1 use extend FTPPUT method 2 send data to RAM through serial port, then FTPPUT method will get the data from RAM.

	3 load data from flash file to RAM, then FTPPUT method will get the data from RAM. **<pos>** data offset address 0-300k **<len>** data length 0-300k **<timeout>** timeout value of serial port. 1000ms-1000000ms <**file name**> File name length should less or equal 50 characters. <**err**> See "AT+FTPGET"
Reference	Note ● When extend FTPPUT mode is activated, input data then execute "AT+FTPPUT=1" to transmit, after session is complete, if successful, it returns "+FTPPUT:1,0", otherwise it returns "+FTPPUT:1,<error>", <error> see "AT+FTPGET". ● Not all the SIM900 series modules support this command.

11.2.21 AT+FTPMKD Make Directory on the Remote Machine

AT+FTPMKD Make Directory on the Remote Machine	
Test Command **AT+FTPMKD=?**	Response **OK**
	Parameter
Execution Command **AT+FTPMKD**	Response If success: **OK** **+FTPMKD:1,0** If failed: **OK** **+FTPMKD:1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<error>** See "AT+FTPGET"
Reference	Note ● The created folder is specified by the "AT+FTPGETPATH" command. ● Not all the SIM900 series modules support this command.

11.2.22 AT+FTPRMD Remove Directory on the Remote Machine

AT+FTPRMD Remove Directory on the Remote Machine	
Test Command **AT+FTPRMD=?**	Response **OK**
	Parameter
Execution Command **AT+FTPRMD**	Response If success: **OK** **+FTPRMD:1,0** If failed: **OK** **+FTPRMD:1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<error>** See "AT+FTPGET"
Reference	Note ● The created folder is specified by the "AT+FTPGETPATH" command. ● Not all the SIM900 serial modules support this command.

11.2.23 AT+FTPLIST List Contents of Directory on the Remote Machine

AT+FTPLIST List Contents of Directory on the Remote Machine	
Test Command **AT+FTPLIST=?**	Response **OK**
Write Command **AT+FTPLIST=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTP get session: **OK** **+FTPLIST:1,1** If data transfer is finished: **+FTPLIST:1,0** If mode is 1 and it is a failed FTP get session: **OK**

	+FTPLIST:1,<error> If mode is 2: **+FTPLIST:2,<cnflength>** **012345678…** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 1 For opening FTP get file list session 2 For reading FTP file list. **<reqlength>** Requested number of data bytes (1-1460)to be read **<cnflength>** Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read. **<error>** See "AT+FTPGET"
Reference	Note ● When "+FTPLIST:1,1" is shown, "AT+FTPLIST :2,<reqlength>" can be used to read data. If the module still has unread data, "+FTPLIST:1,1" will be shown again in a certain time. ● Not all the SIM900 serial modules support this command.

11.2.24 AT+FTPEXTGET Download File From the Remote Machine to Flash

AT+FTPEXTGET Download File From the Remote Machine to Flash	
Test Command **AT+FTPEXTGET=?**	Response : **OK**
	Parameter
Read Command **AT+FTPEXTGET?**	Response **+FTPEXTGET: <mode>,<length>** **OK**
	Parameter
Write Command 1)if mode is 1 or 2 **AT+FTPEXTGET=<mode>[,<filename>]** 2)if mode is 3 **AT+FTPEXTGET=<mode>,<pos>,<len>**	Response If mode is 1 and successfully download data: **OK** **+FTPEXTGET:1,0** If mode is 1 and failed to download data: **OK** **+FTPEXTGET:1,<error>** If mode is 2 and successfully save the downloaded data to flash: **OK**

	+FTPEXTGET:2,<length> If mode is 3 and successfully download data: **+FTPEXTGET: <length>** **0123456…** **OK** If mode is 2 and failed to download data in mode 1 or <file name> is already exist in flash: **ERROR**
	Parameter **<mode>** 0 use default FTPGET method. 1 open extend FTP get session and download data to RAM. 2 read the downloaded data from RAM, then save it to the flash file. 3 read the downloaded data from RAM, then output it to the serial port. **<file name>** File name length should less than or equal to 50 characters. <**pos**> data offset should less than <length>. <**len**> data length 0-300k. <**length**> The length of the downloaded data from the remote machine. <**error**> See "AT+FTPGET"
Reference	Note ● The data it can get is 300k at most ● Not all the SIM900 series modules support this command.

