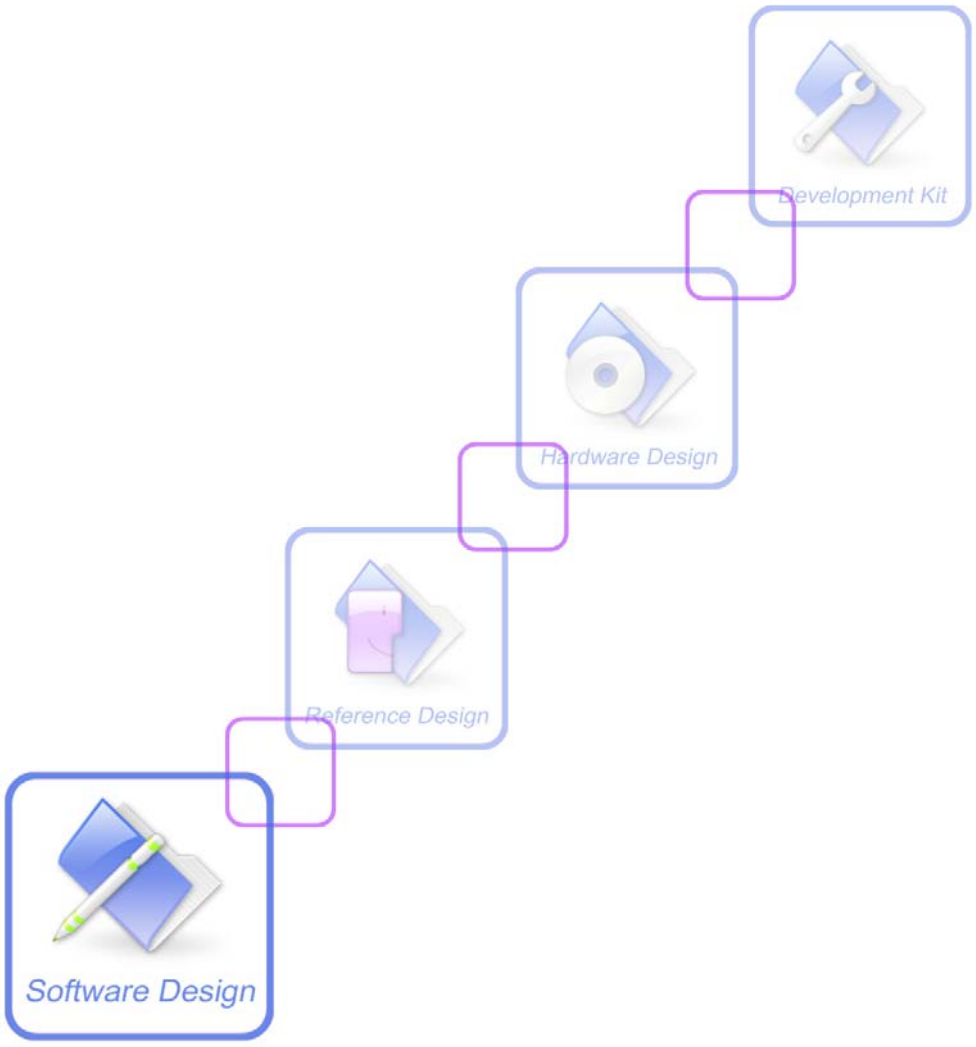
SIM700D AT Command Set

SIM700D_ATC_V1.00



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Version History

Now document: “SIM700D AT Interface Description” Version 1.00

Date	Version	Description of change	Author
2008-3-18	V1.00	Created	Xu YongSen, Guo CunLiang

1 Introduction

1.1 Scope of the Document

This document presents the AT Commands Set for SIMCOM cellular engine SIM700D

1.2 Related Documents

http://www.simcom-sh.com

1.3 Conventions and Abbreviations

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

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 Commands via its serial interface. The controlling device at the other end of the serial line is referred to as following terms:

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 command set implemented by SIM700D is a combination of GSM07.05, GSM07.07 and ITU-T recommendation V.25ter and the AT commands developed by SIMCOM.

Note: Only enter AT command through serial port after SIM700D is powered on and Unsolicited Result Code "RDY" is received from serial port.

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 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 current set value of the parameter or parameters.
Write command	AT+<x>=<…>	This command sets the user-definable parameter values.
Execute command	AT+<x>	This command executes non-variable parameters affected by internal processes in the GSM engine

1.4.4 Combining AT Commands on the Same Command Line

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

The command line buffer can accept a maximum of 256 characters. If the characters entered exceeded this number then none of the commands will executed and TA will returns "**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 SIM700D AT command interface defaults to the **GSM** character set. The SIM700D supports the following character sets:

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

The character set can be set and interrogated using the "**AT+CSCS**" command (GSM 07.07).

The character set is defined in GSM specification 07.05.

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

1.6 Flow Control

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

There are basically two approaches to achieve data flow control: software flow control and hardware flow control. SIM700D supports both two kinds of flow control.

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

1.6.1 Software Flow Control (XON/XOFF Flow Control)

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

The default flow control approach of SIM700D is hardware flow control (RTS/CTS flow control), to enable software flow control in the DTE interface and within GSM engine, typing the following AT command:

AT+IFC=1,1

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

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

NOTE:

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

1.6.2 Hardware Flow Control (RTS/CTS flow control)

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

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

2 AT Commands According to V.25TER

These AT 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/	REISSUE THE LAST AT COMMAND GIVEN
ATA	ANSWER AN INCOMING CALL
ATD	MOBILE ORIGINATED CALL TO DIAL A NUMBER
ATD><MEM><N><MGSM>	ORIGINATE CALL TO PHONE NUMBER IN MEMORY <MEM>
ATD><N><MGSM>	ORIGINATE CALL TO PHONE NUMBER IN CURRENT MEMORY
ATD><STR><MGSM>	ORIGINATE CALL TO PHONE NUMBER IN MEMORY WHICH CORRESPONDS TO ALPHANUM FIELD
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 DIALING
ATQ	SET RESULT CODE PRESENTATION MODE
ATS0	SET NUMBER OF RINGS BEFORE AUTOMATICALLY ANSWERING THE CALL
ATS2	SET ESCAPE CHARACTER
ATS3	SET COMMAND LINE TERMINATION CHARACTER
ATS4	SET RESPONSE FORMATTING CHARACTER
ATS5	SET COMMAND LINE EDITING CHARACTER
ATS6	SET PAUSE BEFORE BLIND DIALING
ATS7	SET NUMBER OF SECONDS TO WAIT FOR CONNECTION COMPLETION
ATS8	SET NUMBER OF SECONDS TO WAIT WHEN COMMA DIAL MODIFIER USED
ATS10	SET DISCONNECT DELAY AFTER INDICATING THE ABSENCE OF DATA CARRIER

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

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

2.2.1 A/ Reissue the last AT Command Given

A/ Reissue the Last AT Command Given	
Execute command **A/**	Response Reissue the previous command **Note: It does not have to end with terminating character.**
	Parameter
Reference **V.25ter**	Note **This command does not work when the serial multiplexer is active**

2.2.2 ATA Answer an Incoming Call

ATA Answer an Incoming Call	
Execute command	Response

ATA	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**
	Parameter
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	
Execute command **ATD**	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 no dial tone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY** If a connection cannot be established **NO CARRIER** If connection successful and non-voice call.

	CONNECT<text> TA switches to data mode. **Note: <text> output only if ATX<value> parameter setting with the <value> >0** When TA returns to command mode after call released **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** ● **Parameters "I" and "i" only if no *# codes are 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> <mem><n> <mgsm>Originate Call to Phone Number in Memory <mem>

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

	Parameter **<mem>** Phonebook "**DC**" ME dialled calls list "**FD**" SIM fixdialing-phonebook "**LD**" SIM dialled calls list "**MC**" ME missed (unanswered received) calls list "**ME**" ME phonebook "**ON**" SIM (or ME) own numbers (MSISDNs) list "**RC**" ME received calls list "**SM**" SIM phonebook **<n>** Integer type memory location should be in the range of locations available in the memory used **<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 ● **There is no <mem> for emergency call ("EN").** ● **Parameters "I" and "i" only if no *# codes are within the dial string** ● ***# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon ";"** ● **See ATX command for setting result code and call monitoring parameters.** ● **For example: The command "ATD>SM7;" is going to dial the phone number stored at location 7 in SIM phone book.**

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

ATD><n><mgsm> Originate Call to Phone Number in Current Memory	
Execute command **ATD><n><mgsm> [;]**	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 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 released **OK** If successfully connected and voice call **OK**

	Parameter **<n>** Integer type memory location should be in the range of locations available in the memory used **<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 ● **Parameters "I" and "i" only if no *# codes are within the dial string** ● ***# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon ";"** ● **See ATX command for setting result code and call monitoring parameters.**

2.2.6 ATD><str><mgsm> Originate Call to Phone Number in Memory Which Corresponds to Alpha Num Field

ATD><str> Originate Call to Phone Number in Memory Which Corresponds to Alpha Num Field	
Execute command **ATD><str><mgsm> [;]**	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 dialtone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY**

	If a connection cannot be established **NO CARRIER** If connection successful and non-voice call. **CONNECT<text> TA** switches to data mode. Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>** >0 When **TA** returns to command mode after call released **OK** If successfully connected and voice call **OK**
	Parameter **<str>** string type value("**x**"), which should equal to an alphanumeric field in at least one phone book entry in the searched memories. **str** formatted as current **TE** character set specified by **+CSCS**. **<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.**

2.2.7 ATDL Redial Last Telephone Number Used

ATDL Redial Last Telephone Number Used	
Execute 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 dialtone and (parameter setting **ATX2** or **ATX4**) **NO DIALTONE** If busy and (parameter setting **ATX3** or **ATX4**) **BUSY** If a connection cannot be established **NO CARRIER** If connection successful and non-voice call. **CONNECT<text> TA** switches to data mode. **Note: <text> output only if ATX<value> parameter setting with the <value> >0** When **TA** returns to command mode after call release **OK** If successfully connected and voice call **OK**
Reference **V.25ter**	Note ● **See ATX command for setting result code and call monitoring parameters.**

2.2.8 ATE Set Command Echo Mode

ATE Set Command Echo Mode	
Execute 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

2.2.9 ATH Disconnect Existing Connection

ATH Disconnect Existing Connection

Execute 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 from line and terminate call
Reference **V.25ter**	Note

2.2.10 ATI Display Product Identification Information

ATI Display Product Identification Information	
Execute command **ATI**	Response TA issues product information text **OK** Example: **SIMCOM_Ltd** **SIMCOM_SIM700D** **Revision: 1604B01SIM700DM32_INTEL** **OK**
	Parameter
Reference **V.25ter**	Note

2.2.11 ATL Set Monitor Speaker Loudness

ATL Set Monitor Speaker Loudness		
Execute command **ATL[<value>]**	Response **OK**	
	Parameter **<value>**	0 low speaker volume 1 low speaker volume 2 medium speaker volume 3 high speaker volume
Reference **V.25ter**	Note ● **The two commands ATL and ATM are implemented only for V.25 compatibility reasons and have no effect.**	

2.2.12 ATM Set Monitor Speaker Mode

ATM Set Monitor Speaker Mode	
Execute command **ATM[<value>]**	Response **OK**
	Parameter **<value>** 0 speaker is always off 1 speaker on until TA inform TE that carrier has been detected 2 speaker is always on when TA is off-hook
Reference **V.25ter**	Note ● **The two commands ATL and ATM are implemented only for V.25 compatibility reasons and have no effect.**

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

Switch from Data Mode or PPP Online Mode to Command Mode	
Execute command **+++**	Response This command is only available during a CSD call or a GPRS connection. The **+++** character sequence causes the TA to cancel the data flow over the AT interface and switch to command mode. This allows you to enter AT command while maintaining the data connection to the remote server or, accordingly, the GPRS connection. **OK** To prevent the **+++** escape sequence from being misinterpreted as data, it should comply to following sequence: 1、No characters entered for T1 time (0.5 seconds) 2、"+++" characters entered with no characters in between 3、No characters entered for T1 timer (0.5 seconds) 4、Switch to command mode, otherwise go to step 1.
	Parameter
Reference **V.25ter**	Note ● **To return from command mode back to data or PPP online mode: Enter ATO.**

2.2.14 ATO Switch from Command Mode to Data Mode

ATO Switch from Command Mode to Data Mode

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

2.2.15 ATP Select Pulse Dialing

ATP Select Pulse Dialing	
Execute command **ATP**	Response **OK**
	Parameter
Reference **V.25ter**	Note ● **No effect in GSM**

2.2.16 ATQ Set Result Code Presentation Mode

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

2.2.17 ATS0 Set Number of Rings before Automatically Answering the Call

ATS0 Set Number of Rings before Automatically Answering the Call

Read command **ATS0?**	Response **<n>** **OK**
	Parameter See Write command
Write command **ATS0=<n>**	Response This parameter setting determines the number of rings before auto-answer. **OK**
	Parameter **<n>** 0 automatic answering is disable 1-255 enable automatic answering on the ring number specified
Reference **V.25ter**	Note ● **If <n> is set too high, the calling party may hang up before the call can be answered automatically.**

2.2.18 ATS2 Set Escape Character

ATS2 Set Escape Character	
Read command **ATS2?**	Response **<n>** **OK**
	Parameter See Write command
Write command **ATS2=<n>**	Response This parameter setting determines the character recognized by TA to terminate an incoming command line. The TA also returns this character in output. **OK**
	Parameter **<n>** 0-43-255 command line termination character
Reference **V.25ter**	Note ● **Default 43 = ESC.**

2.2.19 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**
	Parameter **<n>** 0-13-127 command line termination character
Reference **V.25ter**	Note ● **Default 13 = CR.**

2.2.20 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**
	Parameter **<n>** 0-10-127 response formatting character
Reference **V.25ter**	Note ● **Default 10 = LF.**

2.2.21 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**
	Parameter **<n>** 0-8-127 response formatting character
Reference	Note

V.25ter	● **Default 8 = Backspace.**

2.2.22 ATS6 Set Pause before Blind Dialing

ATS6 Set Pause before Blind Dialing	
Read command **ATS6?**	Response **<n>** **OK**
	Parameter See Write command
Write command **ATS6=<n>**	Response **OK**
	Parameter **<n>** 0-2-10 number of seconds to wait before blind dialing
Reference **V.25ter**	Note ● **No effect for GSM**

2.2.23 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**
	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.**

2.2.24 ATS8 Set Number of Seconds to Wait when Comma Dial Modifier Used

ATS8 Set Number of Seconds to Wait when Comma Dial Modifier used	
Read command **ATS8?**	Response **<n>**

	OK
	Parameter See Write command
Write command **ATS8=<n>**	Response **OK**
	Parameter **<n>** 0 no pause when comma encountered in dial string 1-255 number of seconds to wait
Reference **V.25ter**	Note ● **No effect for GSM**

2.2.25 ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrie

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 disconnect, the TA remains connected. **OK**
	Parameter **<n>** 1-15-254 number of tenths seconds of delay
Reference **V.25ter**	Note

2.2.26 ATT Select Tone Dialing

ATT Select Tone Dialing	
Execute command **ATT**	Response **OK**
	Parameter
Reference **V.25ter**	Note ● **No effect in GSM**

2.2.27 ATV Set Result Code Format Mode

ATV Set Result Code Format Mode

Execute 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)
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

2.2.28 ATX Set CONNECT Result Code Format and Monitor Call Progress

ATX Set CONNECT Result Code Format and Monitor Call Progress

Execute 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**
	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

2.2.29 ATZ Set All Current Parameters to User Defined Profile

ATZ Set All Current Parameters to User Defined Profile	
Execute command **ATZ[<value>]**	Response TA sets all current parameters to the user defined profile. **OK**
	Parameter **<value>** 0 Reset to profile number 0
Reference **V.25ter**	Note ● The user defined profile is stored in non volatile memory; ● If the user profile is not valid, it will default to the factory default profile; ● Any additional commands on the same command line are ignored.

2.2.30 AT&C Set DCD Function Mode

AT&C Set DCD Function Mode	
Execute 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**

	Parameter **<value>** 0 **DCD** line is always ON 1 **DCD** line is ON only in the presence of data carrier
Reference **V.25ter**	Note

2.2.31 AT&D Set DTR Function Mode

AT&D Set DTR Function Mode	
Execute command **AT&D[<value>]**	Response This parameter determines how the TA responds when circuit 108/2(DTR) is changed from the ON to the OFF condition during data mode. **OK**
	Parameter **<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

2.2.32 AT&F Set All Current Parameters to Manufacturer Defaults

AT&F Set All Current Parameters to Manufacturer Defaults	
Execute command **AT&F[<value>]**	Response TA sets all current parameters to the manufacturer defined profile. **OK**
	Parameter **<value>** 0 set all TA parameters to manufacturer defaults.
Reference **V.25ter**	Note

2.2.33 AT&V Display Current Configuration

AT&V Display Current Configuration	
Execute command **AT&V[<n>]**	Response TA returns the current parameter setting. <**current configurations text**> **OK**

	Parameter **<n>** 0 profile number
Reference **V.25ter**	Note

2.2.34 AT&W Store Current Parameter to User Defined Profile

AT&W Store Current Parameter to User Defined Profile	
Execute command **AT&W[<n>]**	Response TA stores the current parameter setting in the user defined profile. **OK**
	Parameter **<n>** 0 profile number to be stored
Reference **V.25ter**	Note ● The user defined profile is stored in non volatile memory.

