L206(D) AT DOCUMENT

GSM/GPRS Module Series

Version： V1.14

Date： 2017-8-1

Shanghai Mobiletek Communication Ltd

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Revision History

Date	Version	Description of chage	Author
2016-7-27	V1.0	Initial	Huang Xiang
2016-8-12	V1.05	Added TCP/IP AT	
2016-8-12	V1.05	Remove chapter "GATT Client AT Command" Added command "AT+IFC" Remove command "AT+DS Add FTP /HTTP/AUDIO commands	
2016-8-12	V1.05	Added Email commands	
2016-8-12	V1.05	Add command +CTTS +CTTSPARAM	Jiang
2016-8-12	V1.05	Add LBS AT command	Jiang
2016-11-12	V1.06	Add +ZFILEREAD command	Jiang
2016-11-12	V1.06	Add +CIPTKA command	Wu Hao
2017-1-17	V1.07	Add company new logo	caster
2017-1-17	V1.07	Change AT+CMER description	T.mu
2017-3-18	V1.07	Remove +CLDTMF +CMOD +CSIM +CRSM +EGTPGPRS	Jiang
2017-3-22	V1.13	Remove +CHFA +CGPIO	Jiang
2017-5-17	V1.13	Add +MCFGRI command	Jiang
2017-5-17	V1.13	Add +CNETLIGHT +SLEDS command	Jiang
2017-8-1	V1.14	Modify AT+HTTPPARAcommand	Jiang

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1 Introduction

1.1 Overview

This document introduces the supported AT command set of L206(D) product. The target MP branch is L206(D) related product and after.

We don‘t suggest using proprietary command in a multiple command. There might be abnormal situation occurs.

1.2 References

□□[1] 3GPP TS 27.007 V3.13.0 (2003-03)
□□[2] ETSI TS 27.005 V3.1.0 (2000-01)
□□[3] ITU-T V.25 ter (07/1997)

2 V.25ter AT Commands

2.1 ATA

Answers and initiates a connection to an incoming call.

2.1.1 Format

Execution Command **ATA**	Response **CONNECT** **CONNECT** <text> **NO CARRIER** **ERROR**
Reference	Note In UCM project , ATA command will sent to MMI for SYNC

2.1.2 Field

Parameters are defined below:

Parameters	Description	
<text>	**28800**	Connected with data bit rate of28800 bits/s (HSCSD)
	19200	Connected with data bit rate of19200 bits/s (HSCSD)
	14400	Connected with data bit rate of14400 bits/s (HSCSD)
	9600	Connected with data bit rate of9600 bits/s
	4800	Connected with data bit rate of4800 bits/s
	2400	Connected with data bit rate of2400 bits/s

2.2 ATD

Initiates a phone connection, which may be data, facsimile (+FCLASS> 0), or voice (phonenumber terminated by semicolon). The phone number used to establish the connection willconsist of digits and modifiers, or a stored number specification. ATD memory dial canoriginate call to phone number in entry location <n> (the memory storage of +CPBS settingwill be used.). ATDL is used to dial LDN(last dialed number) and it will always dial as voice call.

2.2.1 Format

Execution Command ATD<dial string> **Memory dial command :** ATD><n>	Response **CONNECT** **CONNECT** <text> **NO CARRIER** **ERROR**
Reference	Note The ATD abortability described in V.25 5.6.1 is implemented, except for the ATD memory dial.Aborting of the command is accomplished by the transmission from the DTE to the DCE ofany character before the response. In UCM project , ATD command will sent to MMI for SYNC

2.2.2 Field

Parameters		Description
< dial string**>**	**.0 1 2 3 4 5 6 7 8 9 +.**	Valid characters fororigination
	W	The W modifier is ignored but is includedfor compatibility reasons only**,** The comma modifier is ignored but is included for compatibility reasons only**;** Informs the Infrared Modem that the numberis a voice number rather than a fax or datanumber
	T	The T modifier is ignored but is includedonly for compatibility purposes
	P	The P modifier is handled (pulse DTMFdialing functionality)
<text>	**28800**	Connected with data bit rate of28800 bits/s (HSCSD)
	19200	Connected with data bit rate of19200 bits/s (HSCSD)
	14400	Connected with data bit rate of14400 bits/s (HSCSD)
	9600	Connected with data bit rate of9600 bits/s
	4800	Connected with data bit rate of4800 bits/s
	2400	Connected with data bit rate of2400 bits/s

2.3 ATE

The setting of this parameter determines whether or not the DCE echoes characters

receivedfrom theDTE during command state and online command state.

2.3.1 Format

Execution Command	Response
ATE[<value>]	**OK**

Execution command : ATE[<value>]

2.3.2 Field

Parameters	Description
< value>	**0** DCE does not echo charactersduring command state and onlinecommand state. **1** DCE echoes characters duringcommand state and online commandstate.

2.4 ATH

Terminates a connection.

2.4.1 Format

Execution Command	Response
ATH	**NO CARRIER** **OK**
	Note In non-UCM projects (excluding Neptune Gemini with BT supported) projects, ATH can onlyhang up the call from the same source. In UCM project , ATH command will sent to MMI for SYNC

2.5 ATI

Request Identification Information.

2.5.1 Format

Execution Command	Response
ATI[<value>]	**<text>** **OK**

2.5.2 Field

Parameters	Description
< value>	used to select from amongmultiple types of identifying information
<text>	product information

2.6 ATL

Set volume of the monitor speaker.

2.6.1 Format

Execution Command	Response
ATL[<value>]	**OK**
Reference	Note
V.25ter	No effect in GSM

2.6.2 Field

Parameters	Description
<value>	0..9 Volume

2.7 ATM

Set Monitor Speaker Mode.

2.7.1 Format

Execution Command	Response
ATM[<value>]	**OK**

Reference	Note
V.25ter	No effect in GSM

2.7.2 Field

Parameters	Description
<value>	0..9 Mode

2.8 +++

Switch from Data Mode or PPP Online Mode to Command Mode.

2.8.1 Format

Execution Command	Response
+++	The +++ character sequence causes the TA to cancel the data flow over the AT interface and switch to Command mode. This allows you to enter AT Command while maintaining the data connection to the remote server. **OK** To prevent the +++ escape sequence from being misinterpreted as data, it should comply to following sequence: 1. No characters entered for T1 time (1 second) 2. "+++" characters entered with no characters in between (0.5 second) 3. No characters entered for T1 timer (0.5 second) 4. Switch to Command mode, otherwise go to step 1.
Reference	Note
V.25ter	To return from Command mode back to data mode: Enter ATO.

2.9 ATO

Switch from on-line command mode to on-line data mode during an active call. Returns ERROR when not in on-line command mode.

2.9.1 Format

Execution Command	Response
ATO	**CONNECT** **CONNECT <text>** **NO CARRIER** **ERROR**

2.9.2 Field

Parameters are defined below:

Parameters	Description	
<text>	**28800**	Connected with data bit rate of28800 bits/s (HSCSD)
	19200	Connected with data bit rate of19200 bits/s (HSCSD)
	14400	Connected with data bit rate of14400 bits/s (HSCSD)
	9600	Connected with data bit rate of9600 bits/s
	4800	Connected with data bit rate of4800 bits/s
	2400	Connected with data bit rate of2400 bits/s

2.10 ATQ

Set result code suppression mode.

2.10.1 Format

Execution Command	Response
ATQ<value>	**OK** If value is **0**. **(none)** If value is **1** (because result codes are suppressed). **ERROR** For unsupported values (if previous value was **Q0**). **(none)** For unsupported values (if previous value was **Q1**).
	Note If use input ATQ, it is equal to ATQ1 by default

2.10.2 Field

Parameters	Description
<value>	DCE transmits result codes. Result codes are suppressedand not transmitted.

2.11 ATS0

Automatic answer.

This S-parameter controls the automatic answering feature of the DCE. If set to 0, automaticanswering is disabled. If set to a non-zero value, the DCE shall cause the DCE to answerwhen the incoming call indication (ring) has occurred the number of times indicated by the value.

2.11.1 Format

Execution Command **ATS0=<value>**	Response **OK**
	Note In GEMINI architecture, the setting of ATS0 applies both on SIM1 and SIM2.

2.11.2 Field

Parameters	Description
<value>	**0- 255** Automatic answering isdisabled..

2.12 ATS3

Command line termination character

This S-parameter represents the decimal IA5 value of the character recognized by the DCEfrom theDTE to terminate an incoming command line. It is also generated by the DCE as part of theheader,trailer, and terminator for result codes and information text, along with the S4 parameter (seethedescription of the V parameter for usage).

2.12.1 Format

Execution Command **ATS3=<value>**	Response **OK or ERROR**

2.12.2 Field

Parameters	Description	
<value>	**13**	Carriage return character (CR,IA5 0/13).
	0 - 127	Set command linetermination character to thisvalue.

2.13 ATS4

Response formatting character

This S-parameter represents the decimal IA5 value of the character generated by the DCE aspart ofthe header, trailer, and terminator for result codes and information text, along with the S3parameter(see the description of the V parameter for usage).

2.13.1 Format

Execution Command	Response
ATS4=<value>	**OK or ERROR**

2.13.2 Field

Parameters	Description	
<value>	**10**	Line feed character (LF, IA50/10).
	0 - 127	Set response formattingcharacter to this value.

2.14 ATS5

Command line editing character.

This S-parameter represents the decimal IA5 value of the character recognized by the DCEas arequest to delete from the command line the immediately preceding character.

2.14.1 Format

Execution Command	Response
ATS5=<value>	**OK or ERROR**

2.14.2 Field

Parameters	Description

<value>	**8**	Backspace character (BS, IA50/8).
	0 - 127	Set command lineediting character to this value.

2.15 ATS6

Pause before blind dialing.

2.15.1 Format

Read Command **ATS6?**	Response **<n>** OK
Execution Command **ATS6=<n>**	Response **OK** **ERROR**
Reference V.25ter	Note No effect in GSM

2.15.2 Field

Parameters	Description
<n>	**0..999** time

2.16 ATS7

Connection completion timeout.

This parameter specifies the amount of time, in seconds, that the DCE shall allow betweeneitheranswering a call (automatically or by the A command) or completion of signaling of calladdressinginformation to network (dialing), and establishment of a connection with the remote DCE. If noconnection is established during this time, the DCE disconnects from the line and returns aresultcode indicating the cause of the disconnection.

2.16.1 Format

Execution Command **ATS7=<value>**	Response **OK or ERROR**

2.16.2 Field

Parameters	Description
<value>	**1 - 255** Number of seconds inwhich connection must beestablished or call will bedisconnected.

2.17 ATS8

Comma dial modifier time.

This parameter specifies the amount of time, in seconds, that the DCE shall pause, during signalingof call addressing information to the network (dialing), when a "," (comma) dial modifier isencountered in a dial string.

2.17.1 Format

Execution Command	Response
ATS8=<value>	**OK or ERROR**

2.17.2 Field

Parameters	Description
<value>	**0** DCE does not pause when ","encountered in dial string. **1 to 255** Number of seconds to pause. Recommended default setting **2** DCE pauses two seconds when "," isencountered.

2.18 ATS10

Automatic disconnect delay.

This parameter specifies the amount of time, in tenths of a second, that the DCE will remainconnected to the line (off-hook) after the DCE has indicated the absence of received linesignal. If thereceived line signal is once again detected before the time specified in S10 expires, the DCEremainsconnected to the line and the call continues.

2.18.1 Format

Execution Command	Response
ATS10=<value>	**OK or ERROR**

2.18.2 Field

Parameters	Description
<value>	**1to25 4** **1 to 254** Number of tenths of asecond of delay.

2.19 ATT

We do not support.
This setting is ignored.

2.20 ATV

Set DCE response format.

2.20.1 Format

Execution Command	Response
ATV[<value>]	**OK**

2.20.2 Field

Parameters	Description
<value>	**0** DCE transmits limited headersand trailers and numeric text. **1** DCE transmits full headers andtrailers and verbose responsetext.

2.21 ATX

The setting of this parameter determines whether or not the DCE transmits particular resultcodes tothe DTE. It also controls whether or not the DCE verifies the presence of dial tone when it firstgoesoff-hook to begin dialing, and whether or not engaged tone (busy signal) detection is enabled.
However, this setting has no effect on the operation of the W dial modifier, which alwayschecks fordial tone regardless of this setting, nor on the busy signal detection capability of the W and @dialmodifiers. See Table.

2.21.1 Format

Execution Command	Response
ATX[<value>]	**OK or ERROR**

2.21.2 Field

Parameters	Description
<value>	**0** CONNECT result code is given upon enteringonline data state. Dial tone and busydetection are disabled. **1** CONNECT <text> result code is given uponentering online data state. Dial tone and busydetection are disabled. **2** CONNECT <text> result code is given uponentering online data state. Dial tonedetection is enabled, and busy detection isdisabled. **3** CONNECT <text> result code is given uponentering online data state. Dial tonedetection is disabled, and busy detection isenabled. **4** CONNECT <text> result code is given uponentering online data state. Dial tone and busydetection are both enabled.

2.22 ATZ

Reset to default configuration

2.22.1 Format

Execution Command	Response
ATZ[<value>]	TA sets all current parameters to the user defined profile. **OK** **ERROR**
Reference V.25ter	Note

2.22.2 Field

Parameters	Description
<value>	0 Restore profile 0

2.23 AT&C

Set DCD Function Mode

2.23.1 Format

Execution Command **AT&C[<value>]**	Response This parameter determines how the state of circuit 109 **(DCD)** relates to the detection of received line signal from the distant end. **OK** **ERROR**
Reference V.25ter	Note

2.23.2 Field

Parameters	Description
<value>	0 **DCD** line is always ON 1 **DCD** line is ON only in the presence of data carrier

2.24 AT&V

Display Current Configuration

2.24.1 Format

Execution Command **AT&V[<n>]**	Response TA returns the current parameter setting. <current configurations text> **OK** **ERROR**
Reference V.25ter	Note

2.24.2 Field

Parameters	Description

<n>	0 Responses in numeric format

2.25 AT&W

Display Current Configuration

2.25.1 Format

Execution Command **AT&W[<n>]**	Response TA stores the current parameter setting in the user defined profile. **OK** **ERROR**
Reference V.25ter	Note The user defined profile is stored in non volatile memory.

2.25.2 Field

Parameters	Description
<n>	0 Store the current configuration in profile 0

2.26 AT&F

Set to factory-defined configuration

2.26.1 Format

Execution Command **AT&F[<value>]**	Response **OK | ERROR | +CME ERROR: <err>**

2.27 AT+GMI

Same as AT+CGMI

2.28 AT+GMM

Same as AT+CGMM

2.29 AT+GMR

Same as AT+CGMR

2.30 AT+IPR

Specifies the data rate, in addition to 1200 bits/s or 9600 bits/s, at which the DCE will acceptcommands. May be used to select operation at rates at which the DCE is not capable ofautomatically detecting the data rate being used by the DTE.

2.30.1 Format

Execution Command **AT+IPR=[<rate>]**	Response **OK**
Test Command **AT+IPR=?**	Response **+IPR: (list of supported <rate>s)**
Read Command **AT+IPR?**	Response **+IPR: <rate>**

2.30.2 Field

Parameters	Description	
<value>	**rate**	The rate, in bits per second, atwhich the DTE-DCE interface shouldoperate. Currently, the followingrates are supported:0, 300, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, and 115200. If unspecified, or setto zero, automatic detection isselected, and the character formatis forced to auto-detect(AT+IPR=0)

2.31 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**
Read Command **AT+ICF?**	Response **+ICF: <format>,<parity>** **OK**
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**
	Note ● The Command is applied for Command state; ● In **<format>** parameter, "0 parity" means no parity; The **<parity>** field is ignored if the **<format>** field specifies no parity and string "**+ICF: <format>,255**" will be response to **AT+ICF**? Command.

Parameters	Description
<format>	1 8 data 0 parity 2 stop 2 8 data 1 parity 1 stop 3 8 data 0 parity 1 stop 4 7 data 0 parity 2 stop 5 7 data 1 parity 1 stop 6 7 data 0 parity 1 stop
<parity>	0 odd 1 even 3 space (0)

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

AT+IFC Set TE-TA Local Data Flow Control

2.32.1 Format

Test Command **AT+IFC=?**	Response **+IFC: (0-2),(0-2)** **OK**
Read Command **AT+ IFC?**	Response This parameter setting determines the data flow control on the serialinterface for data mode. **OK** Or **Error**
Write Command **AT+IFC=[<dce_by_dte>[,<dte_by_dce>]]**	Response **OK** Or **ERROR**
Reference	Note

2.32.2 Field

Parameters	Description
<dce_by_dte>	Specifies the method will be used by TE at receive ofdata from TA 0 No flow control 1 Software flow control 2 Hardware flow control
<dte_by_dce>	Specifies the method will be used by TA at receive of data from TE 0 No flow control 1 Software flow control 2 Hardware flow control

Example:

Commands	Response

AT+IFC?	**+IFC: 0, 0** **OK**

2.33 AT+GCAP

Request complete capabilities list.

2.33.1 Format

Execution Command **AT+GCAP**	Response **+GCAP: +FCLASS, +CGSM** **OK**
Test Command **AT+GCAP=?** **Shows if the command is supported.**	Response **OK**

3 General commands

3.1 AT+CGMI Request manufacturer identification

The command causes the phone to return one or more lines of information text<manufacturer> which is intended to permit the user of the ITAE/ETAE to identify themanufacturer of the phone to which it is connected to.

3.1.1 Format

Execution Command **AT+CGMI**	Response ***+CME ERROR: <err>***
Test Command **AT+CGMI=?**	Response **OK**

3.2 AT+CGMM Request model identification

The command causes the phone to return one or more lines of information text <model> which is intended to permit the user of the ITAE/ETAE to identify the specific model of phone to which it is connected to.

3.2.1 Format

Execution Command **AT+CGMM**	Response **L206** **OK**
Test Command **AT+CGMM=?**	Response **OK**

3.3 AT+CGMR Request revision identification

The command causes the phone to return a string containing information regarding SW version.

3.3.1 Format

Execution Command **AT+CGMR**	Response **<revision>** ***+CME ERROR: <err>***
Test Command **AT+CGMR=?**	Response

3.4 AT+GSV Product Identification Information

Execution Command **AT+GSV**	Response **L206v01.01b01** **OK**
Reference	Note

3.5 AT+CGSN Request product serial number identification

Returns the IMEI number of the phone.

3.5.1 Format

Execution Command **AT+CGSN**	Response **<IMEI>** ***+CME ERROR: <err>***

Test Command **AT+CGSN=?**	Response

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

This command is used to request TA Serial Number Identification (IMEI).

Test Command **AT+GSN=?**	Response **OK**
Execution Command **AT+GSN**	Response **<IMEI>** **OK** Or **Error**
Reference	Note

3.7 AT+CSCS Select TE character set

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

3.7.1 Format

ReadCommand **AT+CSCS?**	Response **+CSCS: <chset>**

Test Command **AT+CSCS=?**	Response **+CSCS: (list of supported <chset>s)**
Write Command **AT+CSCS=[<chset>]**	

3.7.2 Field

Parameters	Description	
< chset>	"GSM"	GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily softwareflow control (XON/XOFF) problems.
	"HEX"	character strings consist only of hexadecimal numbers from 00 to FF; e.g. "032FE6"equals three 8-bit characters with decimal values 3, 47 and 230; no conversions tothe original MT character set shall be done.
	"IRA"	international reference alphabet (ITU-T T.50 [13])
	"PCCP437"	PC character set Code Page 437
	"UCS2"	-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2characterstrings are converted to hexadecimal numbers from 0000 to FFFF; e.g."004100620063"equals three 16-bit characters with decimal values 65, 98 and 99
	"8859-*1*"	ISO 8859 Latin character set
	"UCS2_0X81"	The supported parameters are subject to change according to different compile directives (options).

3.8 AT+CIMI Request international mobile subscriber identity

Execution command causes the TA to return <IMSI>, which is intended to permit the TE toidentify the individual SIM which is attached to ME. Refer [1] 9.2 for possible <err> values.

3.8.1 Format

Execution Command **AT+CIMI**	Response **<IMSI>** ***+CME ERROR: <err>***
Test Command **AT+CIMI=?**	Response **OK**

4 Call Control commands

4.1 AT+CSTA Select type of address

Selects the type of number for further dialing commands (D) according to GSM/UMTS specifications.

4.1.1 Format

WriteCommand **AT+CSTA=[<type>]**	Response **<IMSI>** ***+CME ERROR: <err>***
Read Command **AT+CSTA?**	Response **+CSTA: <type>**
Test Command **AT+CSTA=?**	Response **+CSTA: (list of supported <type>s)**
Reference	Note If "+‘ appears at the beginning of <dial string>, the type to network is set to 145, otherwise we use the setting of +CSTA.

4.1.2 Field

Parameters	Description
< type>	type of address octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.7); default 145 when dialing string includes international access code character "+", otherwise 129.

4.2 AT+CHUP Hang up call

Request to hang up the current GSM call.

4.2.1 Format

Execution Command **AT+CHUP**	Response **OK**
Test Command **AT+CHUP=?**	Response **OK**
Reference	Note In non-UCM projects (excluding Neptune Gemini with BT supported) projects, AT+CHUP canonly hang up the call from the same source. In UCM project , this command will sent to MMI for SYNC.

4.3 AT+CR Service reporting control

Service reporting control.

Set command controls whether or not intermediate result code +CR: <serv> is returned fromthe TA to the TE. If enabled, the 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 the intermediate result code CONNECT is transmitted.

4.3.1 Format

WriteCommand **AT+CR=[<mode>]**	Response

Read Command **AT+CR?**	Response **+CR: <mode>**
Test Command **AT+CR=?**	Response **+CR: (list of supported <mode>s)**

4.3.2 Field

Parameters	Description
<mode>	0 disables reporting 1 enables reporting

4.4 AT+CEER Extended error report

Execution command causes the TA to return one or more lines of information text <report>, which offer the user of the TA an extended report of the reason for
- the failure in the last unsuccessful call setup (originating or answering) or in-call modification;
- the last call release;

4.4.1 Format

Execution Command **AT+CEER**	Response **+CEER: <cause>, <report>**
Test Command **AT+CEER=?**	Response

Reference	Note For error cause other than those listed in GSM 04.08 annex H. +CEER: 128 ,"ERROR_CAUSE_UNKNOWN" will be given. If there is no error happened , +CEER: 0 ,"NONE" will be given.

4.4.2 Field

Parameters	Description
<cause>	**cause value listed in GSM 04.08 annex H.**
<report>	**string type describes cause value.**

4.5 AT+CRC Cellular result code

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

4.5.1 Format

WriteCommand **AT+CRC=[<mode>]**	Response
Read Command **AT+CRC?**	Response **+CRC: <mode>**
Test Command **AT+CRC=?**	Response **+CRC: (list of supported <mode>s)**

4.5.2 Field

Parameters	Description
<mode>	0 disables extended format 1 enables extended format

4.6 AT+CSNS Single Numbering Scheme

Set command selects the bearer or teleservice to be used when mobile terminated single numbering scheme call is established. Parameter values set with +CBST command shall be used when <mode> equals to a data service.

4.6.1 Format

WriteCommand **AT+CSNS=[<mode>]**	Response
Read Command **AT+CSNS?**	Response **+CSNS: <mode>**
Test Command **AT+CSNS=?**	Response **+CSNS: (list of supported <mode>s)**

4.6.2 Field

Parameters	Description
<mode>	0 voice 1 alternating voice/fax, voice first (TS 61) 2 fax (TS 62)

	3 alternating voice/data, voice first (BS 61) 4 data 5 alternating voice/fax, fax first (TS 61) 6 alternating voice/data, data first (BS 61) 7 voice followed by data (BS 81)

4.7 AT+CVHU Voice Hangup Control

Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not. By voice connection is also meant alternating mode calls that are currently in voice mode.