11.2.25 AT+FTPETGET Download File

AT+FTPETGET	**Download File**
Test Command **AT+FTPETGET=?**	Response **OK**
	Parameter
Write Command **AT+FTPETGET=<mode>**	Response If mode is 1 and successfully open GET session: **OK** **+FTPETGET:1,1** If data transfer finished: **0123456789…** **<ETX>** *//To notify the user that all data transfer has been finished, switch from data mode to command mode.*

	+FTPETGET:1,0 If mode is 1 and failed to download data: **OK** **+FTPETGET:1,<error>**
	Parameter **<mode>** 1 open FTPETGET session and download data. <**error**> See "AT+FTPEXTGET"
Reference	Note ● Each <ETX> character present in the payload data of the FTP flow will be coded by the TCP/IP stack on the serial port as <DLE><ETX>. Each <DLE> character will be coded as <DLE><DLE>. The attached host must then decode the FTP flow to remove these escape characters. ● Not all the SIM900 series modules support this command.

11.2.26 AT+FTPETPUT Upload File

AT+FTPETPUT	**Upload File**
Test Command **AT+FTPETPUT=?**	Response **OK**
	Parameter
Write Command **AT+FTPETPUT=<mode>[,<file name>]**	Response If mode is 1 and successfully open PUT session: **OK** **+FTPETPUT:1,1** If mode is 1 and failed to open PUT session: **OK** **+FTPETPUT:1,<error>** If mode is 2: **+FTPETPUT:2,1** **…** *//Input data* **<ETX>** *//To notify the module that all data has been sent, switch from data mode to command mode* **OK** If data transfer finished: **+FTPETPUT: 1,0**

	If data transfer failed: **+FTPETPUT: 1,<error>**
	Parameter **<mode>** 1 For opening FTPETPUT session. 2 For writing FTP upload data. <**error**> See "AT+FTPEXTGET"
Reference	Note ● The TCP/IP stack will only interpret an <ETX> character as the end of the file to be transferred if it's not preceded by a <DLE> character. As a consequence the attached host must send <ETX> characters preceded by <DLE> characters and it must also code <DLE> characters in <DLE><DLE>. ● Not all the SIM900 series modules support this command.

11.2.27 AT+FTPQUIT Quit FTP transfer session

AT+FTPQUIT	**Quit FTP transfer session**
Test Command **AT+FTPQUIT=?**	Response **OK**
	Parameter
Execution Command **AT+FTPQUIT**	Response If the current operation is GET method: **OK** **+FTPGET: 1,80** If the current operation is PUT method: **OK** **+FTPPUT: 1,80** If FTP is in idle state: **ERROR**
	Parameter
Reference	Note ● Not all the SIM900 series modules support this command.

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

12.3 Summary of Unsolicited Result Codes

URC	Description	AT Command
+**CCWA**: <number>,<type>,<class>[,<alpha>]	Indication of a call that is currently waiting and can be accepted.	AT+CCWA=1
+**CLIP**: <number>,<type>,<subaddr>,<satype>,<alphaId>,<CLI validity>	The calling line identity (CLI) of the calling party when receiving a mobile terminated call.	AT+CLIP=1
+**CRING**: <type>	Indicates incoming call to the TE if extended format is enabled.	AT+CRC=1
+**CREG**: <stat>[,<lac>,<ci>]	There is a change in the ME network registration status or a change of the network cell.	AT+CREG=<n>
+**CCWV**	Shortly before the ACM (Accumulated Call Meter) maximum value is reached. 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.	AT+CCWE=1
+**CMTI**: <mem3>,<index>	Indicates that new message has been received.	AT+CNMI <mt>=1
+**CMT**: <length><CR><LF><pdu>	Indicates that new message has been received.	AT+CNMI <mt>=2 (PDU mode)