2.2.35 AT+DR V.42bis Data Compression Reporting Control

AT+DR V.42bis Data Compression Reporting Control	
Test command **AT+DR=?**	Response **+DR:(list of supported <value>s)** **OK**
	Parameter See Write command.
Read command **AT+DR?**	Response **+DR: <value>** **OK**
	Parameter See Write command.
Write command **AT+DR=<value>**	Response This parameter setting determines whether or not intermediate result code of the current data compressing is reported by TA to TE after a connection establishment. **OK**
	Parameter **<value>** 0 reporting disabled 1 reporting enabled
Reference	Note

V.25ter	● If the **<value>** is set to 1, then the intermediate result code reported after call set up is: +DR: <type> **<type>** NONE data compression is not in use V42B Rec. V42bis is in use in both direction V42B RD Rec. V42bis is in use in receive direction only V42B TD Rec. V42bis is in use in transmit direction only

2.2.36 AT+DS V.42bis Data Compression Control

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

2.2.37 AT+GCAP Request Complete TA Capabilities List

AT+GCAP Request Complete TA Capabilities List	
Test command **AT+GCAP=?**	Response **OK**
	Parameter
Execute command **AT+GCAP**	Response TA reports a list of additional capabilities. **+GCAP: <name>s** **OK**
	Parameter **<name>** e.g.: **+CGSM, +FCLASS, +DS** **+CGSM** GSM function is supported **+FCLASS** FAX function is supported **+DS** Data compression is supported
Reference **V.25ter**	Note

2.2.38 AT+GMI Request Manufacture Identification

AT+GMI Request Manufacture Identification	
Test command **AT+GMI=?**	Response **OK**
	Parameter
Execute command **AT+GMI**	TA reports one or more lines of information text which permit the user to identify the manufacturer. **<manufacturer>** **OK**
	Parameter **<manufacturer>** manufacturer ID, for example: **SIMCOM_Ltd**
Reference **V.25ter**	Note

2.2.39 AT+GMM Request TA Model Identification

AT+GMM Request TA Model Identification	
Test command **AT+GMM=?**	Response **OK**
	Parameter

Execute 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>** model of device ,for example: **SIMCOM_SIM700D**
Reference **V.25ter**	Note

2.2.40 AT+GMR Request TA Revision Identification of Software Release

AT+GMR Request TA Revision Identification of Software Release	
Test command **AT+GMR=?**	Response **OK**
	Parameter
Execute command **AT+GMR**	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>** **OK**
	Parameter **<revision>** revision information, for example: **1604B01SIM700DM64_INTEL**
Reference **V.25ter**	Note

2.2.41 AT+GOI Request Global Object Identification

AT+GOI Request Global Object Identification	
Test command **AT+GOI=?**	Response **OK**
	Parameter
Execute 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, for example: **SIM700D** see X.208, 209 for the format of **<Object Id>**
Reference **V.25ter**	Note

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

AT+GSN Request TA Serial Number Identification(IMEI)	
Test command **AT+GSN=?**	Response **OK**
	Parameter
Execute 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**.

2.2.43 AT+ICF Set TE-TA Control Character Framing

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

	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
		2	mark (1)
		3	space (0)
Reference **V.25ter**	Note ● **The command is applied for command state;** ● **The <parity> field is ignored if the <format> field specifies no parity.**		

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

AT+IFC Set TE-TA Local Data Flow Control	
Test command **AT+IFC=?**	Response **+IFC:(list of supported <dce_by_dte>s), (list of supported <dte_by_dce>s)** **OK**
	Parameter See Write command.
Read command **AT+IFC?**	Response **+IFC: <dce_by_dte>,<dte_by_dce>** **OK**
	Parameter See Write command.
Write command **AT+IFC=[<dce_by_dte>[,<dte_by_dce>]]**	Response This parameter setting determines the data flow control on the serial interface for data mode. **OK**

	Parameters **<dce_by_dte>** specifies the method will be used by TE at receive of data from TA 0 None 1 XON/XOFF, don't pass characters on to data stack 2 line 105: Request to send (RTS). 3 XON/XOFF, pass characters on to data stack **<dte_by_dce>** specifies the method will be used by TA at receive of data from TE 0 None 1 XON/XOFF 2 line 106: Clear to send (CTS)
Reference **V.25ter**	Note ● **This flow control is applied for data mode;** ● **SIMCOM use the RTS for this method.**

2.2.45 AT+ILRR Set TE-TA Local Rate Reporting Mode

AT+ILRR Set TE-TA Local Rate Reporting Mode	
Test command **AT+ILRR=?**	Response **+ILRR:(list of supported <value>s)** **OK**
	Parameter See Write command.
Read command **AT+ILRR?**	Response **+ILRR: <value>** **OK**
	Parameter See Write command.
Write command **AT+ILRR=<value>**	Response This parameter setting determines whether or not an intermediate result code of local rate is reported at connection establishment. The rate is applied after the final result code of the connection is transmitted to TE. **OK**

	Parameter **<value>** 0 Disables reporting of local port rate 1 Enables reporting of local port rate Intermediate result **+ ILRR:<rate>** **Note: It indicates port rate settings on connection**. Parameter **<rate>** port rate setting on call connection in Baud per second 1200 2400 4800 9600 14400 19200 28800 38400 57600 115200 230400 460800 921600
Reference **V.250ter**	Note **AT+ILRR is only applicable to data call.** **Not all platforms have the processor speed to support rates above 115200.** **Rates above 115200 are only recommended for platforms supporting EDGE and 3G.**

2.2.46 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=<value>**	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 1200 2400 4800 9600 14400 19200 28800 38400 57600 115200 230400 460800 921600
Reference **V.25ter**	Note

3 AT Commands According to GSM07.07

3.1 Overview of AT Commands According to GSM07.07

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

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

3.2 Detailed Descriptions of AT Commands According to GSM07.07

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

AT+CACM Accumulated Call Meter (ACM) Reset or Query	
Test command **AT+CACM=?**	Response **OK** Parameter
Read command **AT+CACM?**	Response TA returns the current value of ACM. **+CACM: <acm>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<acm>** string type; 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 SIM PIN2
Reference **GSM 07.07 [13]**	Note

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

AT+CAMM Accumulated Call Meter Maximum(ACMmax) Set or Query	
Test command **AT+CAMM=?**	Response **OK** Parameter
Read command **AT+CAMM?**	Response TA returns the current value of ACMmax. **+CAMM: <acmmax>** **OK** If error is related to ME functionality:

	+CME ERROR: <err>
	Parameter 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 (ACMmax). ACMmax contains the maximum number of home units allowed to be consumed by the subscriber. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<acmmax>** string type; three bytes of the max. ACM value in hexa-decimal format (e.g. "00001E" indicates decimal value 30) 000000 disable ACMmax feature 000001-FFFFFF **<passwd>** string type SIM PIN2
Reference **GSM 07.07 [13]**	Note

3.2.3 AT+CAOC Advice of Charge

AT+CAOC Advice of Charge	
Test command **AT+CAOC=?**	Response **+CAOC: (list of supported <mode>s)** **OK**
	Parameter see Write command
Read command **AT+CAOC?**	Response **+CAOC: <mode>** **OK**
	Parameter see Write command
Write command **AT+CAOC=<mode>**	Response TA sets the Advice of Charge supplementary service function mode. If error is related to ME functionality: **+CME ERROR: <err>** If <mode>=0, TA returns the current call meter value **+CAOC: <ccm> OK** If <mode>=1, TA deactivates the unsolicited reporting of CCM value

	OK If <mode>=2. TA activates the unsolicited reporting of CCM value **OK**
	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; three bytes of the current CCM value in hexa-decimal format (e.g. "00001E" indicates decimal value 30); bytes are similarly coded as ACMmax value in the SIM 000000-FFFFFF
Reference **GSM 07.07 [13]**	Note

3.2.4 AT+CBST Select Bearer Service Type

AT+CBST Select Bearer Service Type	
Test command **AT+CBST=?**	Response **+CBST: (list of supported <speed>s) ,(list of supported <name>s) ,(list of supported <ce>s)** **OK**
	Parameter see Write command
Read command **AT+CBST?**	Response **+CBST: <speed>,<name>,<ce>** **OK**
	Parameter see Write command
Write command **AT+CBST=[<speed>][,<name>[,<ce>]]**	Response TA selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated. **OK**
	Parameters **<speed>** 0 autobauding(not supported) 1 300 bps(V.21) 2 1200 bps(V.22) 3 1200/75 bps(V.23) 4 2400 bps(V.22bis) 5 2400 bps(V.26ter)

	6 4800 bps(V.32) 7 9600 bps(V.32) 12 9600 bps(V.34) 14 14400 bps(V.34) 16 28800bps(V.34) 34 1200 bps (V.120) 36 2400 bps (V.120) 38 4800 bps (V.120) 39 9600 bps (V.120) 43 14400 bps (V.120) 48 28800 bps (V.120) **3g-specific** 51 56000 bps (V.120) **3g-specific** 65 300 bps (V.110) 66 1200 bps(V.110 or X.31 flag stuffing) 68 2400 bps(V.110 or X.31 flag stuffing) 70 4800 bps(V.110 or X.31 flag stuffing) 71 9600 bps(V.110 or X.31 flag stuffing) 75 14400 bps(V.110 or X.31 flag stuffing) 80 28800bps(V.110) 83 56000bps(V.110) 116 64000 bps (bit-transparent) **3g-specific** 131 32000 bps (multimedia) **3g-specific** 134 64000 bps (multimedia) **3g-specific** **<name>** 0 asynchronous modem 2 synchronous modem **3g-specific** 4 PAD access (asynchronous) **<ce>** 0 transparent 1 non-transparent
Reference **3GPP 27.007**	Note **GSM 02.02: lists the allowed combinations of the sub parameters.**

批注 **[w1]:** zw add

批注 **[w2]:** zw add

批注 **[w3]:** zw delete these

批注 **[w4]:** zw from 1 to 2

批注 **[w5]:** zw form 2 to 4

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 <reas>s)** **OK**
	Parameter see Write command

Write Command **AT+CCFC=<reas>, <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 ,<reas> and <mode> should be entered with mode (0-2,4) If there is a network error: **+CCFC: 0, 0** **OK** If command successful (only in connection with <reas> 0 –3) For registered call forward numbers: **+CCFC: <status>, <class1>[, <number>, <type> [,<time>]]** **[<CR><LF>+CCFC: ....]** **OK** If no call forward 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 **<reas>** 0 unconditional 1 mobile busy 2 no reply 3 not reachable 4 all call forwarding (0-3) 5 all conditional call forwarding (1-3) **<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 in integer format; default 145 when dialing string includes international access code character “+”, otherwise 129 **<class>** 1 voice 2 data 4 fax 7 all classes

	<subaddr> string type sub address of format specified by <satype> **<satype>** type of sub address in integer; default 128 **<time>** time, rounded to a multiple of 5 sec. 1...20..30 **<status>** 0 not active 1 active
Reference **GSM07.07**	Note

3.2.6 AT+CCUG Closed User Group Control

AT+CCUG Closed User Group Control	
Read Command **AT+CCUG?**	Response **+CCUG: <n>,<index>,<info>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter see Write command
Test Command **AT+CCUG=?**	Response **OK**
Write Command **AT+CCUG=[<n>][,<index>[,<info>]]]**	Response TA sets the Closed User Group supplementary service parameters as a default adjustment for all following calls. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<n>** 0 disable CUG 1 enable CUG **<index>** 0...9 CUG index 10 no index (preferred CUG taken from subscriber data) **<info>** 0 no information 1 suppress OA (Outgoing Access) 2 suppress preferential CUG 3 suppress OA and preferential CUG
Reference **GSM 07.07 [13]**	

3.2.7 AT+CCWA Call Waiting Control

AT+CCWA Call Waiting Control	
Read Command **AT+CCWA?**	Response **+CCWA: <n>** **OK** Parameter See Write command
Test Command **AT+CCWA=?**	Response **+CCWA: (list of supported <n>s)** **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 there is a network error: **+CCWA: 0, 0** **OK** If command successful **+CCWA :<status>,<class1>[<CR><LF>+CCWA:<status>,<class2>[...]]** **OK** **Note: <status>=0 should be returned only if service is not active for any <class> i.e. +CCWA: 0, 7 will be returned in this case.** When **mode=2**, all active call waiting classes will be reported. In this mode the command is aborted by pressing any key. If error is related to ME functionality: **+CME ERROR: <err>**
	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 (bearer service) 4 fax (teleservice) 7 default(equals to all classes) **<status>** 0 not active 1 enable

	Unsolicited result code When the presentation Call Waiting at the TA is enabled (and Call Waiting is enabled) and a terminating call's setting up has attempted during an established call, an unsolicited result code is returned: **+CCWA: <number>,<type>,<class>[,<alpha>]**
	Parameters **<number>** string type phone number of calling address in format specified by <type> **<type>** type of address octet in integer format; 145 when dialing string includes international access code character "+", otherwise 129 **<alpha>** optional string type alphanumeric representation of <number> corresponding to the entry found in phone book
Reference **GSM07.07**	Note

3.2.8 AT+CEER Extended Error Report

AT+CEER Extended Error Report	
Test command **AT+CEER=?**	Response **OK**
Execute command **AT+CEER**	Response TA returns an extended report of the reason for the last call release. **+CEER: <report>** **OK**
	Parameter **<report>** Reason for last call release as number code
Reference **GSM 07.07 [13]**	Note

3.2.9 AT*TFDN Search the Fixed Dialing List

AT*TFDN Search the Fixed Dialing List	
Test command **AT*TFDN=?**	Response ***TFDN: <address length>,(list of supported <type of number>)** **OK**
Write command **AT*TFDN=<add**	Response **OK**

resslength>,<type of number>	Parameters **< address length >** Max address length **<type of number>** 129 Unknown 145 International number 161 National number 177 Network specifics number
Reference **GSM 07.07 [13]**	Note

3.2.10 AT+CGMI Request Manufacturer Identification

AT+CGMI Request Manufacturer Identification	
Test command **AT+CGMI=?**	Response **OK**
Execute command **AT+CGMI**	Response TA returns manufacturer identification text. **<manufacturer>** **OK**
	Parameter **<manufacturer>** manufacturer ID, for example: **SIMCOM_LTD**
Reference **GSM 07.07 [13]**	Note

3.2.11 AT+CGMM Request Model Identification

AT+CGMM Request Model Identification	
Test command **AT+CGMM=?**	Response **OK**
Execute command **AT+CGMM**	Response TA returns product model identification text. **<model>** **OK**
	Parameter **<model>** model of device ,for example: **SIMCOM_SIM700D**
Reference **GSM 07.07 [13]**	Note

3.2.12 AT+CGMR Request Revision Identification

AT+CGMR Request Revision Identification	
Test command **AT+CGMR=?**	Response **OK**

Execute command **AT+CGMR**	Response TA returns product software version identification text. **Revision:<revision>** **OK**
	Parameter **<revision>** revision information, for example: **1604B01SIM700DM64_INTEL**
Reference **GSM 07.07 [13]**	Note

3.2.13 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**
Execute command **AT+CGSN**	Response see **+GSN** **<sn>** **OK**
	Parameter see **+GSN**
Reference **GSM 07.07 [13]**	Note

3.2.14 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 alphabet. "HEX" character strings consist only of hexadecimal numbers from 00 to FF; "IRA" international reference alphabet "PCCP" PC character set Code Page xxx "PCDN" PC Danish/Norwegian character set "UCS2" UCS2 alphabet "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 **OK** Sets which character set <chset> is used by the TE. The TA can then convert character strings correctly between the TE and ME character sets. Parameter see Test command
Reference **GSM 07.07 [13]**	Note

3.2.15 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 Read command
Read command **AT+CSTA?**	Response **+CSTA: <type>** **OK**
	Parameter **<type>** Current address type setting.
Write command **AT+CSTA=<type>**	Response **OK** Parameter see Read command
Reference **GSM 07.07 [13]**	Note **The ATD command overrides this setting when a number is dialed.** **129 Unknown type(IDSN format number)** **145 International number type(ISDN format)** **161 National number type(IDSN format)** **177 Network specific number(ISDN format)**

3.2.16 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 Terminate all held calls or UDUB (User Determined User Busy) for a waiting call 1 Terminate all active calls (if any) and accept the other call (waiting call or held call) 1X Terminate the active call number X (X= 1-7) 2 Place all active calls on hold (if any) and accept the other call (waiting call or held call) as the active call 2X Place all active calls except call X (X= 1-7) on hold 3 Add the held call to the active calls
Reference **GSM 07.07 [13]**	Note

3.2.17 AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI Request International Mobile Subscriber Identity	
Test command **AT+CIMI=?**	Response **OK**
Execute command **AT+CIMI**	Response TA returns <IMSI>for identifying the individual SIM which is attached to ME. **+CIMI: <IMSI>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<IMSI>** International Mobile Subscriber Identity (string without double quotes)
Reference	Note

GSM 07.07 [13]	