4.7.1 Format

WriteCommand **AT+CVHU=[<mode>]**	Response
Read Command **AT+CVHU?**	Response **+CVHU:<mode>**
Test Command **AT+CVHU=?**	Response **ERROR**

4.7.2 Field

Parameters	Description
<mode>	0"Drop DTR" ignored but OK response given. ATH disconnects. 1 "Drop DTR" and ATH ignored but OK response given.

4.8 AT+GSMBUSY Reject Incoming Call

Test Command **AT+GSMBUSY=?**	Response **+GSMBUSY: (0,1,2)** **OK**
Read Command **AT+GSMBUSY?**	Response **+GSMBUSY: <mode>** **OK**
Write Command **AT+GSMBUSY=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <error>**
Reference	Note

Parameters are defined below:

Parameters	Description
<mode>	0 Enable incoming call 1 Forbid all incoming calls 2 Forbid incoming voice calls but enable CSD calls

5 Network Service related commands

5.1 AT+CNUM Subscriber Number

returns the MSISDNs related to the subscriber (this information can be stored in the SIM/UICC or in the MT).

5.1.1 Format

ExecutionCommand **AT+CNUM**	Response **+CNUM: [<alpha1>],<number1>,<type1>** **[<CR><LF>+CNUM: [<alpha2>],<number2>,<type2>]** **[...]]** ***+CME ERROR: <err>***
TestCommand **AT+CNUM=?**	Response

5.2 AT+CREG Network Registration

Set command controls the presentation of an unsolicited result code +CREG: <stat>when<n>=1 and there is a change in the MT network registration status, or code +CREG: <stat>[,<lac>,<ci>[,<AcT>]] when <n>=2 and there is a change of the network cell.
Read command returns the status of result code presentation and an integer <stat>which shows whether the network has currently indicated the registration of the MT. Location information elements <lac>,<ci> and <Act>are returned only when <n>=2 and MT is registered in the network.

5.2.1 Format

WriteCommand **AT+CREG=[<n>]**	Response

Read Command **AT+CREG?**	Response **+CREG:** **<n>,<stat>[,<lac>,<ci>[,<Act>]]** ***+CME ERROR: <err>***
Test Command **AT+CREG=?**	Response **+CREG: (list of supported <n>s)**

5.2.2 Field

Parameters	Description
<n>	0 disable network registration unsolicited result code 1 enable network registration unsolicited result code +CREG: <stat> 2 enable network registration and location information unsolicited result code+CREG: <stat>[,<lac>,<ci>,[<Act>]].
<stat>	0 not registered, MT is not currently searching a new operator to register to 1 registered, home network 2 not registered, but MT 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 (e.g. "00C3" equals 195in decimal)
<ci>	string type; four byte cell ID in hexadecimal format
<Act>	0 GSM 2 UTRAN 3 GSM w/EGPRS 4 UTRAN w/HSDPA

	5 UTRAN w/HSUPA 6 UTRAN w/HSDPA and HSUPA

5.2.3 Note

5.2.3.1 Change History

<Act> is applied from 09A.0920MP

5.2.3.2 Usage Note

N/A

5.3 AT+COPS Operator Selection

Set command forces an attempt to select and register the GSM/UMTS network operator. Ifthe selected operator is not available, ERROR is returned.

Read command returns the current mode, the currently selected operator.

Test command returns operator list present in the network.

5.3.1 Format

Write Command **AT+COPS=<mode>[,<format>,<oper>[,<Act>]]**	Response ***+CME ERROR: <err>***
Read Command **AT+COPS?**	Response **+COPS: <mode>[,<format>,<oper>]** ***+CME ERROR: <err>***

Test Command **AT+COPS=?**	Response **+COPS: [list of supported (<stat>,long alphanumeric <oper> ,short alphanumeric <oper>,numeric <oper>,[,<Act>])s] [,,(list of supported <mode>s),(list of supported <format>s)] *+CME ERROR: <err>***
Rederence	Note **We DO NOT support full set of alphanumeric format of <oper>, since the code sizewill become very large. If the customer needs the alphanumeric format, the tablecan be customized in mcu\custom\common\customer_operator_names.c.** +COPS? response is not alphanumeric format when setting with alphanumeric format example: +COPS: 0,0," KG Telecom Co." If you got +COPS: 0,0,"46688" This is possibly due to there is no alphanumeric format name mapping to the operator id --- You can define operator name table in the following file under custom folder. mcu\custom\common\customer_operator_name.c Please check if there is operator name mapping in the name table. If not , Please add your operator name and operator id There is comment information in the file to guide you . Please read the guide before modification. After modification .then 'remake custom' There are two places shall be modified 1. RMMI_PLMN_NAME_ENTRIES 2. rmmi_plmn_table □□<mode>=2 supported in projects with __NW_DETACH_SUPPORT__ option. (available after W1012)

5.3.2 Field

Parameters	Description
<mode>	0 automatic (<oper> field is ignored) 1 manual (<oper> field shall be present)

	2 deregister from network (disable form 05.48) 3 set only <format> (for read command +COPS?), do not attemptregistration/deregistration
<format>	0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper>
<oper>	string type
<stat>	0 unknown 1 available 2 current 3 forbidden
<Act>	0 GSM 2 UTRAN

5.4 AT+CLCK Facility Lock

Execute command is used to lock, unlock or interrogate a ME or a network facility <fac>.

5.4.1 Format

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

5.4.2 Field

Parameters	Description
<fac>	"PF","SC","AO","OI","OX","AI","IR","AB","AG","AC","PN","PU","PP","PC"
<mode>	0 unlock 1 lock 2 query status (only "SC", "AO", "OI", "OX", "AI", "IR" support query mode)
<status>	0 not active 1 active
<passwd>	string type
<classx>	is a sum of integers each representing a class of information (default 7) 1 voice (telephony) 2 data (refers to all bearer services) 4 fax (facsimile services) 8 short message service 16 data circuit sync 32 data circuit async 64 dedicated packet access 128 dedicated PAD access

5.4.3 Note

5.4.3.1 Change History

N/A

5.4.3.2 Usage Note

□□The <fac> "AB", "AG" and "AC" are applicable only for <mode>=0

5.5 AT+CPWD Change Password

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

5.5.1 Format

Write Command **AT+CPWD=<fac>,<old pwd>,<newpwd>**	Response ***+CME ERROR: <err>***
Test Command **AT+CPWD=?**	Response **+CPWD: list of supported (<fac>,<pwdlength>)s** ***+CME ERROR: <err>***

5.5.2 Field

Parameters	Description
<fac>	"P2" SIM PIN2 refer Facility Lock +CLCK for other values
<oldpwd>	string type
<newpwd>	string type
<pwdlength>	integer type maximum length of the password for the facility

5.6 AT+CLIP Calling line identification presentation

Requests calling line identification. Determines if the +CLIP unsolicited result code isactivated. When the presentation of the CLI at the TE is enabled (and calling subscriberallows), +CLIP: <number>,<type>[,<subaddr>,<satype>] response is returned after
every RING.

5.6.1 Format

Write Command **AT+CLIP=[<n>]**	Response ***+CME ERROR: <err>***
Read Command **AT+CLIP?**	Response **+CLIP: <n>,<m>**
Test Command **AT+CLIP=?**	Response **+CLIP: (list of supported <n>s)**

5.6.2 Field

Parameters	Description
<n>	0 disable 1 enable
<m>	0 CLIP not provisioned 1 CLIP provisioned 2 unknown (e.g. no network, etc.)
<number>	string type phone number of format specified by <type>
<type>	type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
<subaddr>	string type subaddress of format specified by <satype>
<satype>	type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8)

5.7 AT+CLIR Calling line identification restriction

Requests calling line identification restriction.

5.7.1 Format

Write Command **AT+CLIR=[<n>]**	Response ***+CME ERROR: <err>***
Read Command **AT+CLIR?**	Response **+CLIR: <n>,<m>**
Test Command **AT+CLIR=?**	Response **+CLIR: (list of supported <n>s)**

5.7.2 Field

Parameters	Description
<n>	0 presentation indicator is used according to the subscription of the CLIR service 1 CLIR invocation 2 CLIR suppression
<m>	0 CLIR not provisioned 1 CLIR provisioned in permanent mode 2 unknown (e.g. no network, etc.) 3 CLIR temporary mode presentation restricted 4 CLIR temporary mode presentation allowed

5.8 AT+COLP Connected line identification presentation

This command refers to the GSM/UMTS supplementary service COLP (Connected Line Identification Presentation) that enables a calling subscriber to get the connected line identity (COL) of the called party after setting up a mobile originated call. The command enables or disables the presentation of the COL at the TE. It has no effect on the execution of the supplementary service COLR in the network.

When enabled (and called subscriber allows), +COLP: <number>,<type>[,<subaddr>,<satype> [,<alpha>]] intermediate result code is

returned from TA to TE before any +CR or V.250 [14] responses.

5.8.1 Format

Write Command **AT+COLP=[<n>]**	Response ***+CME ERROR: <err>***
Read Command **AT+COLP?**	Response **+COLP: <n>,<m>**
Test Command **AT+COLP=?**	Response **+COLP: (list of supported <n>s)**

5.8.2 Field

Parameters	Description
<n>	0 disable 1 enable
<m>	0 COLP not provisioned 1 COLP provisioned 2 unknown (e.g. no network, etc.)

5.9 AT+CCUG Closed user group

This command allows control of the Closed User Group supplementary service.

Set command enables the served subscriber to select a CUG index, to suppress the OutgoingAccess (OA), and to suppress the preferential CUG.

5.9.1 Format

Write Command **AT+CCUG=[<n>[,<index>[,<info>]]]**	Response ***+CME ERROR: <err>***
Read Command **AT+CCUG?**	Response **+CCUG: <n>,<index>,<info>**
Test Command **AT+CCUG=?**	Response **OK**

5.9.2 Field

Parameters	Description
<n>	0 disable CUG temporary mode 1 enable CUG temporary mode
<index>	0...9 CUG index 10 no index (preferred CUG taken from subscriber data)
<info>	0 no information 1 suppress OA 2 suppress preferential CUG 3 suppress OA and preferential CUG

5.10 AT+CCFC Call forwarding number and conditions

Sets the call forwarding number and conditions. Registration, erasure, activation, deactivationand status query operations are supported.

5.10.1 Format

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

5.10.2 Field

Parameters	Description
<reason>	0 unconditional 1 mobile busy 2 no reply 3 not reachable 4 all call forwarding (refer 3GPP TS 22.030 [19]) 5 all conditional call forwarding (refer 3GPP TS 22.030 [19])
<mode>	0 disable 1 enable 2 query status 3 registration 4 erasure
<number>	string type phone number of forwarding address in format specified by <type>
<type>	type of address
<subaddr>	string type subaddress of format specified by <satype>
<satype>	type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128

<classx>	1 voice (telephony) 2 data (refers to all bearer services) 4 fax (facsimile services) 8 short message service 16 data circuit sync 32 data circuit async 64 dedicated packet access 128 dedicated PAD access
<time>	1...30 when "no reply" is enabled or queried, this gives the time in seconds to wait beforecall is forwarded
<status>	0 not active 1 active

5.11 AT+CCWA Call waiting

This command allows control of the Call Waiting supplementary service. Activation, deactivation and status query are supported. Parameter <n>is used to disable/enable the presentation of an unsolicited result code +CCWA: <number>,<type>,<class>to the TE when call waiting service is enabled.

5.11.1 Format

Write Command **AT+CCWA=[<n>[,<mode>[,<class>]]]**	Response ***+CME ERROR: <err>*** **when <mode>=2 and command successful** **+CCWA: <status>,<class1>** **[<CR><LF>+CCWA: <status>,<class2>** **[...]]**
Read Command **AT+CCWA?**	Response **+CCWA: <n>**
Test Command **AT+CCWA=?**	Response **ERROR**

5.11.2 Field

Parameters	Description
<n>	0 disable 1 enable
<mode>	0 disable 1 enable 2 query status
<classx>	1 voice (telephony) 2 data (refers to all bearer services) 4 fax (facsimile services) 8 short message service 16 data circuit sync 32 data circuit async 64 dedicated packet access 128 dedicated PAD access
<status>	0 not active 1 active
<number>	string type phone number of calling address in format specified by <type>
<type>	type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

5.12 AT+CHLD Call related supplementary services

Requests call-related supplementary services. Refers to a service that allows a call to be temporarily disconnected from the ME but the connection to be retained by the network, and to a service that allows multiparty conversation. Calls can be put on hold, recovered, released and added to a conversation.

5.12.1 Format

Write Command	Response
AT+CHLD=[<n>]	***+CME ERROR: <err>***

Test Command **AT+CHLD=?**	Response **[+CHLD: (list of supported <n>s)]**

5.12.2 Field

Parameters	Description
<n>	0 Releases all held calls, or sets User-Determined User Busy for a waiting call 1 Releases all active calls and accepts the other (waiting or held) call 1x Releases the specific active call X 2 Places all active calls on hold and accepts the other (held or waiting) call 2x Places all active calls, except call X, on hold 3 Adds a held call to the conversation 4 Connects two calls and disconnects the subscriber from both calls 5 Activate the Completion of Calls to Busy Subscriber Request. (CCBS)

5.13 AT+CTFR Call deflection

This refers to a service that causes an incoming alerting call to be forwarded to a specifiednumber.

5.13.1 Format

Write Command **AT+CTFR=<number>[,<type>[,<subaddr>[,<satype>]]]**	Response ***+CME ERROR: <err>***
Test Command **AT+CTFR=?**	Response **OK**

5.13.2 Field

Parameters	Description
<number>	string type phone number of format specified by <type>
<type>	type of address
<subaddr>	string type subaddress of format specified by <satype>
<satype>	type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128

5.14 AT+CUSD Unstructured supplementary service data

Allows control of the Unstructured Supplementary Service Data (USSD). Both network-andmobile-initiated operations are supported. This command is used to enable the unsolicited result code +CUSD.

Write Command **AT+CUSD=[<n>[,<str>[,<dcs>]]]**	Response**OK**
Read Command **AT+CUSD?**	Response **+CUSD: <n>** **OK**
Test Command **AT+CUSD=?**	Response **+CUSD: (0-2)** **OK**

Parameters are defined below:

Parameters	Description
<n>	0 disable the result code presentation to the TE 1 enable the result code presentation to the TE 2 cancel session (not applicable to read command response)
<str>	string type USSD string

<dcs>	3GPP TS 23.038 [25] Cell Broadcast Data Coding Scheme in integer format (default 15)

5.15 AT+CSSN Supplementary service notifications

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

When <n>=1 and a supplementary service notification is received after a mobile originatedcall setup, intermediate result code +CSSI: <code1>[,<index>] is sent to TE before anyother MO call setup result codes presented in the present document or in V.250 [14]. Whenseveral different <code1>s are received from the network, each of them shall have its own+CSSI result code.

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

5.15.1 Format

Write Command **AT+CSSN=[<n>[,<m>]]**	Response ***+CME ERROR: <err>***
Read Command **AT+CSSN?**	Response **+CSSN: <n>,<m>**
Test Command **AT+CSSN=?**	Response **+CSSN: (list of supported <n>s),(list of supported <m>s)**

5.15.2 Field

Parameters	Description

<n>	0 disable 1 enable
<m>	0 disable 1 enable

5.16 AT+CLCC List current calls

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

5.16.1 Format

Execution Command **AT+CLCC**	Response **[+CLCC: <idx>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>]** **[<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>]** **[...]]]** ***+CME ERROR: <err>***
Test Command **AT+CLCC=?**	Response **OK**

5.16.2 Field

Parameters	Description
<idx>	integer type; call identification number as described in 3GPP TS 22.030 [19] subclause4.5.5.1; this number can be used in +CHLD command operations.
<dir>	0 mobile originated (MO) call 1 mobile terminated (MT) call
<stat>	0 active 1 held 2 dialing (MO call) 3 alerting (MO call) 4 incoming (MT call) 5 waiting (MT call)

<mode>	0 voice 1 data 2 fax 3 voice followed by data, voice mode 4 alternating voice/data, voice mode 5 alternating voice/fax, voice mode 6 voice followed by data, data mode 7 alternating voice/data, data mode 8 alternating voice/fax, fax mode 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 (refer TS 24.008 [8] subclause 10.5.4.7)

5.17 AT+CPOL Preferred operator list

This command is used to edit the SIM preferred list of networks. Execute command writes anentry in the SIM list of preferred operators (EFPLMNsel). If <index> is given but <oper> is leftout, entry is deleted. If <oper> is given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the <oper> in the read command is changed.

5.17.1 Format

Write Command **AT+CPOL=[<index>][,<format>[,<oper>[<GSM_AcT>,<GSM_compact_AcT>,<UTRAN_AcT>]]]**	Response ***+CME ERROR: <err>***
Read Command **AT+CPOL?**	Response **+CPOL:** **<index1>,<format>,<oper1>[,<GSM_AcT1>,** **<GSM_Com** **pact_AcT1>,<UTRAN_AcT1>]** **[<CR><LF>+CPOL:** **<index2>,<format>,<oper2>[,<GSM_AcT2>,** **<GSM_Com** **pact_AcT2>,<UTRAN_AcT2>]** **[...]]** ***+CME ERROR: <err>***

Test Command **AT+CPOL=?**	Response **+CPOL: (list of supported <index>s),** **(list of supported <format>s)** **OK** **OR** ***+CME ERROR: <err>***

5.17.2 Field

Parameters	Description
<indexn>	the order number of operator in the SIM/USIM preferred operator list
<format>	0 long format alphanumeric <oper> 1short format alphanumeric <oper> 2 numeric <oper>
<opern>	string type; <format> indicates if the format is alphanumeric or numeric (see +COPS)
<GSM_AcT*n*>	0 access technology not selected 1 access technology selected
<GSM_Compact_AcT*n*>	0 access technology not selected 1 access technology selected
UTRAN_AcT*n*	0 access technology not selected 1 access technology selected

5.18 AT+MCFGRI Indicate RI When Using URC

Indicate RI when using URC

Test Command **AT+MCFGRI=?**	Response **+MCFGRI: (0,1)** **OK**
Read Command **AT+MCFGRI?**	Response **+MCFGRI: <status>** **OK**

Write Command	Response
AT+MCFGRI=<status>	**OK** OR **ERROR**
Reference	Note If AT+MCFGRI=1 : When TCPIP create a connection or close the connection or TCPIP received data from server, the level of RI pin will changed to low level and hold at low level about 120 ms, then it is changed back to HIGH

Parameters are defined below:

Parameters	Description
<status>	0 Off 1 On

5.19 AT+CPLS Selection of preferred PLMN list

This command is used to select one PLMN selector with Access Technology list in the SIM card or activeapplication in the UICC (GSM or USIM), that is used by +CPOL command. Execute command selects a list in theSIM/USIM. Read command returns the selected PLMN selector list from the SIM/USIM. Test command returns the whole index range supported lists by the SIM/USIM

5.19.1 Format

Write Command **AT+CPLS=<list>**	Response **+CME ERROR: <err>**
Read Command **AT+CPLS?**	Response **+CPLS: <list>**

Test Command **AT+CPLS=?**	Response **+CPLS: <list of supported<lis>s>** **+CME ERROR: <err>**

5.19.2 Field

Parameters	Description
<list>	**0**User controlled PLMN selector with Access Technology EFPLMNwAcT, if not found inthe SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIMcard or GSM application selected in UICC) **1**Operator controlled PLMN selector with Access Technology EFOPLMNwAcT **2** HPLMN selector with Access Technology EFHPLMNwAcT

5.20 AT+COPN Read operator name

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

5.20.1 Format

Execution Command AT+COPN	Response +COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] +CME ERROR: <err>
Test Command AT+COPN=?	Response

5.20.2 Field

Parameters	Description
<numericn>	string type; operator in numeric format (see +COPS)
<alphan>	string type; operator in long alphanumeric format (see +COPS)

5.21 AT+CAEM LPPeMLPP priority Registration and Interrogation

The execute command is used to change the default priority level of the user in the network.The requested priority level is checked against the eMLPP subscription of the user stored onthe SIM card or in the active application in the UICC (GSM or USIM) EF_{eMLPP}. If the user doesn't have subscription for the requested priority level an ERROR or +CMEE ERROR
result code is returned.

The read command triggers an interrogation of the provision of the maximum priority level which the service subscriber is allowed to use and default priority level activated by the user.
If the service is not provisioned, a result code including the SS-Status (?) parameter is returned.

5.21.1 Format

Write Command **AT+CAEMLPP=<priority>**	Response ***+CME ERROR: <err>***
Read Command **AT+CAEMLPP?**	Response **+CAEMLPP: <default_priority>,<max_priority>** ***+CME ERROR: <err>***
Test Command **AT+CAEMLPP=?**	Response **OK**

5.21.2 Field

Parameters	Description

<priority>	integer type parameter which identifies the default priority level to be activated in thenetwork, values specified in 3GPP TS 22.067 [54]
efault_priority	integer type parameter which identifies the default priority level which isactivated in the network, values specified in 3GPP TS 22.067 [54]
max_priority	integer type parameter which identifies the maximum priority level for whichthe service subscriber has a subscription in the network, values specified in 3GPP TS 22.067[54].

5.22 AT+WS46 Select wireless network

Select the cellular network (Wireless Data Service; WDS) to operate with the TA. This command may be used when TA is asked to indicate the networks in which it can operate.

5.22.1 Format

Write Command **AT+WS46=[<n>]**	Response ***+CME ERROR: <err>***
Read Command **AT+WS46?**	Response **<n>**
Test Command **AT+WS46=?**	Response **(list of supported <n>s)**

5.22.2 Field

Parameters	Description
<n>	25 3GPP Systems (both GERAN and UTRAN)

6 MT control and status command

6.1 AT+CPAS Phone activity status

Returns the activity status <pas> of the ME. It can be used to interrogate the ME before requesting action from the phone. If the command is executed without the <mode> parameter, only <pas> values from 0 to 128 are returned. If the <mode> parameter is included in the execution command, <pas> values from 129 to 255 may also be returned.

6.1.1 Format

Execution Command **AT+CPAS**	Response **+CPAS: <pas>** ***+CME ERROR: <err>***
Test Command **AT+CPAS=?**	Response **+CPAS: (list of supported <pas>s)** ***+CME ERROR: <err>***

6.1.2 Field

Parameters	Description
<pas>	0 ready (MT allows commands from TA/TE) 1 unavailable (MT does not allow commands from TA/TE) 2 unknown (MT is not guaranteed to respond to instructions) 3 ringing (MT is ready for commands from TA/TE, but the ringer is active) 4 call in progress (MT is ready for commands from TA/TE, but a call is in progress) 5 asleep (MT is unable to process commands from TA/TE because it is in a lowfunctionality state)

6.2 AT+CFUN Set Phone Functionality

AT+CFUN = 0 turn off radio and SIM power. (supported only for feature phone with feature option)
AT+CFUN = 1, 1 or AT+CFUN=4,1 can reset the target. (supported only for feature phone)
AT+CFUN = 1 can enter normal mode. (supported only for module solution)
AT+CFUN = 4 can enter flight mode. (supported only for module solution)

6.2.1 Format

Write Command **AT+CFUN=[<fun>[,<rst>]]**	Response ***+CME ERROR: <err>***
Test Command **AT+CFUN=?**	Response **+CFUN: (list of supported <fun>s), (list of supported <rst>s)** ***+CME ERROR: <err>***
Reference	Note The supported parameters are subject to change according to different compile directives (options). □□AT+CFUN=1,1 or AT+CFUN=4,1 can only reset the target, not fully compliable with 27.007 □□<fun> = 0,1,4 only supported in projects with __ATCFUN_FLIGHTMODE_SUPPORT__ option.