+**CMT**: <oa>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>	Indicates that new message has been received.	AT+CNMI <mt>=2 (text mode)
+**CBM**: <length><CR><LF><pdu>	Indicates that new cell broadcast message has been received.	AT+CNMI <bm>=2 (PDU mode enabled)
+**CBM**: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>	Indicates that new cell broadcast message has been received.	AT+CNMI <bm>=2 (text mode enabled)
+**CDS**: <length><CR><LF><pdu>	Indicates that new SMS status report has been received.	AT+CNMI <ds>=1 (PDU mode enabled)
+**CDS**: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>	Indicates that new SMS status report has been received.	AT+CNMI <ds>=1 (text mode enabled):
+**CALV**: <n>	Indicate the expired alarm.	AT+CALA
+**COLP**: <number>,<type>[,<subaddr>,<satype>,<alphaId>]	The presentation of the COL (Connected Line) at the TE for a mobile originated call.	AT+COLP=1
+**CSSU**:<code2>	Presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received.	AT+CSSN=<n>[,<m>] <m>=1
+**CSSI**:<code1>[,<index>]	Presentation status after a mobile originated call setup	AT+CSSN=<n>[,<m>] <n>=1
+**CLCC**: <id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>][<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>][...]]	Report a list of current calls of ME automatically when the current call status changes.	AT+CLCC=1
***PSNWID**: "<mcc>","<mnc>", "<full network name>",<full network name CI>, "<short network name>",<short network name CI>	Refresh network name by network.	AT+CLTS=1
***PSUTTZ**: <year>,<month>,<day>,<hour>,<min>,<sec>, "<time zone>",<dst>	Refresh time and time zone by network.	
+**CTZV**: "<time zone>"	Refresh network time zone by network.	

DST: <dst>	Refresh Network Daylight Saving Time by network.	
+**CEXTHS**: <mode>,<headset attach>	Indicates whether a headset has been attached or not (require hardware support).	AT+CEXTHS=1
+**CEXTBUT**: <mode>,<headset button press>	Indicates whether a headset button has been pressed or not (require hardware support).	AT+CEXTBUT=1
+**CSMINS**: <n>,<SIM inserted>	Indicates whether SIM card has been inserted.	AT+CSMINS=1
+**CDRIND**: <type>	Indicates whether a CS voice call, CS data has been terminated.	AT+CDRIND=1
+**CHF**: <state>	Indicates the current channel.	AT+CHF=1
+**CENG**: <cell>,"<arfcn>,<rxl>,<rxq>,<mcc>,<mnc>,<bsic>,<cellid>,<rla>,<txp>,<lac>,<TA>"	Report of network information.	AT+CENG=<mode>[,<Ncell>] <mode>=2
+**CENG**: <cell>,<mcc>,<mnc>,<lac>,<cellid>,<bsic>,<rxl>	Limited report of network information.	AT+CENG=<mode>[,<Ncell>] <mode>=3
MO RING	Shows call state of mobile originated call: the call is alerted.	AT+MORING=1
MO CONNECTED	Shows call state of mobile originated call: the call is established.	AT+MORING=1
+**CPIN**:<code>	Indicates whether some password is required or not.	AT+CPIN
+**CPIN**: NOT READY	SIM Card is not ready.	
+**CPIN**: NOT INSERTED	SIM Card is not inserted.	
+**SKPD**: <Keypad Value>, <Keypad Status>	Indicates the action of keypad and the value of it.	AT+SKPD=1
+**CGURC**: <event>	Following particular call state transitions, multiple notifications may occur for the same transition, describes the current call state.	AT+EXUNSOL="UR",1
+**CSQN**: <rssi>,<ber>	Displays signal strength and channel bit error rate when <rssi>,<ber>values change.	AT+EXUNSOL="SQ",1
+**SIMTONE**: 0	The generated tone playing is stopped or completed.	AT+SIMTONE
+**STTONE**: 0	The SIM Toolkit tone playing is stopped or completed.	AT+STTONE
+**CR**: <serv>	An intermediate result code is transmitted during connect negotiation when the TA has determined the speed and quality of service to be used, before	AT+CR=1

	any error control or data compression reports are transmitted, and before any final result code (e.g. CONNECT) appears.	
+**CUSD**: <m>[<str_urc>[<dcs>]]	Indicates an USSD response from the network, or network initiated operation.	AT+CUSD=1
RING	An incoming call signal from network is detected.	
NORMAL POWER DOWN	SIM900 is powered down by the PWRKEY pin or AT command "AT+CPOWD=1".	
+**CMTE**: <n>	The module temperature is abnormal. Refer to hardware document for details.	AT+CMTE=1
UNDER-VOLTAGE POWER DOWN	Under-voltage automatic power down.	
UNDER-VOLTAGE WARNNING	under-voltage warning	
OVER-VOLTAGE POWER DOWN	Over-voltage automatic power down.	
OVER-VOLTAGE WARNNING	over-voltage warning	
CHARGE-ONLY MODE	The module is charging by charger. (require hardware support)	
RDY	Power on procedure is completed, and the module is ready to operate at fixed baud rate. (This URC does not appear when auto-bauding function is active).	AT+IPR=<rate> <rate> is not 0
Call Ready	Module is powered on and initialization procedure is over.	AT+CIURC=1
+**CFUN**: <fun>	Phone functionality indication (This URC does not appear when auto-bauding function is active).	AT+IPR=<rate> <rate> is not 0
+CUSD: <m>[,<str>,<dcs>]	In case of enabled presentation, a +CUSD (as direct answer to a send USSD) is then indicated	AT+CUSD=1
[<n>,]**CONNECT OK**	TCP/ UDP connection is successful	AT+CIPSTART
CONNECT	TCP/UDP connection in channel mode is successful	
[<n>,]**CONNECT FAIL**	TCP/UDP connection fails	AT+CIPSTART
[<n>,]**ALREADY CONNECT**	TCP/UDP connection exists	AT+CIPSTART
[<n>,]**SEND OK**	Data sending is successful	
[<n>,]**CLOSED**	TCP/UDP connection is closed	
RECV FROM: <IP ADDRESS>: <PORT>	shows remote IP address and port (only in single connection mode)	AT+CIPSRIP=1
+**IPD**, <data size>,<TCP/UDP>:<data>	display transfer protocol in IP header to received data or not (only in single connection mode)	AT+CIPHEAD AT+CIPSHOWTP