3.2.18 AT+CKPD Keypad Control

AT+CKPD Keypad Control	
Test command **AT+CKPD=?**	Response **OK**
Write command **AT+CKPD=<keys>[,<time>[,<pause>]]**	Response TA emulates ME keypad by giving each keystroke as a character in a string <keys>. <time>*0.1 seconds is the time to stroke each key and <pause>*0.1 seconds is the length of pause between two strokes. Keystrokes <keys> are emulated. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<keys>** string of characters representing keys as listed in the following table (based on PCCA STD-101 Annex table I-3): Char. ASCII-Code: Note: # 35 hash (number sign) * 42 star (*) 0... 9 48... 57 number keys : 58 escape character for manufacturer specific keys D/d 68/100 volume down E/e 69/101 connection end (END) R/r 82/114 recall last number (R/RCL/MR) S/s 83/115 connection start (SEND) U/u 85/117 volume up **<time>** 0...255 seconds (default value is manufacturer specific, but should be so long that a normal ME can handle keystrokes correctly) **<pause>** 0... 25.5 seconds (default value is manufacturer specific, but should be so long that a normal ME can handle keystrokes correctly)
Reference **GSM 07.07 [13]**	Note

3.2.19 AT+CLCC List Current Calls of ME

AT+CLCC List Current Calls of ME

Test command **AT+CLCC=?**	Response **OK** Parameters
Execute 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>[,<alpha>]]** **[<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,** **<number>,<type>[,<alpha>]]** **[...]]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>** Parameters **<idx>** integer type; call identification number as described in GSM 02.30[19] subclause 4.5.5.1; this number can be used in +CHLD command operations **<dir>** 0 mobile originated (MO) call 1 mobile terminated (MT) call **<stat>** state of the call: 0 active 1 held 2 dialing (MO call) 3 alerting (MO call) 4 incoming (MT call) 5 waiting (MT call) **<mode>** bearer/tele service: 0 voice 1 data 2 fax 9 unknown **<mpty>** 0 call is not one of multiparty (conference) call parties 1 call is one of multiparty (conference) call parties **<number>** string type phone number in format specified by <type> **<type>** type of address octet in integer format; 145 when dialing string includes international access code character “+”, otherwise 129 **<alpha>** string type alphanumeric representation of <number> corresponding to the entry found in phone book
Reference	Note

GSM 07.07 [13][14]	

3.2.20 AT+CLCK Facility Lock

AT+CLCK Facility Lock	
Test command **AT+CLCK=?**	Response **+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 and <fac> is not call barring **OK** If <mode>=2 and command is successful or <mode><>2 and <fac> is call barring and command is successful **+CLCK: <status>[,<class1>[<CR><LF>** **+CLCK: <status>, class2....]]** **OK**
	Parameters **<fac>** "SC" SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command issued) "AO" BAOC (Barr All Outgoing Calls) (refer GSM02.88[6] clause 1) "OI" BOIC (Barr Outgoing International Calls) (refer GSM02.88[6] clause 1) "OX" BOIC-EXHC (Barr Outgoing International Calls except to Home Country) (refer GSM02.88[6] clause 1) "AI" BAIC (Barr All Incoming Calls) (refer GSM02.88[6] clause 2) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer GSM02.88 [6] clause 2) "AB" All Barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "AG" All out Going barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "AC" All in Coming barring services (refer GSM02.30[19])

	(applicable only for <mode>=0) "FD" SIM fixed dialing memory: If the mobile is locked to "FD", only the phone numbers stored to the "FD" memory can be dialed "BN" SIM barred memory: If the mobile is locked to "BN", the phone numbers stored to the "BN" memory can not be dialed "PN" Network Personalization (refer GSM 02.22[33]) "PU" network subset Personalization (refer GSM 02.22[33]) "PP" service Provider Personalization (refer GSM 02.22[33]) "PC" Corporate Personalization (refer GSM 02.22[33]) **<mode>** 0 unlock 1 lock 2 query status **<passwd>** password **<class>** 1 voice 2 data 4 fax 7 all classes (default) **<status>** 0 off 1 on
Reference **GSM 07.07 [14]**	Note

3.2.21 AT+CLIP Calling Line Identification Presentation

AT+CLIP Calling Line Identification Presentation	
Read Command **AT+CLIP?**	Response **+CLIP: <n>, <m>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter see Write command
Test Command **AT+CLIP=?**	Response **+CLIP: (list of supported <n>s)** **OK**
	Parameter 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 suppress unsolicited result codes 1 display unsolicited result codes **<m>** 0 CLIP not provisioned 1 CLIP provisioned 2 unknown
	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>,””,„<alphaId>,<CLI validity>** Parameter **<number>** string type phone number of calling address in format specified by <type> **<type>** type of address octet in integer format; 145 when dialing string includes international access code character “+”, otherwise 129 **<alphaId>** string type 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 networking problems or limitations of originating network
Reference **GSM 07.07 [13]**	Note

3.2.22 AT+CLIR Calling Line Identification Restriction

AT+CLIR Calling Line Identification Restriction	
Read Command **AT+CLIR?**	Response **+CLIR: <n>, <m>** **OK** If error is related to ME functionality: **+CME ERROR:** <err>
	Parameter see Write command

Test Command **AT+CLIR=?**	Response **+CLIR: (list of supported <n>s)** **OK**
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 **GSM 07.07 [13]**	Note

3.2.23 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**
	Parameters 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**
	Parameters **<n>** 0 disable result code 1 enable result code and use numeric values 2 enable result code and use verbose values
Reference **GSM 07.07 [13]**	Note

3.2.24 AT+COLP Connected Line Identification Presentation

AT+COLP Connected Line Identification Presentation	
Read Command **AT+COLP?**	Response **+COLP: <n>,<m>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter See Write command
Test Command **AT+COLP=?**	Response **+COLP: (list of supported <n>s)** **OK**
	Parameter See Write command
Write Command **AT+COLP=[<n>]**	Response TA enables or disables the presentation of the COL(Connected Line) at the TE for a mobile originated call. It has no effect on the execution of the supplementary service COLR in the network. Intermediate result code is returned from TA to TE before any +CR or V.25ter responses. **OK**

	Parameters **<n>** (parameter sets/shows the result code presentation status in the TA): 0 disable 1 enable **<m>** (parameter shows the subscriber COLP service status in the network): 0 COLP not provisioned 1 COLP provisioned 2 unknown (e.g. no network, etc.)
	Intermediate result code When enabled (and called subscriber allows), an intermediate result code is returned before any +CR or V.25ter responses: **+COLP:<number>,<type>[,<subaddr>,<satype> [,<alpha>]]**
	Parameters **<number>** string type phone number of format specified by <type> **<type>** type of address octet in integer format; 145 when dialing string includes international access code character "+", otherwise 129 **<subaddr>** string type 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) **<alpha>** optional string type alphanumeric representation of <number> corresponding to the entry found in phone book
Reference **GSM 07.07 [13]**	Note

3.2.25 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>**

	Parameter 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>**
	Parameter 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 **<mode>** 0 automatic mode; <oper> field is ignored 1 manual operator selection; <oper> field shall be present 2 manual deregister from network 3 set only <format> (for read command +COPS?) – not shown in Read command response 4 manual/automatic selected; if manual selection fails, automatic mode (<mode>=0) is entered **<format>** 0 long format alphanumeric <oper>;can be up to 16 characters long 1 short format alphanumeric <oper> 2 numeric <oper>; GSM Location Area Identification number **<oper>** operator in format as per <format>
Reference **GSM 07.07 [14]**	Note

3.2.26 AT+CPAS Mobile Equipment Activity Status

AT+CPAS Mobile Equipment Activity Status	
Test command **AT+CPAS=?**	Response **+CPAS: (list of supported <pas>s)** **OK**
	Parameter see execute command
Execute 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

3.2.27 AT+CPBF Find Phone Book Entries

AT+CPBF Find Phone Book Entries	
Test command **AT+CPBF=?**	Response **+CPBF: [maximum length of field <nlength>],[maximum length of field <tlength>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter 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 contain alphanumeric string <findtext>. **[+CPBF: <index1>,<number>,<type>,<text>[[...]** **<CR><LF>+CBPF: <index2>,<number>,<type>,<text>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**index1**>, <**index2**> integer type values in the range of location numbers of phone book memory <**number**> string type phone number of format <type> <**type**> type of address octet in integer format ; 145 when dialing string includes international access code character "+", otherwise 129 <**findtext**> <**text**> string type field of maximum length <tlength> in current TE character set specified by +CSCS. <**nlength**> integer type value indicating the maximum length of field <number> <**tlength**> integer type value indicating the maximum length of field <text>
Reference **GSM 07.07 [13]**	Note

3.2.28 AT+CPBR Read Current Phone Book Entries

AT+CPBR Read Current Phone Book Entries	
Test command **AT+CPBR=?**	Response TA returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields. **+CPBR: (list of supported <index>s), <nlength>, <tlength>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter <**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: .....+CPBR: <index2>, <number>, <type>, <text>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**index1**> read as of this location number <**index2**> read to this location number <**number**> phone number <**type**> type of number <**text**> ext for phone number in current TE character set specified by **+CSCS**.
Reference **GSM 07.07 [13]**	Note

3.2.29 AT+CPBS Select Phone Book Memory Storage

AT+CPBS Select Phone Book 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** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter 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** If error is related to ME functionality: **+CME ERROR: <err>**

	Parameters <**storage**> "MC" ME missed (unanswered) calls list "RC" ME received calls list "DC" ME dialed calls list(+CPBW may not be applicable or this storage)(same as LD) "LD" SIM last-dialing-phone book "LA" Last Number All list (LND/LNM/LNR) "ME" ME phonebook "SM" SIM phonebook "FD" SIM fix dialing-phone book "ON" SIM (or ME) own numbers (MSISDNs) list "BN" SIM barred dialed number "SD" SIM service dial number "VM" SIM voice mailbox <**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

3.2.30 AT+CPBW Write Phone Book Entry

AT+CPBW Write Phone Book Entry	
Test command **AT+CPBW=?**	Response 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** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter see Write command

Write command **AT+CPBW=<index1>[,<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** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**nlength**> max. length of phone number <**tlength**> max. length of text for number <**index**> location number <**number**> phone number <**type**> type of number; e.g. 145 when dialing string includes international access code character "+", otherwise 129 <**text**> text for phone number in current TE character set specified by +CSCS. **Note: The following characters in <text> must be entered via the escape sequence:** **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

3.2.31 AT+CPIN Enter PIN

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

	If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<code>** READY — no further entry needed SIM PIN — ME is waiting for SIM PIN SIM PUK — ME is waiting for SIM PUK 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 is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken and an error message, +CME ERROR, is returned to TE. If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, is used to replace the old pin in the SIM. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<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

3.2.32 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>** otherwise see execute command, without “FD” **<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** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<fac>** “SC” SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command issued) “AO” BAOC (Barr All Outgoing Calls) (refer GSM02.88[6] clause 1) “OI” BOIC (Barr Outgoing International Calls) (refer GSM02.88[6] clause 1) “OX” BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer GSM02.88[6] clause 1) “AI” BAIC (Barr All Incoming Calls) (refer GSM02.88[6] clause 2) “IR” BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer GSM02.88 [6] clause 2) “AB” All Barring services (refer GSM02.30[19]) (applicable only for <mode>=0) “AG” All outGoing barring services (refer GSM02.30[19]) (applicable only for <mode>=0) “AC” All inComing barring services (refer GSM02.30[19]) (applicable only for <mode>=0) "FD" SIM fixed dialing memory feature "BN" SIM barred memory feature “P2” SIM PIN2<oldpwd> password specified for the facility from the user interface or with command. If an old password has not yet been set, <oldpwd> is not to enter. **<newpwd>** new password
Reference **GSM 07.07 [13]**	Note

3.2.33 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 after a call is set up. **OK** **ERROR** 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
Reference **GSM 07.07 [13]**	Note

3.2.34 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**
	Parameters see Write command
Write command **AT+CRC=<mode>**	Response TA controls whether or not the extended format of incoming call indication is used. **OK** **ERROR**
	Parameter **<mode>** 0 disable extended format 1 enable extended format
	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

3.2.35 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**
	Parameter see Write command
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** **ERROR**
	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 **<stat>** 0 not registered, ME is not currently searching a new operator to register to 1 registered, home network 2 not registered, but ME is currently searching a new operator to register to 3 registration denied 4 unknown 5 registered, roaming **< lac >** string type; two byte location area code in hexadecimal format **< ci >** string type; two byte cell ID in hexadecimal format
	Unsolicited result code If <n>=1 and there is a change in the ME network registration status: **+CREG: <stat>** If <n>=2 and there is a change in the ME network registration status or a change of the network cell: **+CREG: <stat>[,<lac>,<ci>]**
	Parameter see Write command
Reference	

GSM 07.07 [13]	

3.2.36 AT+CRLP Select Radio Link Protocol Param. for Orig. Non-transp. Data Call

AT+CRLP Select Radio Link Protocol Param. for Orig. Non-transp. Data Call	
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 <verx> is not present). **+CRLP: (list of supported <iws>s), (list of supported <mws>s), (list of supported <T1>s), (list of supported <N2>s), (list of supported <ver1>s), (list of supported <T4>s)** **...** **OK**
	Parameter 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**
	Parameter 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** **ERROR**
	Parameters **<iws>** 0-61 Interworking window size (IWF to MS) **<mws>** 0-61 Mobile window size(MS to IWF) **<T1>** 39-255 acknowledgment timer T1 in 10 ms units] **<N2>** 1-255 retransmission attempts N2 **<verx>** 0-1 RLP version number in integer format; when version indication is not present it shall equal 0. **Note: Versions 0 and 1 share the same parameter set**. **<T4>** 3-255 re-sequencing period in integer format, in units of 10 ms. This is NOT used for RLP versions 0 and 1.

Reference	Note
GSM 07.07 [13]	

3.2.37 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 / +CME ERROR: <err>**
	Parameter **<command>** 176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS **Note: 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 (hexa-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

3.2.38 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**
	Parameter see Execute command
Execute command **AT+CSQ**	Response **+CSQ: <rssi>,<ber>** **OK** Execute 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 -113 dBm or less 1 -111 dBm 2...30 -109... -53 dBm 31 -51 dBm or greater 99 not known or not detectable **<ber>** (in percent): 0...7 as RXQUAL values in the table in GSM 05.08 [20] subclause 8.2.4 99 not known or not detectable
Reference **GSM 07.07 [13]**	Note

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

AT+FCLASS FAX: Select, Read or Test Service Class	
Test command **AT+FCLASS=?**	Response **+FCLASS: (list of supported <n>s)** **OK**
	Parameter see Write command
Read command **AT+ FCLASS?**	Response **+ FCLASS: <n>** **OK**
	Parameter See Write command.

Write command **AT+FCLASS=<n>**	Response TA sets a particular mode of operation (data, fax). This causes the TA to process information in a manner suitable for that type of information **OK** **ERROR**
	Parameter **<n>** 0 data 1 fax class 1 (TIA-578-A)
Reference **GSM 07.07 [13]**	Note

3.2.40 AT+FMI FAX: Report Manufactured ID

AT+FMI FAX: Report Manufactured ID	
Test command **AT+FMI =?**	Response **OK**
Execute 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>**：for example: **SIMCOM_Ltd**
Reference **EIA/TIA-578-D**	Note

3.2.41 AT+FMM FAX: Report Model ID

AT+FMM FAX: Report Model ID	
Test command **AT+ FMM =?**	Response **OK**
Execute 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>**：model of device ,for example: **SIMCOM_SIM700D**
Reference **EIA/TIA-578-D**	Note

3.2.42 AT+FMR FAX: Report Revision ID

AT+FMR FAX: Report Revision ID	
Test command **AT+ FMR =?**	Response **OK**
Execute command **AT+ FMR**	Response TA reports one or more lines of information text which permit the user to identify the version, revision level or data or other information of the device. **<Revision Id>** **OK**
	Parameter **<Revision Id>:** revision information, for example: **Revision: 1604B01SIM700DM64_INTEL**
Reference **EIA/TIA-578-D**	Note

3.2.43 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** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<n>** 1-255 duration of the tone in 1/10 seconds
Reference **GSM 07.07 [13]**	Note

3.2.44 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**
	Parameter see Write command
Read command **AT+VTS?**	Response **OK**
Write command **AT+VTS=<dtmf-string>,<duration>**	Response This command allows the transmission of DTMF tones and arbitrary tones in voice mode. These tones may be used (for example) when announcing the start of a recording period. **Note: D is used only for dialing.** OK If error is related to ME functionality: **+CME ERROR: <err>** **Note: The command is writing only.**
	Parameters **<dtmf-string>** which has a max length of 20 characters, must be entered between double quotes (“ “) and consists of combinations of the following separated by commas: 1) <dtmf> A single ASCII characters in the set 0-9,#,*,A-D. This is interpreted as a sequence of DTMF tones whose duration is set by the +VTD command. 2) {<dtmf>, <duration>} This is interpreted as a DTMF tone whose duration is determined by <duration>. **<duration>** duration of the tone in 1/10 seconds range :1-255
Reference **GSM 07.07 [13]**	Note

3.2.45 AT+CMUX Multiplexer Control

AT+CMUX Multiplexer Control	
Test command **AT+CMUX=?**	Response **+CMUX: (list of supported <mode>s),(list of supported <subset>s),(list of supported <port_speed>s),(list of supported <N1>s),(list of supported <T1>s),(list of supported <N2>s),(list of supported <T2>s),(list of supported <T3>s,(list of supported <k>s)** **OK**