6.2.2 Field

Parameters	Description
<fun>	0 enable functionality 1 full functionality 4 disable phone both transmit and receive RF circuits (supported only for modulesolution)
<rst>	0 do not reset the MT before setting it to <fun> power level 1 reset the MT before setting it to <fun> power level

6.3 AT+CPOWD Power Off

This command is used to power off.

Write Command **AT+CPOWD=<n>**	Response **OK** **NORMAL POWER DOWN** **Or** **OK**
Test Command **AT+CPOWD=?**	Response **+CPOWD: (0-1)** **OK**
Reference	Note

Parameters are defined below:

Parameters	Description
n	0 Power off urgently (Will not send out NORMAL POWER DOWN) 1 Normal power off (Will send out NORMAL POWER DOWN)

Example:

Commands	Response
AT+CPOWD=1	**OK** **NORMAL POWER DOWN**
AT+CPOWD=0	**OK**

6.4 AT+CPIN Enter PIN

Set command sends to the ME a password which is necessary before it can be operated

(SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken towards ME and an error message, +CME ERROR, is returned to TE. Refer [1] 9.2 for possible <err> values.

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.

6.4.1 Format

Write Command **AT+CPIN=<pin>[,<newpin>]**	Response ***+CME ERROR: <err>***
Read Command **AT+CPIN?**	Response **+CPIN: <code>** **OK** Or ***+CME ERROR: <err>***
Test Command **AT+CPIN=?**	Response **OK** or **ERROR**

6.4.2 Field

Parameters	Description
<pin>	string type values
<newpin>	string type values

<code>	<code>values reserved by the present document: READY MT is not pending for any password SIM PIN MT is waiting SIM PIN to be given SIM PUK MT is waiting SIM PUK to be given PH-SIM PIN MT is waiting phone to SIM card password to be given PH-FSIM PIN MT is waiting phone-to-very first SIM card password to be given PH-FSIM PUK MT is waiting phone-to-very first SIM card unblocking password to be given SIM PIN2 MT is waiting SIM PIN2 to be given SIM PUK2 MT is waiting SIM PUK2 to be given PH-NET PIN MT is waiting network personalization password to be given PH-NET PUK MT is waiting network personalization unblocking password to be given PH-NETSUB PIN MT is waiting network subset personalization password to be given PH-NETSUB PUK MT is waiting network subset personalization unblocking password to be given PH-SP PIN MT is waiting service provider personalization password to be given PH-SP PUK MT is waiting service provider personalization unblocking password to be given PH-CORP PIN MT is waiting corporate personalization password to be given PH-CORP PUK MT is waiting corporate personalization unblocking password to be given

6.5 AT+CCID Read ICCID of SIM Card

This command is used to read SIM card ICCID if SIM inserted. If SIM not inserted, return +CME ERROR: 10

Test Command	Response
AT+CCID=?	**OK**

Execution Command **AT+CCID**	Response **<iccid>** **OK** **ERROR / +CME ERROR: 10**

Parameters are defined below:

Parameters	Description
<iccid>	string type

6.6 AT+CSMINS SIM Inserted Status Reporting

This command is used to SIM inserted status reporting.

Test Command **AT+CSMINS=?**	Response **+CSMINS: (0,1)** **OK**
Read Command **AT+CSMINS?**	Response **+CSMINS: <n>,<SIM inserted>** **OK**
Write Command **AT+CSMINS=<n>**	Response **OK** **Or** **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description

<n>	A numeric parameter to show an unsolicited event code indicating whether the SIM has been inserted or removed. 0 Disable 1 Enable
<SIM inserted>	A numeric parameter which indicates whether SIM card has been inserted. 0 Not inserted 1 Inserted

6.7 AT+CBC Battery Charge

Execution and read command returns battery connection status <bcs> and battery level <bcl>of the ME.

6.7.1 Format

Execution Command **AT+CBC**	Response **+CBC: <bcs>,<bcl>** ***+CME ERROR: <err>***
Test Command **AT+CBC=?**	Response **+CBC: (list of supported <bcs>s),(list of supported <bcl>s)**

6.7.2 Field

Parameters	Description
<bcs>	0 MT does not have a battery connected
<bcl>	1...100 vbathas 1 to 100 percent of capacity remaining

6.8 AT+CSQ Signal Quality

The command returns received signal strength indication <rssi> and channel bit error rate <ber> from the ME.

6.8.1 Format

Execution Command **AT+CSQ**	Response **+CSQ: <rssi>,<ber>** ***+CME ERROR: <err>***
Test Command **AT+CSQ=?**	Response **ERROR**

6.8.2 Field

Parameters	Description
<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>	0...7 as RXQUAL values in the table in TS 45.008 [20] subclause 8.2.4 not known or not detectable

6.9 AT+CMEC Mobile Termination control mode

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

Test command returns the modes supported as compound values.

6.9.1 Format

Write Command **AT+CMEC=[<keyp>[,<disp>[,<ind>]]]**	Response ***+CME ERROR: <err>***

Read Command **AT+CMEC?**	Response **+CMEC: <keyp>,<disp>,<ind>**
Test Command **AT+CMEC=?**	Response **+CMEC: (list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s)**
Reference	Note Change History: The command is available from 09B.1009MP

6.9.2 Field

Parameters	Description
<keyp>	0 MT can be operated only through its keypad (execute command of +CKPD cannot be used) 1 MT can be operated only from TE (with command +CKPD) 2MT can be operated from both MT keypad and TE
<disp>	0 only MT can write to its display (command +CDIS can only be used to read the display) 1 only TE can write to MT display (with command +CDIS) 2 MT display can be written by both MT and TE
<ind>	0 only MT can set the status of its indicators (command +CIND can only be used to read the indicators) 1 only TE can set the status of MT indicators (with command +CIND) 2 MT indicators can be set by both MT and TE

6.10 AT+CIND Indicator control

Displays the value of ME indicators.

6.10.1 Format

Write Command **AT+CIND=[<ind>[,<ind>[,...]]]**	Response ***+CME ERROR: <err>***
Read Command **AT+CIND?**	Response **+CIND: <ind>[,<ind>[,...]]** ***+CME ERROR: <err>***
Test Command **AT+CIND=?**	Response **+CIND: (<descr>,(list of supported <ind>s)) [,(<descr>,(list of supported <ind>s))[,...]]** ***+CME ERROR: <err>***
Reference	Note "call setup" is proprietary defined in MTK solution and only used when BT supported.

6.10.2 Field

Parameters	Description
<ind>	integer type value, which shall be in range of corresponding <descr> <descr> values reserved by the present document and their <ind> ranges: "battchg" battery charge level (0 5) "signal" s ignal quality (0 5) "service" service availability (0 1) "message" message received (0 1) "call" call in progress (0 1) "roam" roaming indicator (0 1) "call setup" call setup indicator(0 3) "smsfull" a short message memory storage in the MT has become full(1) or memory locations are available (0)

6.11 URC: +CIEVNITZ indicator event

This URC is the result code of an NITZ indicator event.

6.11.1 Format

	Response **Unsolicited result code** **+CIEV: <ind>,<value1>[,<value2>,…]**

6.11.2 Field

Parameters	Description
<ind>	9: NITZ date/time/timezone information **+CIEV: 9,<UT>,<TZ>[,<DST>]** <UT> , Universal Time , String type "YY/MM/DD,HH:MM:SS" <TZ>: Local Time Zone, Integer type ex: +4 or -4 <DST>: Daylight Saving Time , Integer type 1: Summer time 0: Winter time **ex: +CIEV: 9,"09/05/16,16:56:00",-28,1**

6.12 AT+CMER Mobile Termination event reporting

Set command enables or disables sending of unsolicited result codes from TA to TE in thecase of key pressings, display changes, and indicator state changes.

Test command returns the modes supported as compound values.

6.12.1 Format

Write Command **AT+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]**	Response **OK** **Or** **ERROR**

Read Command **AT+CMER?**	Response **+CMER:<mode>,<keyp>,<disp>,<ind>,<bfr>** **OK**
Test Command **AT+CMER=?**	Response **+CMER: (list of supported <mode>s),(list of supported <key>s),(list of supported <disp>s), (list of supported <ind>s),(list of supported <bfr>s)**
Reference	Note We don't support set command of +CIND to set the values of MT indicators. So behaviors of <ind> 1 and 2 are currently the same. The +CKEV URC which set by <keyp> parameter only reports when UART setting is SIM1. <tscrn> parameter take effect after W1021.

6.12.2 Field

Parameters	Description
<mode>	0 buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can bebuffered in some other place or the oldest ones can be discarded 1 discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line datamode); 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-linedata mode) and flush them to the TE after reservation; otherwise forward themdirectly to the TE 3 forward unsolicited result codes directly to the TE; TA-TE link specific inbandtechnique used to embed result coses and data when TA is in on-line data mode

<keyp>	0 no keypad event reporting 1 keypad event reporting using result code +CKEV: <key>, <press>, <key> indicatesthe key (refer IRA values defined in table in subclause "Keypad control +CKPD") and<press> if the key is pressed or released (1 for pressing and 0 for releasing). Onlythose key pressing, which are not caused by +CKPD shall be indicated by the TA tothe TE. NOTE 1: When this mode is enabled, corresponding result codes of all keys currently pressedshould be flushed to the TA regardless of <bfr> setting.2 Keypad event reporting using result code +CKEV: <key>, <press>. All key pressingsshall be directed from TA to TE. NOTE 2: When this mode is enabled, corresponding result codes of all keys currently pressedshould be flushed to the TA regardless of <bfr> setting.
<disp>	0 no display event reporting
<ind>	0 no indicator event reporting 1 indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates theindicator order number (as specified for +CIND) and <value> is the new value ofindicator. Only those indicator events, which are not caused by +CIND shall beindicated by the TA to TE 2 indicator event reporting using result code +CIEV: <ind>,<value>. All indicator eventsshall be directed from TA to TE
<bfr>	0 TA buffer of unsolicited result codes defined within this command is cleared when 1 TA buffer of unsolicited result codes defined within this command is flushed to the TEwhen <mode> 1...3 is entered (OK response shall be given before flushing the codes)

6.13 AT+CPBS Select Phonebook Memory Storage

Selects the phonebook memory storage <storage> that is used by other phonebook commands.

6.13.1 Format

Write Command **AT+CPBS=<storage>**	Response ***+CME ERROR: <err>***
Read Command **AT+CPBS?**	Response **+CPBS: <storage>[,<used>,<total>]** ***+CME ERROR: <err>***
Test Command **AT+CPBS=?**	Response **+CPBS: (list of supported <storage>s)**
Reference	Note 1. Before 10A, We don‘t support query <used> field for the storage "LD", "MC", "RC", "DC". It would be always 0. 2. After 10A(include 10A), We don‘t support query <used> field for the storage "LD", "MC", "RC", "DC" in the module(modem) project. It would be always 0.

6.13.2 Field

Parameters	Description
<storage>	"ME" MT phonebook "SM" SIM/UICC phonebook "LD"last-dialling phonebook "MC"MT missed calls list "RC"MT received calls list. "DC" MT dialled calls list "FD"SIM/USIM fixdialling-phonebook "ON"SIM own numbers (MSISDNs) list

6.14 AT+CPBR Read phonebook entries

Returns phone book entries in location number range <index1>...<index2> from the current

phonebook memory storage selected by AT+CPBS. If <index2> is omitted, only location <index1> is returned. Entry fields returned are location number <indexn>, phone number <number> in <indexn>, and text <text> associated with the number.

6.14.1 Format

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

6.14.2 Field

Parameters	Description
<index>	integer type values in the range of location numbers of phonebook memory
<index1>	integer type values in the range of location numbers of phonebook memory
<index2>	integer type values in the range of location numbers of phonebook memory
<number>	string type phone number of format <type>
<type>	type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
<text>	string type field of maximum length <tlength>; character set as specified bycommand Select TE Character Set +CSCS
<nlength>	integer type value indicating the maximum length of field <number>
<tlength>	integer type value indicating the maximum length of field <text>
<hidden>	0: phonebook entry not hidden 1: phonebook entry hidden

6.15 AT+CPBF Find Phonebook entries

Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) which alphanumeric field start with string <findtext>(Prefix match). Entry fields returned are location number <indexn>, phone number stored there <number> (of format <type>) and text <text> associated with the number.

6.15.1 Format

Write Command **AT+CPBF=<findtext>**	Response **[+CPBF: <index1>,<number>,<type>,<text> [[...]** **<CR><LF>+CBPF: <index2>,<number>,<type>,<text>]]** ***+CME ERROR: <err>***
Test Command **AT+CPBF=?**	Response **+CPBF: [<nlength>],[<tlength>]** ***+CME ERROR: <err>***

6.15.2 Field

Parameters	Description
<index1>, <index2>	nteger type values in the range of location numbers of phonebook memory
<number>	string type phone number of format <type>
<type>	type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
<findtext>, <text>	string type field of maximum length <tlength>. Only support "IRA"
<nlength>	integer type value indicating the maximum length of field <number>
<tlength>	integer type value indicating the maximum length of field <text>

6.16 AT+CPBW Write Phonebook entries

Writes phonebook entry in location number <index> in the current phonebook memory storage area, selected with AT+CPBS. If the <number> and <text> parameters are omitted, the entry is deleted. If <index> is omitted but <number> is included, the entry is written to the

first free location in the phonebook.

6.16.1 Format

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

6.16.2 Field

Parameters	Description
<index>	integer type values in the range of location numbers of phonebook memory
<number>	string type phone number of format <type>
<type>	type of address
<text>	string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS. "UCS2"", and "IRA"" are supported.
<nlength>	integer type value indicating the maximum length of field <number>
<tlength>	integer type value indicating the maximum bytes of field <text> after encoding

6.17 AT+CCLK Clock

Set command sets the real-time clock of the MT.
Read command returns the current setting of the clock.

6.17.1 Format

Write Command **AT+CCLK=<time>**	Response ***+CME ERROR: <err>***
Read Command **AT+CCLK?**	Response **+CCLK: <time>** ***+CME ERROR: <err>***
Test Command **AT+CCLK=?**	Response **OK**

6.17.2 Field

Parameters	Description
<time>	string type value; format is "yy/MM/dd,hh:mm:ss", where characters indicate year (two last digits), month, day, hour, minutes, seconds.

6.18 AT+CALA Alarm

Sets an alarm time in the ME.

6.18.1 Format

Write Command **AT+CALA=<time>[,<n>[,<type>[,<text>[,<recur>]]]]**	Response ***+CME ERROR: <err>***

Read Command **AT+CALA?**	Response **[+CALA: <time>,<n1>,,,<recurr>** **[<CR><LF>+CALA: <time>,<n2>,,,<recurr>** **[...]]]** ***+CME ERROR: <err>***
Test Command **AT+CALA=?**	Response **OK**

6.18.2 Field

Parameters	Description
<time>	refer +CCLK
<n>	integer type value indicating the index of the alarm
<type>	integer type. But we don't care about type value.
<text>	string type. But we don't care about text content. MMI doesn't support.
<recurr>	string type value indicating day of weeks for the alarm in one of the following format: "<1..7>[,<1..7>[…]]" – Sets a recurrent alarm for one or more days in the week. Thedigits 1 to 7 corresponds to the days in the week, Monday (1), …, Sunday (7). Example: The string "1,2,3,4,5" may be used to set an alarm for all weekdays. "0" – Sets a recurrent alarm for all days in the week.

6.19 AT+CRSL Ringer Sound Level

Set the incoming call ringer sound level.

6.19.1 Format

Write Command **AT+CRSL=<level>**	Response ***+CME ERROR: <err>***

Read Command **AT+CRSL?**	Response **+CRSL: <level>** ***+CME ERROR: <err>***
Test Command **AT+CRSL=?**	Response **+CRSL: (list of supported <level>s)** ***+CME ERROR: <err>***
Reference	Note This command can’t be used when UART setting is SIM2

6.19.2 Field

Parameters	Description
<level>	integer type value(0-100) with manufacturer specific range

6.20 AT+CLVL Loudspeaker volume level

Sets the volume of the internal speaker in the ME

6.20.1 Format

Write Command **AT+CLVL=<level>**	Response *+CME ERROR: <err>*
Read Command **AT+CLVL?**	Response +CLVL: <level> *+CME ERROR: <err>*

Test Command **AT+CLVL=?**	Response +CLVL: (list of supported <level>s) *+CME ERROR: <err>*
Reference	Note This command can’t be used when UART setting is SIM2

6.20.2 Field

Parameters	Description
<level>	integer type value(0-100) with manufacturer specific range.

6.21 AT+CMUT Mute Control

Enable/Disable the uplink voice muting during a voice call.

6.21.1 Format

Write Command **AT+CMUT=<n>**	Response ***+CME ERROR: <err>***
Read Command **AT+CMUT?**	Response **+CMUT: <n>** ***+CME ERROR: <err>***
Test Command **AT+CMUT=?**	Response **+CMUT: (list of supported <n>s)**

Reference	Note This command can’t be used when UART setting is SIM2

6.21.2 Field

Parameters	Description
<n>	0 mute off 1 mute on

6.22 AT+CALM Alert sound mode

This command is used to set alert sound mode.

Test Command **AT+CALM=?**	Response **+CALM: (0-1)** **OK**
Read Command **AT+CALM?**	Response **+ CALM: <mode>** **OK** Or **Error**
Write Command **AT+CALM=<mode>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description

<mode>	0 Normal mode 1 Silent mode (all sounds from ME are prevented)

Example:

Commands	Response
AT+CALM=?	**+CALM: (0-1)** **OK**
AT+CALM?	**+CALM: 1** **OK**

6.23 AT+CMIC Microphone Gain Level Change

Test Command **AT+CMIC=?**	Response **+CMIC: (**list of supported <**channel**>s**),(**list of supported <**gainlevel**>s**)** **OK**
Read Command **AT+CMIC?**	Response **+CMIC: (<channel0>,<gainlevel0>),…,(<channel*n*>,<gainlevel*n*>)** **OK**
Write Command **AT+CMIC=<channel>,<gain>**	Response **OK** **ERROR**

Parameters are defined below:

Parameters	Description
<channel>	0 Main audio handset channel 1 Aux audio headset channel 2 Main audio handfree channel 3 Aux audio handfree channel

<gain>	0 – 15 0 0dB 1 +1.5dB 2 +3.0 dB 3 +4.5 dB 4 +6.0 dB 5 +7.5 dB 6 +9.0 dB 7 +10.5 dB 8 +12.0 dB

6.24 AT+CTZR Time Zone Reporting

Enable/Disable the time zone change event reporting.If the reporting is enabled the MT returns theunsolicited result code +CTZV: <tz> whenever the time zone is changed.

6.24.1 Format

Write Command **AT+CTZR=<mode>**	Response **OK** or ***+CME ERROR: <err>***
Read Command **AT+CTZR?**	Response **+CTZR: <mode>** **OK** or ***+CME ERROR: <err>***
Test Command **AT+CTZR=?**	Response **+CTZR: (list of supported <mode>s)** **OK**
Reference	Note China Mobile card only. Send AT+CTZR=1 command immediately when modem starting up;or send the following commands in order AT+CTZR=1、AT+CFUN=0、AT+CFUN=1.

6.24.2 Field

Parameters	Description
<mode>	Integer type value indicating: 0 Disable automatic time zone update via NITZ(default). 1 Enable automatic time zone update via NITZ.

□□

6.25 AT+MZONE Read Time Zone

Read current time zone,15 minutes per unit.

6.25.1 Format

Read Command **AT+MZONE?**	Response **+MZONE: <zone>** **OK** or ***+CME ERROR: <err>***
Execution Command **AT+MZONE?**	Response **+MZONE: <zone>** **OK** or ***+CME ERROR: <err>***
Reference	Note China Mobile card only.

6.25.2 Field

Parameters	Description
<zone>	integer type value indicating: Current time zone, 15 minutes per unit

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

This command is used to close the Net Light or open it to shining.

Test Command **AT+CNETLIGHT=?**	Response **+CNETLIGHT: (0,1)** **OK**
Read Command **AT+CNETLIGHT?**	Response **+CNETLIGHT: <mode>** **OK**
Write Command **AT+CNETLIGHT=<mode>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<mode>	0 Close the net light 1 Open the net light to shining

6.27 AT+SLEDS Set the Timer Period of Net Light

This command is used to set the timer period of net light.

Test Command **AT+SLEDS=?**	Response **+SLEDS: (1-3),(0,40-65535),(0,40-65535)** **OK**
Read Command **AT+SLEDS?**	Response **+SLEDS: <mode>,<timer_on>,<timer_off>** **OK**
Write Command **AT+SLEDS=<mode>,<timer_on>,<timer_off>**	Response **OK** Or **ERROR**
Reference	Note The default value is : <mode>,<timer_on>,<timer_off> 1,64,800 2,64,3000 3,64,300

Parameters are defined below:

Parameters	Description
<mode>	1 Set the timer period of net light while series does not register to the network 2 Set the timer period net light while series has already registered to the network 3 Set the timer period net light while series is in the state of PPP communication
<timer_on>	Timer period of “LED ON” in decimal format which range is 0 or 40-65535(ms)
<timer_off>	Timer period of “LED OFF” in decimal format which range is 0 or 40-65535(ms)

7 GPRS commands(27.007)

7.1 AT+CGDCONT Define PDP Context

Specifies PDP context parameter values for a PDP context identified by the (local) contextidentification parameter, <cid>.

7.1.1 Format

Write Command **AT+CGDCONT=[<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<pd1>[,…[,pdN]]]]]]]]]**	Response **OK** **or** **ERROR**
Read Command **AT+CGDCONT?**	Response **+CGDCONT: <cid>, <PDP_type>, <APN>, <PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]]** **[<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]]** **[...]]**
Test Command **AT+CGDCONT=?**	Response **+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]]** **[<CR><LF>+CGDCONT: (range of supported <cid>s), <PDP_type>,,,(list of supported <d_comp>s), (list of supported <h_comp>s)[,(list of supported <pd1>s)[,…[,(list of supported <pdN>s)]]]** **[...]]**

7.1.2 Field

Parameters	Description
<cid>	(PDP Context Identifier) a numeric parameter which specifies a particular PDP contextdefinition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permittedvalues (minimum value = 1) is returned by thetest form of the command.
<PDP_type>	(Packet Data Protocol type) a string parameter. IP Internet Protocol (IETF STD 5)
<APN>	(Access Point Name) a string parameter which is a logical name that is used toselect the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.
<PDP_address>	a string parameter that identifies the MT in the address space applicable tothe PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startupprocedure 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 hasbeen allocated during the PDP startup procedure. The allocated address may be read usingthe +CGPADDR command.
<d_comp>	a numeric parameter that controls PDP data compression (applicable for SNDCPonly)0 - off (default if value is omitted)
<h_comp>	a numeric parameter that controls PDP header compression 0 - off (default if value is omitted)
<pd1>,… <pdN>	zero to N string parameters whose meanings are specific to the <PDP_type>

7.2 AT+CGQREQ Quality of Service Profile (Requested)

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

7.2.1 Format

Write Command **AT+CGQREQ=[<cid>[,<precedence >[,<delay>[,<reliability.>[,<peak>[,<mean>]]]]]]**	Response **OK** or **ERROR**
Read Command **AT+CGQREQ?**	Response **+CGQREQ: <cid>, <precedence >,<delay>, <reliability>, <peak>, <mean>[<CR><LF>+CGQREQ: <cid>, <precedence>, <delay>, <reliability.>, <peak>,<mean>[…]]**
Test Command **AT+CGQREQ=?**	Response **+CGQREQ: <PDP_type>, (list ofsupported <precedence>s), (list ofsupported <delay>s), (list ofsupported <reliability>s) , (list ofsupported <peak>s), (list of supported<mean>s) [<CR><LF>+CGQREQ: <PDP_type>, (list ofsupported <precedence>s), (list ofsupported <delay>s), (list ofsupported <reliability>s) , (list ofsupported <peak>s), (list of supported<mean>s)[…]]**

7.2.2 Field

Parameters	Description
<cid>	a numeric parameter which specifies a particular PDP context definition
<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

7.3 AT+CGQMIN Quality of Service Profile (Minimum acceptable)

This command allows the TE to specify a minimum acceptable profile which is checked by

theMT against the negotiated profile returned in the Activate PDP Context Accept message.