+**RECEIVE**,<n>,<length>	Received data from remote client (only in multiple connection mode)	
REMOTE IP: <IP ADDRESS>	Remote client connected in	
+**CDNSGIP**: 1,<domain name>,<IP>	DNS successful	AT+CDNSGIP
+**CDNSGIP**:0,<dns error code>	DNS failed	
+**PDP DEACT**	GPRS is disconnected by network	
+**SAPBR** <cid>: DEACT	The bearer based on IP connection of SIMCom application is deactivated.	
+**HTTPACTION**: <Method>,<StatusCode>,<DataLen>	Indicates HTTP method, Status Code responded by remote server and the length of data got.	AT+HTTPACTION=<Method>
+**FTPGET**:1,<res>	FTPGET session	AT+FTPGET=1
+**FTPPUT**:1,1,<maxlength>	It is ready to upload data.	AT+FTPPUT
+**FTPPUT**:1,<res>	FTP return result	AT+FTPPUT
+**FTPDELE**:1,<res>	FTP delete session	AT+FTPDELE
+**FTPSIZE**:1,<res>,<size>	FTP size session	AT+FTPSIZE
+**FTPMKD**:1,<res>	FTP create directory (not supported for all versions)	AT+FTPMKD
+**FTPRMD**:1,<res>	FTP delete directory (not supported for all versions)	AT+FTPRMD
+**FTPLIST**:1,<res>	FTP list session (not supported for all versions)	AT+FTPLIST

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 SIMCOM_SIM900 Revision:1137B01SIM900M32_ST OK
Display current configuration, a list of the current active profile parameters.	AT&V	[A complete listing of the active profile] OK
Reporting of mobile equipment errors. The default CME error reporting setting is disabled. Switch to verbose mode Displays a string explaining the error in more details.	AT+CMEE=? OK AT+CMEE? OK AT+CSCS=? +CSCS: ("IRA","GSM","UCS2","HEX","PCCP","PCDN","8859-1") AT+CSCS="TEST" OK AT+CMEE=2 ERROR AT+CSCS="TEST" OK +CME ERROR: operation not allowed	+CMEE: (0-2)
Store the current configuration in nonvolatile memory. When the board is reset, the configuration changes from the last session are loaded.	ATE0&W AT [Reset the board] AT ATE1&W AT	OK [No echo] OK [No echo] OK [No echo] OK [Echo on]

		OK
Set the ME to minimum functionality	AT+IPR? AT+CFUN=0 AT+IPR=115200 AT+IPR? AT+CFUN=0	+IPR:0 OK OK +CPIN: NOT READY OK +IPR:115200 OK +CPIN: NOT READY
ME has entered full functionality mode.	AT+CFUN?	+CFUN:1 OK

13.2 SIM Commands

Demonstration	Syntax	Expect Result
List available phonebooks, and select the SIM phonebook.	AT+CPBS=? AT+CPBS="SM"	+CPBS: ("MC","RC","DC","LD","LA","ME","SM","FD","ON","BN","SD","VM","EN") OK OK
Display the ranges of phonebook entries and list the contents of the phonebook.	AT+CPBR=? AT+CPBR=1,10	+CPBR: (1-250),40,14 OK [a listing of phonebook contents] OK
Write an entry to the current phonebook.	AT+CPBW=,"13918 18xxxx",129,"Daniel" AT+CPBR=1,10	OK [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" OK
Delete an entry from the current phonebook specified by its position index.	AT+CPBW=2 AT+CPBR=1,10	OK [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" OK
Display a full list of network operator names.	AT+COPN	+COPN: "20201","COSMO"[skip a bit] +COPN: "901012","Maritime Comm Partner AS" OK
Reduce its functionality. This will deregister the handset from the network.	AT+IPR? AT+CFUN=0 [wait for deregister] ATD6241xxxx; AT+CFUN=1	+IPR: 0 OK OK ERROR OK
Request the IMSI	AT+CIMI	460008184101641 OK