	Parameter See Write command
Read Command **AT+CMUX?**	Response: **+CMUX: <mode>,[<subset>],<port_speed>,<N1>,<T1>, <N2>,<T2>,<T3>[,<k>]** **OK**
	Parameter See Write command
Write command **AT+CMUX=<mode>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** multiplexer transparency mechanism -1 Multiplexer not active 0 Standard / Embedded multiplexer 1 Advanced option (GSM 07.10 multiplexer) **<subset>** the way in which the multiplexer control channel is set up 0 UIH frames used only **<port_speed>** transmission rate 5 115200bit/s **<N1>** maximum frame size 127 **<T1>** acknowledgement timer in units of ten milliseconds 10 **<N2>** maximum number of re-transmissions 3 **<T2>** response timer for the multiplexer control channel in units of ten milliseconds 30 **<T3>** wake up response timers in seconds 10 **<k>** window size, for Advanced operation with Error Recovery options 2

	Note : **1. Advanced option with Error Recovery options is not supported.** **2. The multiplexing transmission rate is according to the current serial baud rate. It is recommended to enable multiplexing protocol under 115200 bit/s baud rates.** **3. 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**
Reference **GSM 07.07 [13]**	Note

3.2.46 AT+CNUM Subscriber Number

AT+CNUM Subscriber Number	
Test command **AT+CNUM=?**	Response **OK**
Execute command **AT+CNUM**	Response **+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>[,<itc>]] [<CR><LF>+CNUM: [<alpha2>],<number2>,<type2>[,<speed>,<service> [,<itc>]][...]]** **OK** **+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 phone number of format specified by <typex> **<typex>** type of address octet in integer format (refer GSM 04.08 [8] sub clause 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 **<itc>** (information transfer capability:) 0 3.1 kHz 1 UDI
Reference **GSM 07.07 [13]**	Note

3.2.47 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** If error is related to **ME** functionality **ERROR**
	Parameter see Write command
Read command **AT+CPOL?**	Response **+CPOL: <index1>,<format>,<oper1>** **[<CR><LF>+CPOL: <index2>,<format>,<oper2>** **[…]]** **OK** **+CME ERROR: <err>**
	Parameter See Write command
Write command **AT+CPOL=<index>,<format>,<o**	Response **OK** **+CME ERROR: <err>**

per>	Parameters **<index>** integer type: order number of operator in SIM preferred operator list **<format>** 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> **<oper>** string type: <format> indicates whether alphanumeric or numeric format used (see +COPS command)
Reference **GSM 07.07 [13]**	Note

3.2.48 AT+COPN Read Operator Names

AT+COPN Read Operator Names	
Test command **AT+COPN=?**	Response **OK**
Execute command **AT+COPN**	Response **+COPN: <numeric1>,<alpha1 >** **[<CR><LF>+COPN: <numeric2>,<alpha2>** **[…]]** **OK**
	Parameters **<numericn>** string type: operator in numeric format (see +COPS) **<alphan>** string type: operator in long alphanumeric format (see **+COPS**)
Reference **GSM 07.07 [13]**	Note

3.2.49 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
	Parameter see Write command
Read command **AT+CFUN?**	Response **+CFUN: <fun>** **OK**
	Parameter See Write command

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

3.2.50 AT+CCLK Clock

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

3.2.51 AT+CSIM Generic SIM Access

AT+CSIM Generic SIM Access

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

3.2.52 AT+CALM Alert Sound Mode

AT+CALM Alert Sound Mode	
Test command **AT+CALM=?**	Response **+CALM: (list of supported <mode>s)** **OK**
	Parameter See Write command
Read command **AT+CALM?**	Response **+CALM: <mode>** **OK**
	Parameter See Write command
Write command **AT+CALM=<mode>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<mode>** 0 normal mode 1 silent mode (all sounds from ME are prevented)
Reference **GSM 07.07 [13]**	Note

3.2.53 AT+CRSL Ringer Sound Level

AT+CRSL Ringer Sound Level

Read command **AT+CRSL?**	Response **+CRSL: <level>** **OK**
	Parameter See Write command
Test command **AT+CRSL=?**	Response **+CRSL: (list of supported <level>s)** **OK**
	Parameter See Write command
Write command **AT+CRSL=<level>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<level>** integer type value(0-100) with manufacturer specific range (smallest value represents the lowest sound level)
Reference **GSM 07.07 [13]**	Note **Range of <level> is TBD**

3.2.54 AT+CLVL Loud Speaker Volume Level

AT+CLVL Loud Speaker Volume Level	
Test command **AT+CLVL=?**	Response **+CLVL: (list of supported <level>s)** **OK**
	Parameter see Write command
Read command **AT+CLVL?**	Response **+CLVL: <level>** **OK**
	Parameter See Write command
Write command **AT+CLVL=<level>**	Response **OK** **+CME ERROR: <err>**

	Parameter **<level>** integer type value with manufacturer specific range (smallest value represents the lowest sound level)
Reference **GSM 07.07 [13]**	Note

3.2.55 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**
	Parameter See Write command
Write command **AT+CMUT=<n>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<n>** 0 mute off 1 mute on
Reference **GSM 07.07 [13]**	Note

3.2.56 AT+CPUC Price Per Unit and Currency Table

AT+CPUC Price Per Unit and Currency Table	
Test command **AT+CPUC=?**	Response **OK** Parameters
Read command **AT+CPUC?**	Response **+CPUC: <currency>,<ppu>** **OK** **+CME ERROR: <err>**
	Parameter see Write command

Write command **AT+CPUC=<currency>,<ppu>[,<passwd>]**	Response **OK** **+CME ERROR: <err>**
	Parameters **<currency>** string type; three-character currency code (e.g. “GBP”, “DEM”); character set as specified by command select TE character set **+CSCS** **<ppu>** string type; price per unit; dot is used as a decimal separator (e.g. “2.66”) **<passwd>** string type; SIM PIN2
Reference GSM 07.07 [13]	Note

3.2.57 AT+CCWE Call Meter Maximum Event

AT+CCWE Call Meter Maximum Event	
Test command **AT+CCWE=?**	Response **+CCWE: (list of supported <mode>s)** **OK**
	Parameter see Write command
Read command **AT+CCWE?**	Response **+CCWE: <mode>** **OK**
	Parameter **See Write command**
Write command **AT+CCWE=<mode>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<mode>** 0 Disable call meter warning event 1 Enable call meter warning event
	Unsolicited result codes supported: **+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 5s call time remains.
Reference **GSM 07.07 [13]**	Note **GSM 07.07 specifies 30 seconds, so SIMCOM deviate from the specification.**

3.2.58 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**
	Parameter see Execute command
	Parameter See Execute command
Execute command **AT+CBC**	Response **+CBC: <battery connected status>,<battery charging level >,<voltage>** **OK**
	Parameters **<bcs>** charge status 0 ME is not charged 1 ME is charging 2 No battery present, just charger 3 Error or unknown state **<bcl>** battery connection level 0 battery is exhausted, or ME does not have a battery connected 1...100 battery has 1-100 percent of capacity remaining vent **<voltage>** battery voltage (mV)
Reference **GSM 07.07 [13]**	Note **Support for this command will be hardware dependant.**

3.2.59 AT+CUSD Unstructured Supplementary Service Data

AT+CUSD Unstructured Supplementary Service Data	
Test command **AT+CUSD=?**	Response **+CUSD: <n>** **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** **ERROR**
	Parameters **<n>** a numeric parameter which indicates control of the unstructured supplementary service data 0 disable the result code presentation in the TA 1 enable the result code presentation in the TA 2 cancel session (not applicable to read command response) **<str>** string type USSD-string **<dcs>** Cell Broadcast Data Coding Scheme in integer format (default 0)
Reference **GSM 03.38 [25]**	Note

3.2.60 AT+CSSN Supplementary Service Notification

AT+CSSN Supplementary Service 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**
	Parameter see Write command
Write command **AT+CSSN=[<n>[,<m>]]**	Response **OK** **ERROR**

	Parameters **<n>** a numeric parameter which indicates whether to show the **+CSSI:<code1>[,<index>]** result code presentation status after a mobile originated call setup 0 disable 1 enable **<m>** a numeric parameter which indicates whether to show the **+CSSU:<code2>** result code presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received. 0 disable 1 enable **<code1>** 0 unconditional call forwarding is active 1 some of the conditional call forwarding are active 2 call has been forwarded 3 call is waiting 4 this is a CUG call (also <index> present) 5 outgoing calls are barred 6 incoming calls are barred 7 CLIR suppression rejected **<index>** closed user group index **<code2>** 0 this is a forwarded call
Reference GSM 07.07 [13]	Note

4 AT Commands According to GSM07.05

The GSM 07.05 commands are for performing SMS and CBS related operations. SIM700D II supports both Text and PDU modes.

4.1 Overview of AT Commands According to GSM07.05

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

4.2 Detailed Descriptions of AT Commands According to GSM07.05

4.2.1 AT+CMGD Delete SMS Message

AT+CMGD Delete SMS Message	
Test Command **AT+CMGD=?**	Response **+CMGD：<Range of SMS on SIM card can be deleted>** **OK** If error is related to ME functionality: **+CMS ERROR <err>**
	Parameter See Write command
Write Command **AT+CMGD=<index>**	Response TA deletes message from preferred message storage <mem1> location <index>. **OK** If error is related to ME functionality: **+CMS ERROR <err>**
	Parameter **<index>** integer type; value in the range of location numbers supported by the associated memory
Reference **GSM 07.05**	Note

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format	
Read Command **AT+CMGF?**	Response **+CMGF: <mode>** **OK**
	Parameter see Write command
Test Command **AT+CMGF=?**	Response **+CMGF:(** list of supported <mode>s) **OK**
Write Command **AT+CMGF=[<mode>]**	Response TA sets parameter to denote which input and output format of messages to use. **OK** If error is related to ME functionality: **+CMS ERROR <err>**

	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>[,<n>]**	Parameters **<n>** 0 Change SMS status(default) 1 Keep SMS status 1) If text mode: **<stat>** "REC UNREAD" Received unread messages (default) "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages 2) If PDU mode: **<stat>** 0 Received unread messages (default) 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages
	Response TA returns messages with status value <stat> from message storage <mem1> to the TE. . If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (+CMGF=1) and command successful: for SMS-SUBMITs and/or SMS-DELIVERs: **+CMGL:** **<index>,<stat>,<oa/da>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[<CR><LF>** **OK** **+CMGL:** **<index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<CR><LF><data>[...]]**

OK

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

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

<alpha> string type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific

<da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters; 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 TP-User-Data-Header-Indication is not set: ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
-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: ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
-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; 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>)
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>**	Parameters **<index>** integer type; value in the range of location numbers supported by the associated memory
	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>** **OK**

for SMS-SUBMIT:

+CMGR:<stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data>

OK

or SMS-STATUS-REPORTs:

+CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>

OK

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 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); 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 TP-User-Data-Header-Indication is not set: ME/TA converts GSM alphabet into current TE character set according to rules of Annex A

-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: ME/TA converts GSM alphabet into current TE character set according to rules of Annex A

-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)
	<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);; 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);; 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**	Parameters **<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);; 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 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)

<ctrl-Z/ESC>	Response TA transmits SMS message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Value can be used to identify message upon unsolicited delivery status report result code. 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

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>]]** **<CR> text is entered** **<ctrl-Z/ESC>** **<ESC> quits without sending** **2) If PDU mode (+CMGF=0):** **AT+CMGW=<length><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; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS);; type

	of address given by <tooa> **<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);; 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) **<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) **<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>
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** **ERROR**
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: **+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>**
	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; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS);; 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**	

4.2.8 AT+CMGC Send SMS Command

AT+CMGC Send SMS Command	
Test Command **AT+CMGC=?**	Response **OK** **ERROR**
Write Command **1) If text mode (+CMGF=1):** **AT+CMGC=<fo>,<ct>[<pid>[,<mn>[,<da>[,<toda>]]]]<CR>** **text is entered** **<ctrl-Z/ESC>** **ESC quits without sending** **2) If PDU mode (+CMGF=0):** **AT+CMGC=<length><CR>**	Parameters **<fo>** first octet of GSM 03.40 SMS-COMMAND (default 2) in integer format **<ct>** GSM 03.40 TP-Command-Type in integer format (default 0) **<pid>** GSM 03.40 TP-Protocol-Identifier in integer format (default 0) **<mn>** GSM 03.40 TP-Message-Number in integer format **<da>** GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS);; 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)

PDU is given <ctrl-Z/ESC>	**<length>** integer type value indicating in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)
	Response TA transmits SMS Command message from a TE to the network (SMS-COMMAND). Message reference value <mr> is returned to the TE on successful message delivery. Value can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(+CMGF=1) and sending successful: **+CMGC: <mr>** **OK** 2) If PDU mode(+CMGF=0) and sending successful: **+CMGC: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<mr>** GSM 03.40 TP-Message-Reference in integer format
Reference **GSM 07.05**	Note

4.2.9 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**
	Parameter see Write command
Read Command **AT+CNMI?**	Response **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>** **OK**
	Parameter 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 If error is related to ME functionality: +CMS ERROR: <err>

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).
		3	not spported.
	<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).
	Unsolicited result code when: <mt>=1 +CMTI: <mem>,<index> Indication that new message has been received. when: <mt>=2 If text mode (+CMGF=1): +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) If PDU mode (+CMGF=0): +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) when: <bm>=1 +CBMI: <mem>,<index> when: <bm>=2 If text mode (+CMGF=1): +CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled) If PDU mode (+CMGF=0): +CBM: <length><CR><LF><pdu> (PDU mode enabled) when: <ds>=1 If text mode (+CMGF=1): +CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled) If PDU mode (+CMGF=0): +CDS: <length><CR><LF><pdu> (PDU mode enabled) Parameter see other AT commands		

Reference	Note
GSM 07.05	

4.2.10 AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage	
Read Command **AT+CPMS?**	Response **+CPMS:<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3>** **OK** If error is related to ME functionality: **+CMS ERROR**
	Parameter see Write command
Test Command **AT+CPMS=?**	Response **+CPMS: (list of supported <mem1>s),(list of supported <mem2>s) ,(list of supported <mem3>s)** **OK** **ERROR**
	Parameter 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** If error is related to ME functionality: **+CMS ERROR:<err>**
	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>** Number of messages currently in <memx> **<totalx>** Number of messages storable in <memx>
Reference	Note

GSM 07.05	

4.2.11 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 **+CMGF, +CNMI, +CSDH** from non-volatile memory to active memory. **OK** If error is related to ME functionality: **+CMS ERROR:<err>**
	Parameter **<profile>** 0 manufacturer specific profile number where setting are to be stored
Reference **GSM 07.05**	Note

4.2.12 AT+CSAS Save SMS Settings

AT+CSAS Save SMS Settings	
Test Command **AT+CSAS=?**	Response **+CSAS: (list of supported <profile>s)** **OK**
	Parameter see Write command
Write Command **AT+CSAS=[<profile>]**	Response TA saves current message service settings for +CMGF, +CNMI, +CSDH, to a non-volatile memory. **OK** If error is related to ME functionality: **+CMS ERROR:<err>**
	Parameter **<profile>**0 manufacturer specific profile number where settings are to be stored.
Reference **GSM 07.05**	Note

4.2.13 AT+CSCA SMS Service Center Address

AT+CSCA SMS Service Center Address	
Read Command **AT+CSCA?**	Response **+CSCA: <sca>,<tosca>** **OK** If error is related to ME functionality: **+CMS ERROR <err>**
	Parameter see Write command
Test Command **AT+CSCA=?**	Response **OK** **ERROR**
Write Command **AT+CSCA = <sca>[,<tosca>]**	Response TA updates the SMSC address, through which mobile originated SMS are transmitted. In text mode, setting is used by sending and writing 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** **ERROR**
	Parameters **<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); 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>)
Reference **GSM 07.05**	

4.2.14 AT+CSCB Select Cell Broadcast SMS Messages

AT+CSCB Select Cell Broadcast SMS Messages	
Read Command **AT+CSCB?**	Response **+CSCB: <mode>,<mids>,<dcss>** **OK** **ERROR**
	Parameter see Write command

Test Command **AT+CSCB=?**	Response **+CSCB: (list of supported <mode>s)** **OK** **ERROR**
	Parameter see Write command
Write Command **AT+CSCB=AT+CSCB=<mode>[,mids>[,<dcss>]]**	Response TA selects which types of CBMS to be received by the ME. **Note: The command writes the parameters in NON-VOLATILE memory**. **OK** **ERROR**
	Parameters **<mode>** 0 message types specified in <mids> and <dcss> are accepted 1 message types specified in <mids> and <dcss> are not accepted **<mids>** string type; all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string); e.g. “0,1,5,320-478,922”. **<dcss>** string type; all different possible combinations of CBM data coding schemes (refer <dcs>) (default is empty string); e.g. “0-3,5”.
Reference **GSM 07.05**	Note

4.2.15 AT+CSDH Show SMS Text Mode Parameters

AT+CSDH Show SMS Text Mode Parameters	
Read Command **AT+CSDH?**	Response **+CSDH:<show>** **OK**
	Parameter see Write command
Test Command **AT+CSDH=?**	Response **+CSDH: (list of supported <show>s)** **OK**
	Parameter see Write command
Write Command **AT+CSDH=<show>**	Response TA determines whether detailed header information to be shown in text mode result codes. **OK**

	ERROR		
	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 in text mode
		1	show the values in result codes
Reference **GSM 07.05**	Note		