7.3.1 Format

Write Command **AT+CGQMIN=[<cid>[,<precedence >[,<delay>[,<reliability.>[,<peak> [,<mean>]]]]]]**	Response **OK** **or** **ERROR**
Read Command **AT+CGQMIN?**	Response **+CGQMIN: <cid>, <precedence >,<delay>, <reliability>, <peak>,<mean>[<CR><LF>+CGQMIN: <cid>, <precedence>, <delay>, <reliability.>, <peak>,<mean>[…]]**
Test Command **AT+CGQMIN=?**	Response **+CGQMIN: <PDP_type>, (list ofsupported <precedence>s), (list ofsupported <delay>s), (list ofsupported <reliability>s) , (list ofsupported <peak>s), (list ofsupported <mean>s) [<CR><LF>+CGQMIN: <PDP_type>, (listof supported <precedence>s), (listof supported <delay>s), (list of supported <reliability>s) , (list ofsupported <peak>s), (list ofsupported <mean>s)[…]]**

7.3.2 Field

Parameters	Description
<cid>	a numeric parameter which specifies a particular PDP context definition
<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

7.4 AT+CGATT PS attach or detach

The execution command is used to attach the MT to, or detach the MT from, the Packet Domain service. After the command has completed, the MT remains in V.250 command state.

7.4.1 Format

Write Command **AT+CGATT= [<state>]**	Response **OK** or **ERROR**
Read Command **AT+CGATT?**	Response **+CGATT: <state>**
Test Command **AT+CGATT=?**	Response **+CGATT: (list of supported <state>s)**

7.4.2 Field

Parameters	Description
<state>	indicates the state of PS attachment 0 detached 1 attached

7.5 AT +CGACT PDP Context activate or deactivate

To activate or deactivate the specified PDP context (s).

7.5.1 Format

Write Command **AT+CGACT=[<state>[,<cid>]]**	Response **OK** or **ERROR**

Read Command **AT+CGACT?**	Response **+CGACT: <cid>, <state>[<CR><LF>+CGACT: <cid>, <state>[...]]**
Test Command **AT+CGACT=?**	Response **+CGACT: (list of supported <state>s)**

7.5.2 Field

Parameters	Description
<state>	indicates the state of PDP context activation 0 deactivated 1 activated Other values are reserved and will result in an ERROR response to the execution command.
<cid>	a numeric parameter which specifies a particular PDP context definition. If no <cid> isspecified, then UE assumes it as 1. The usage of omitted <cid> to activate/deactivate all is notsupported.

7.6 AT +CGCMOD PDP Context Modify

The execution command is used to modify the specified PDP context (s) with respect to QoSprofiles and TFTs.

7.6.1 Format

Write Command **AT+CGCMOD=<cid>**	Response **OK** or **ERROR**
Test Command **AT+CGCMOD=?**	Response **+CGCMOD: (list of <cid>s associated with active contexts)**

7.6.2 Field

Parameters	Description
<cid>	a numeric parameter which specifies a particular PDP context definition (see the +CGDCONTand +CGDSCONT commands).

7.7 AT+CGDATA Enter data state

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types.

7.7.1 Format

Write Command **AT+CGDATA=[<L2P> , [<cid>]]**	Response **CONNECT** **ERROR**
Test Command **AT+CGDATA=?**	Response **+CGDATA: (list of supported <L2P>s)**

7.7.2 Field

Parameters	Description
<L2P>	a string parameter that indicates the layer 2 protocol to be used between the TE and MTPPP Point-to-point protocol for a PDP such as IPOther values will result in an ERROR response.
<cid>	a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and+CGDSCONT commands).

7.8 AT+CGPADDR Show PDP address

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

The test command returns a list of defined <cid>s.

7.8.1 Format

Write Command **AT+CGPADDR=<cid>**	Response **+CGPADDR: <cid>,<PDP_addr>**
Test Command **AT+CGPADDR=?**	Response **+CGPADDR: (list of defined <cid>s)**

7.8.2 Field

Parameters	Description
<cid>	a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and+CGDSCONT commands). If no <cid> is specified, an ERROR result code will be returned. Multiple <cid>field is not supported. +CGDSCONT commands when the context was defined. For a dynamic address it will be the one
<PDP_address>	a string that identifies the MT in the address space applicable to the PDP. The addressmay be static or dynamic. For a static address, it will be the one set by the +CGDCONT andassigned during the last PDP context activation that used the context definition referred to by <cid>.<PDP_address> is omitted if none is available.

7.9 AT+CGAUTO Automatic response to network request PDPcontext activation

The set command disables or enables an automatic positive response (auto-answer) to thereceipt of a Request PDP Context Activation message from the network.

When the +CGAUTO=0 command is received, the MT shall not perform a PS detach if it isattached. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING, the TE may manually

accept or reject the request by issuing the +CGANS command or may simply ignore the network request.

When the +CGAUTO=1 command is received, the MT shall attempt to perform a PS attach ifit is not already attached. Failure will result in ERROR or, if enabled, +CME ERROR beingreturned to the TE. Subsequently, when the MT announces a network request for PDP contextactivation by issuing the unsolicited result code RING or +CRING to the TE, this is followed bythe intermediate result code CONNECT. The MT then enters V.250 online data state andfollows the same procedure as it would after having received a +CGANS=1 with no <L2P> or<cid> values specified.

7.9.1 Format

Write Command **AT+CGAUTO=<n>**	Response **OK** **or** **ERROR**
Read Command **AT+CGAUTO?**	Response **+CGAUTO: <n>**

7.9.2 Field

Parameters	Description
<n>	0 turn off automatic response for Packet Domain only 1 turn on automatic response for Packet Domain only For <n> = 0 Packet Domain network requests are manually accepted or rejected by the+CGANS command. For <n> = 1 Packet Domain network requests are automatically accepted according to thedescription above.

7.10 AT+CGANS Manual response to a network request for PDPcontext activation

The execution command requests the MT to respond to a network request for Packet DomainPDP context activation which has been signaled to the TE by the RING or +CRING: unsolicited result code. The <response> parameter allows the TE to accept or reject the request.

7.10.1 Format

Write Command **AT+CGANS=[<response>,[<L2P> ,[<cid>]]]**	Response **OK** **or** **ERROR**
Test Command **AT+CGANS=?**	Response **+CGANS: (list of supported<response>s), (list ofsupported <L2P>s)**

7.10.2 Field

Parameters	Description
<response>	0 reject the request 1 accept and request that the PDP context be activated
<L2P>	a string parameter which indicates the layer 2 protocol to be used (see +CGDATAcommand).
<cid>	a numeric parameter which specifies a particular PDP context definition

7.11 AT+CGCLASS GPRS mobile station class

The set command is used to set the MT to operate according to the specified GPRS mobileclass. If the requested class is not supported, an ERROR or +CME ERROR response isreturned. Extended error responses are enabled by the +CMEE command.

The read command returns the current GPRS mobile class.

The test command is used for requesting information on the supported GPRS mobile classes.

7.11.1 Format

Write Command **AT+CGCLASS=[<class>]**	Response **OK** **or** **ERROR**

Read Command **AT+CGCLASS?**	Response **+CGCLASS:<class>**
Test Command **AT+CGCLASS=?**	Response **+CGCLASS: (list of supported <class>s)**
Reference	Note On MAUI and 09A branches, after W0918, the test command and the query command can be usedwhile a normal SIM card is inserted. Before this, the +CGCLASS command can be only used while atest SIM is inserted.

7.11.2 Field

Parameters	Description
<class>	a string parameter which indicates the GPRS mobile class (in descending order offunctionality) A class A (highest) B classB CG class C in GPRS only mode CC class C in circuit switched only mode (lowest) Other values are reserved and will result in an ERROR response to the set command. If the MT is GPRS attached when the set command is issued with a <class> = CC specified,a detach request shall be sent to the network.

7.12 AT+SJDR Jamming detection control

This command is used to control jamming detection function.

Test Command **AT+SJDR=?**	Response **+SJDR: (0-1),(-128-127)** **OK**

Read Command **AT+SJDR?**	Response **+SJDR: <status>,<mode>,<threshold>** **OK** Or **Error**
Write Command **AT+SJDR=<mode>,[<threshold>[,<display>]]**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<status>	0 Jamming not detected 1 Jamming detected
<mode>	0 Disable jamming detection 1 Enable jamming detection
<threshold>	threshold value ,unit: dBm, default is -42 dBm -128-127 Threshold value as **<threshold>**,value from -128 to 127

7.13 AT+CGREG GPRS network registration status

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

The read command returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the MT. Location information elements <lac>,<ci> are returned only when <n>=2 and MT is registered in the network.

Test Command **AT+CGREG=?**	Response **+CGREG: (0-2)** **OK**
Write Command **AT+CGREG=[<n>]**	Response **OK** **or** **ERROR**
Read Command **AT+CGREG?**	Response **+CGREG:<n>,<stat>[,<lac>,<ci>]** **OK**

Parameters are defined below:

Parameters	Description
<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, MT is not currently searching an operator to register to 1 registered, home network 2 not registered, but MT is currently trying to attach or searching an operator to register to. 3 registration denied 4 unknown 5 registered, roaming
<lac>	string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195in decimal)
<ci>	string type; four byte cell ID in hexadecimal format

7.14 AT+CGSMS Select service for MO SMS messages

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

The read command returns the currently selected service or service preference.

The test command is used for requesting information on the currently available services andservice preferences.

7.14.1 Format

Write Command **AT+CGSMS= <service>**	Response **OK** **or** **ERROR**
Read Command **AT+CGSMS?**	Response **+CGSMS: <service>**

7.14.2 Field

Parameters	Description
<service>	**0**Packet Domain **1**circuit switched **2**Packet Domain preferred (use circuit switched if GPRS not available) **3**circuit switched preferred (use Packet Domain if circuit switched not available)

7.15 AT+CGEQREQ 3G Quality of Service Profile (Minimumacceptable)

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

7.15.1 Format

Write Command **AT+CGEQMIN=[<cid>** **[,<Traffic class>** **[,<Maximum bitrate UL>** **[,<Maximum bitrate DL>** **[,<Guaranteed bitrate UL>** **[,<Guaranteed bitrate DL>** **[,<Delivery order>** **[,<Maximum SDU size>** **[,<SDU error ratio>** **[,<Residual bit error ratio> [,<Delivery of erroneous SDUs>** **[,<Transfer delay>** **[,<Traffic handling priority>]]]]]]]]]]]]**	Response **OK** **or** **ERROR**
Read Command **AT+CGEQMIN?**	Response **+CGEQMIN: <cid>, <Traffic class>** **,<Maximum bitrate UL>, <Maximum bitrate** **DL> ,<Guaranteed bitrate UL>** **,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio>** **,<Delivery of erroneous SDUs>** **,<Transfer delay> ,<Traffic handling priority>** **[<CR><LF>+CGEQMIN: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL>** **,<Guaranteed bitrate DL>, <Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio>** **,<Delivery of erroneous SDUs>** **,<Transfer delay> ,<Traffic handling priority>** **[…]]**

Test Command **AT+CGEQMIN=?**	Response **+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s) ,(list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s)** **[<CR><LF>+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) ,(list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s) ,(list of supported <Guaranteed bitrate UL >s), (list of supported <Guaranteed bitrate DL >s) ,(list of supported <Delivery order>s) ,(list of supported <Maximum SDU size>s) ,(list of supported <SDU error ratio>s) ,(list of supported <Residual bit error ratio>s) ,(list of supported <Delivery of erroneous SDUs>s) ,(list of supported <Transfer delay>s) ,(list of supported <Traffic handling priority>s) […]]**
Reference	Note 1. It is only supported in R99 or later projects. 2. For the set/execute mode, all parameters must be entered. Part of parameters omitted will betreated as an undefined operation.

7.15.2 Field

Parameters	Description
<cid>	A special form of the set command, +CGEQMIN= <cid> causes the requested profile for context number <cid> to become undefined.
<Traffic class>	**0** - conversational **1** - streaming **2** - interactive **3** - background Other values are reserved
<Maximum bitrate UL>	a numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g.AT+CGEQMIN=…,32, …)
<Maximum bitrate DL>	a numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g.AT+CGEQMIN=…,32, …).
<Guaranteedbitrate UL>	a numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example abitrate of 32kbit/s would be specified as '32' (e.g.AT+CGEQMIN=…,32, …)
<Guaranteed bitrate DL>	a numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example abitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQMIN=…,32, …)
<Delivery order>	**0** - no **1** - yes **2** - no detect Other values are reserved
<Maximum SDU size>	a numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets.
<SDU error ratio>	a string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as'mEe'. As an example a target SDU error ratio of 5•10-3 would be specified as '5E3' (e.g.AT+CGEQMIN=…,'5E3',…)

<Residual bit error ratio>	a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the biterror ratio in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual biterror ratio of 5•10-3 would be specified as '5E3' (e.g. AT+CGEQMIN=…,'5E3',…)
<Deliveryof erroneous SDUs>	**0** - no **1** - yes **2** - no detect Other values are reserved
<Transfer delay>	a numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. <Traffic handling priority>: anumeric parameter (1,2,3,…) that specifies the relative importance for handling of all SDUs belonging tothe UMTS bearer compared to the SDUs of other bearers
<PDP_type>	(see +CGDCONT and +CGDSCONT commands)

7.16 AT+CENG Configure Engineering Mode

This Command is used to Configure Slow Clock.

Test Command	Response
AT+CENG=?	**+CENG: (0-3),(0-1)** **OK**

Read Command **AT+CENG?**	Response Engineering Mode is designed to view the network information when <mode>=1 or <mode>=2.<cell> carry with them corresponding network interaction. **+CENG:<mode>,<Ncell>** Service Station **[+CENG:** **<cell>,"<arfcn>,<csq>,<rxq>,<mcc>,<mnc>,<bsic>,<cellid>,<rla>,** **<txp>,<lac>,<TA>"** **<CR><LF>]** Nearby station **[+CENG:** **<cell>,"<arfcn>,<rxl>,<bsic>[,<cellid>],<mcc>,<mnc>,<lac>"…]** **OK** if <mode>=3 **+CENG:<mode>,<Ncell>** Service Station **[+CENG: <cell>,<mcc>,<mnc>,<lac>,<cellid>,<bsic>,<rxl>** **<CR><LF>]** Nearby station **[+CENG: <cell>,<mcc>,<mnc>,<lac>,<cellid>,** **<bsic>,<rxl>…]** **OK**
Write Command **AT+CENG=<mode>[,<Ncell>]**	Response Switch on or off engineering mode. Module will report +CENG: (network information) automatically if <mode>=2. **OK** **ERROR**
Reference	Note rxl=csq*2-2

Parameters are defined below:

Parameters	Description
<mode>	0 Switch off 1 Switch on 2 Switch on, and activate the URC report of network information 3 Switch on engineering mode, with limited URC report
<Ncell>	0 Un-display neighbor cell ID 1 Display neighbor cell ID If <mode>=3, ignore this parameter.
<cell>	0 The serving cell 1-6 The index of the neighboring cell
<arfcn>	Absolute radio frequency channel number
<csq>	Signal Quality
<rxl>	Receive level
<rxq>	Receive quality
<mcc>	Mobile country code
<mnc>	Mobile network code
<bsic>	Base station identity code
<cellid>	Cell id
<lac>	Location area code
<rla>	Receive level access minimum
<txp>	Transmit power maximum CCCH
<TA>	Timing Advance

7.17 AT+DDET DTMF Detection Control

This command is used to DTMF detection control.

Test Command **AT+DDET=?**	Response **+DDET: (0,1),(0-10000),(0,1),(0,1)** **OK**
Read Command **AT+DDET?**	Response **+DDET:** **<mode>,<interval>,<reportMode>,<ssdet>** **OK**

Write Command **AT+DDET=<mode>[,<interval>][,<reportMode>][,<ssdet>]**	Response **OK** **Or** **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<mode>	disable or enable DTMF detection control 0 disable 1 enable
<interval>	the min interval between two same key URC. The range is 0-10000,the default value is 0. unit is ms.
<reportMode>	URC report mode 0 key value reported only 1 key value and last time are reported, the last time is in ms 1)If <reoportMode> is set to 0 +DTMF: <key> 2)If <reportMode> is set to 1 +DTMF: <key>,<last time>
<key>	keytone detected, 1-9,*,#,A,B,C,D.if <ssdet> is 1,Single frequency sound 1400 and 2300 is supported too, when single frequency 1400HZ sound or 2300HZ sound is detected, +DTMF:1400 or +DTMF:2300 is reported
<last time>	duration of keytone playing. unit is ms.
<ssdet>	single frequency sound detect function on off 0 switch off 1 switch on

7.18 AT+CGEREP Control Unsolicited GPRS Event Reporting

This command is used to control unsolicited GPRS event reporting.

Test Command **AT+CGEREP=?**	Response **+CGEREP: (0,1)** **OK**
Read Command **AT+CGEREP?**	Response **+CGEREP: <mode>** **OK**
Write Command **AT+CGEREP=<mode>**	Response **OK** **Or** **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<mode>	0 Disable event reporting. 1 Enable event reporting. 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 DETACH
<PDP_type>	Packet Data Protocol type (see +CGDCONTCommand)
<PDP_addr>	Packet Data Protocol address (see +CGDCONT Command)
<cid>	Context Id (see +CGDCONT Command)

8 Mobile Termination Errors

8.1 AT+CMEE

Set command disables or enables the use of result code +CME ERROR: <err>as an indication of an error relating to the functionality of the MT. When enabled, MT related errors cause +CME ERROR: <err>final result code instead of the regular ERROR final result code. ERROR is returned normally when error is related to syntax, invalid parameters, or TA functionality.

Test command returns values supported as a compound value.

8.1.1 Format

Write Command **AT+CMEE=[<n>]**	Response
Read Command **AT+CMEE?**	Response **+CMEE: <n>**
Test Command **AT+CMEE=?**	Response **+CMEE: (list of supported <n>s)**

8.1.2 Field

Parameters	Description

<n>	0 disable +CME ERROR: <err> result code and use ERROR instead 1enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause) 2enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause) <err> values (numeric format followed by verbose format): 9.2.1 General errors 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 48 hidden key required (NOTE: This key is required when accessing hidden phonebook entries.) 100 unknown 9.2.2 GPRS-related errors 9.2.2.1 Errors related to a failure to perform an Attach 103 Illegal MS (#3) 106 Illegal ME (#6) 107 GPRS service not allowed (#7) 111 PLMN not allowed (#11) 112 Location area not allowed (#12) 113 Roaming not allowed in this location area (#13) (Values in parentheses are TS 24.008 cause codes.) 9.2.2.2 Errors related to a failure to Activate a Context 132 service option not supported (#32) 133 requested service option not subscribed (#33) 134 service option temporarily out of order (#34) 149 PDP authentication failure (Values in parentheses are TS 24.008 cause codes.) 9.2.2.3 Other GPRS errors 150 invalid mobile class 148 unspecified GPRS error Other values in the range 101-150 are reserved for use by GPRS

9 Annex C(27.007)

9.1 AT+FCLASS

Puts the TA in a specific mode of operation. This causes the TA to process information in amanner suitable for that type of information.

9.1.1 Format

Write Command **AT+FCLASS=<n>**	Response
Read Command **AT+FCLASS?**	Response **<n>**
Test Command **AT+FCLASS=?**	Response **(list of supported <n>s)**

9.1.2 Field

Parameters	Description
<n>	0 data 1 fax class 1 (TIA-578-A) 2 fax (manufacturer specific) 2.0 fax class 2 (ITU T T.32 [12] and TIA 592)

9.2 AT+VTS

Allows the transmission of DTMF tones. The command is write-only.
Note: The command is used only during voice calls.

9.2.1 Format

Write Command **AT+VTS=<dtmf>**	Response
Test Command **AT+VTS=?**	Response **(list of supported <tone1>s),(list ofsupported <tone2>s) ,(list ofsupported <duration>s)**
Reference	Note When modem work with application (ex: WM smart phone RIL or ECMT tool) , the application expectthe result of AT+VTS is returned immediately . Since user might press keypad to send DTMF very fast,so application would like to send DTMF before the previous DTMF is actually processed in NW(modem shall help to queue the DTMF request if previous is not finished yet). So we will response theresult code immediately to prevent blocking the application‘s DTMF keypad handling. Currently, we only check if the digit is valid and if there is any call ongoing(ex: dialing , active exist). Ifyes,then we will return "OK". But please notice the "OK" doesn‘t imply that the DTMF is really processedsuccessfully inNW. ex: it might fail due to MS doesn‘t have user connection yet. Or it might be fail due to there is noresponse fromNW. Or it might be fail due to there is no speech channel (ex: data call)If __VTS_LATE_RESPONSE__ is turned on, "OK" is printed when SEND DTMF is acknowledged bynetwork

9.2.2 Field

Parameters	Description
<DTMF>	A single ASCII character in the set .0-9, #, *, A-D. For example: AT+VTS = 9 or AT+VTS = A You can use multiple command to achieve continuous DTMF tones. For example : AT+VTS=6;+VTS=2;+VTS=8;+VTS=2

10 SMS AT Commands(27.005)

Please refer to 27.005 Sec 3.1 Parameter Definition to see more details of the parameter fields ineach command.

10.1 AT+CSMS Select Message Service

Selects the message service and returns the type of messages supported by the ME. If chosen service is not supported by the ME (but supported by the TA), +CME ERROR is returned.

10.1.1 Format

Write Command **AT+CSMS=<service>**	Response **+CSMS: <mt>,<mo>,<bm>** ***+CMS ERROR: <err>***
Read Command **AT+CSMS?**	Response **+CSMS: <service>,<mt>,<mo>,<bm>**
Test Command **AT+CSMS=?**	Response **+CSMS: (list of supported <service>s)**
Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.1.2 Field

Parameters	Description

<service>	**0** 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4] **1** 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4] the requirement of <service> setting 1 is mentioned under corresponding commanddescriptions)
<mt>	**0** type not supported **1** type supported
<mo>	**0** type not supported **1** type supported
<bm>	**0** type not supported **1** type supported

10.2 AT+CPMS Preferred Message Storage

Selects memory storage spaces to be used for reading, writing, etc. If chosen storage is notappropriate for the ME (but is supported by the TA), +CME ERROR is returned.