13.4 Call Control Commands

Demonstration	Syntax	Expect Result
Make a voice call	ATD6241xxxx;	OK MS makes a voice call
Hang up a call	ATH	OK Call dropped

Make a voice call using the last number facility. The initial call is established and then cancelled. The second call is made using the previous dial string.	ATD6241xxxx; ATH ATDL	OK OK OK
Example of a MT voice call Make MT voice call to MS.	ATA ATH	RING RING OK[accept call] OK[hang up call]
Call related to supplementary service: AT+CHLD. This Command provides support for call waiting functionality.	AT+CHLD=<N>	Return value:(0,1,1x,2,2x,3,4,6,6x,7x,8x,9x)
Terminate current call and accept waiting call. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), terminate active call and accept incoming call. Note call waiting must be active for this option – use "AT+CCWA=1,1" before running this demonstration.	AT+CCWA=1,1 ATD6241xxxx; <RX incoming call> AT+CHLD=1	OK OK RING +CCWA: "62418148",129,1,"" OK <waiting call active>
Set current call to busy state and accept waiting call. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), place active call on hold and switch to incoming call. Terminate active call and switch back to original call. Note call waiting must have been previously	ATD6241xxxx; <RX incoming call> AT+CHLD=2 AT+CHLD=1	RING +CCWA: "13918186089",129,1,"" OK <waiting call active other call on hold> OK <incoming call terminated, dialed number now active>

enabled for this demonstration to work.		
Switch between active and held calls. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), place active call on hold and switch to incoming call. Switch between both calls, placing each in the hold state whilst the other is active before terminating each one. This feature relies on knowing each call's ID. This is done using the List Current Calls (AT+CLCC) Command. A call's ID is required to switch between held and active calls. Held calls are not automatically resumed when all other calls are terminated. They need to be made active using the AT+CHLD=2x Command. Note call waiting must have been previously enabled for this demonstration to work.	ATD6241xxxx; <RX incoming call> AT+CHLD=2 AT+CHLD=21 AT+CLCC AT+CHLD=22 AT+CHLD=12 AT+CHLD=11	OK RING +CCWA: "13918186089",129,1,"" OK <incoming call activated, original on hold> OK <original call activated, incoming call held> +CLCC:1,0,0,0,0,"62418148",129,"" +CLCC:2,1,1,0,0,"13918186089",129,"" OK <Note incoming call held flag set> OK <original call held, incoming call active> OK <terminate incoming call> <terminate original call>
Send busy status to incoming waiting caller. Establish a voice call from EVB, receive an incoming call (incoming call accepts waiting status), send 'busy' status to waiting mobile. Note call waiting must have been previously enabled for this demonstration to work.	ATD6241xxxx; <RX incoming call> AT+CHLD=0	OK RING +CCWA: "13918186089",129,1,"" OK OK <incoming call sent busy msg, current call retained>
Drop all calls on hold. Establish a voice call from	ATD6241xxxx;	OK RING

EVB, receive an incoming call (incoming call accepts waiting status), switch to incoming call and drop all waiting calls. Note call waiting must have been previously enabled for this demonstration to work.	<RX incoming call> AT+CHLD=2 AT+CHLD=0	+CCWA: "13918186089",129,1,"" OK <incoming call actived,original on hold> OK <incoming call actived,current call terminate>