4.2.16 AT+CSMP Set SMS Text Mode Parameters

AT+CSMP Set SMS Text Mode Parameters			
Read Command **AT+CSMP?**	Response **+CSMP:<fo>,<vp>,<pid>,<dcs>** **OK** If error is related to ME functionality: **+CMS ERROR <err>**		
	Parameters see Write command		
Test Command **AT+CSMP=?**	Response **+CSMP:(list of supported <fo>s),(list of supported <vp>s)** **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** **ERROR**		
	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
	<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> **<dcs>**	GSM 03.40 TP-Protocol-Identifier in integer format. GSM 03.38 SMS Data Coding Scheme in Integer format.
Reference **GSM 07.05**		

4.2.17 AT+CSMS Select Message Service

AT+CSMS Select Message Service	
Read Command **AT+CSMS?**	Response **+CSMS: <service>,<mt>,<mo>,<bm>** **OK**
	Parameter see Write command
Test Command **AT+CSMS=?**	Response **+CSMS: (list of supported <service>s)** **OK**
	Parameter see Write command
Write Command **AT+CSMS=** **<service>**	Response **+CSMS: <mt>,<mo>,<bm>** **OK** If error is related to ME functionality: **+CMS ERROR: <err>**

	Parameters **<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 3GPP 23.040 and 23.041, with a requirement that a message routed directly to TE should be acknowledged via +CNMA. 128 SMS PDU mode - TPDU only used for sending/receiving SMSs. **<mt>** Mobile Terminated Messages: 0 Type not supported 1 Type supported **<mo>** Mobile Originated Messages: 0 Type not supported 1 Type supported **<bm>** Broadcast Type Messages: 0 Type not supported 1 Type supported
Reference **GSM 07.05**	Note

5 AT Commands for GPRS Support

5.1 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 ACTIVATION OR DEACTIVATE
AT+CGDATA	ENTER DATA STATE
AT+CGPADDR	SHOW PDP ADDRESS
AT+CGCLASS	GPRS MOBILE STATION CLASS
AT+CGEREP	CONTROL UNSOLICITED GPRS EVENT REPORTING
AT+CGREG	NETWORK REGISTRATION STATUS
AT+CGSMS	SELECT SERVICE FOR MO SMS MESSAGES
AT*TGCOUNT	GPRS PACKET COUNTERS

5.2 Detailed Descriptions of AT Commands for GPRS Support

5.2.1 AT+CGATT Attach or Detach from GPRS Service

AT+CGATT Attach or Detach from GPRS Service	
Test command **AT+CGATT=?**	Response **+CGATT: (list of supported <state>s)** **OK**
	Parameter See Write command
Read command **AT+CGATT?**	Response **+CGATT:<state1>,<state2>** **OK**
	Parameters **<state1>** indicates the state of GPRS attachment 0 – detached 1 – attached **<state2>** indicates the state of EDGE attachment 0 – detached 1 – attached
Write command **AT+CGATT=<state>**	Response **OK** **ERROR**

	Parameter **<state>** indicates the state of GPRS attachment 0 – detached 1 – attached Other values are reserved and will result in an ERROR response to the write command.
Reference **GSM07.07**	Note

5.2.2 AT+CGDCONT Define PDP Context

AT+CGDCONT	**Define PDP Context**
Test command **AT+CGDCONT=?**	Response **+CGDCONT: (range of supported <cid>s), <PDP_type>,<APN>,<PDP_addr>,(list of supported <data_comp>s),<list of supported <head_comp>s)** **[<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,<APN>,<PDP_addr>,(list of supported <data_comp>s),<list of supported<head_comp>s)]** **OK**
	Parameter See Write command
Read command **AT+CGDCONT?**	Response **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>** **[<CR><LF>** **+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>** **[…]]** **OK**
	Parameter See Write command
Write command **AT+CGDCONT=<cid>[,<PDP_ty**	Response **OK** **ERROR**

pe>,[APN>[,<PDP_addr>[,<d_comp>[,<h_comp>]]]]	Parameter **<cid>** (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value=1) is returned by the test form of the command. **<PDP_type>** (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol X25 ITU-T/CCITT X.25 layer 3 IP Internet Protocol (IETF STD 5) OSPIH Internet Hosted Octet Stream Protocol PPP Point to Point Protocol (IETF STD 51) **<APN>** (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested. **<PDP_addr>** a string parameter that identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command. **<d_comp>** a numeric parameter that controls PDP data compression 0 – off (default if value is omitted) 1 – on Other values are reserved **<h_comp>** a numeric parameter that controls PDP head compression 0 – off (default if value is omitted) 1 – on Other values are reserved Note: At present only one data compression algorithm (V.42bis) is provided in SNDCP. If and when other algorithms become available, a command will be provided to select one or more of these.
Reference **GSM07.07**	Note

5.2.3 AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

Test command **AT+CGQMIN=?**	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**
	Parameter 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**
	Parameter See Write command
Write command **AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	Response **OK** **ERROR**
	Parameter **<PDP_type>** (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol X25 ITU-T/CCITT X.25 layer 3 IP Internet Protocol (IETF STD 5) OSPIH Internet Hosted Octet Stream Protocol PPP Point to Point Protocol (IETF STD 51) **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) The following parameter are defined in GSM 03.60 **<precedence>** a numeric parameter which specifies the precedence class **<delay>** a numeric parameter which specifies the delay class **<reliability>** a numeric parameter which specifies the reliability class **<peak>** a numeric parameter which specifies the peak throughput class **<mean>** a numeric parameter which specifies the mean throughput class
Reference **GSM07.07**	Note

5.2.4 AT+CGQREQ Quality of Service Profile (Requested)

AT+CGQREQ Quality of Service Profile (Requested)	
Test command **AT+CGQREQ=?**	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**
	Parameter See Write command
Read command **AT+CGQREQ?**	Response **+CGQREQ:<cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **[<CR><LF>+CGQMIN:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>** **[…]]** **OK**
	Parameter See Write command
Write command **AT+CGQREQ=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	Response **OK** **ERROR**
	Parameters **<PDP_type>** (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol X25 ITU-T/CCITT X.25 layer 3 IP Internet Protocol (IETF STD 5) OSPIH Internet Hosted Octet Stream Protocol PPP Point to Point Protocol (IETF STD 51) **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) The following parameter are defined in GSM 03.60 **<precedence>** a numeric parameter which specifies the precedence class **<delay>** a numeric parameter which specifies the delay class **<reliability>** a numeric parameter which specifies the reliability class **<peak>** a numeric parameter which specifies the peak throughput class **<mean>** a numeric parameter which specifies the mean throughput class
Reference	Note

GSM07.07	

5.2.5 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**
	Parameter See Write command
Read command **AT+CGACT?**	Response **+CGATT:<cid>,<state>** **[<CR><LF>+CGACT:<cid>,<state>[…]]** **OK**
	Parameter See Write command
Write command **AT+CGACT=<state>,<cid>**	Response **OK** **NO CARRIER** **ERROR**
	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 execute command. **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)
Reference **GSM07.07**	Note **If context is deactivated successfully, NO CARRIER is returned**

5.2.6 AT+CGDATA Enter Data State

AT+CGDATA Enter Data State e	
Test command **AT+CGDATA=?**	Response **+CGDATA: (list of supported <L2P>s)** **OK**
	Parameter See Write command
Write command **AT+CGDATA=<L2P>,<cid>**	Response **OK** **ERROR**

	Parameter **<L2P>** a string parameter that indicates the layer 2 protocol to be used between the TE and MT: PPP – Point to Point protocol for a PDP such as IP Other values are not supported and will result in an ERROR response to the execute command. **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)
Reference **GSM07.07**	Note **The command does not fully implement the CGDATA command as specified in GSM 07.07. The command will not enter data state once the PDP context has been activated and will simply generate the result code "OK" if the context has been successfully activated.**

5.2.7 AT+CGPADDR Show PDP Address

AT+CGPADDR	**Show PDP Address**
Test command **AT+CGPADDR=?**	Response **+CGPADDR:** **OK**
Write command **AT+CGPADDR=[<cid>]**	Response **+CGPADDR: <cid>,<PDP_addr>** **OK** **ERROR**
	Parameter **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) If no <cid> is specified, the addresses for all defined contexts are returned. **<PDP_addr>** a string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_ address> is omitted if none is available.
Reference **GSM07.07**	Note **This command dictates the behavior of PPP in the ME but not that of any other GPRS-enabled foreground layer, e.g. browser.**

5.2.8 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**
	Parameter **<class>** a string parameter which indicates the GPRS mobile class (in descending order of functionality) A class A (highest) B class B CG class C in GPRS only mode CC class C in circuit switched only mode (lowest)
Reference **GSM07.07**	Note **Class A is not supported by the SIMCOM GPRS solution.**

5.2.9 AT+CGEREP Control Unsolicited GPRS Event Reporting

AT+CGEREP Control Unsolicited GPRS Event Reporting	
Test command **AT+CGEREP=?**	Response **+CGEREP: (list of supported <modes>s)** **OK**
	Parameter See Write command
Read command **AT+CGEREP?**	Response **+CGEREP:<mode>** **OK**
	Parameter See Write command

Write command **AT+CGEREP=<mode>**	Response **OK** **ERROR** Parameter **<mode>** 0 buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can be discarded. No codes are forwarded to the TE. 1 discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE
	Unsolicited Result Codes supported: **+CGEV: NW DEACT <PDP_type>, <PDP_addr>[,<cid>]** **+CGEV: ME DEACT <PDP_type>, <PDP_addr>[,<cid>]** **+CGEV: NW DETACH** **+CGEV: ME CLASS <class>** parameter **<PDP_type>** Packet Data Protocol type (see +CGDCONT command) **<PDP_addr>** Packet Data Protocol address (see +CGDCONT command) **<cid>** Context Id (see +CGDCONT command) **<class>** GPRS mobile class (see +CGCLASS command)
Reference **GSM07.07**	Note

5.2.10 AT+CGREG Network Registration Status

AT+CGREG Network Registration Status	
Test command **AT+CGREG=?**	Response **+CGREG: (list of supported <n>s)** **OK**
	Parameter See Write command
Read command **AT+CGREG?**	Response **+CGREG:<n>,<stat>[,<lac>,<ci>]** **OK**
	Parameter See Write command
Write command **AT+CGREG=[<n>]**	Response **OK** **ERROR**

	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 a new operator to register to 1 registered **<lac>** string type; two byte location area code in hexadecimal format (e.g. “00C3” equals 195 in decimal) **<ci>** string type; two bytes cell ID in hexadecimal format
Reference **GSM07.07**	Note **For parameter state, options 0 and 1 supported only.**

5.2.11 AT+CGSMS Select Service for MO SMS Messages

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

	Parameter **<service>** a numeric parameter which indicates the service or service preference to be used 0 GPRS 1 circuit switched 2 GPRS preferred (use circuit switched if GPRS not available) 3 circuit switched preferred (use GPRS if circuit switched not available)
Reference **GSM07.07**	Note **The circuit switched service route is the default method**

5.2.12 AT*TGCOUNT GPRS Packet Counters

AT*TGCOUNT	**GPRS Packet Counters**
Test command **AT*TGCOUNT =?**	Response ***TGCOUNT: (list of supported <actions>s),(list of supported <cid>s),(list of supported <period>s)** **OK**
	Parameter See Write command
Read command **AT*TGCOUNT?**	Response ***TGCOUNT:** **OK**
Write command **AT*TGCOUNT =<action>,<cid>[,<period>]**	Response **OK** **ERROR**
	Parameters **<action>** indicates the action to be performed 0 – reset counter for specified <cid> 1 – read counter for specified <cid> 2 – start reporting counter periodically for specified <cid> defined by <period>. Counter is also reported on context deactivation. 3 – report counter on context deactivation for specified <cid> 4 – stop reporting counter on specified <cid> **<cid>** a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) **<period>** period for periodic packet counter reporting in seconds

	Unsolicited Result Once a counter has been setup for a <cid> , the counter will be displayed as following either periodically or when the context has been deactivated: **<uc>** a numeric 32 parameter which indicates the number of compressed bytes transferred in the uplink direction displayed in decimal format **<uu>** a numeric 32 bit parameter which indicates the number of uncompressed bytes transferred in the uplink direction displayed in decimal format **<un>** a numeric 32 bit parameter which indicate the number of N-PDUs (i.e. IP packets) transferred in the uplink direction displayed in decimal format **<dc>** a numeric 32 bit parameter which indicates the number of compressed bytes transferred in the downlink direction displayed in decimal format **<dn>** a numeric 32 bit parameter which indicates the number of N-PDUs (i.e. IP packets) transferred in the downlink direction displayed in decimal format **Note：that the current counter values will be displayed immediately this command is entered for any action (i.e. even stopping the counter display will generate the above unsolicited result code for the cancelled <cid>)**
Reference **GSM07.07**	Note **This command displays byte and IP packet counters for GPRS contexts.** **It is proprietary to SIMCOM.** **If counters are displayed periodically, they will only be displayed if:** **- there is a separate multiplexer channel for unsolicited result codes, or** **- the user switches to command mode using the "+++" escape sequence**

6 AT Commands for SIM Application Toolkit

This section defines the AT Commands implemented in SIM700D for the control of the SIM Application Toolkit protocol, as per specification GSM 11.14. The table in section 6.1 lists the AT commands supported – these are SIMCOM proprietary commands as no formal specification currently exist defining STK functionality via an AT interface. The parameters supported by each AT command for the different proactive commands are given in the subsections which follow the main table.

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

How to use SIM700D STK AT interface please see document SIM700D_STK_USER_GUIDE.DOC

6.1 Overview of Commands, Responses and Result Codes

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

Notation	Description
*TSTC:	Unsolicited result code issued by the CI Task to the application to indicate either: • there is no STK application available on the SIM • there is a proactive SIM command to retrieve and action end of the current proactive command session – used if the user wishes to terminate the current proactive SIM session.
AT*TSTGC=…	AT command to Get Command parameters for a proactive SIM command from the CI Task. This will be sent from the application after unsolicited result code +STC: <cmdId> informs it the SIM has issued a proactive SIM command to be performed.
AT*TSTCR=…	AT command to provide Command Response parameters for a previously executed proactive SIM command. Its purpose is to relay response data to the lower layers of the SIMCOM protocol stack to allow the Terminal Response SIM command (see [10]) to be returned to the SIM for the current proactive command.
AT*TSTPD=…	AT command to provide Profile Download parameters to the CI Task. This contains information relating to the SIM Application Toolkit capabilities of the application, and is used by the SIMAT task to limit its SAT instruction set accordingly. Any application plugging into the serial port should send this command or it will be assumed that the application has no SAT support and will therefore never receive any SAT related information.
AT*TSTMS=…	AT Command for selecting a menu option. On power-up the SIM will send the Set-Up-Menu proactive indication. The accessory should load and display the menu structure. This AT command should be used to inform SIM700D of the item selected from the list.
AT*TSTEV=…	This command is used to inform the MS that an MMI specific event has occurred.
AT*TSTRT=…	AT command for setting the automatic response timer used by the CI Task to issue the Terminal Response (no user response) to a proactive command which has not been processed. The default response time is ten seconds, but it is recommended this is increased when performing SIM Toolkit FTA.
AT*TSTTONE=…	AT command for playing SIM Toolkit Tones in both idle and dedicated mode. This command should be used in conjunction with the Play Tone proactive command.
AT+HSTK	Terminate All STK Action

6.2 Definition of Unsolicited Result Codes

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

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

6.2.1 *TSTC Command

***TSTC Informs the Application of the Type of Proactive SIM Command Data Awaiting Retrieval.**	
Result Code: ***TSTC: <cmdId>**	Parameter **<cmdId>** Hexadecimal format of Type of Command . Unique identifier for the current SIM Toolkit proactive command issued by the SIM - The following values are supported: ‘10’ Get Acknowledgement For Set Up Call command ‘15’ Launch Browser command ‘20’ Play Tone command ‘21’ Display Text command ‘22’ Get Inkey command ‘23’ Get Input command ‘24’ Select Item command ‘25’ Set Up Menu command ‘28’ Set Up Idle Mode Text command ‘40’ Open Channel command ‘14’ Send DTMF command ‘05’ Set Up Event List command ‘81’ End of proactive session
Reference	Note **The specific case is +STC: 0 that is issued when there is no STK application accessible on the SIM.**

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

6.2.2 Send SM

Command data for Send Short Message Unsolicited Proactive Command

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

6.2.3 Send SS

Command Data for Send SS Unsolicited Proactive Command		
Result Code	Parameters	
***TSTUD: 11[,<alphaId>[,<iconId>,<dispMode>]]**	**11**	hex notation: Command Type value. See Section 6.2 for values.
	<alphaId>	string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0' : Specific case indicating SIM provided a null alphaId and user should not be informed of SS transaction. If alphaId field is not present it is up to the ME to decide whether to inform the user or not.
	<iconId>	Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag
	<dispMode>	integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string
Reference	Note	

6.2.4 Send USSD

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

6.2.5 Set Up Call

Command Data for Set Up Call Unsolicited Proactive Command	
Result Code ***TSTUD: 10,<alphaId>,<dialstring>,<cps>[,<iconId>,<dispMode>]**	Parameters **10** hex notation: Command Type value. See Section 6.2 for values. **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding **<dialstring>** string format: using either SMS default alphabet or UCS2 alpha field coding **<cps>** string format: using either SMS default alphabet or UCS2 alpha field coding **<iconId>** Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag **<dispMode>** integer: denotes use of associated icon 0 display icon only (replaces any text string or

	alphaId) 1 display with alphaId or text string
Reference	Note

6.2.6 Close Channel

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

6.2.7 Receive Data

Command Data for Receive Data Proactive Command	
Result Code ***TSTUD: 42,<length>[,<alphaId>[,<iconId>,<dispMode>]]**	Parameters **42** hex notation: Command Type value. See Section 6.2 for values. **<length>** integer type: number of bytes requested in command **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0' : Specific case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. **<iconId>** Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon

	1..255 Icon tag **<dispMode>** integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string
Reference	Note

6.2.8 Send Data

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

6.2.9 Language Notification

Command Data for Language Notification Proactive Command	
Result Code ***TSTUD: 35[,<language>]**	Parameters **35** hex notation: Command Type value. See Section 6.2 for values. **<language>** language code: coded as pair of alphanumeric characters, as given in ISO 639 [12].