10.2.1 Format

Write Command **AT+CPMS=<mem1>[,<mem2>[,<mem3>]]**	Response **+CPMS:** **<used1>,<total1>,<used2>,<total2>,<used3>,<total3>** ***+CMS ERROR: <err>***
Read Command **AT+CPMS?**	Response **+CPMS:** **<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,** **<mem3>,<used3>,<total3>** ***+CMS ERROR: <err>***
Test Command **AT+CPMS=?**	Response **+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s)**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.2.2 Field

Parameters	Description
< mem1>	**SM** SIM card **ME** modem **SM_P** SIM priority **ME_P** Modem NV priority **MT** Modem terminal
< mem2>	**SM** SIM card **ME** modem **SM_P** SIM priority **ME_P** Modem NV priority **MT** Modem terminal
< mem3>	**SM** SIM card **ME** modem **SM_P** SIM priority **ME_P** Modem NV priority **MT** Modem terminal
<usedX>	**Num of memX uesd**

10.3 AT+CMGF Message Format

Sets the input and output format to be used by the TA.

10.3.1 Format

Write Command **AT+CMGF=[<mode>]**	Response **OK**
Read Command **AT+CMGF?**	Response **+CMGF: <mode>**

Test Command **AT+CMGF=?**	Response **+CMGF: (list of supported <mode>s)**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.3.2 Field

Parameters	Description
<mode>	**0**PDU mode (default when implemented) **1**text mode

10.4 AT+CSCA Service Center Address

Updates the SMCS address, through which mobile-originated SMSs are transmitted. In textmode, the setting is used by send (AT+CMGS) and write (AT+CMGW) commands. In PDUmode, the setting is used by the same commands, but only when the length of the SMCS address (coded into <pdu> parameter) equals zero.

10.4.1 Format

Write Command **AT+CSCA=<sca>[,<tosca>]**	Response
Read Command **AT+CSCA?**	Response **+CSCA: <sca>,<tosca>**

Test Command **AT+CSCA=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.5 AT+CSMP Set Text Mode Parameters

10.5.1 Description

Setting Text Mode Parameters. Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected. 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). The format of <vp> is given by <fo>.

10.5.2 Format

Write Command **AT+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]**	Response
Read Command **AT+CSMP?**	Response **+CSMP:** **<fo>,<vp>,<pid>,<dcs>**
Test Command **AT+CSMP=?**	Response

Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.6 AT+CSDH Show Text Mode Parameters

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

Test command returns supported values as a compound value.

10.6.1 Format

Write Command **AT+CSDH=[<show>]**	Response
Read Command **AT+CSDH?**	Response **+CSDH: <show>**
Test Command **AT+CSDH=?**	Response **+CSDH: (list of supported <show>s)**
Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.7 AT+CSCB Select Cell Broadcast Message Types

Selects which types of CBMs are to be received by the ME.

10.7.1 Format

Write Command **AT+CSCB=[<mode>[,<mids>[,<dcss>]]]**	Response TA selects which types of CBMs are to be received by the ME. Note: The Command writes the parameters in NON-VOLATILE memory. **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
Read Command **AT+CSCB?**	Response **+CSCB: <mode>,<mids>,<dcss>**
Test Command **AT+CSCB=?**	Response **+CSCB: (list of supported <mode>s)**

Reference	Note1 For <mids> of <mode>=0, our design is to open the <mids> from user input and close other <mids>. In the following case, user input <mode>=0 and <mids>=2. So open channel 2 and close other channel (channel 1). AT+CSCB? +CSCB: 0,**"1"**,"1" OK AT+CSCB=**0**,**"2"**,"2" OK AT+CSCB? +CSCB: 0,**"2"**,"1,2" OK In the following case, user input <mode>=0 without <mids>. So don‘t open any channel and close other channel (channel 1). AT+CSCB? +CSCB: 0,**"1"**,"1" OK AT+CSCB=**0** OK AT+CSCB? +CSCB: 0,**""**,"1" OK For <dcss> of <mode>=0, our design is to **increase** the <dcss> from user input. In the following case, user input <mode>=0 and <dcss>=2. So **increase** language 2. AT+CSCB? +CSCB: 0,"1",**"1"** OK AT+CSCB=**0**,"2",**"2"** OK AT+CSCB? +CSCB: 0,"2",**"1,2"** OK In the following case, user input <mode>=0 without <dcss>. So don‘t **increase** any language. AT+CSCB? +CSCB: 0,"1",**"1"** OK AT+CSCB=**0** OK AT+CSCB? +CSCB: 0,"",**"1"** OK

Reference	Note2 For <mids> of <mode>=1, our design is to close all <mids> no matter with <mids> or not. In the following case, user input <mode>=1. So close all channel. AT+CSCB? +CSCB: 0,**"2"**,"1,2" OK AT+CSCB=**1**,"2","2" OK AT+CSCB? +CSCB: 1,**""**,"1" OK In the following case, user input <mode>=1 without <mids>. Also close all channel. AT+CSCB? +CSCB: 0,**"1"**,"1" OK AT+CSCB=**1** OK AT+CSCB? +CSCB: 1,**""**,"1" OK For <dcss> of <mode>=1, our design is to **decrease** the <dcss> from user input. In the following case, user input <mode>=1 and <dcss>=2. So **decrease** language 2. AT+CSCB? +CSCB: 0,"2",**"1,2"** OK AT+CSCB=**1**,"2",**"2"** OK AT+CSCB? +CSCB: 1,"",**"1"** OK In the following case, user input <mode>=1 without <dcss>. So don't **decrease** any language. AT+CSCB? +CSCB: 0,"1",**"1"** OK AT+CSCB=**1** OK AT+CSCB? +CSCB: 1,"",**"1"** OK

Reference	Usage Note
	<mid> 3GPP TS 23.041 CBM Message Identifier in integer format □□<dcs> depending on the command or result code: 3GPP TS 23.038 SM Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format □□We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.7.2 Field

Parameters	Description
<mode>	**0**message types specified in <mids> and <dcss> are accepted **1**message types specified in <mids> and <dcss> are not accepted
<mids>	We support **10** message identifiers at most. String type (string should be included in quotation marks); all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string); e.g. "0,1,5,320,922". Total 15 different <mids> values can be supported. <mids> values cannot be written consecutively, such as "100-200"
string type	all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string);
<dcss>	string type; all different possible combinations of CBM data coding schemes (refer<dcs>) (default is empty string);e.g. "0-3,5"

10.8 AT+CSAS Save Settings

Execution command saves active message service settings to a non-volatile memory.

Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are saved. Certain settings may not be supported by the storage (e.g. (U)SIM SMS parameters) and therefore can not be saved.

10.8.1 Format

Write Command **AT+CSAS[=<profile>]**	Response ***+CMS ERROR: <err>***
Test Command **AT+CSAS=?**	Response **+CSAS: (list of supported <profile>s)**
Execution Command **AT+CSAS**	Response Same as AT+CSAS=0. ***OK*** If error is related to ME functionality: ***+CMS ERROR <err>***
Reference	Note **We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT**

10.8.2 Field

Parameters	Description
<profile>	0-3 manufacturer specific profile number where settings are to be stored

10.9 AT+CRES Restore Settings

Execution command restores message service settings from non-volatile memory to activememory. A TA can contain several profiles of settings. Settings specified in commands ServiceCentre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast MessageTypes +CSCB (if implemented) are restored. Certain settings may not be supported by thestorage (e.g. (U)SIM SMS parameters) and therefore can not be restored.

10.9.1 Format

Write Command **AT+CRES[=<profile>]**	Response ***+CMS ERROR: <err>***
Test Command **AT+CRES=?**	Response **+CRES: (list of supported <profile>s)**
Execution Command **AT+CRES**	Response Same as AT+CRES=0. ***OK*** If error is related to ME functionality: ***+CMS ERROR <err>***
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.9.2 Field

Parameters	Description
<profile>	0...3 manufacturer specific profile number where settings are to be stored

10.10 AT+CNMI New Message Indications to TE

Selects the procedure how the reception of new messages from the network is indicated tothe TE when TE is active (DTR signal is ON). IF TE is inactive (DTR signal OFF), message reception is carried out as specified in GSM 03.38. This command enables the unsolicited result codes +CMT, +CMTI, +CBM, and +CDS. (Please refer to 07.07 for more detail)

If received new SMS, Ring pin will change status as below table.

Module status	Ringpin status
Standby	HIGH
ReceivedSMS	When receivmg SMS the RI will be changed to LOW and hold at

	low level for about 120 ms then it is changed to HIGH' meanwhile the module Will repolt following URCs: +CMTI. +CMT: +CDS:
TCPIP events	When execute followmg TCPIP AT command, the RI will be changed to LOW and hold at low level for about 120 ms, then it is changed to HIGH. (1) TCP create the connect by AT+CIPSTART command (2) TCP close the connect by AT+CIPCLOSE command
Note: For L206(D), Ring pin is named as RING1.	

10.10.1 Format

Write Command **AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]**	Response ***+CMS ERROR: <err>***
Read Command **AT+CNMI?**	Response **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>**
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)**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.10.2 Field

Parameters	Description
<mode>	**0** disable unsolicited result code **1**Discard indication and reject new received message unsolicited result codes whenTA-TE link isreserved (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-linedata mode) andflush 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 inbandtechnique used toembed result codes and data when TA is in on-line data mode
<mt>	**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 tothe TE usingunsolicited result code: +CMTI: <mem>,<index> **2**SMS-DELIVERs (except class 2 messages and messages in the message waitingindication group(store message)) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled); or +CMT: <oa>, [<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>, <length>] <CR><LF><data> (text mode enabled; about parameters in italics, refer commandShow Text Mode Parameters +CSDH) **3**Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codesdefined in <mt>=2. Messages of other data coding schemes result in indication asdefined in <mt>=1

<bm>	**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)If ME supports data coding groups which define special routing also for messagesother than class 3 (e.g. (U)SIM specific messages), ME may choose not to routemessages of such data coding schemes into TE (indication of a stored CBM may be given as defined in <bm>=1). **3** Class 3 CBMs are routed directly to TE using unsolicited result codes defined in<bm>=2. If CBMstorage is supported, messages of other classes result in indication as defined in<bm>=1
<ds>	**0**No SMS-STATUS-REPORTs are routed to the TE. **1**SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS: <length><CR><LF><pdu> (PDU mode enabled); or +CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)
<bfr>	**0**TA buffer of unsolicited result codes defined within this command is flushed to the TEwhen <mode>1 is entered (OK response shall be given before flushing the codes). **1**TA buffer of unsolicited result codes defined within this command is cleared when<mode> 1...3 isentered.

10.11 AT+CMGL (Text mode) List Message

Returns messages with status value <stat> from returned message in preferred storage to theTE.

10.11.1 Format

Write Command **AT+CMGL[=<stat>]**	Response **if text mode (+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:** +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>]*[,<tooa/toda>,<length>]*<CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>]*[,<tooa/toda>,<length>]*<CR><LF><data>[...]] **if text mode (+CMGF=1), command successful and SMS-STATUS-REPORTs:** +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> [<CR><LF> +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> [...]] **if text mode (+CMGF=1), command successful and SMS-COMMANDs:** +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>
Test Command **AT+CMGL=?**	Response **+CMGL: (list of supported <stat>s)**
Execution Command **AT+CMGL**	Response the same as AT+CMGL="REC UNREAD", received unread messages
Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT Parameters look at the next command.

10.12 AT+CMGL(PDU mode) List Message

Returns messages with status value <stat> from returned message in preferred storage tothe

TE.

10.12.1 Format

Write Command **AT+CMGL[=<stat>]**	Response **if PDU mode (+CMGF=0) and command successful:** +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu> [<CR><LF>+CMGL:<index>,<stat>,[<alpha>],<length><CR><LF> <pdu> [...]] **otherwise:** *+CMS ERROR: <err>*
Test Command **AT+CMGL=?**	Response **+CMGL: (list of supported <stat>s)**
Execution Command **AT+CMGL**	Response the same as AT+CMGL=0, received unread messages
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.12.2 Field

Parameters	Description
<alpha>	String type(string should be included in quotation marks) alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with Command Select TE Character Set +CSCS (see definition of this Command in 3GPP TS 27.007)

<da>	GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer Command+CSCS in 3GPP TS 27.007); type of address given by <toda>
<data>	In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format: - if <dcs> indicates that GSM 03.38 default alphabet is used and <fo> indicates that GSM 03.40 TPUser-Data-Header-Indication is not set: - if TE character set other than "HEX" (refer Command Select TE Character Set +CSCS in 3GPP TS 27.007):ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55)) - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format: - if <dcs> indicates that GSM 03.38 default alphabet is used: - if TE character set other than "HEX" (refer Command +CSCS in 3GPP TS 27.007): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number
<length>	Integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<index>	Integer type; value in the range of location numbers supported by the associated memory
<oa>	GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer Command +CSCS in 3GPP TS 27.007); 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>)

10.13 AT+CMGR(Text mode) Read Message

Returns messages with location value <index> from preferred message storage <mem1> tothe TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned.

10.13.1 Format

Write Command **L206C is AT+CMGR=<index>[,<mode>] other is AT+CMGR=<index>**	Response **if text mode (+CMGF=1), command successful and SMS-DELIVER:** +CMGR: <stat>,<oa>,[<alpha>],<scts>*[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]*<CR><LF><data> **if text mode (+CMGF=1), command successful and SMS-SUBMIT:** +CMGR: <stat>,<da>,[<alpha>]*[,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]*<CR><LF><data> **if text mode (+CMGF=1), command successful and SMS-STATUSREPORT:** +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> **if text mode (+CMGF=1), command successful and SMS-COMMAND:** +CMGR: <stat>,<fo>,<ct>*[,<pid>,[<mn>],[<da>],[<toda>],<length><CR><LF><cdata>]* **if text mode (+CMGF=1), command successful and CBM storage:** +CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> **otherwise:** *+CMS ERROR: <err>*
Test Command **AT+CMGR=?**	Response
Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.13.2 Field

Parameters	Description
<index>	Integer type; value in the range of location numbers supported by the associated memory
<**mode**>	0 Normal 1 Not change status of the specified SMS record

10.14 AT+CMGR(PDU mode) Read Message

Returns messages with location value <index> from preferred message storage <mem1> tothe TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned.

10.14.1 Format

Write Command **L206C is AT+CMGR=<index>[,<mode>] other is AT+CMGR=<index>**	Response **if PDU mode (+CMGF=0) and command successful:** +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> **otherwise:** *+CMS ERROR: <err>*
Test Command **AT+CMGR=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.14.2 Field

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

<mode>	0 Normal 1 Not change status of the specified SMS record

10.15 AT+CNMA(Text mode) New Message Acknowledgement toME/TA

Execution command confirms correct reception of a new message (SMS-DELIVER or SMSSTATUS-REPORT) which is routed directly to the TE. This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service>equals 1.

10.15.1 Format

Execution Command **if text mode (+CMGF=1):** **AT+CNMA**	Response ***+CMS ERROR: <err>***
Test Command **AT+CNMA=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.16 AT+CNMA(PDU mode) New Message Acknowledgement toME/TA

Execution command confirms correct reception of a new message (SMS-DELIVER or SMSSTATUS-REPORT) which is routed directly to the TE This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service>equals 1.

10.16.1 Format

Write Command **if PDU mode (+CMGF=0):** AT+CNMA[=<n>[,<length>[<CR>***PDU isgiven***<ctrl-Z/ESC>]]]	Response ***+CMS ERROR: <err>***
Test Command **AT+CNMA=?**	Response **if PDU mode (+CMGF=0):** +CNMA: (list of supported<n>s)
Reference	Note We don‘t support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.17 AT+CMGS(Text mode) Send Message

Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr>is returned to the TE on successful message delivery.

10.17.1 Format

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

Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.18 AT+CMGS(PDU mode) Send Message

Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr>is returned to the TE on successful message delivery.

10.18.1 Format

Write Command **if PDU mode (+CMGF=0):** AT+CMGS=<length><CR> ***PDU is given***<ctrl-Z/ESC>	Response **if PDU mode (+CMGF=0) and sending successful:** +CMGS: <mr>[,<ackpdu>] **if sending fails:** *+CMS ERROR: <err>*
Test Command **AT+CMGS=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.19 AT+CMSS(Text mode) Send Message from Storage

Execution command sends message with location value <index>from preferred messagestorage <mem2>to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da>is given for SMS-SUBMIT, it shall be used instead of the one stored with the message.Reference value <mr>is returned to the TE on successful message delivery.

10.19.1 Format

Write Command **AT+CMSS=<index>[,<da>[,<toda>]]**	Response **if text mode (+CMGF=1) and sending successful:** +CMSS: <mr>[,<scts>] **if sending fails:** *+CMS ERROR: <err>*
Test Command **AT+CMSS=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.20 AT+CMSS(PDU mode) Send Message from Storage

Execution command sends message with location value <index>from message storage <mem2>to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da>is given for SMS-SUBMIT, it shall be used instead of the one stored with the message. Reference value <mr>is returned to the TE on successful message delivery.

10.20.1 Format

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

Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.21 AT+CMGW(Text mode) Write Message to Memory

Execution command stores a message 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>allowsalso other status values to be given, support "stored" unsent' and "stored sent"

10.21.1 Format

Write Command **if text mode (+CMGF=1):** **AT+CMGW=**<oa/da>[,<tooa/toda>][,<stat>]<CR>***text is entered***<ctrl-Z/ESC>	Response **+CMGW: <index>** ***+CMS ERROR: <err>***
Execution Command **AT+CMGW**	Response **+CMGW: <index>** ***+CMS ERROR: <err>***
Test Command **AT+CMGW=?**	Response **OK**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.21.2 Field

Parameters	Description
<stat>	the status of message in memory in string format; defined values: "REC UNREAD" received unread message (i.e. new message) "REC READ" received read message "STO UNSENT" stored unsent message (only applicable to SMs) "STO SENT" stored sent message (only applicable to SMs)

10.22 AT+CMGW(PDU mode) Write Message to Memory

Execution command stores a message to memory storage <mem2>. Memory location<index>of the stored message is returned. By default message status will be set to "storedunsent", but parameter <stat>allows also other status values to be given, support "storedunsent"'and "stored sent"

10.22.1 Format

Write Command **if PDU mode (+CMGF=0):** **AT+CMGW=**<length>[,<stat>]<CR>***PDU is given*** <ctrl-Z/ESC>	Response **+CMGW: <index>** ***+CMS ERROR: <err>***
Test Command **AT+CMGW=?**	Response **OK**
Reference	Note is only supported for phone suite. Others can't use this command to dotest. □We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT Shall construct the PDU in recived short message format When the <stat> set 0 or 1.

10.22.2 Field

Parameters	Description
<stat>	Integer type value indicating the status of message in memory; defined values: **0** "REC UNREAD" received unread message (i.e. new message) **1** "REC READ" received read message **2** "STO UNSENT" stored unsent message (only applicable to SMS) **3** "STO SENT" stored sent message (only applicable to SMS)

10.23 AT+CMGD Delete Message

Deletes message from preferred message <mem1> (see AT+CPMS) storage location <index>. If deletion fails, +CMS ERROR is returned.

10.23.1 Format

Write Command **AT+CMGD=<index>[,<delflag>]**	Response ***+CMS ERROR: <err>***
Test Command **AT+CMGD=?**	Response **+CMGD: (list of supported<index>s)[,(list ofsupported <delflag>s)]**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.23.2 Field

Parameters	Description

<delflag>	**0** (or omitted) Delete the message specified in <index> **1**Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not)untouched **2**Delete all read messages from preferred message storage and sent mobile originatedmessages,leaving unread messages and unsent mobile originated messages untouched **3**Delete all read messages from preferred message storage, sent and unsent mobile originatedMessagesleaving unread messages untouched. **4**Delete all messages from preferred message storage including unread messages.

10.24 AT+CMGC(Text mode) Send Command

Execution command sends a command message from a TE to the network (SMSCOMMAND).

10.24.1 Format

Write Command **if text mode (+CMGF=1):** +CMGC=<fo>,<ct>[,<pid>[,<mn>[,<da>[,<toda>]]]]<CR> ***text is entered***<ctrl-Z/ESC>	Response **if text mode (+CMGF=1) and sending successful:** +CMGC: <mr>[,<scts>] **if sending fails:** *+CMS ERROR: <err>*
Test Command **AT+CMGC=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.25 AT+CMGC(PDU mode) Send Command

Execution command sends a command message from a TE to the network (SMSCOMMAND).

10.25.1 Format

Write Command **if PDU mode (+CMGF=0):** +CMGC=<length><CR> ***PDU is given***<ctrl-Z/ESC>	Response **if PDU mode (+CMGF=0) and sending successful:** +CMGC: <mr>[,<ackpdu>] **if sending fails:** *+CMS ERROR: <err>*
Test Command **AT+CMGC=?**	Response
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.26 AT+CMMS More Message to Send

Set command controls the continuity of SMS relay protocol link. When feature is enabled (and supported by network) multiple messages can be sent much faster as link is kept open.

Test command returns supported values as a compound value.

10.26.1 Format

Write Command **AT+CMMS=[<n>]**	Response **if PDU mode (+CMGF=0) and sending successful:** +CMGC: <mr>[,<ackpdu>] **if sending fails:** *+CMS ERROR: <err>*
Read Command **AT+CMMS?**	Response **+CMMS: <n>**

Test Command **AT+CMMS=?**	Response **+CMMS: (list of supported <n>s)**
Reference	Note We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.26.2 Field

Parameters	Description
<n>	**0** disable **2**enable (if the time between the response of the latest message send command andthe next send command exceeds 1-5 seconds (the exact value is up to MEimplementation), ME shall close the link but TA shall not switch automatically back to<n>=0)

10.27 AT+CMGDA Delete All SMS

This command is used to delete all SMS.

Test Command **AT+CMGDA=?**	Response **+CMGDA: (**list of supported **<type>**s**)** **OK** **+CMS ERROR: <err>**
Write Command **AT+CMGDA=<type>**	Response **OK** **ERROR** **+CMS ERROR: <err>**

Parameters are defined below:

Parameters	Description

<type>	1) If text mode: "DEL READ" Delete all read messages "DEL UNREAD" Delete all unread messages "DEL SENT" Delete all sent SMS "DEL UNSENT" Delete all unsent SMS "DEL INBOX" Delete all received SMS "DEL ALL" Delete all SMS 2) If PDU mode: 1 Delete all read messages 2 Delete all unread messages 3 Delete all sent SMS 4 Delete all unsent SMS 5 Delete all received SMS 6 Delete all SMS

10.28 AT+EQSI Query storage index

To query storage index.

10.28.1 Format

Write Command **AT+EQSI=<storage>**	Response **+EQSI: <storage>, <begin>, <end>, <used>** **OK/ERROR**
Test Command **AT+EQSI=?**	Response **+ESUO: (list of supported<storage>s)**
Reference	Note This command is only supported for phone suite. Others can't use this command to do test

10.28.2 Field

Parameters	Description

<storage>	string type; SM or ME
<begin>	beginning of index
<end>	ending of index
<used>	number of messages in <storage>

10.29AT+EMGR(PDU mode) Read Message (for phone suite)

Returns messages with location value <index> from preferred message storage <mem1> tothe TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned. It is similar with AT+CMGR (PDU mode). <stat> is different.

10.29.1 Format

Write Command **AT+EMGR=<index>**	Response **if PDU mode (+CMGF=0) and command successful:** +EMGR: <stat>,[<alpha>],<length><CR><LF><pdu> **otherwise:** *+CMS ERROR: <err>*
Test Command **AT+EMGR=?**	Response
Reference	Note The command is available from 09B.1017MP This command is only supported for phone suite. Others can't use this command to do test.