13.5 SIM Toolkit Commands

Demonstration	Syntax	Expect Result
Select the 1st 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 *PSSTK: "GET ITEM LIST",2,2,2,752862377BA17406,0,0,0 *PSSTK: "GET ITEM LIST",3,3,2,52067EC47BA17406,0,0,0 *PSSTK: "GET ITEM LIST",4,4,2,7FA453D16D88606F,0,0,0 *PSSTK: "GET ITEM LIST",5,5,2,65E57A0B63D09192,0,0,0 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" AT+CMGS="+861391818xxxx" >This is a test <Ctrl+Z>	OK +CMGS:34 OK
Unsolicited notification of the SMS arriving		+CMTI: "SM",1
Read SMS message that has just arrived. Note: the number should be the same as that given in the +CMTI notification.	AT+CMGR=1	+CMGR: "REC UNREAD","+8613918186089","","02/01/30,20:40:31+00" This is a test OK
Reading the message again and change the status to "READ" from "UNREAD ".	AT+CMGR=1	+CMGR: "REC READ","+8613918186089","","02/01/30,20:40:31+00" This is a test OK
Send another SMS to myself.	AT+CMGS="+861391818xxxx" >Test again<Ctrl+Z>	+CMGS:35 OK
Unsolicited notification of the SMS arriving		+CMTI: "SM",2
List all SMS messages. Note:"ALL" must be in uppercase.	AT+CMGL="ALL"	+CMGL: 1,"REC READ","+8613918186089","","02/01/30,20:40:31+00" This is a test +CMGL: 2,"REC UNREAD","","+8613918186089","","02/01/30,20:45:12+00" Test again 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" Test again OK
Send SMS using Chinese characters	AT+CSMP=17,167,0,25 AT+CSCS="UCS2" AT+CMGS="0031003300390031003800310038003x003x003x003x" >4E014E50<Ctrl+Z>	OK OK +CMGS:36 OK

13.8 GPRS Commands

Demonstration	Syntax	Expect Result
Establish a GPRS context.	Setup modem driver Setup dial up connection with *99# Run internet explorer	Should be able to surf the web using Internet explorer.
There are two GPRS Service Codes for the ATD Command: Value 88 and 99. Establish a connection by service code 99. Establish a connection by service code 99 and using CID 1	ATD*99# ATD*99***1#	CONNECT CONNECT
Check if the MS is connected to the GPRS network Detach from the GPRS network Check if the MS is connected	AT+CGATT? AT+CGATT=0 AT+CGATT?	+CGATT:1 OK OK +CGATT: 0

to the GPRS network		OK
Check the class of the MS	AT+CGCLASS?	+CGCLASS:B OK
Establish a context using the terminal equipment: defines CID 1 and sets the PDP type to IP, access point name and IP address aren't set.	AT+CGDCONT=1, "IP","CMNET" ATD*99#	OK CONNECT
Cancel a context using the terminal equipment Pause data transfer and enter Command mode by +++ Stop the GPRS data transfer	AT+CGDCONT=1, "IP","CMNET" ATD*99# +++ ATH	OK CONNECT OK OK
Reconnect a context using the terminal equipment Resume the data transfer	AT+CGDCONT=1, "IP","CMNET" ATD*99# +++ ATO	OK CONNECT OK 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	AT+CGQREQ?	+CGQREQ:1,2,,,, +CGQREQ: 3,0,0,3,0,0

are set to network subscribed except precedence class which is set to 2		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 by AT+CGATT=1 before activating, the attachment is automatically done by the AT+CGACT Command.	AT+CGACT=1,1 AT+CGACT=1,3	OK +CME ERROR: requested service option not 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", 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.

13.9 AT+CNETSCAN Command

AT+CNETSCAN can show all local mobile network service providers' information if module power-on without SIM card. Also AT+CNETSCAN can show the information of current network service provider which module is registered to if module power-on with SIM card.

Here is a sample while module power-on without SIM card.

AT+CNETSCAN

------MOST SUITABLE CELL------

Operator:"CHN-UNICOM",MCC:460,MNC:1,Rxlev:61,Cellid:b5f0,Arfcn:0110
Operator:"CHN-UNICOM",MCC:460,MNC:1,Rxlev:25,Cellid:0e93,Arfcn:0723
Operator:"CHN-UNICOM",MCC:460,MNC:1,Rxlev:16,Cellid:5779,Arfcn:0722
------OTHER SUITABLE CELL------
Operator:"CHINA MOBILE",MCC:460,MNC:0,Rxlev:15,Cellid:f4e2,Arfcn:0016
Operator:"CHINA MOBILE",MCC:460,MNC:0,Rxlev:18,Cellid:f952,Arfcn:0019
Operator:"CHINA MOBILE",MCC:460,MNC:0,Rxlev:11,Cellid:2351,Arfcn:0010
Operator:"CHINA MOBILE",MCC:460,MNC:0,Rxlev:11,Cellid:f2c3,Arfcn:0584
Operator:"CHINA MOBILE",MCC:460,MNC:0,Rxlev:12,Cellid:f951,Arfcn:0026

OK

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