Reference	Note
	The language parameter is optional. Its inclusion in the result code indicates a specific language notification. Omission from the result code indicates a non-specific language notification, which cancels a previous specific language notification

6.2.10 Run AT

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

6.2.11 Refresh

Command Data for Refresh Proactive Command	
Result Code ***TSTUD: 01,<refMode>[,<numFiles>,<fileList>]**	Parameters **01** hex notation: Command Type value. See Section 6.2 for values. **<refMode >** hex notation: command Qualifier information giving the type of Refresh to be performed. 00 SIM Initialization and Full File Change Notification 01 File Change Notification 02 SIM Initialization and File Change Notification 03 SIM Initialization 04 SIM Reset **<numFiles>** integer: gives number of Files in the list

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

6.3 ME Initialization Procedure

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

If on completing ME initialization the stack determines that the SIM has no STK capability an unsolicited result code *TSTC: 0 will be issued to indicate to the user that there is no SIM toolkit availability during the current session.
However, if STK information is available for use by the ME/application then the lower layers of the SIMCOM Protocol Stack are informed and the first proactive command to be sent from the SIM to the user will be the Set Up Menu command to allow the available STK menu to be added to the ME's own menu structure (i.e. unsolicited result code *TSTC: 25 will be issued by the CI Task after it has received this proactive command from the SIMAT task.

6.4 Definition of AT Commands

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

6.4.1 AT*TSTGC SIM Toolkit Get Proactive Command Parameters

AT*TSTGC SIM Toolkit Get Proactive Command Parameters	
Write Command **AT*TSTGC=<cmdId>**	Response ***TSTGC: <cmdId>,<data>** **OK** **ERROR**
	Parameter **<cmdId>** hex notation: Command Type value See Section 6.2 for values. **<data>** proactive command specific data, dependent on <cmdId>
Reference	Note

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

6.4.1.1 Display Text

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

		1 Display with alpha Id or text string
	<response>	0 normal response expected
		1 immediate response expected.
Reference	Note	

6.4.1.2 Get Inkey

Command Data for Get Inkey Proactive Command		
Result Code	Parameters	
***TSTGC: 22,<dcs>,<text>,<response>,<helpInfo>[,<iconId>,<dispMode>]**	**22**	hex notation: Command Type value. See Section 6.2 for values.
	<dcs >	integer: data coding scheme used for <text> The schemes used are as per GSM 03.38 for SMS 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet
	<text>	string format: text string in <dcs> format
	<response>	integer: expected response character format. 0 Digits (0-9, *, # and +) only 1 SMS default alphabet 2 UCS2 alphabet 3 Yes/No response only
	<helpInfo>	0 no help information available 1 help information available
	<iconId>	Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag
	<dispMode>	integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alpha Id or text string
Reference	Note Entry of the Digits only response is the same regardless of alphabet set – coding of this response is performed within the SIMCOM Protocol Stack when creating the Terminal Response	

6.4.1.3 Get Input

Command Data for Get Input Proactive Command		
Result Code	Parameters	
***TSTGC: 23,<dcs>,<text>,<**	**23**	hex notation: Command Type value. See Section 6.2 for values.

response>,<echo>,<helpInfo>,<minLgth>,<maxLgth>[,<dcs>,<text>[,<iconId>,<dispMode>]]	**<dcs >**	integer: data coding scheme used for <text> or <default>. The schemes used are as per GSM 03.38 for SMS. 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet
	<text>	string format: text string in <dcs> format
	<response>	integer: expected response characters and their format. 1 Digits (0-9, *, # and +) only from SMS default alphabet (unpacked) 2 Digits (0-9, *, # and +) only from SMS default alphabet (packed) 3 Digits from UCS2 alphabet 4 SMS default alphabet (unpacked) 5 SMS default alphabet (packed) 6 UCS2 alphabet
	<echo>	0 echo input to display 1 no echo allowed (see Note)
	<helpInfo>	0 no help information available 1 help information available
	<minLgth>	Integer: minimum length of expected response, in range 0..255 0 indicates no minimum length requirement
	<maxLgth>	Integer: maximum length of expected response, in range 1..255 255 indicates no maximum length requirement
	<iconId>	Numeric tag for the icon to be displayed –corresponds to the index in the Image file on the SIM (see [10]) 0 No icon 1..255 Icon tag
	<dispMode>	integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alpha Id or text string
Reference	Note **Actual input string may not be displayed in this case but can alternatively be masked to indicate key entry using characters from the set (0-9, * and #).** **If <minLgth> and <maxLgth> are equal, the response string is to be of fixed length.**	

批注 **[w6]:** Zw change form"default" to <text>

6.4.1.4 Play Tone

Command Data for Play Tone Proactive Command		
Result Code ***TSTGC:**	Parameters **20**	hex notation: Command Type value.

20[,<alphaId>[,<tone>[,<duration>]]]		See Section 6.2 for values.
	<alphaId>	string format: using either SMS default alphabet or UCS2 alpha field coding
	<tone>	integer: identifies requested tone type. SST denotes a Standard Supervisory Tone, MPT denotes an ME Proprietary Tone. 1 Dial (SST) 2 Called subscriber busy (SST) 3 Congestion (SST) 4 Radio Path acknowledge (SST) 5 Radio path not available / Call dropped (SST) 6 Error / Specific information (SST) 7 Call waiting (SST) 8 Ringing Tone (SST) 16 General Beep (MPT) 17 Positive ack (MPT) 18 Negative ack or Error (MPT)
	<duration>	integer: duration of the tone to be played, given in milliseconds.
Reference	Note **If no tone is specified the ME shall default to the General Beep SST.** **If no duration is specified the ME default of 500ms is chosen.**	

6.4.1.5 Set Up Menu

Command Data for Set Up Menu Proactive Command		
Result Code	Parameters	
***TSTGC: 25,<numItems>,<selection>,<helpInfo>,<removeMenu><alphaId>[,<iconId>,<dispMode>]<CR><LF>** ***TSTGC: <itemId>,<itemText>[,<iconId>,<dispMode>,<nai><CR><LF>** **[*TSTGC: <itemId>,<itemText>[,<iconId>,<dispMode>,<nai><CR><LF>**	**25**	hex notation: Command Type value. See Section 6.2 for values.
	<numItems>	integer: indicates the number of items accessible in the menu structure. 0 is a specific case, indicating the existing menu is to be removed from the ME's menu structure.
	<selection>	integer: gives preferred user selection method 0 no selection preference 1 soft key selection preferred
	<helpInfo>	0 no help information available 1 help information available
	<removeMenu>	0 do not remove the current menu 1 remove the current menu
	<alphaId>	string format: using either SMS default alphabet or UCS2 alpha field coding
	<iconId>	Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM

[…]]]]		0 No icon 1..255 Icon tag
	<dispMode>	integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 0 display with alpha Id or text string
	<itemId>	integer: denotes the identifier of the item
	<itemText>	string format: using either SMS default alphabet or UCS2 alpha field coding
	<nai>	hex notation: next action indicator – this takes one of the allowed values from the Command Type (see section 5.2) range, as specified in [9], section 13.4
Reference	Note	

6.4.1.6 Select Item

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

Reference	Note

6.4.1.7 Get Acknowledgement for Set Up Call

Command Data for Set Up Call Proactive Command	
Result Code ***TSTGC: 10,<alphaId>[,<iconId>,<dispMode>]**	Parameters **10** hex notation: Command Type value. See Section 6.2 for values. **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding **<iconId>** Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag **<dispMode>** integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string
Reference	Note

6.4.1.8 Set Up Idle Mode Text

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

	removed.

6.4.1.9 Send DTMF

Command Data for Send DTMF Proactive Command	
Result Code ***TSTGC: 14[,<alphaId>[,<iconId>,<dispMode>]]**	Parameters **14** hex notation: Command Type value. See Section 6.2 for values. **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0' : Specific case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide whether or not to inform the user. **<iconId>** Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag **<dispMode>** integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string
Reference	Note

6.4.1.10 Launch Browser

Command Data for Launch Browser Proactive Command	
Result Code ***TSTGC: 15,<comQual>,<url>[,<browserId>[,<bearer>[,<numFiles>,<provFiles>[,<dcs>,<gateway>[,<alphaId>[,<iconId>,<dispMode>]]]]]]**	Parameters **15** hex notation: Command Type value. See Section 6.2 for values. **<comQual>** hex notation: command qualifier information from Command Details Data Object: 00 launch browser without making connection, if not already launched 01 launch browser making connection, if not already launched 02 use existing browser 03 close existing browser, launch new browser, making a connection 04 close existing browser, launch new browser, using secure session **<url>** string format: 8bit data using GSM default 7bit alphabet. Specific case: <url>="" – Null value, so use default URL

	<browserId> hex notation: Browser Id to use. Available values: '00' Use default browser **<bearer>** hex notation: list of allowed bearers in priority order. Possible values: '00' SMS '01' CSD '02' USSD '03' GPRS **<numFiles>** integer: denotes the number of provisioning files given **<provFiles>** string type, hex notation file ids: List of Provisioning File Reference ids. Full Paths are given, delimited within the string by a comma **<dcs >** integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS. 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet **<gateway>** string format: text string in <dcs> format **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding **<iconId>** Numeric tag for the icon to be displayed – corresponds to the index in the Image file on the SIM 0 No icon 1..255 Icon tag **<dispMode>** integer: denotes use of associated icon 0 display icon only (replaces any text string or alphaId) 1 display with alphaId or text string
Reference	Note

6.4.1.11 Open Channel

Command Data for Open Channel Proactive Command	
Result Code ***TSTGC: 40[,<alphaId>[,<iconId>,<dispMode>]]**	Parameters **40** hex notation: Command Type value. See Section 6.2 for values. **<alphaId>** string format: using either SMS default alphabet or UCS2 alpha field coding to inform user of current transaction. '0': Specific case indicating SIM provided a null alphaId and the user should not be informed of the current transaction. If alphaId field is not present it is up to the ME to decide

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

6.4.1.12 Set Up Event List

Command Data for Set Up Event List Proactive Command	
Result Code ***TSTGC: 05,<eventList>**	Parameters **05** hex notation: Command Type value. See Section 6.2 for values. **<eventList>** hex: denotes applicable event identifiers. 05 User activity event 06 Idle Screen Available event 08 Language Selection event 09 Browser termination event FF Remove existing event list
Reference	Note **<eventList> value of FF used to remove existing list of events as value 0 can be confused with event MT Call value.** **This command causes the application to send a GSM 11.14 [9] ENVELOPE (EVENT DOWNLOAD) command to the SIM.**

6.4.2 AT*TSTCR SIM Toolkit Command Response

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

AT*TSTCR SIM Toolkit Command Response	
Write Command **AT*TSTCR=<cmdId>,<result>[,<data>]**	Response **OK** **+CME ERROR: <err>**

	Parameter **<cmdId>** hex notation: Command Type value **<result>** hex notation: dependent on the command type – see following sections for each proactive command supported. The values given in the result field for each set of proactive command response parameters the setting of the general result parameter returned to the SIMAT task in the next phase of signaling for building the Terminal Response command. **<data>** additional data provided for certain commands, as required for the Terminal Response returned to the SIM after processing a proactive SIM command
Reference	Note

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

6.4.2.1 Display Text

Command Response for Display Text proactive Command	
Result Code ***TSTCR21,<result>**	Parameters **21** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Message displayed OK 1 Terminate proactive session 2 User cleared message 3 Screen is busy 4 Backward move requested 5 No response from user
Reference	Note

6.4.2.2 Get Inkey

Command Response for Get Inkey proactive Command	
Result Code ***TSTCR22,<result>[,<dcs>,<text>]**	Parameters **22** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Data entered OK

	1 Terminate proactive session 2 Help information requested 3 Backward move requested 4 No response from user **<dcs >** integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS. 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet **<text>** string format: text string in <dcs> format Specific cases are: “00” Negative response entered “01” Positive response entered
Reference	Note **The <dcs> and <text> information must be provided for <result>=0 as the SIM expects the input to be provided in a Text String Data Object in the Terminal Response SIM command when data has been input.**

6.4.2.3 Get Input

Command Response for Get Input Proactive Command	
Result Code ***TSTCR23,<result>[,<dcs>,<text>]**	Parameters **23** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Data entered OK 1 Terminate proactive session 2 Help information requested 3 Backward move requested 4 No response from user **<dcs >** integer: data coding scheme used for <text>. The schemes used are as per GSM 03.38 for SMS . 0 7bit GSM default alphabet (packed) 4 8bit data 8 UCS2 alphabet **<text>** string format: text string in <dcs> format
Reference	Note **If the <dcs> is present but <text> is an empty string this indicates a null text string data object must be sent to the SIM. This is caused by the user making an ‘empty’ input.**

6.4.2.4 Play Tone

Command Response for Play Tone Proactive Command

Result Code	Parameters
***TSTCR20,<result>**	**20** Hex notation: Command Type value. See section 6.2 for values. **<result>** integer: possible values: 0 Command performed OK 1 Terminate proactive session 2 Tone not played 3 Specified tone not supported
Reference	Note

6.4.2.5 Set Up Menu

Command Response for Set Up Menu Proactive Command	
Result Code ***TSTCR25,<result>**	Parameters **25** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Menu successfully added/removed 1 User chosen menu item 2 Help information requested 3 Problem with menu operation
Reference	Note

6.4.2.6 Select Item

Command Response for Select Item Proactive Command	
Result Code ***TSTCR24,<result>[,<itemId>]**	Parameters **24** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Item Selected OK 1 Terminate proactive session 2 Help information requested 3 Backward move requested 4 No response given **<itemId>** integer: denotes identifier of item selected
Reference	Note

6.4.2.7 Get Acknowledgement For Set Up Call

Command Response for Set Up Call Proactive Command

Result Code	Parameters
***TSTCR10,<result>**	**10** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 user accepted call (conf phase only) 1 user rejected call (conf phase only) 2 user cleared call (any phase)
Reference	Note

6.4.2.8 Set Up Idle Mode Text

Command Response for Set Up Idle Mode Text Proactive Command	
Result Code ***TSTCR28,<result>**	Parameters **28** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Text successfully added/removed 1 Problem performing command
Reference	Note

6.4.2.9 Send DTMF

Command Response for Send DTMF Proactive Command	
Result Code ***TSTCR13,<result>**	Parameters **13** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 DTMF not accepted 1 DTMF required.
Reference	Note

6.4.2.10 Launch Browser

Command Response for Launch Browser Proactive Command	
Result Code ***TSTCR15,<result>**	Parameters **15** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Command performed successfully 1 Command performed – partial comp 2 Command performed – missing info

	3 User rejected launch 4 Error – no specific cause given 5 Bearer unavailable 6 Browser unavailable 7 ME cannot process command 8 Network cannot process command 9 Command beyond MEs capabilities.
Reference	Note

6.4.2.11 Open Channel

Command Response for Open Channel Proactive Command	
Result Code ***TSTCR40,<result>**	Parameters **40** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Channel not accepted 1 Channel required.
Reference	Note

6.4.2.12 Set Up Event List

Command Response for Set Up Event List Proactive Command	
Result Code ***TSTCR05,<result>**	Parameters **05** hex notation: Command Type value. See Section 6.2 for values. **<result>** integer: possible values: 0 Command performed successfully 1 Cannot perform command.
Reference	Note

6.4.3 AT*TSTPD SIM Toolkit Profile Download

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

AT*TSTPD SIM Toolkit Profile Download

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

6.4.4 AT*TSTEV SIM Toolkit Event Command

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

AT*TSTEV SIM Toolkit Event Command	
Test Command **AT*TSTEV=?**	Response ***TSTEV: (list of supported <event>s)** **OK** **+CME ERROR: <err>**
Write Command ***TSTEV=<event>[,<language>]**	Response **+CME ERROR: <err>**
	Parameter **<event>** hex two digits: 05 User Activity Event 06 Idle Screen Event 08 Language Selection Event FF Clear Current Event List **<language>** string type up to two characters(0-99)
Reference	Note **The <language> parameter is applicable only to Language Selection Event. For example the language can be set by: AT*TSTEV=08,"11"**

6.4.5 AT*TSTMS SIM Toolkit Main Menu Selection Command

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

AT*TSTMS SIM Toolkit Main Menu Selection Command	
Test Command **AT*TSTMS=?**	Response

	***TSTMS: (range of available <item>s),(list of supported <help>s)** **OK** **+CME ERROR: <err>**
Write Command ***TSTMS=<item>[,help]**	Response **+CME ERROR: <err>**
	Parameter **<item>** numeric type, giving unique identifier of menu item **<help>** numeric type
Reference	Note For example, **AT*TSTMS=2,1** will select item 2 from the main menu with help.