10.29.2 Field

Parameters	Description

<stat>	the status of message in memory; defined values: **0** "REC UNREAD" received unread message (i.e. new message) **1** "REC READ" received read message **2** "STO UNSENT" stored unsent message (only applicable to SMs) **3** "STO SENT" stored sent message (only applicable to SMs) **4** "ALL" all messages (only applicable to +CMGL command) **7** "DRAFT"

11 Hardware Testing AT Commands

These AT commands are designed for tools to do factory hardware testing and should be tested **exclusively**. Test only one command/item at the same time.

11.1 AT+EALT Audio Sound Playback

This Command is used to turn on/off the loop back test.

11.1.1 Format

Write Command **AT+EALT = <op>**	Response **OK | ERROR | +CME ERROR: <err>**
Test Command **AT+EALT =?**	Response **+EALT: (list of supported<op>s)**

11.1.2 Field

Parameters	Description
op	0 turn offthe loop back test. 1 turn onthe loop back test.

11.2 AT+ESAM Set Audio Mode

This Command is used to set audio mode. We have three audio mode , normal, loud speakerand handset.

11.2.1 Format

Write Command **AT+ ESAM = <mode>**	Response **OK** **ERROR**
Test Command **AT+ ESAM =?**	Response **+ ESAM: (0-2)** **OK**
Reference	Note For L206(D) module, onlymode2 will take effect

Field

Parameters	Description
mode	0normal 1 handset 2 loudspeaker

11.3 AT+EGMR Mobile Revision and IMEI

This command is used to get mobile revision and IMEI for Engineer mode and factory test using.

The set operation only apply for IMEI, Serial Number and SV.

Setting new IMEI needs to reboot the target, then IMEI can take effect.

11.3.1 Format

Write Command **AT+ EGMR =** **<op>,<type>[,<str>]**	Response When type = (1-7, 9): [+EGMR: "str"] OK When type = 8 (+EGMR=0,8 to get MMI resource): +AUDIO: "ver" +IMAGE: "ver" +FONT: "ver" +STR: "ver" OK
Test Command **AT+ EGMR =?**	Response **+ EGMR: (0,1),(0-5,7-9)**
Reference	Example **3. read IMEI:** AT+EMGR=0,7 +EGMR: "135790246811220" OK **4. Write IMEI:** AT+EGMR=1,7,"123451234512345" OK AT+EGMR=0,7 +EGMR: "123451234512345" OK **5. read SV of IMEISV** AT+EGMR=0,9 +EGMR: "78" OK **6. Write SV** AT+EGMR=1,9,"01" OK AT+EGMR=0,9 +EGMR: "01" OK

Reference	Note
	<type> = 10, 11, and 12 are only turned on when GEMINI, GEMINI+ with 3 or more SIM, andGEMINI+ with 4 SIM respectively.

11.3.2 Field

Parameters	Description
<op>	**0** get **1** Set
<type>	**0**Baseband chipset (only for op= 0) **1**DSP code (only for op= 0) **2**DSP patch (only for op= 0) **3**MCU software (only for op= 0) **4**MS board(hardware) (only for op= 0) **5**Serial Number **6**Melody revision (only for op=0) **7**SIM1 IMEI **8**MMI resource ver. (only for op=0) **9**SV (Software Version in IMEISV: 2digit **10**SIM2 IMEI **11**SIM3 IMEI 12 SIM4 IMEI
<str>	Input/outputstring

11.4 AT+SPEAKER Speaker and MIC select

This command is used to select speaker and MIC.

This command is used to select speaker and MIC.Test Command **AT+SPEAKER=?**	Response **+SPEAKER: (0-1), (0-1)** **OK**

Read Command **AT+SPEAKER?**	Response **+ SPEAKER: <speaker channel>,<MIC channel>** **OK** Or **Error**
Write Command **AT+SPEAKER=<speaker channel>,<MIC channel>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<speaker channel>	0 speaker channel 0 1 speaker channel 1
<MIC channel>	0 MIC channel 0 1 MIC channel 1

11.5 AT+SIDET Change the side tone gain level

This command is used to change the side tone gain level.

Test Command **AT+SIDET=?**	Response **+SIDET: (0,2), (0-16)** **OK**

Read Command	Response
AT+SIDET?	**+ SIDET: <channel 0 level>,<channel 1 level>** **OK** **Or** **Error**
Write Command	Response
AT+SIDET=<channel number>, <channel n level>	**OK** **Or** **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<channel number>	0 channel number 0 2 channel number 2
<channel n level>	0 -16 channel level (**n** refer to **<channel number>**)

Example:

Commands	Response
AT+SIDET=?	**+SIDET: (0,2),(0-16)** **OK**
AT+SIDET=1,11	**OK**

11.6 AT+ESLP Sleep Mode

This Command is used to enable and disable sleep mode in the mobile.

11.6.1 Format

Write Command **AT+ ESLP = <op>**	Response OK
Test Command **AT+ ESLP =?**	Response **+ ESLP: (0, 1)**

11.6.2 Field

Parameters	Description
op	0 disable 1 enable

11.7 AT+CSCLK Configure Slow Clock

This Command is used to Configure Slow Clock.

11.7.1 Format

Test Command **AT+CSCLK=?**	Response **+CSCLK: (**list of supported **<n>s)** **OK**
Read Command **AT+CSCLK?**	Response **+CSCLK: <n>** **OK**

Write Command **AT+CSCLK=<n>**	Response **OK** Or **ERROR**
Reference	Note There are two caveats when you want to quit sleep mode in mode 2: 1, You should input some characters (at least one) to awake module 2, An interval time of 100ms more is necessary between waking characters and following AT commands,otherwise the waking characters will not be discarded completely,and messy codes will be produced which may leads to UART baudrate re-adaptation. The +CSCLK value can not be reset by AT&F or ATZ command.

11.7.2 Field

Parameters	Description
< n>	**0** Disable slow clock, module will not enter sleep mode. **1** Enable slow clock, it is controlled by DTR. When DTR is high, module can enter sleep mode. When DTR changes to low level, module can quit sleep mode. **2** Enable slow clock automatically. When there is no interrupt (on air and hardware such as GPIO interrupt or data in serial port), module can enter sleep mode. Otherwise, it will quit sleep mode.

11.8 AT+SGPIO Control the GPIO

This Command is used to control the GPIO.

11.8.1 Format

Write Command **AT+SGPIO=<operation>,<GPIO>,<function>,<level>**	Response **OK** **ERROR**
Test Command **AT+SGPIO=?**	Response **+SGPIO: (0-1),(1-70),(0-1),(0-1)** **OK**
Reference	Note Scope of parameter <GPIO> is different among SIM800 series projects,please refer to chapter 21 for details.

11.8.2 Field

Parameters	Description
<Operation>	0 Set the GPIO function including the GPIO output 1 Read the GPIO level. Please note that only when the gpio is set as input, user can use parameter 1 to read the GPIO level, otherwise the module will return "ERROR".
<GPIO>	The GPIO you want to be set. (It has relations with the hardware, please refer to the hardware manual)
<function>	Only when <Operation> is set to 0, this option takes effect. 0 Set the GPIO to input. 1 Set the GPIO to output
<level>	0 Set the GPIO low level 1 Set the GPIO high level

12 STK AT Commands

Please refer to another document Remote_SAT (RSAT). We introduce the STK AT command in detailin thatdocument.

13 Proprietary AT Commands For PS

13.1 AT+EPBSE Band Selection

To set MS preferred band.

13.1.1 Format

Write Command **AT+EPBSE=<gsm_band>, <umts_band>**	Response **OK**
Read Command **AT+EPBSE?**	Response **+EPBSE: <gsm_band>, <umts_band>**
Test Command **AT+EPBSE =?**	Response **List of supported bit masks of each band mode** **+EPBSE: <gsm_band>, <umts_band>**
Reference	Example Set Auto band (select all supported bands) AT+EPBSE=255, 65535 OK Set “EURO band” (GSM-900 / DCS-1800 / WCDMA-IMT-2000) AT+EPBSE=10, 1 OK

Reference	Note
	1. This command is not allowed to set each band mode, GSM or UMTS, as 0, saidAT+EPBSE=<gsm_band>,0 or AT+EPBSE=0, <umts_band>. 2. If the band mode is not supported, this command will just ignore the setting 3. After using this command, user should reboot the handset to let the setting become effectiveif the compile option __DYNAMIC_BAND_SEL__ is not opened 4. If we get 0 in the certain field using AT+EPBSE=? , it means that the field is not supported.

13.1.2 Field

Parameters	Description
<GSM_band>	bit 1 EGSM900 bit 3 DCS1800 bit 4 PCS1900 bit 7 GSM850 0xff Auto selection
<UMTS_band>	bit 0 UMTS BAND I : WCDMA-IMT-2000 bit 1 UMTS BAND II : WCDMA-PCS-1900 bit 2 UMTS BAND III : WCDMA-DCS-1800 bit 3 UMTS BAND IV : WCDMA-AWS-1700 bit 4 UMTS BAND V : WCDMA-CLR-850 bit 5 UMTS BAND VI : WCDMA-800 bit 6 UMTS BAND VII : WCDMA-IMT-E-2600 bit 7 UMTS BAND VIII : WCDMA-GSM-900 bit 8 UMTS BAND IX : WCDMA-1800 bit 9 UMTS BAND X : WCDMA-1700 0xffff Auto selection

13.2 AT+EGPAU PPP Authentication

This command is used to set GPRS PPP negotiated authentication protocol.

13.2.1 Format

Write Command **AT+ EGPAU =** **<op>,<cid>** **[,<is_chap>]**	Response **OK**
Test Command **AT+ EGPAU =?**	Response **+ EGPAU: (0,1), (<cid range>), (0-2)**

13.2.2 Field

Parameters	Description
op	**0** Read **1** Write
cid	Please refer to the value intest command response.
is_chap	**0** PAP **1** CHAP **2** NONE

13.3 AT+EPIN1 Enter PIN1

This command is used to validate PUK and to define a new PIN code.

13.3.1.1 Format

Write Command **AT+EPIN1=** **<puk>,<new_pin>**	Response ***+CME ERROR: <err>***

Read Command **AT+EPIN1?**	Response **+EPIN1: <code>** ***+CME ERROR: <err>***
Test Command **AT+EPIN1=?**	Response
Reference	Note **Do not use this command during power on process.** During power on process, use AT+CPINto validate PUK. □□Since this proprietary command is intended for modem project or dual-SIM/mode project . Wewon't handle such MMI synchronization problem or perform extra error handling □□Only used AT+EPIN1 when SIM card inserted

13.3.1.2 Field

Parameters	Description
<puk>, <new_pin>	string type values <code> values reserved by the present document: READY MT is not pending for any password SIM PIN MT is waiting SIM PIN to be given SIM PUK MT is waiting SIM PUK to be given SIM BLOCKED PIN and PUK are blocked

13.4 AT+EPIN2 Enter PIN2

This command is used to validate the PIN2 , or to validate PUK2 and to define a new PIN2 code.

13.4.1 Format

Write Command **AT+EPIN2=<pin2>** **or** **+EPIN2=** **<puk2>,<newpin2>**	Response ***+CME ERROR: <err>***

Read Command **AT+EPIN2 ?**	Response **+EPIN2: <code>** ***+CME ERROR: <err>***
Test Command **AT+EPIN2=?**	Response
Reference	Note To verify PIN2 , suggest to use AT+CPWD="P2","PIN2","PIN2". To unblock PIN2, use AT+EPIN2="PUK2","new_PIN2" □□Only used AT+EPIN2 when SIM card inserted and MT has completely boot up.

13.4.2 Field

Parameters	Description
<pin2>, <newpin2>, <puk2>	string type values <code> values reserved by the present document: READY PIN2 is allowed to verified SIM PUK2 PIN2 is blocked SIM BLOCKED PIN2 and PUK2 are blocked

13.5 AT+ESMSS SMS status change mode

SMS status change mode after +CMGR and +CMGL

13.5.1 Format

Write Command **AT+ESMSS= <mode>**	Response ***+CME ERROR: <err>***

Read Command **AT+ESMSS ?**	Response **+ESMSS : <mode>**
Test Command **AT+ESMSS=?**	Response **+ESMSS : (0-1)**

13.5.2 Field

Parameters	Description
<mode>	0 Unchange – SMS status remains as "REC UNREAD" after +CMGR or +CMGL 1 Change – SMS status changes from "REC UNREAD" to "REC READ" after +CMGRor +CMGL.

13.6 AT+EOPN Read Operator name

This command returns the operator name in alphanumeric format when given the numeric format.

13.6.1 Format

Write Command **AT+EOPN=<format>,<oper_num>**	Response **+EOPN: <format>, <oper_alpha>** ***+CME ERROR: <err>***
Test Command **AT+EOPN=?**	Response

Reference	Note **We DO NOT support full set of alphanumeric format of <oper>, since the codesize will become very large. If the customer needs the alphanumeric format,the table can be customized inmcu\custom\ps\xxx_bb\customer_operator_names.c.**

13.6.2 Field

Parameters	Description
<format>	0 long alphanumeric format 19 short alphanumeric format
<oper_num>	the operator in numeric format
<oper_alpha>	the operator in alphanumeric format

13.7 AT +EQUERY General query command

To query hardware or MS status.

Write Command **AT+EQUERY=<op>**	Response **OK** Or **ERROR**
Test Command **AT+EQUERY=?**	Response **+EQUERY: (0-7)** **OK**
Reference	Note We DO NOT support 5,6,7 for M2M

Reference	Example
	AT+EQUERY=0 **+CMGW: (0-3) // SMS support writing SMS to inbox** **OK** **AT+EQUERY=1** **+CHAR: 1 // charger is plug-in** **OK** **AT+EQUERY=2** **+CLAM: 0 // clam is closed** **OK** **AT+EQUERY=5** **+EQMO: 1 // #if defined(__SMS_STORAGE_BY_MMI__) && defined(__GEMINI__)** **OK** **AT+EQUERY=6** **+EPBV: 2 // #if defined(__PHB_STORAGE_BY_MMI__)** **OK** **AT+EQUERY=7** **+ESMSV: 2 // #if defined(__SMS_STORAGE_BY_MMI__)** **OK**

Parameters are defined below:

Parameters	Description
<Op>	0 Query SMS stats to write SMS toinbox 1 Query charger status 2 Query clam status 3 Query if sms ready 4 Query if phb ready 5 Query if open compile option__SMS_STORAGE_BY_MMI__ and __GEMINI__ (for phone suite). 6 Query the PHB System moduleversion.When defined __PHB_STORAGE_BY_MMI__, theversion is 2. Else, theversion is1 7 Query the SMS System moduleversion.When defined __SMS_STORAGE_BY_MMI__, theversion is 2. Else, the version is1.

13.8 AT+EIND Indication Control Command

Set command to enable +EIND unsolicited result code . to indicate the readiness of SMS orPHB or AT

13.8.1 Format

Write Command **AT+EIND= <flag>**	Response **OK** **or** **ERROR**
Read Command **AT+EIND?**	Response **+EIND: <ind>**
Test Command **AT+EIND=?**	Response **+EIND: (0-4294967295)**

13.8.2 Field

Parameters	Description
flag	Bit 0Any value(0~4294967295) that bit0 is 1 e.g. 1,3,5.. Bit 1Any value(0~4294967295) that bit1 is 1 e.g. 2,3,6. Bit 2 Any value(0~4294967295) that bit2 is 1 e.g. 4,5,.. Bit 3 Any value(0~4294967295) that bit3 is 1 e.g. 8,9.. Bit 7 Any value(0~4294967295) that bit7 is 1 e.g. 128,129,130..
ind	1 SMS_READY 2 PHB_READY 4 file change for PLMN files 8 file change for EONS files 16 Invalid SIM 128 AT_READY

13.9 AT +ECSQ Received signal level indication

Set command to enable +ECSQ unsolicited result code . to indicate the received signal level.

13.9.1 Format

Write Command **AT+ECSQ= <flag>**	Response **OK** or **ERROR**
Read Command **AT+ECSQ?**	Response **+ECSQ: <flag>**
Test Command **AT+ECSQ=?**	Response **+ECSQ: (0,1)**
Reference	Note Unsolicited result code format: +ECSQ: <rssi>,<ber>,<rssi_in_qdbm>[,<RSCP_in_qdbm>,<EcN0_in_qdbn]

13.9.2 Field

Parameters	Description
flag	0 Received signal level indicationdisable 1 Received signal level indicationenable
rssi	0-255Received signal strengthindication
ber	0-255Bit error rate
RSCP	RSCP Inqdbm
EcN0	EcN0Inqdbm

13.10 AT+EINFO URC Information Control Command

Set command to enable some proprietary unsolicited result code(URC) information report.

13.10.1 Format

Write Command **AT+EINFO= <flag>**	Response **OK** **or** **ERROR**
Read Command **AT+EINFO?**	Response **+EINFO: <flag>**
Test Command **AT+EINFO=?**	Response **+EINFO: (0-4294967295)**

13.10.2 Field

Parameters	Description
flag	Bit 0Any value(0~4294967295) that bit0 is 1 e.g. 1,3,5.. Bit 1 Any value(0~4294967295) that bit1 is 1 e.g. 2,3,6.. Bit 2 Any value(0~4294967295) that bit2 is 1 e.g. 4,5,.. Bit 3 Any value(0~4294967295) that bit3 is 1 e.g. 8,9.. Bit 7 Any value(0~4294967295) that bit7 is 1 e.g. 128,129,130..

Currently , bit 0 is for +ESMLA (see 15.14 for detail) , bit 1 is for +ECFU (see 15.15 for detail) , bit 4 is for +ESPEECH (see 15.16 for detail)

13.11 AT+EBOOT Boot up mode

This command is used to set the boot up mode for modem. If boot up in exception mode, modem will perform silent boot up, such as bypass PIN check when it has been verified before.

13.11.1.1 Format

Write Command	Response
AT+EBOOT=<mode>	**OK** **or** **ERROR**

13.11.1.2 Field

Parameters	Description
<mode>	0 Normal boot up 1 Exceptoon boot up

13.12 AT+ICCID Read ICCID of SIM Card

This command is used to read SIM card ICCID if SIM inserted. If SIM not inserted, return +CME ERROR: 10

13.12.1.1 Format

Execution Command	Response
AT+ICCID	**<iccid>** **OK** **ERROR / +CME ERROR: 10**

13.12.1.2 Field

Parameters	Description
<iccid>	string type

□□

14 Proprietary Unsolicited Result code

14.1 URC:+ECSQ

This URC is to report signal strength

14.1.1 Format

Execution Command	Response **Unsolicited result code** **+ECSQ:** **<rssi>,<ber>,<rssi_in_qdbm>[,<RSCP_in_qdbm>,<EcN0_in_qdbm>]**

14.1.2 Field

Parameters	Description
rssi	0-255Received signal strengthindication level
ber	0-255Bit error rate
rssi_in_qdbm	Received signal strength inquarter dbm
RSCP_in_qdbm	RSCP in quarter dbm.Only avaliabe when camp on UMTSnetwork
EcN0_in_qdbm	EcN0 in quarter dbm. Only avaliabe when camp on UMTSnetwork

14.2 URC:+ESMLA

This URC is to report if Auto personalization(defined in 3GPP TS 22.022) is enabled.

14.2.1 Format

Execution Command	Response **Unsolicited result code** **+ESMLA: <is_autolock_enabled>, <autolock_result>**

14.2.2 Field

Parameters	Description
is_autolock_enabled	0 autolock is disabled 1 autolock is enabled
autolock_result	0 autolock is failed 1 autolock is successful

14.3 URC:+ECFU

This URC is intended to notify application to show CFU(Call Forwarding Uncondictional) icon.

14.3.1 Format

Execution Command	Response **Unsolicited result code** **+ECFU: <status>,<line>**
Reference	Note Available after W09.04 . And it's only supported in modem load .

14.3.2 Field

Parameters	Description
status	0 hide CFU icon 1 show CFU icon
line	1 Line1 2 Line2

14.4 URC:+ESPEECH

This URC is to notify application to attach the speech for voice call (user connection). It's defined inspec 24.008 section5 call control .

14.4.1 Format

Execution Command	Response **Unsolicited result code** **+ESPEECH: <on_off>,<rat>,<irho_speech_on_off>**
Reference	Note Available after W09.12 . And it's only supported in modem load .

14.4.2 Field

Parameters	Description
on_off	0 Detach speech 1 Attach speech
Rat	1 GSM 2 UMTS 3 GSM
irho_speech_on_off	0 Not inter-rat handover 1 Is inter-rat handover

14.5 URC:+ESCRI

This URC is to notify application the result of AT+ESCRI

14.5.1 Format

Execution Command	Response **Unsolicited result code** **+ESCRI: <report_value>**

14.5.2 Field

Parameters	Description
<report_value>	SCRI_REQ_SENT = 0, SCRI_CS_SESSION_ONGOING = 1, SCRI_PS_SIGNALLING_ONGOING = 2, SCRI_NO_PS_DATA_SESSION = 3, SCRI_REQ_NOT_SENT = 4, SCRI_NOT_ALLOWED = 5

14.6 URC:+ESIMS

Indicate the SIM is inserted or not and related cause

14.6.1 Format

Execution Command	Response
	+ESIMS: <sim_inserted_status>,<cause >

14.6.2 Field

Parameters	Description
<sim_inserted_status>	0 SIM not presented 1 SIM presented

<cause>	0 SIM_CARD_REMOVED, 1 SIM_ACCESS_ERROR, 2 // Reserved for other use 3 // Reserved for other use 4 // Reserved for other use 5 SIM_ACCESS_PROFILE_ON 6 SIM_ACCESS_PROFILE_OFF 7 DUALSIM_DISCONNECTED 8 DUALSIM_CONNECTED 9 SIM_VSIM_ON 10 SIM_VSIM_OFF 11 SIM_PLUG_OUT 12 SIM_PLUG_IN 13 SIM_RECOVERY_START 14 SIM_RECOVERY_END

14.7 URC:+EUSIM

Indicate the inserted SIM card is SIM or USIM.

The URC is control by AT+EIND command(The 6th bit).

14.7.1 Format

Execution Command	Response **+EUSIM: <type>**

14.7.2 Field

Parameters	Description
type	0 SIM 1 USIM

14.8 URC:+ETESTSIM

This URC reports whether current inserted SIM is test SIM during power-on procedure.

There is no query mode for this command.

This URC is supported from W12.23.

14.8.1 Format

Execution Command	Response **Unsolicited result code** **+ETESTSIM: <is_test_sim>**

14.8.2 Field

Parameters	Description
is_test_sim	0 normal sim 1 test sim

15 TCPIP AT commands

Overview of TCPIP AT Commands:

AT Command	Description
AT+CIPMUX	Start up multi-IP connection
AT+CIPMODE	Select TCPIP Application Mode
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+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+CIPSTATUS	Query current connection status
AT+CIPRXGET	Get data from network manually
AT+CIPHEAD	Add an IP Head at the Beginning of a Package Received
AT+CIPQSEND	Select Data Transmitting Mode(no action)
AT+SIDET	Change the side tone gain level
AT+CIPTKA	Set TCP Keepalive Parameters
AT+CIPACK	TCP/IP Data flow calculation
AT+CIPCCFG	Configuration of TCP/IP Transparent mode

15.1 AT+CIPMUX Start Up Multiple IP Connection

This command is used to start Up Multiple IP Connection or single IP Connection.