6.4.6 AT*TSTRT SIM Toolkit Response Timer Command

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

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

6.4.7 AT*TSTTONE SIM Toolkit Play Tone Command

The application may request a tone to play after receiving the Play Tone proactive command.

The application either starts playing the tone with the requested tone Id, or stops playing the current tone depending on the <mode> parameter. Tones may be played in either idle or dedicated mode.

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

AT*TSTTONE SIM Toolkit Play Tone Command	
Test Command **AT*TSTTONE=?**	Response ***TSTTONE: ((list of supported <mode>s),(list of supported <tone>s),(<list of supported <duration>s>)** **OK** **+CME ERROR: <err>**
	Parameter see Write command
Write Command **AT*TSTTONE=<mode>[,<tone>[,<duration>]]**	Response **+CME ERROR: <err>**
	Parameter **<mode>** 0 Stop playing tone 1 Start playing tone **<tone>** numeric type 1 Dial Tone 2 Called Subscriber Busy 3 Congestion 4 Radio Path Acknowledge 5 Radio Path Not Available / Call Dropped 6 Error / Specific information 7 Call Waiting Tone 8 Ringing Tone 16 General Beep 17 Positive Acknowledgement Tone 18 Negative Acknowledgement or Error Tone **<duration>** numeric type, in milliseconds. Max requested value = 255*60*1000 = 15300000ms (supported range = 0- 15300000)
Reference	Note **The default <tone>, if none entered, is General Beep.** **The default <duration>, if none entered, is 500ms.**

6.4.8 AT+HSTK Terminate All STK Action

AT+HSTK Terminate All STK Action	
Execute Command	Response

AT+HSTK	OK
Reference	Note: All STK action will be terminated after execute this command

7 AT Commands Specific for SIMCOM

7.1 Overview

Command	Description
AT+SPIC	TIMES REMAIN TO INPUT SIM PIN/PUK
AT+CSCLK	CONFIGURE SLOW CLOCK
AT+CHFA	SWAP THE AUDIO CHANNELS
AT+ SIDET	CHANGE THE SIDE TONE GAIN LEVEL
AT+CMIC	CHANGE THE MICOPHONE GAIN LEVEL
AT+CPOWD	POWER OFF
AT+CALARM	SET ALARM
AT+CADC	READ ADC
AT+CEXTHS	EXTERNAL HEADSET JACK CONTROL

7.2 Detailed Descriptions of AT Commands Specific for SIMCOM

7.2.1 AT+SPIC Times Remain to Input SIM PIN/PUK

AT+SPIC	Times Remain to Input SIM PIN/PUK
Execute Command **AT+SPIC**	Response Times remain to input SIM PIN **+SPIC: <chv1>,<chv2>,<puk1>,<puk2>** **OK**
	Parameters **<chv1>:** Times remain to input chv1 **<chv2>:** Times remain to input chv2 **<puk1>:** Times remain to input puk1 **<puk2>:** Times remain to input puk2
Reference	

7.2.2 AT+CSCLK Configure Slow Clock

AT+CSCLK Configure Slow Clock	
Read Command **AT+CSCLK?**	Response **+CSCLK: <n>** **OK**
	Parameter See Write command.

Test Command **AT+CSCLK=?**	Response **+CSCLK: (list of supported <n>s)** **OK**
	Parameter See Write command.
Write Command **AT+CSCLK =<n>**	Response **OK** **ERROR**
	Parameter **<n>** 0 – disable slow clock 1 – enable slow clock
Reference	NOTE

7.2.3 AT+CHFA Swap the Audio Channels

AT+CHFA Swap the Audio Channels	
Read Command **AT+CHFA?**	Response **+CHFA: <n>** **OK**
	Parameter See Write command.
Test Command **AT+CHFA=?**	Response **+CHFA: (list of supported <n>s)** **OK**
	Parameter See Write command.
Write Command **AT+CHFA=<n>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<n>** 0 – Normal audio channel(default) 1 – Aux audio channel
Reference	NOTE **This command swaps the audio channels between the normal channel and the aux channel.**

7.2.4 AT+SIDET Change the side tone gain level

AT+SIDET Change the side tone gain level	
Read Command **AT+SIDET?**	Response **+ SIDET:** < gainlevel> **OK**

	Parameter: See write command
Test Command **AT+SIDET=?**	Response **+SIDET**: **(gainlevel)** **OK**
	Parameter See write command
Write Command **AT+SIDET= gainlevel >**	Response: **OK**
	Parameters **< gainlevel > int: 0 – 32767**
Reference	Note The relation between the Side Tone Gain and <gainlevel> is Side Tone Gain/dB = 20*log(sideTone/32767)

7.2.5 AT+CMIC Change the microphone gain level

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

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

7.2.6 AT+CPOWD Power Off

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

7.2.7 AT+CALARM Set alarm

AT+CALARM	**Set alarm**
Read Command **AT+CALARM=?**	Response **+ CALARM:** <state>,<time>,<repeat>,<power> **OK** Parameter See write command

Write Command **AT+CALARM=<state>,<time>,<repeat>,<power>**	Response **OK** Parameter < **state** > an integer parameter which indicates whether enable or disable alarm. 0 CLEAR ALARM 1 SET ALARM < **time** > a string parameter which indicates the time when alarm arrives. The format is "yy/MM/dd,hh:mm:ss+-zz" where characters indicate the last two digits of year, month, day, hour, minute, second and time zone. The time zone is expressed in quarters of an hour between the local time and GMT, ranging from -48 to +48. < **repeat** > an integer parameter which indicates the repeat mode 0 None 1 Daily 2 Weekly 3 Monthly <**power**> an integer parameter which indicates the method of dealing power when alarm arrives. 0 None Only send "ALARM RING" to serial port 1 Alarm power off Send "ALARM RING" to serial port and power off in 5 seconds 2 Alarm power on Send "ALARM MODE" to serial port and enter into alarm mode Note: In alarm mode, protocol stack and SIM protocol is closed, only a few AT command can be executed, and system will be powered down after 90 seconds if neither power key is pressed nor functionality is changed to full functionality. If power key is pressed, system will be powered down right now.
Reference	Note

7.2.8 AT+CADC Read ADC

AT+CADC	**Read ADC**
Read Command **AT+ CADC?**	Response **+ CADC: < status>,<value>** **OK**
	Parameter See test command

Test Command **AT+CADC=?**	Response **+ CADC: list of supported <status>s, list of supported <value>s>** **OK**
	Parameter <**status**> 1 success 0 fail <**value**> integer 0-2400
	Note

7.2.9 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**
	Parameter see Write command
Write command **AT+CEXTHS=<mode>**	Response **OK** **ERROR**
	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/detatched) 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 Support for this command will be hardware dependant.

8 AT Commands for Others

8.1 Overview of AT Commands for Others

Command	Description
AT*TLTS	GET LOCAL TIMESTAMP
AT*TEXTHS	EXTERNAL HEADSET JACK CONTROL
AT*TEXTBUT	HEADSET BUTTON STATUS REPORTING
AT*TSIMINS	SIM INSERTED STATUS REPORTING
AT*TLDTMF	LOCAL DTMF TONE GENERATION
AT*TDRIND	CS CALL OR GPRS PDP CONTEXT TERMINATION INDICATION
AT*TDTX	CONFIGUE DISCONTINOUS DATA TRANSMISSION
AT*TSPN	GET SERVICE PROVIDER NAME FROM SIM
AT+CBAND	GET AND SET MOBILE OPERATION BAND
AT*THF	CONFIGURES HANDS FREE OPERATION
AT*TUNSOL	EXTRA URC INDICATION
AT*TSQF	DEFINE FILITER FOR *TSQN NOTIFICATIONS
AT*TBCF	DEFINE FILITER FOR *TBCN NOTIFICATIONS
AT+CMOD	DEFINE ALTERNATING MODE
AT*TALS	CONFIGURE AUXILIARY LINE SERVICE
AT*TCOLR	CONNECTED LINE INDENTIFICATION RESTRICTION
AT+NMSI	NETWORK LOCK SELECTION
AT+MCCMNC	SET ALLOWABLE PLMN LIST
AT+SMSTATUSREPORT	SET SMS STATUS REPORT MODE
AT*TENGMODE	SET ENGINEERING MODE

8.2 Detailed Descriptions of AT Commands for Others

8.2.1 AT*TLTS Get Local Timestamp

AT*TLTS Get Local Timestamp	
Test command **AT*TLTS=?**	Response ***TLTS: (the format of timestamp)** **OK**
	Parameter see Execute command
Execute command **AT*TLTS**	Response ***TLTS:(timestamp)** **OK**

	Parameter **<timestamp>** a string parameter which indicates the local timestamp. The format of timestamp is “yy/MM/dd,hh:mm:ss+/-zz” yy: year MM: month dd: day hh: hour mm: minute ss: second zz: time zone
Reference	Note

8.2.2 AT*TEXTHS External Headset Jack Control

AT*TEXTHS External Headset Jack Control	
Test command **AT*TEXTHS=?**	Response ***TEXTHS:(list of supported <mode>s)** **OK**
	Parameter see Write command
Read command **AT*TEXTHS?**	Response ***TEXTHS:<mode>,<headset attach>** **OK**
	Parameter see Write command
Write command **AT*TEXTHS=<mode>**	Response **OK** **ERROR**
	Unsolicited result code: ***TEXTHS:<mode>,<headset attach>**
	Parameters **<mode>** a numeric parameter which indicates whether an unsolicited event code (indicating whether the headset has been attached/detatched) 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

	Support for this command will be hardware dependant.

8.2.3 AT*TEXTBUT Headset Button Status Reporting

AT*TEXTBUT Headset Button Status Reporting	
Test command **AT*TEXTBUT=?**	Response ***TEXTBUT: (list of supported <mode>s)** **OK**
	Parameter See Write command
Read command **AT*TEXTBUT?**	Response ***TEXTBUT:<mode>,<headset button press>** **OK**
	Parameter see Write command
Write command **AT*TEXTBUT=<mode>**	Response **OK** **ERROR**
	Unsolicited result code: ***TEXTBUT:<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 Support for this command will be hardware dependant.

8.2.4 AT *TSIMINS SIM Inserted Status Reporting

AT *TSIMINS SIM Inserted Status Reporting	
Test command **AT*TSIMINS=?**	Response ***TSIMINS: (list of supported <n>s)** **OK**
	Parameter see Write command

Read command **AT*TSIMINS?**	Response ***TSIMINS:<n>,< inserted>** **OK** Unsolicited result code: ***TSIMINS: <inserted>**
	Parameters **<n>** a numeric parameter which indicates whether to show an unsolicited event code indicating whether the SIM has just been inserted or removed. 0 Disable 1 Enable **<inserted>** a numeric parameter which indicates whether SIM card has been inserted. 0 not inserted 1 inserted
Write command **AT*TSIMINS=<n>**	Response **OK** **ERROR**
	Parameter **<n>** 0 Disable 1 Enable
Reference	Note

8.2.5 AT*TLDTMF Local DTMF Tone Generation

AT*TLDTMF Local DTMF Tone Generation	
Write command **AT*TLDTMF=<n>[,<dtmf string>]**	Response **OK** **ERROR**
	Parameters **<n>** Duration of all DTMF tones in <dtmf-string> in 1/10 seconds **<dtmf-string>** a string parameter 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-D.
Test command **AT*TLDTMF=?**	Response ***TLDTMF: (list of supported <n>s), (dtmf string)** **OK**
	Parameter see Write command

Execute command **AT*TLDTMF**	Response **OK** Aborts any DTMF tone currently being generated and any DTMF tone sequence.
Reference	Note

8.2.6 AT*TDRIND CS call or GPRS PDP Context Termination Indication

AT*TDRIND CS call or GPRS PDP Context Termination Indication	
Read command **AT*TDRIND?**	Response ***TDRIND: <n>** **OK**
	Unsolicited result code: ***TDRIND: <channel>**
	Parameters **<n>** 0 Unsolicited result code disabled 1 Unsolicited result code enabled **<channel>** 0 CS voice 1 CS Data/Fax 2 GPRS (PPP)
Write command **AT*TDRIND=<n>**	Response **OK** If error is related to ME functionality: **+CMS ERROR <err>**
	Parameter **<n>** 0 Disable unsolicited result code 1 Enable unsolicited result code
Reference	Note **This unsolicited result code is useful for use with Class B operation and the software Multiplexer.** **The unsolicited result code will be sent before the "NO CARRIER" result code**

8.2.7 AT*TDTX Configure Discontinuous Data Transmission

AT*TDTX Configure Discontinuous Data Transmission	
Test command **AT*TDTX=?**	Response ***TDTX: (list of supported <n>s)** **OK**

	Parameter See Write command
Read command **AT*TDTX?**	Response ***TDTX:<n>** **OK**
	Parameter see Write command
Write command **AT*TDTX=[<n>]**	Response **OK** **ERROR**
	Parameter **<n>** 0 disable 1 enable
Reference	Note

8.2.8 AT*TSPN Get Service Provider Name from SIM

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

8.2.9 AT+CBAND Get and Set Mobile Operation Band

AT+CBAND Get and Set Mobile Operation Band	
Read Command **AT+CBAND?**	Response **+CBAND: [<op_band_status>,<op_band>]** **[<CR><LF>+CBAND: <op_band_status>,<op_band>]** **[…]** **OK**
	Parameter See Write command

Test Command **AT+CBAND=?**	Response **+CBAND: (list of supported <op_band>s)** **OK**
	Parameter See Write command
Write Command **AT+CBAND=<op_band>**	Response **OK** **+CME ERROR: <err>**
	Parameters **<op_band>** String type: PGSM_MODE EGSM_MODE DCS_MODE PGSM_DCS_MODE EGSM_DCS_MODE PCS_MODE PGSM_PCS_MODE EGSM_PCS_MODE GSM850_MODE GSM850_PCS_MODE GSM850_DCS_MODE **<op_band_status>** Integer type: 0: Operation band available for selection 1: Operation band selected
Reference	Note: **Radio settings following updates are stored in non-volatile memory.**

8.2.10 AT*THF Configures Hands Free Operation

AT*THF Configures Hands Free Operation	
Read Command **AT*THF?**	Response ***THF: <ind>, <state>** **OK** Unsolicited result code: ***THF: <state>**
	Parameter See Write command.

Test Command **AT*THF=?**	Response ***THF: (list of supported <ind>s),(list of supported <state>s)** **OK**
Write Command **AT*THF=[<ind>[,<state>]]**	Response **OK** **+CME ERROR: <err>**
	Parameters **<ind>** 0 Unsolicited result code disabled 1 Unsolicited result code enabled (non-volatile) **<state>** 0 Hands free operation disabled 1 Hands free operation enabled (volatile)
Reference	

8.2.11 AT*TUNSOL Extra URC Indication

AT*TUNSOL Extra URC Indication	
Test Command **AT*TUNSOL=?**	Response ***TUNSOL: (list of supported <ind>s)** **OK**
	Parameter see Write command
Write Command **AT*TUNSOL=[<ind>],<mode>**	Response **OK** **+CME ERROR: <err>**
	Parameter **<ind>** values currently reserved by the present document: **"SQ"** Signal Quality Displays signal strength and channel bit error rate (similar to AT+CSQ) in form ***TSQN: <rssi>,<ber>** when values change. **"FN"** Forbidden Networks Available Only When returning to a non-registered state this indicates whether all the available PLMNs are forbidden. **"MW"** SMS Message Waiting On receiving an SMS (as indicated by the +CMTI indication) the SMS is decoded and checked to see if it contains one or more of the message waiting indications (i.e. voicemail, email, fax etc). If so, an unsolicited indication is shown in the form for each message type: **+CMWT: <store>,<index>,<voice>,<fax>,<email>,<other>**

	Where <store> is the message store containing the SM, index is the message index and <voice>,<email>,<fax>,<other> contain the number of waiting messages (with '0' defined as clear indication, on-zero for one or more waiting messages) or blank for not specified in this message. **"UR"** Unsolicited Result Code Produces an unsolicited indication following particular call state transitions. ***TGURC: <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 **"BC"** Battery Charge Displays battery connection status and battery charge level (similar to AT+CBC) in form ***TBCN: <bcs>, <bcl>** when values change. **"BM"** Displays band mode (similar to AT+CBAND) in form ***TBAND: <band>** when value changes. **<mode>** 0 unlock 1 lock 2 query **"SM"** Additional SMS Information Displays additional information about SMS events in the form of Unsolicited messages of the following format **+TSMSINFO: <CMS error info>**
Reference	Note

8.2.12 AT*TSQF Define Filter for *TSQN Notifications

AT*TSQF Define Filter for *TSQN Notifications

Test Command **AT*TSQF=?**	Response ***TSQF: (list of supported <interval>s),(list of supported <window>s),(list of supported <minchange>s)** **OK**
	Parameter See Write command
Read Command **AT*TSQF?**	Response ***TSQF:<interval>,<window>,<minchange>** **OK**
	Parameter see Write command
Write Command **AT*TSQF=[<interval>[,<window>[,<minchange>]]]**	Response **OK** **ERROR**
	Parameters **<interval>** The minimum time in seconds which must elapse between *TSQN notifications. **<window>** The number of milliseconds over which the signal quality should be averaged. A value of 0 indicates no averaging. **<min change>** The minimum number of levels by which the signal quality level must have changed before a signal quality notification is generated.
Reference	Note **All references to signal level apply to the first argument to the *TSQN**