Test Command **AT+CIPMUX=?**	Response **+CIPMUX: (0,1)** **OK**
Read Command **AT+ CIPMUX?**	Response **+ CIPMUX: <multiple>** **OK** Or **Error**
Write Command **AT+CIPMUX=<multiple>**	Response **OK** Or **ERROR**
Reference	Note Only in IP initial state, AT+CIPMUX=1 is effective; Only when multi IP connection and GPRS application are both shut down, AT+CIPMUX=0 is effective.

Parameters are defined below:

Parameters	Description
<multiple>	0 Single IP connection 1 Multiple IP connection

15.2 AT+CIPMODE Select TCPIP Application Mode

This command is used to Select TCPIP Application Mode

Test Command **AT+CIPMODE=?**	Response **+CIPMODE: (0-NORMAL MODE,1-TRANSPARENT MODE)** **OK**
Read Command **AT+ CIPMODE?**	Response **+ CIPMODE: <mode>** **OK**
Write Command **AT+CIPMODE=<mode>**	Response **OK** Or **ERROR**
Reference	Note Input +++ string to exit transparent mode

Parameters are defined below:

Parameters	Description
<mode>	0 Normal Mode 1 Transparent Mode

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

This command is used to 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**

Write Command **AT+CSTT=<APN>,<user name>,<password>**	Response **OK** Or **ERROR**
Execution Command **AT+CSTT**	Response **OK** Or **ERROR**
Reference	Note The write command and execution command of this command is valid only at the state of IP INITIAL. After this command is executed, the state will be changed to IP START.

Parameters are defined below:

Parameters	Description
<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

15.4 AT+CIICR Bring Up Wireless Connection with GPRS or CSD

This command is used to Bring Up Wireless Connection with GPRS or CSD..

Test Command **AT+CIICR=?**	Response **OK**

Execution Command **AT+CIICR**	Response **<IP address>** **OK** Or **ERROR**
Reference	Note 1. Max Response Time 85 seconds 2. AT+CIICR only activates moving scene at the status of IP START, after operating this Command is executed, the state will be changed to IP CONFIG. 3. After module accepts the activated operation, if it is activated successfully, module state will be changed to IP GPRSACT, and it responds OK, otherwise it will respond ERROR.

Parameters are defined below:

Parameters	Description
<IP address>	A string parameter which indicates the IP address assigned, for example: **10.112.208.9**

15.5 AT+CIFSR Get local IP address

This command is used to get local IP address..

Test Command **AT+CIFSR=?**	Response **OK**
Execution Command **AT+CIFSR**	Response **<IP address>** **OK** Or **ERROR**

Reference	Note
	local IP Address can be obtained by AT+CIFSR, if module hasn't valid IP, it will respond ERROR.

Parameters are defined below:

Parameters	Description
<IP address>	A string parameter which indicates the IP address assigned, for example: **10.112.208.9**

15.6 AT+CIPSTART Start TCP or UDP Connection

This command is used to start TCP or UDP Connection.

Test Command **AT+CIPSTART=?**	Response 1) If AT+CIPMUX=0 **+CIPSTART:("TCP","UDP"),"(0,255).(0,255).(0,255).(0,255)","(1-65535)"** **+CIPSTART:("TCP","UDP"),"DOMAIN NAME","(1-65535)"** **OK** 2) If AT+CIPMUX=1 **+CIPSTART:(0-5),("TCP","UDP"),"(0,255).(0,255).(0,255).(0,255)",** **"(1-65535)"** **+CIPSTART: (0-5),("TCP","UDP"),"DOMAIN NAME","(1-65535)"** **OK**

Write Command	Response
1)If single IP connection (AT+CIPMUX=0) **AT+CIPSTART=<mode>,<IP address or domain name>,<port>** 2)If multi-IP connection (AT+CIPMUX=1) **AT+CIPSTART=<id>,<mode>,< IP address or domain name>,<port>**	**OK** Or **ERROR** If already connected, will return: **OK** **[<n>,]ALREADY CONNECT**
Reference	Note This command allows establishment of a TCP/UDP connection only when the state is IP INITIAL or IP STATUS when it is in single state. In multi-IP state, the state is in IP STATUS only. So it is necessary to process "AT+CIPSHUT" before user establishes a TCP/UDP connection with this command when the state is not IP INITIAL or IP STATUS. When module is in multi-IP state, before this command is executed, it is necessary to process "AT+CSTT, AT+CIICR, AT+CIFSR".

Parameters are defined below:

Parameters	Description
<id>	0..5 A numeric parameter which indicates the connection number
<mode>	A string parameter which indicates the connection type "TCP" Establish a TCP connection "UDP" Establish a UDP connection
<IP address or domain name>	A string parameter which indicates remote server IP address, or domain name.
<port>	Remote server port

<state>	A string parameter which indicates the progress of connecting IP INITIAL CONNECT OK In Multi-IP state: IP INITIAL CONNECT OK

15.7 AT+CIPSEND Send data through TCP or UDP connection

This command is used to send data through TCP or UDP connection.

Test Command **AT+CIPSEND=?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPSEND: (1-1460)** **OK** 2) For multi IP connection (+CIPMUX=1) **+CIPSEND: (0-5),(1-1460)** **OK**
Read Command **AT+CIPSEND?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPSEND: <size>** **OK** 2) For multi IP connection (+CIPMUX=1) **+CIPSEND: <n>,<size>** **OK**

Write Command 1) If single IP connection (AT+CIPMUX=0) **AT+CIPSEND=<length>** 2) If multi IP connection (AT+CIPMUX=1) **AT+CIPSEND=<id>[,<length>]**	Response If single IP is connected (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **SEND OK** When +CIPQSEND=1 **DATA ACCEPT:<length>** If sending fails: **SEND FAIL** If multi IP connection is established (+CIPMUX=1) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: **<n>,SEND OK** If sending fails: **<id>,SEND FAIL**
Execution Command **AT+CIPSEND** response"**>**", then type data for send, tap CTRL+Z to send	Response This Command is used to send changeable length data. If single IP connection is established (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: **SEND OK** If sending fails: **SEND FAIL**

Reference	Note
	This Command can only be used in single IP connection mode (+CIPMUX=0) and to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. ESC is used to cancel sending data. There are at most **<size>**bytes which can be sent at a time.

Parameters are defined below:

Parameters	Description
<id>	0-5 A numeric parameter which indicates the connection number
<size>	1-1460 A numeric parameter which indicates the data length sent one time

15.8 AT+CIPCLOSE Close TCP or UDP connection

This command is used to Close TCP or UDP Connection.

Test Command **AT+CIPCLOSE=?**	Response 1) For single IP connection (+CIPMUX=0) **OK** 2) For multi IP connection (+CIPMUX=1) **+CIPCLOSE: (0-5)** **OK**
Write Command If multi-IP connection (AT +CIPMUX=1) **AT+CIPCLOSE=<id>**	Response For multi IP connection (+CIPMUX=1) **<id>, CLOSE OK**

Execution Command **AT+CIPCLOSE**	Response For single IP connection only (+CIPMUX=0): If close is successfully: **CLOSE OK** If close fails: **ERROR**
Reference	Note This command only closes connection at the status of TCP/UDP which returns **CONNECTING** or **CONNECT OK**, otherwise it will return **ERROR**, after the connection is closed, the status is IP CLOSE in single IP mode.

Parameters are defined below:

Parameters	Description
<id>	0-5 A numeric parameter which indicates the connection number

15.9 AT+CIPSHUT Deactivate GPRS PDP Context

This command is used to deactivate GPRS PDP Context

Test Command **AT+CIPSHUT=?**	Response **OK**
Execution Command **AT+CIPSHUT**	Response If close is successful: **SHUT OK** If close fails: **ERROR** Or

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

15.10 AT+CIPSTATUS Query Current Connection Status

This command is used to Query Current Connection Status.

Test Command	Response
AT+CIPSTATUS=?	**OK** Or **+CIPSTATUS:(0-5)** **OK**
Write Command If multi IP connection mode (AT+CIPMUX=1) **AT+CIPSTATUS=<id>**	Response **+CIPSTATUS: <id>,<bearer>, <TCP/UDP>, <IP address>, <port>,<client state>** **OK**
Execution Command **AT+CIPSTATUS**	Response 1）If in single-IP mode (AT+CIPMUX=0) **+CIPSTATUS:<client state>** **OK** 2) If in multi-IP mode (AT+CIPMUX=1) **+CIPSTATUS: 0,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state>** **...** **+CIPSTATUS: 5,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state>** **OK**

Reference	Note

Parameters are defined below:

Parameters	Description
<id>	0-5 A numeric parameter which indicates the connection number
<bearer>	0-1 GPRS bearer, default is 0
<client state>	INITIAL CONNECTED CLOSED

15.11 AT+CIPRXGET Get Data from Network Manually

This command is used to Get Data from Network Manually.

Test Command	Response
AT+CIPRXGET=?	If single IP connection (+CIPMUX=0) **+CIPRXGET: (list of supported <mode>s),** **(list of supported <REQ length>)** **OK** If multi IP connection (+CIPMUX=1) **+CIPRXGET: (list of supported <mode>s),** **(list of supported <id>s),** **(list of supported <REQ length>)** **OK**
Read Command **AT+CIPRXGET?**	Response **+CIPRXGET: <mode>** **OK**

Write Command	Response
1) If single IP connection (+CIPMUX=0) **AT+CIPRXGET=<mode>[,<REQ length >]** 2) If multi IP connection (+CIPMUX=1) **AT+CIPRXGET=<mode>[,<id>,<REQ length >]**	**OK** Or **ERROR** **1)For single IP connection** If "AT+CIPSRIP=1" is set, IP address and port are contained. if <mode>=1 +CIPRXGET: 1[,<IP ADDRESS>:<PORT>] if <mode>=2 +CIPRXGET: 2,<REQ length>,<CNF length>[,<IP ADDRESS>:<PORT>] 1234567890… OK if <mode>=3 +CIPRXGET: 3,<REQ length>,<CNF length>[,<IP ADDRESS>:<PORT>] 5151… OK **2)For multi IP connection** if <mode>=1 +CIPRXGET: 1[,<id>,<IP ADDRESS>:<PORT>] Or OK if <mode>=2 +CIPRXGET: 2,<id>,<REQ length>,<CNF length>[,<IP ADDRESS>:<PORT>] 1234567890… OK if <mode>=3 +CIPRXGET: 3,<id>,<REQ length>,<CNF length>[,<IP ADDRESS>:<PORT>] 5151… OK If error is related to ME functionality: **+CME ERROR: <err>**
Reference	Note To enable this function, parameter <mode> must be set to 1 before connection.

Parameters are defined below:

Parameters	Description
<mode>	0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly. 1 Enable getting data from network manually. 2 The module can get data, but the length of output data can't exceed 1460 bytes at a time. 3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time. 4Reserved 5 Reserved
<id>	A numeric parameter which indicates the connection number
<REQ length>	Requested number of data bytes (1-1460 bytes)to be read
<CNF length>	Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read.

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

This command is used to add an IP Head at the Beginning of a Package Received.

Test Command **AT+CIPHEAD=?**	Response **+CIPHEAD: (0-1)** **OK**
Read Command **AT+CIPHEAD?**	Response **+ CIPHEAD: <mode>** **OK** Or **Error**

Write Command	Response
AT+CIPHEAD=<mode>	**OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<mode>	0 Normal mode, Not add IP header 1 No effect also

15.13 AT+CIPQSEND Select Data Transmitting Mode

This command is used to select Data Transmitting Mode.

Test Command	Response
AT+CIPQSEND=?	**+CIPQSEND: (0-1)** **OK**
Read Command	Response
AT+CIPQSEND?	**+ CIPQSEND: <n>** **OK** Or **Error**
Write Command	Response
AT+CIPQSEND=<n>	**OK** Or **ERROR**

Reference	Note

Parameters are defined below:

Parameters	Description
<n>	0 Normal mode, 1 No effect also.

15.14 AT+CIPTKA Set TCP Keepalive Parameters

This command is used to set TCP network heartbeat packet function

Read Command **AT+CIPTKA?**	Response +CIPTKA:<mode>,<keepIdle>,<keepInterval>,<keepCount> **OK**
Execution Command **AT+CIPTKA=<mode>[,<keepIdle>[,<keepInterval>[,<keepCount >]]]**	Response **OK** or **ERROR**
Reference	Note This command must be used before AT+CIPSTART, otherwise invalid

Parameters are defined below:

Parameters	Description
<mode>	Set TCP keepalive option. 0 Disable TCP keep alive mechanism 1 Eable TCP keep alive mechanism
<keepIdle>	Interval type; Idle (in second) before TCP send the initial keepalive peobe 30-7200 Default 180
<keepInterval>	Interval type; (in second) between keepalive probes retransmission 30-600 Default 75
<keepCount>	Interval type;Invalid value. 1-9 Default 9

Example:

Commands	Response
AT+CIPTKA=1,180,75,9	**OK**

15.15 AT+CIPACK TCP/IP Data flow calculation

This command is used to calculate TCP/IP data flow status.

Test Command **AT+CIPACK=?**	Response **OK**
Write Command (+CIPMUX=1) **AT+CIPACK=<id>**	Response **OK** **+CIPACK: <txlen>,<acklen>,<nacklen>** Or **ERROR**
Active Command (+CIPMUX=0) **AT+CIPACK**	Response **OK** **+CIPACK: <txlen>,<acklen>,<nacklen>** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description

id	0..5 A numeric parameter which indicates the connection number
txlen	The data amount which has been sent(MAX: 2^{32}-1)
acklen	The data amount confirmed successfully by the server(MAX: 2^{32}-1)
nacklen	The data amount without confirmation by the server(MAX: 2^{32}-1)

15.16 AT+CIPCCFG Configuration of TCP/IP Transparent mode

This command is used to configure transparent mode of TCP/IP connection .

Test Command **AT+CIPCCFG=?**	Response **+CIPCCFG:(3-8),(1-10),(1-1460),(0,1),(0,1),** **(50-1460),(20-1000)** **OK**
Read Command **AT+CIPCCFG?**	Response **+CIPCCFG:** **<retry>,<wait>,<size>,<esc>,<rxmode>,<rxSize>,<rxtimer>** **OK** Or **ERROR**
Write Command **AT+CIPCCFG=<retry>** **,<wait>,<size>,<esc>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description

<retry>	3-8 Number of retries to be made for an IP packet.
<wait>	1-10 Number of 100ms intervals to wait for serial input before sending the packet.
<size>	1-1460 Size in bytes of data block to be received from serial portbefore sending.（default：1024）
<esc>	0-1 Whether turn on the escape sequence, default is TRUE.
<rxmode>	Whether to set time interval during output data from serial port. 0 output data to serial port without interval 1 output data to serial port within <rxtimer> interval.
<rxSize>	50-1460 Output data length for each time, default value is 1460.
<rxtimer>	20-1000 Time interval (ms) to wait for serial port to output data again. Default value: 50 ms

16 HTTP AT Commands

16.1 AT+HTTPPARA Set http parameter

The command is used to set http parameter.

Format

Write Command	Response
AT+HTTPPARA=<para>,<value>	**OK/ERROR** **If error** **+HTTPPARA: errercode**

Field

Parameters	Description

<para>	**url**, target path. param to distinguish HTTP and HTTPS http link use url like "www.baidu.com" or "http://www.baidu.com", https link use url like "https://www.baidu.com" **port**, target port **break**, Parameter for HTTP method "GET", used for resuming broken transfer. **breakend**, parameter for HTTP method "GET", used for resuming broken transfer. **userdata**, User data **dlfile**, set download file name **savetype**, type for save palce **the para below only take effort when post method. and all of them can be omit** **accept**: HTTP request head param **accept-charset** HTTP request head param **accept-encoding** HTTP request head param **accept-language** HTTP request head param **cache-control** HTTP request head param **user-agent** HTTP request head param **authorization** HTTP request head param **cookie** HTTP request head param **content-type** HTTP request head param **content-encoding** HTTP request head param **content-language** HTTP request head param **content-location** HTTP request head param **content-range** HTTP request head param

<value>	**url**, the maximum of 128 bytes, url supports domain name resolution, url must in quote, **port ,** the maximum value is 65535, http default value is 80. https default value is 443 **break,** used for resuming broken transfer. **breakend ,** which is used together with "break", If the value of "breakend" is bigger than " break ", the transfer scope is from " break" to " breakend". If the value of " breakend" is smaller than " break", the transfer scope is from " break" to the end of the file. **userdata**, must in quote, user can set owner param use this **savetype,** save place, 0. output http content to uart(default value) 1. save http context to file 2. save http context to Ram **dlfile,** must in quote, the value below can be set to default or delete when value is "" when **savetype** is 0, is invalid, when savetype is 1, http context will save to file /HTTP_DATA/**dlfile,** if **dlfile** not set, will save to file /HTTP_DATA/http_receive_data when savetype is 2, http context will save to Ram,Ram only has one context at the same time ,so **dlfile** is invalid now the value below can be set to default or delete when value is "" **accept**, the maximum of 300 bytes, default value is ** , must in quote, **accept-charset** the maximum of 300 bytes, must in quote, **accept-encoding** the maximum of 300 bytes, must in quote, **accept-language** the maximum of 300 bytes, must in quote, **cache-control** the maximum of 300 bytes, must in quote, **user-agent** the maximum of 300 bytes, default is Mozilla/5.0 (Windows NT 5.1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/41.0.2272.101 Safari/537.36, must in quote, **authorization** the maximum of 300 bytes, must in quote, **cookie** the maximum of 300 bytes, must in quote, **content-type** the maximum of 300 bytes, must in quote, **content-encoding** the maximum of 300 bytes, must in
errercode	**100** param is full **101** param is too long(post head only support to 2048 bytes) **102** param not set yet **103** param has been set

Example:

Commands	Response
AT+HTTPPARA= url,"www.baidu.com" //set http url parameter	**OK**
AT+HTTPPARA=port, 80 //set port //can ignore	**OK**
HTTPS EXAMPLE	
AT+HTTPPARA= url,"https://www.baidu.com" //set http url parameter	**OK**
ORTHR PARAMS	
AT+HTTPPARA=accept,"text/xml,application/xml,application/xhtml+xml,text/html" //set accept //can ignore	**OK**
AT+HTTPPARA= content-type," application/x-www-form-urlencoded " //set content-type //can ignore	**OK**
AT+HTTPPARA=accept,"" //del accept restore to default	**OK**
AT+HTTPPARA=accept,"" //del accept restore to default	**+HTTPPARA:102 ERROR**

16.2 AT+HTTPSETUP HTTP link establishment

Thecommandis usedto create HTTP link.

Format

Execution Command	Response
AT+HTTPSETUP	**OK/ERROR** The correct destination address and port can be established successfully.

Example:

Commands	Response
AT+HTTPSETUP **//creating HTTP link**	**OK**

16.3 AT+HTTPACTION Sending HTTP request

The command is used to send HTTP request.

Format

Write Command	Response
AT+HTTPACTION=<mode>,[<length>],[<string>]	**OK/ERROR**

Field

Parameters	Description
<mode>	0HTTP GET request 1HTTP HEAD request 2HTTP POST request 99OTHER request
<length>	Maxium 2048,length of HTTP POST request body.
<string>	Value of HTTP POST request body OR other request content

Example:

Commands	Response

AT+HTTPACTION=0 **//send HTTP GET request**	**OK** **+HTTPRECV:** **HTTP/1.1 200 OK** **Date: Fri, 11 Sep 2015 05:21:54 GMT** **Content-Type: image/jpeg** **Content-Length: 6** **Connection: close** **ETag: "2815057560"** **Last-Modified: Wed, 09 Sep 2015 01:33:59 GMT** **Expires: Fri, 11 Sep 2015 05:22:54 GMT** **Cache-Control: max-age=60** **Lfy: st01.i6** **Accept-Ranges: bytes** **□ 123456**
AT+HTTPACTION=1 //send HTTP HEAD request	OK +HTTPRECV: HTTP/1.1 200 OK Date: Fri, 11 Sep 2015 05:25:57 GMT Content-Type: image/jpeg Content-Length: 24794 Connection: close ETag: "2815057560" Last-Modified: Wed, 09 Sep 2015 01:33:59 GMT Expires: Fri, 11 Sep 2015 05:26:57 GMT Cache-Control: max-age=60 Lfy: cq02.i4 Accept-Ranges: bytes
AT+HTTPACTION=2,6,123456 **//send HTTP POST request**	**OK** **+HTTPRECV:** **HTTP/1.1 200 OK** **Date: Fri, 11 Sep 2015 05:25:57 GMT** **…**
AT+HTTPACTION=99, **GET** **http://www.baidu.com** **HTTP/1.1\r\nHOST:** **www.baidu.com\r\n\r\n**	**OK**

16.4 AT+HTTPCLOSE Close HTTP link

The command is used to close HTTP link

Format

Execution Command	Response
AT+HTTPCLOSE	**OK/ERROR**

Example:

Commands	Response
AT+HTTPCLOSE **//close HTTP link**	**OK**

17 AUDIO AT Commands

17.1 AT+ZAUDREC Audio function

Thecommandis usedto audio function.

Format

Write Command **AT+ZAUDREC=<Mode>[,<Filename>]**	Response **OK/ERROR**
Read Command **AT+ZAUDREC?**	Response **+ZAUDREC:<Files_number>,<File_name1>,<len1> ,<File_name2>,<len2>** **OK**
Test Command **AT+ZAUDREC=?**	Response **+ZAUDREC: (0-6)** **OK**

Field

Parameters	Description
mode	0 Start record 1 stop record 2 Play record 3 Stop play record 4 Delete record 5 Start play record in call 6 Stop record in call
filename	Record file name, do not need suffix,suffix is wav,if mode is 0、2、4、5 时,this field is valid,if 0、2、5do not have this field,default name is rec
File_num	File number
len	File size

Example:

Commands	Response
AT+zaudrec = 0 [, "rec"]	**OK**
AT+zaudrec = 1	**OK**
AT+zaudrec = 2 [, "rec"]	**OK**
AT+zaudrec = 3	**OK**
AT+zaudrec = 4, "rec"	**OK**
AT+zaudrec = 5, "rec"	**OK**
AT+zaudrec = 6	**OK**
AT+zaudrec?	**+zaudrec: 1, rec.wav, 66332**

17.2 AT+ZFILEREAD Reading the recording file.

Thecommandis usedfor reading the recording file.

Format

Write Command	Response
AT+ZFILEREAD=<file_name>[,<offset>,<len>]	**<cr><lf>+ZFILEREAD:<act_len><cr><lf> <data_content> <cr><lf>OK<cr><lf> OR <CR><LF>ERROR<CR><LF>**

Field

Parameters	Description
Filename	Record file name
offset	File offset
len	Read file length

Example:

Commands	Response
AT+ZFILEREAD= "REC",0,1500	+ZFILEREAD:1500 RIFF4WAVEfmt @- ? ?fact ?data??w??署€K*???紃?倞 D?跦?牉 1 薗#掌狢缐?¯憧厶惐 97 犖牘!??挌?G 塙??猎?菻晧厠?拶…

17.3 AT+CMEDPLAY Play Audio File

This Command is used to play audio file.

17.3.1 Format

Write Command **AT+CMEDPLAY=<mode>**	Response if<mode>=0,2,3, response： **OK** if<mode>=1, start playing **AT+CMEDPLAY=1,<filepath>,<channel>,<volume>** **OK** Unsolicited result code **+CMEDPLAY: 0** // play over If error is related to MS functionality, response： **+CME ERROR: <err>**
Test Command **AT+CMEDPLAY=?**	Response **+CMEDPLAY: (0-3)** **OK**
Read Command **AT+CMEDPLAY?**	Response **+CMEDPLAY: <state>** **OK**
Reference	Note < **mode**> 2 and 3 are not supported when playing audio file in call or establishing a call.