8.2.13 AT*TBCF Define Filter for *TBCN Notifications

AT*TBCF Define Filter for *TBCN Notifications	
Test Command **AT*TBCF=?**	Response ***TBCF: (list of supported <min change>s)** **OK**
	Parameter See Write command
Read Command **AT*TBCF?**	Response ***TBCF: <min change>** **OK**
	Parameter see Write command
Write Command	Response

AT*TBCF=[<min change>]	**OK** **ERROR**
	Parameter **<min change>** The minimum number of percentage points by which the battery power level must have changed before a battery charge notification (*TBCN) is generated.
Reference	Note

8.2.14 AT+CMOD Define Alternating Mode

AT+CMOD Define Alternating Mode	
Test Command **AT+CMOD=?**	Response **+CMOD: (list of supported <mode>s)** **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**
	Parameters **<mode>** Alternating mode calls, but only single mode is supported now.
Reference	Note

8.2.15 AT*TALS Configure Auxiliary Line Service

AT*TALS Configure Auxiliary Line Service	
Read Command **AT*TALS?**	Response ***TALS: <use-aux>** **OK**
	Parameter see Write command
Test Command **AT*TALS=?**	Response ***TALS: (list of supported <use-aux>s)**

	OK
	Parameter See Write command
Write Command **AT*TALS=<use-aux>**	Response **OK** **ERROR**
	Parameter **<use-aux>** Numeric Type: 0 Line 1 (default) 1 Line 2 (auxiliary)
Reference	Note

批注 [w7]: zw add

8.2.16 AT*TCOLR Connected Line Identification Restriction

AT*TCOLR Connected Line Identification Restriction	
Read Command **AT*TCOLR?**	Response ***TCOLR: <n>** **OK** **+CME ERROR: <err>**
	Parameter **<n>** 0: COLR not provisioned 1: COLR provisioned
Reference	Note

8.2.17 AT+NMSI Network Lock Selection

AT+NMSI Network Lock Selection	
Test Command **AT+NMSI=?**	Response **+CNMSI: (list of supported <mode>s)** **OK**
	Parameter see Write command
Write Command **AT+NMSI=<mode>**	Response **OK** **ERROR**
	Parameter <mode> 0 disable network lock 1 enable network lock
Test Command **AT+NMSI?**	Response TA returns the current network lock state. If network lock is enabled,

	compare the HPLMN stored in SIM with the allowable PLMN list, if can not find the match, the net is locked. **+CNMSI: <mode>** **OK** if mode=0 **+CNMSI:0** if mode=1 **+CNMSI:1(NET LOCKED)** or +**CNMSI:1(NET NORMAL)** **OK**
	Parameter see Write command
Reference	Note **This command takes effect according to the allowable PLMN list**

8.2.18 AT+MCCMNC Set Allowable PLMN List

AT+MCCNCC Set Allowable PLMN List	
Test Command **AT+MCCMNC=?**	Response **+CMCCMNC: (list of supported <mode>s),(<MCC+MNC>)** **OK**
	Parameter see Write command
Write Command **AT+MCCMNC=<mode>,<MCC+MNC>**	Response **OK** If error related to CME error: **+CME ERROR: <err>**
	Parameter <mode> 0 delete from PLMN list 1 add to PLMN list <MCC> Mobile Country Code <MNC> Mobile Network Code **Note** **MCC+MNC of China mobile:46000**
Read Command **AT+MCCMNC?**	Response TA returns the PLMN list. +CMCCMNC:<**MCC+MNC**> **…** **OK**
	Parameter see Write command
Reference	Note **The maximum of the PLMN list is 10.**

8.2.19 AT+SMSTATUSREPORT Set SMS Status Report Mode

AT+SMSTATUSREPORT Set SMS Status Report Mode	
Test Command **AT+SMSTATUSREPORT=?**	Response **+SMSTATUSREPORT: (list of supported <mode>s)** **OK**
	Parameter see Write command
Write Command **AT+SMSTATUSREPORT =<mode>**	Response **OK** **ERROR**
	Parameter <mode> 0 disable SMS status report 1 enable SMS status report
Read Command **AT+SMSTATUSREPORT?**	Response **+SMSTATUSREPORT:<mode>** **OK**
	Parameter see Write command
Reference	Note

8.2.20AT*TENGMODE Set Engineering Mode

AT*TENGMODE Set Engineering Mode	
Test Command **AT*TENGMODE=?**	Response ***TENGMODE: (list of supported <mode>s)** **OK**
	Parameter see Write command
Write Command **AT*TENGMODE=<mode>**	Response **OK** **ERROR**
	Parameter <mode> 0 stop engineering mode 1 report engineering mode information once 2 report engineering mode information periodically
Read Command **AT*TENGMODE?**	Response ***TENGMODE:<mode>** **OK**
	Parameter see Write command

Reference	Note **Not all the software support engineering mode**

9 AT Commands for TCPIP Application Toolkit

9.1 Overview

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

9.2 Detailed Descriptions of Commands

9.2.1 AT+CIPSTART Start up TCP or UDP connection

AT+CIPSTART	Start up TCP or UDP connection
Test command **AT+CIPSTART=?**	Response **+CIPSTART: (list of supported <mode>),(IP address range),(port range)**

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

9.2.2 AT+CIPSEND Send data through TCP or UDP connection

AT+CIPSEND	**Send data through TCP or UDP connection**
Test command **AT+CIPSEND=?**	Response **+CIPSEND=: <length>** **OK**
Execution command **AT+CIPSEND** response"> ", then	Response This command is used to send changeable length data. If connection is not established or disconnection: **ERROR**

type data for send, tap CTRL+Z to send	If sending successfully: **SEND OK** If sending fail: **SEND FAIL** Note This command is used to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. There are at most 1024 bytes that can be sent at a time.
Write command **AT+CIPSEND=[length]**	Response This command is used to send fixed length data. If connection is not established or disconnect: **ERROR** If sending successfully: **SEND OK** If sending fail: **SEND FAIL** Parameter [**length**] a numeric parameter which indicates the length of sending data, it must less than 1024
Reference	Note 1. There are at most 1024 bytes that can be sent each time. 2. Set the time that send data automatically with the command of **AT+CIPATS**. 3. Only send data at the status of established connection, otherwise Response **ERROR**

9.2.3 AT+CIPCLOSE Close TCP or UDP Connection

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

	close the connection, the status is **IP CLOSE**

9.2.4 AT+CIPSHUT Deactivate GPRS PDP context

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

9.2.5 AT+CLPORT Set local port

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

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

AT+CSTT Start task and Set APN、USER NAME、PASSWORD	
Test command **AT+CSTT=?**	Response **+CSTT: "APN","USER","PWD"** **OK**
Read command **AT+CSTT?**	Response **+CSTT: <apn>,<user name>,<password>** **OK** Parameter See write command
Write command **AT+CSTT=<apn>,<user name>,<password>**	Response **OK** **ERROR** Parameter <**apn**> a string parameter which indicates the GPRS access point name <**user name**> a string parameter which indicates the GPRS user name <**password**> a string parameter which indicates the GPRS password
Execution Command **AT+CSTT**	Response **OK** **ERROR**
Reference	Note

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

AT+CIICR Bring up wireless connection with GPRS or CSD	
Execution command **AT+CIICR**	Response **OK** **ERROR**
Reference	Note **AT+CIICR** only activate moving scene at the status of **IP START**， after operate this command, the state changed to **IP CONFIG**. If module accept the activate operation, the state changed to **IP IND**; after module accept the activate operation, if activate successfully, the state changed to **IP GPRSACT**, response **OK**, otherwise response **ERROR**.

9.2.8 AT+CIFSR Get local IP address

AT+CIFSR Get local IP address

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

9.2.9 AT+CIPSTATUS Query current connection status

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

9.2.10 AT+CDNSCFG Configure domain name server

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

	secondary domain name server
Reference	Note

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

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

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

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

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

9.2.13 AT+CIPHEAD Add an IP head when receiving data

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

9.2.14 AT+CIPATS Set auto sending timer

AT+CIPATS	**Set auto sending timer**

Test command **AT+CIPATS=?**	Response **+CIPATS: (list of supported <mode>s)** **OK** Parameter See write command
Read command **AT+CIPATS?**	Response **+CIPATS: <mode>** Parameter See write command
Write command **AT+CIPATS=<mode>,<time>**	Response **OK** **ERROR** Parameter <**mode**> a numeric parameter which indicates whether set timer when sending data 0 not set timer when sending data 1 Set timer when sending data <**time**> a numeric parameter which indicates the seconds after which the data will be sent
Reference	Note

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

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

9.2.16 AT+CIPSERVER Configure as a server

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

9.2.17 AT+CIPCSGP Set CSD or GPRS for connection mode

AT+CIPCSGP Set CSD or GPRS for connection mode	
Test command **AT+CIPCSGP=?**	Response **+CIPCSGP: (list of supported connection <mode>s),[(GPRS parameters <apn>,<user name>,<password>),(CSD parameters <dial number>,<user name >,<password>,<rate>)]** **OK** Parameter See write command
Read command **AT+CIPCSGP?**	Response **+CIPCSGP: <mode>** **OK** Parameter See write command
Write command **AT+CIPCSGP=<mode>,[(<apn>,<user name >,<password>),**	Response **OK** **ERROR** Parameter <**mode**> a numeric parameter which indicates the wireless connection

(<dial number>,<user name>,<password>,<rate>)]	mode 0 set CSD as wireless connection mode 1 set GPRS as wireless connection mode GPRS parameters: <**apn**> a string parameter which indicates the access point name <**user name**> a string parameter which indicates the user name <**password**> a string parameter which indicates the password CSD parameters: <**dial number**> a string parameter which indicates the CSD dial numbers <**user name**> a string parameter which indicates the CSD user name <**password**> a string parameter which indicates the CSD password <**rate**> a numeric parameter which indicates the CSD connection rate 0.1 2400 0.2 4800 0.3 9600 0.4 14400
Reference	Note

9.2.18 AT+CIPCCON Choose connection

AT+CIPCCON	**Choose connection**
Test command **AT+CIPCCON=?**	Response **+CIPCCON: (list of supported <connection>s)** **OK** Parameter See write command
Read command **AT+CIPCCON?**	Response **+CIPCCON: <connection>** **OK** Parameter See write command
Write command **AT+CIPCCON=<connection>**	Response **OK** **ERROR** Parameter <**connection**> a numeric parameter which indicates the chosen connection 1 choose connection as client 2 choose connection as server Note that there may exist two connections at one time: one connection is as

	client connecting with remote server, the other connection is as server connecting with remote client. Using this command to choose through which connection data is sent.
Reference	Note

9.2.19 AT+CIPFLP Set whether fix the local port

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

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

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

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

9.2.21 AT+CIPDPDP Set Whether Check State Of GPRS Network Timing

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

	<**interval**> 0<interval<=180(ms) <**timer**> 0<timer<=255
Reference	Note

9.2.22 AT+CIPSCONT Save TCPIP Aplicaton 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. **SHOW APPTCPIP CONTEXT** **+CDNSORIP:<mode>** **+CIPSPRT:< sendprompt>** **+CIPHEAD:<iphead>** **+CIPFLP:<flp>** **+CIPSRIP:<srip>** **+CIPCSGP:<csgp>** **Gprs Config APN:<apn>** **Gprs Config UserId:<gusr>** **Gprs Config Password:<gpwd>** **Gprs Config inactivityTimeout:<timeout>** **CSD Dial Number:<cnum>** **CSD Config UserId:<cusr>** **CSD Config Password:<cpwd>** **CSD Config rate:<crate>** **+CIPDPDP:<dpdp>** **Detect PDP Inerval:<int>** **Detect PDP Timer:<timer>** **App Tcpip Mode:<mode>** **In Transparent Transfer Mode** **Number of Retry:<nmRetry>** **Wait Time:<waitTm>** **Send Size:<sendSz>** **esc:<esc>** **OK**

	Parameters <**mode**> see **AT+CDNSORIP** <**sendprompt**> see **AT+CIPSPRT** <**iphead**> see **AT+CIPHEAD** <**flp**> see **AT+CIPFLP** <**srip**> see **AT+CIPSRIP** <**csgp**> see **AT+CIPCSGP** <**apn**> see **AT+CIPCSGP** <**gusr**> see **AT+CIPCSGP** <**gpwd**> see **AT+CIPCSGP** <**timeout**> see **AT+CIPCSGP** <**cnum**> see **AT+CIPCSGP** <**cusr**> see **AT+CIPCSGP** <**cpwd**> see **AT+CIPCSGP** <**crate**> see **AT+CIPCSGP** <**dpdp**> see **AT+CIPDPDP** <**int**> see **AT+CIPDPDP** <**timer**> see **AT+CIPDPDP**
Execution command **AT+CIPSCONT**	Response TA saves TCPIP Application Context which consist of following AT command parameters, and when system is rebooted, the parameters will be loaded automatically: **AT+CDNSORIP, AT+CIPSPRT, AT+CIPHEAD, AT+CIPFLP,AT+CIPSRIP, AT+CIPCSGP, AT+CIPDPDP** **OK**
	Parameter

9.2.23 AT+CIPMODE Select TCPIP Application mode

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

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

9.2.24 AT+CIPCCFG Configure Transparent Transfer mode

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

10 Supported Unsolicited Result Codes

10.1 Summary of CME ERROR Codes

Final result code +CME ERROR: <err> indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same command line is executed. Neither ERROR nor OK result code shall be returned.
<err> values used by common messaging commands:

Code of <err>	Meaning
0	phone failure
1	no connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network timeout
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required

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

596	GPRS - invalid cid value
597	GPRS - invalid dial string length
598	GPRS - mode value not in range
599	GPRS - invalid MAND information
600	GPRS - SMS service preference out of range
601	GPRS - invalid TI value
602	GPRS - IPCP negotiation timeout
603	GPRS - LCP negotiation timeout
604	GPRS - LLC error
605	GPRS - LLC or SNDCP failure
606	GPRS - lower layer failure
607	GPRS - missing or unknown APN
608	GPRS - mobile not ready
609	GPRS - MS identity not in network
610	GPRS - MSC temporarily not reachable
611	GPRS - message incompatible with state
612	GPRS - message type incompatible with state
613	GPRS - unknown message from network
614	GPRS - NCP close
615	GPRS - network failure
616	PRS - no echo reply
617	GPRS - no free NSAPIs
618	GPRS - processing of multiple cids not supported
619	GPRS - no PDP context activated
620	GPRS - normal termination
621	GPRS - NSAPI already used
622	GPRS - address element out of range
623	GPRS - PAP close
624	GPRS - PDP context w/o TFT already activated
625	GPRS – PDP type not supported
626	GPRS - peer refuses our ACCM
627	GPRS - peer refuses our IP address
628	GPRS - peer refuses our MRU
629	GPRS - peer requested CHAP
630	GPRS - profile (cid) not defined
631	GPRS - unspecified protocol error
632	GPRS - QOS not accepted
633	GPRS - QOS validation fail

634	GPRS - reactivation required
635	GPRS - regular deactivation
636	GPRS - semantic error in TFT operation
637	GPRS - semantic errors in packet filter
638	GPRS - semantically incorrect message
639	GPRS - service type not yet available
640	GPRS - syntactical error in TFT operation
641	GPRS - syntactical errors in packet filter
642	PRS - too many RXJs
643	GPRS - unknown PDP address or type
644	GPRS - unknown PDP context
645	GPRS - user authorization failed
646	GPRS - QOS invalid parameter
673	audio manager not ready
674	audio format cannot be configured
705	SIM toolkit menu has not been configured
706	SIM toolkit already in use
707	SIM toolkit not enabled
737	+CSCS type not supported
738	CSCS type not found
741	must include <format> with <oper>
742	incorrect <oper> format
743	<oper> length too long
744	SIM full
745	unable to change PLMN list
746	network operator not recognized
749	invalid command length
750	invalid input string
753	missing required <cmd> parameter
754	invalid SIM command
755	invalid File Id
756	missing required P1/2/3 parameter
757	invalid P1/2/3 parameter
758	missing required command data
759	invalid characters in command data
765	invalid input value
766	unsupported value or mode
767	operation failed

768	multiplexer already active
769	unable to get control of required module
770	SIM invalid - network reject
771	call setup in progress
772	SIM powered down

10.2 Summary of CMS ERROR Codes

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

<err> values used by common messaging commands:

Code of <err>	**Meaning**
300	ME failure
301	SMS ME reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode
305	invalid text mode
310	SIM not inserted
311	SIM pin necessary
312	PH SIM pin necessary
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
330	SMSC address unknown
331	no network
332	network timeout
500	unknown
512	SIM not ready
513	unread records on SIM
514	CB error unknown
515	PS busy

517	SM BL not ready
528	Invalid (non-hex) chars in PDU
529	Incorrect PDU length
530	Invalid MTI
531	Invalid (non-hex) chars in address
532	Invalid address (no digits read)
533	Incorrect PDU length (UDL)
534	Incorrect SCA length
536	Invalid First Octet (should be 2 or 34)
537	Invalid Command Type
538	SRR bit not set
539	SRR bit set
540	Invalid User Data Header IE

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