17.3.2 Field

Parameters	Description

< mode>	command operation mode 0 Stop playing 1 Start playing 2 Pause playing 3 Resume playing
<filepath>	Audio file path and name
<channel>	Audio play channel 0 Main channel 1 Aux channel
<volume>	Audio play volume,0-100
<**state**>	Audio playing state 0 Idle 1 Playing 2 Paused

17.4 AT+CMEDIAVOL Control the Volume when Playing Audio File

Control the volume when playing audio file.

17.4.1 Format

Write Command **AT+CMEDIAVOL=<level>**	Response **OK** **ERROR**
Read Command **AT+CMEDIAVOL?**	Response **+CMEDIAVOL: <level>** **OK**
Test Command **AT+CMEDIAVOL=?**	Response **+CMEDIAVOL: (0-100)** **OK**

Reference	Note The command takes effect only when playing audio file.

17.4.2 Field

Parameters	Description
<level>	0-100 Integer type value with manufacturer specific range (smallest value represents the lowest sound level).

18 FTP AT Commands

18.1 AT+FTPPORT Set FTP Control Port

Thecommandis usedto set ftp control port.

Format

Write Command **AT+FTPPORT=<value>**	Response **OK**
Read Command **AT+FTPPORT?**	Response **+FTPPORT: <value>** **OK**
Test Command **AT+FTPPORT=?**	Response OK

Field

Parameters	Description
<value>	The value of FTP Control port, from 1 to 65535. Default value is 21

Example:

Commands	Response
AT+FTPPORT=21	OK

18.2 AT+FTPMODE Set Active or Passive FTP Mode

Thecommandis usedto set ftp mode active or passive.

Format

Write Command	Response
AT+FTPMODE =<value>	**OK**
Read Command	Response
AT+ FTPMODE?	**+ FTPMODE: <value>** OK
Test Command	Response
AT+FTPMODE=?	OK

Field

Parameters	Description
<value>	0 Active FTP mode 1 Passive FTP mode

Example:

Commands	Response
AT+FTPMODE=1	OK

18.3 AT+FTPTYPE Set the Type of Data to Be Transferred

Thecommandis usedto set the Type of Data to Be Transferred

Format

Write Command	Response
AT+ FTPTYPE=<value>	**OK**
Read Command	Response
AT+ FTPTYPE?	**+ FTPTYPE: <value>** **OK**

Test Command **AT+ FTPTYPE=?**	Response **OK**

Field

Parameters	Description
<value>	"A" For FTP ASCII sessions "I" For FTP Binary sessions

Example:

Commands	Response
AT+FTPTYPE ="A"	OK

18.4 AT+FTPPUTOPT Set FTP Put Type

Thecommandis usedto set FTP Put Type

Format

Write Command **AT+FTPPUTOPT =<value>**	Response **OK**
Read Command **AT+ FTPPUTOPT?**	Response **+FTPPUTOPT: <value>** **OK**
Test Command **AT+ FTPPUTOPT=?**	Response OK

Field

Parameters	Description
<value>	"APPE" For appending file "STOU" For storing unique file "STOR" For storing file Default is "STOR"

Example:

Commands	Response
AT+ FTPPUTOPT ="STOU"	OK

18.5 AT+FTPCID Set FTP Bearer Profile Identifier

The command is used to Set FTP Bearer Profile Identifier

Write Command	Response
AT+ FTPCID =<value>	**OK** If error is related to ME functionality: **+CME ERROR: <err>**
Read Command **AT+ FTPCID?**	Response **+ FTPCID: <value>** **OK**
Test Command **AT+ FTPCID=?**	Response **OK**

Parameters are defined below:

Parameters	Description
<value>	Bearer profile identifier refer to AT+SAPBR

Example:

Commands	Response
AT+FTPCID =1	**OK**

18.6 AT+FTPREST Set Resume Broken Download

Thecommandis usedto set Resume Broken Download

Format

Write Command	Response
AT+ FTPREST =<value>	**OK**
Read Command	Response
AT+ FTPREST?	**+ FTPREST: <value>** **OK**
Test Command	Response
AT+ FTPREST=?	**OK**

Field

Parameters	Description
<value>	Broken point to be resumed from 1 to 4294967295. (byte)

Example:

Commands	Response
AT+FTPREST =100	**OK**

18.7 AT+FTPSERV Set FTP Server Address

Thecommandis usedto set FTP Server Address

Format

Write Command	Response
AT+FTPSERV =<value>	**OK**
Read Command	Response
AT+FTPSERV?	**+ FTPSERV: <value>** **OK**

Test Command	Response
AT+FTPSERV =?	**OK**

Field

Parameters	Description
<value>	32-bit number in dotted-decimal notation (i.e.xxx.xxx.xxx.xxx)or alphanumericASCIItext string up to 49 characters if DNS is available

Example:

Commands	Response
AT+FTPSERV= "182.150.28.206"	OK

18.8 AT+FTPUN set FTP User Name

Thecommandis usedto set FTP User Name

Format

Write Command	Response
AT+ FTPUN =<value>	**OK**
Read Command	Response
AT+ FTPUN?	**+ FTPUN: <value>** **OK**
Test Command	Response
AT+ FTPUN=?	**OK**

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 49 characters

Example:

Commands	Response
AT+ FTPUN ="cd_ftp"	OK

18.9 AT+FTPPW Set FTP Password

Thecommandis usedto Set FTP Password

Format

Write Command **AT+ FTPPW =<value>**	Response **OK**
Read Command **AT+ FTPPW?**	Response **+ FTPPW: <value>** **OK**
Test Command **AT+ FTPPW =?**	Response OK

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 49 characters

Example:

Commands	Response
AT+ FTPPW ="cd_ftp"	OK

18.10 AT+FTPGETNAME Set Download File Name

Thecommandis usedto set the Type of Data to Be Transferred

Format

Write Command	Response
AT+FTPGETNAME=<value>	**OK**
Read Command	Response
AT+ FTPGETNAME?	**+ FTPGETNAME: <value>** **OK**
Test Command	Response
AT+ FTPGETNAME =?	OK

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 99 characters

Example:

Commands	Response
AT+FTPGETNAME="test.txt"	OK

18.11 AT+FTPGETPATH Set Download File Path

Thecommandis usedto Set Download File Path

Format

Write Command	Response
AT+FTPGETPATH=<value>	**OK**
Read Command	Response
AT+ FTPGETPATH?	**+ FTPGETPATH: <value>** **OK**

Test Command	Response
AT+ FTPGETPATH =?	OK

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 99 characters

Example:

Commands	Response
AT+ FTPGETPATH ="/"	OK

18.12 AT+FTPPUTNAME Set Upload File Name

Thecommandis usedto set Upload File Name

Format

Write Command	Response
AT+FTPPUTNAME=<value>	**OK**
Read Command	Response
AT+ FTPPUTNAME?	**+ FTPPUTNAME: <value>** **OK**
Test Command	Response
AT+ FTPPUTNAME=?	OK

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 99 characters

Example:

Commands	Response
AT+FTPPUTNAME= "deng.txt"	OK

18.13 AT+FTPPUTPATH Set Upload File Path

Thecommandis usedto set Upload File Path

Format

Write Command **AT+FTPPUTPATH=<value>**	Response **OK**
Read Command **AT+ FTPPUTPATH?**	Response **+ FTPPUTPATH: <value>** **OK**
Test Command **AT+ FTPPUTPATH =?**	Response OK

Field

Parameters	Description
<value>	Alphanumeric ASCII text string up to 99 characters

Example:

Commands	Response
AT+ FTPPUTPATH ="/"	OK

18.14 AT+FTPGET Download File

Thecommandis usedto download File

Format

Write Command	Response
AT+FTPGET=<mode>[,<reqlength>]	If mode is 1 and it is a successful FTP get session: **OK** **+FTPGET:1,1** If data transfer finished: **+FTPGET:1,0** If mode is 1 and it is a failed FTP get session: **OK** **+FTPGET:1,<error>** If mode is 2: **+FTPGET:2,<cnflength>** **012345678…** **OK**
Test Command **AT+ FTPGET =?**	Response OK

Field

Parameters	Description
<mode>	1 For opening FTP get session 2 For reading FTP download data.
<reqlength>	Requested number of data bytes (1-1460)to be read
<cnflength>	Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read

<error>	61 Net error 62 DNS error 63 Connect error 64 Timeout 65 Server error 66 Operation not allow 70 Replay error 71 User error 72 Password error 73 Type error 74 Rest error 75 Passive error 76 Active error 77 Operate error 78 Upload error 79 Download error 80 File error 86 Manual quit
Timeout	**75 seconds**
Notify	When "+FTPGET:1,1" is shown, then use AT+FTPGET=2,<reqlength> toread data. If the module still has unread data, "+FTPGET:1,1" will beshown again in a certain time.(5 seconds)

Example:

Commands	Response
AT+ FTPGET =1	OK +FTPGET:1,1
AT+FTPGET=2,1024	+FTPGET: 2,50 01234567890123456789012345678901234567890123456789 OK +FTPGET:1,0

18.15 AT+FTPPUT Set Upload File

Thecommandis usedto set Upload File

Format

Write Command	Response
AT+FTPPUT=<mode>[,<reqlength>]	If mode is 1 and it is a successful FTP get session: **OK** **+FTPPUT:1,1,<maxlength>** If mode is 1 and it is a failed FTP get session: **OK** **+FTPPUT:1,<error>** If mode is 2 and <reqlength> is not 0 **+FTPPUT:2,<cnflength>** **…… //Input data** **OK** If mode is 2 and <reqlength> is 0, it will respond OK, and FTP session will be closed **OK** If data transfer finished. **+FTPPUT:1,0**
Test Command **AT+ FTPPUT =?**	Response **+FTPUT: (1,2),(1-1360)** **OK**

Field

Parameters	Description
<mode>	1 For opening FTP put session 2 For writing FTP upload data.
<reqlength>	Requested number of data bytes(0-<maxlength>) to be transmitted
<cnflength>	Confirmed number of data bytes to be transmitted
<maxlength>	The max. length of data can be sent at a time. It depends on the network status
<error>	See "AT+FTPGET"
Timeout	**75 seconds**
Notify	When "+FTPPUT:1,1,<maxlength>" is shown, then use "AT+FTPPUT=2,<reqlength>" to write data. If you want finish input, should end with AT+FTPPUT=2,0

Example:

Commands	Response
AT+ FTPPUT =1	OK +**FTPPUT**:1,1,1360
AT+ FTPPUT=2,1024 **01234567890123456789012345678901234567890123456789.....** **(must up to 1024)** **OK**	OK

18.16 AT+FTPSCONT Save FTP Application Context

Thecommandis usedto **save FTP Application Context**

Format

Write Command	Response
AT+ FTPSCONT	**OK**
Read Command **AT+ FTPSCONT?**	Response **+FTPSCONT:<mode>** **+FTPSERV: <value>** **+FTPPORT: <value>** **+FTPUN: <value>** **+FTPPW: <value>** **+FTPCID: <value>** **+FTPMODE: <value>** **+FTPTYPE: <value>** **+FTPPUTOPT: <value>** **+FTPREST: <value>** **+FTPGETNAME: <value>** **+FTPGETPATH: <value>** **+FTPPUTNAME: <value>** **+FTPPUTPATH: <value>** **+FTPTIMEOUT: <value>** OK
Test Command **AT+ FTPSCONT=?**	Response OK

Field

Parameters	Description
<mode>	0 Saved, the value from NVRAM 1 Unsaved, the value from RAM
Notify	UE saves FTP Application Context which consist of following ATCommand parameters, and when system is rebooted, the parameters willbe loaded automatically.

Example:

Commands	Response
AT+ FTPSCONT?	+FTPSCONT:<0> +FTPSERV: <182.150.28.206> +FTPPORT:<2100> +FTPUN: <cd_ftp> +FTPPW:<cd_ftp> +FTPCID: <1> +FTPMODE:<1> +FTPTYPE:<I> +FTPPUTOPT:<STOU> +FTPREST:<0> +FTPGETNAME:<deng1.txt> +FTPGETPATH:</> +FTPPUTNAME:<deng1.txt> +FTPPUTPATH:</> +FTPTIMEOUT: <75> OK
AT+ FTPSCONT	OK

18.17 AT+FTPDELE Delete Specified File in FTP Server

Thecommandis usedto delete Specified File in FTP Server

Format

Execution Command	Response
AT+ FTPDELE	Response If successed: **OK** **+FTPDELE:1,0** If failed: **OK** **+FTPDELE:1,<error>**

Test Command	Response
AT+ FTPDELE=?	OK

Field

Notify	The file to be deleted is specified by the "AT+FTPGETNAME" and"AT+FTPGETPATH" commands.
timeout	75 seconds

Example:

Commands	Response
AT+ FTPDELE	OK

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

Thecommandis usedto **get the Size of Specified File in FTP Server**

Format

Execution Command	Response
AT+FTPSIZE	If successed: **OK** **+FTPSIZE:1,0,<size>** If failed: **OK** **+FTPSIZE:1,<error>,<0>**
Test Command	Response
AT+FTPSIZE =?	OK

Field

Parameters	Description
<error>	See "AT+FTPGET"
<**size**>	The file size. Unit: byte The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

Example:

Commands	Response
AT+ **FTPSIZE**	OK +FTPSIZE: 1,0,300

18.19 AT+FTPSTATE Get the FTP State

Thecommandis usedto get the FTP State

Format

Execution Command	Response
AT+ FTPSTATE	**+FTPSTATE: <state>** **OK**
Test Command	Response
AT+ FTPSTATE =?	OK

Field

Parameters	Description
<state>	0 idle 1 in the FTP session, including FTPGET, FTPPUT, FTPDELE and FTPSIZE operation.

Example:

Commands	Response
AT+ **FTPSTATE**	+FTPSTATE: 0 OK

18.20 AT+FTPMKD Make Directory on the Remote Machine

Thecommandis usedto make Directory on the Remote Machine

Format

Execution Command	Response
AT+ FTPMKD	**OK** If success: **OK** **+FTPMKD: 1,0** If failed: **OK** **+FTPMKD: 1,<error>**
Test Command **AT+ FTPMKD=?**	Response OK

Field

Parameters	Description
<error>	**See "AT+FTPGET"** The created folder is specified by the "AT+FTPGETPATH" command.
Timeout	**75 seconds**

Example:

Commands	Response
AT+ FTPMKD	OK +FTPMKD: 1,0

18.21 AT+FTPRMD Remove Directory on the Remote Machine

Thecommandis usedto remove Directory on the Remote Machine

Format

Execution Command	Response
AT+FTPRMD	If success: **OK** **+FTPRMD: 1,0** If failed: **OK** **+FTPRMD: 1,<error>**

Test Command	Response
AT+FTPRMD=?	OK

Field

Parameters	Description
<error>	**See "AT+FTPGET"** The removed folder is specified by the "AT+FTPGETPATH" command.
Timeout	**75 seconds**

Example:

Commands	Response
AT+**FTPRMD**	OK +FTPRMD: 1,0

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

Thecommandis usedto list contents of directory on the remote machine

Format

Write Command	Response
AT+FTPLIST=<mode>[,<req length>]	If mode is 1 and it is a successful FTP get session: **OK** **+FTPLIST: 1,1** If data transfer is finished: **+FTPLIST: 1,0** If mode is 1 and it is a failed FTP get session: **OK** **+FTPLIST: 1,<error>** If mode is 2: +FTPLIST: 2,<cnflength> **012345678…** **OK**

Read Command **AT+ FTPLIST?**	Response **+ FTPLIST: <value>** **OK**
Test Command **AT+ FTPLIST=?**	Response OK

Field

Parameters	Description
<mode>	1 For opening FTP get file list session 2 For reading FTP file list
<reqlength>	Requested number of data bytes (1-1460) to be read
<cnflength>	Confirmed number of data bytes to be read, which may be less than <reqlength>. 0 indicates that no data can be read.
<error>	See “AT+FTPGET”

Example:

Commands	Response
AT+FTPLIST =1	OK + FTPLIST:1,1

AT+ FTPLIST=2,1024	+FTPLIST: 2,50 2016/08/25 19:20 <DIR> . 2016/08/25 19:20 <DIR> .. 2015/11/04 16:39 <DIR> .android 2016/09/06 18:37 1,164 .bash_history 2015/10/28 15:39 <DIR> .config 2016/01/12 18:06 360 .gitconfig 2016/07/25 17:11 <DIR> .oracle_jre_usage 2016/07/27 17:23 <DIR> .ssh 2016/07/07 13:32 <DIR> .VirtualBox 2015/12/16 16:16 4,425 aaa 2016/03/10 15:36 16,740 aaa.txt 2016/03/16 16:21 10,425 aaaaaffdf.txt 2016/04/26 19:07 <DIR> AppData 2016/03/18 10:21 12,065 bing.txt OK +FTPLIST:1,0

18.23 AT+FTPGETTOFS Download File and Save in File System

Thecommandis usedto download File and Save in File System

Format

Write Command **AT+FTPGETTOFS=<loc>,<filename>[,<num>,<time>]**	Response If it is a successful FTP get session: OK If data transfer finished. +FTPGETTOFS: 0,<totalLength> If it is a failed FTP get session: OK +FTPGETTOFS: <error>
Read Command **AT+ FTPGETTOFS?**	Response **+FTPGETTOFS: <status>[,<receivedLength>,<writeLength>]**
Test Command **AT+ FTPGETTOFS=?**	Response OK

Field

Parameters	Description
<status>	0 not in the process 1 during the process
<loc>	0 saved in ROM 1 saved in SD card
<filename>	Alphanumeric ASCII text string up to 64 characters
<num>	Number of automatic reconnect times, from 0 to 255. Default value is 3.
<time>	wait time before module start automatic reconnect, from 0 to 60 seconds.Default value is 5 seconds.(when waiting reconnect, will not allow to other upload or download at commands)
<totalLength>	The total length of data bytes have been saved
Notify	File will be overwritten if you start this function twice with a same filename. All local file will save in path Z:\FTP_DOWNLOADE

Example:

Commands	Response
at+ftpgettofs=0,"aa.txt"	OK +FTPGETTOFS: 0,174125

18.24 AT+FTPPUTFRMFS Upload File from File System.

Thecommandis usedto upload File from File System.

Format

Write Command	Response
AT+FTPPUTFRMFS=<filename>[,<num>,<time>]	If it is a successful FTP put session: **OK** If data transfer finished. **+FTPPUTFRMFS: 0,<totalLength>** If it is a failed FTP put session: **OK** **+FTPPUTFRMFS: <error>**
Read Command **AT+ FTPPUTFRMFS?**	Response **+FTPPUTFRMFS: <status>[,<putLength>]** **OK**

Test Command	Response
AT+ FTPPUTFRMFS =?	OK

Field

Parameters	Description
<filename>	Alphanumeric ASCII text string up to 64 characters
<putLength>	the data length uploaded from File System
<num>	Number of automatic reconnect times, from 0 to 255. Default value is 3.
<time>	wait time before module start automatic reconnect, from 0 to 60seconds.Default value is 5 seconds. (when waiting reconnect, will not allow to other upload or download at commands)
<totalLength>	the data length uploaded from File System

Example:

Commands	Response
AT+FTPPUTFRMFS= "deng1.txt"	OK +FTPPUTFRMFS: 0,552

18.25 AT+FTPEXTGET Extend Download File.

Thecommandis usedtoextend Download File.

Format

Write Command	Response
1)if mode is 0 or 1 **AT+FTPEXTGET=<mode>** **2)if mode is 2** **AT+FTPEXTGET=<mode>,<filename>** **3)if mode is 3** **AT+FTPEXTGET=<mode>,<readPosition>,<readLength >**	If mode is 0 OK If it is a successful FTP get session in mode 1: OK If data transfer finished in mode 1 +FTPEXTGET: 1,0 If it is a failed FTP get session in mode 1: OK +FTPEXTGET: 1,<error> If mode is 2: +FTPEXTGET: 2,<totalLength> OK If mode is 3: +FTPEXTGET: 3,<outputLength>
Test Command **AT+FTPEXTGET =?**	Response OK

Field

Parameters	Description
<mode>	0 use default FTPGET method 1 start extend FTPGET method 2 save download data to filesystem 3 output download data
<filename>	file name to write data in mode 2. Alphanumeric ASCII text string up to 64 characters.
<readPosition>	position start read data in mode 3.
<readLength>	read length in mode 3
<totalLength>	The total length of data bytes have been download
<outputLength>	total length will be output from serial port
timeout	75 seconds
Notify	Can not use this function when set FTPEXTPUT mode 1

Example:

Commands	Response

AT+FTPEXTGET=1	OK
AT+FTPEXTGET?	+FTPEXTGET: 1,1123 OK
	+FTPEXTGET: 1,0
AT+FTPEXTGET=2,"addf.txt"	+FTPEXTGET: 2,3222
AT+FTPEXTGET=3,0,3222	…… (output data) OK
AT+FTPEXTGET=0	OK

18.26 AT+FTPEXTPUT Extend Upload File.

Thecommandis usedto Extend Upload File.

Format

Write Command **AT+FTPEXTPUT=<mode>[,<pos>,<len>,<timeout>]**	Response If mode is 0 or 1 **OK** If mode is 2 **+FTPEXTPUT: <pos>,<len>**
Read Command **AT+FTPEXTPUT?**	Response **OK**
Test Command **AT+FTPEXTPUT =?**	Response **OK**

Field

Parameters	Description
<mode>	0 use default FTPPUT method 1 use extend FTPPUT method 2 download data which need to PUT to RAM
<pos>	data offset address 0-100k
<len>	data length 0-100k
<timeout>	timeout value of serial port 1000ms-1000000ms

Notify	When extend FTPPUT mode is activated, input data then execute “AT+FTPPUT=1” to transmit, after session is complete, if successful, itreturns “+FTPPUT: 1,0”, otherwise it returns “+FTPPUT: 1,<error>”,<error> see “AT+FTPGET”. Can not use this function when set FTPFILEPUT and FTPEXTGET mode 1

Example:

Commands	Response
AT+FTPEXTPUT=1	OK
AT+FTPEXTPUT=2,0,10024,100000	2,0,1024,10000
.....(input data must up to 10024)	OK
AT+FTPPUT=1	OK +FTPPUT: 1,0
AT+FTPEXTPUT=0	OK

18.27 AT+FTPFILEPUT Upolad File in RAM from File System

Thecommandis usedto Load File in RAM from File System then Upload with FTPPUT.

Format

Write Command **AT+FTPFILEPUT=<mode>[,filename]**	Response **OK**
Test Command **AT+FTPFILEPUT =?**	Response OK

Field

Parameters	Description
<mode>	0 not use FTPFILEPUT method 1 use FTPFILEPUT method
<filename>	file name to write data in mode 1. Alphanumeric ASCII textstring up to 64 characters.

Notify	Can not use this function when set FTPEXTPUT and FTPEXTGET mode 1

Example:

Commands	Response
AT+FTPFILEPUT=1,"ni.txt"	OK
AT+FTPPUT=1	OK
	+FTPPUT: 1,0
AT+FTPFILEPUT=0	OK

18.28 AT+FTPQUIT Quit Current FTP Session

Thecommandis usedto quit Current FTP Session

Format

Execution Command **AT+ FTPQUIT**	Response **OK** +FTPGET: 1,86
Test Command **AT+ FTPQUIT=?**	Response OK

Example:

Commands	Response
AT+ **FTPQUIT**	OK +FTPGET: 1,86

18.29 AT+SAPBR Set the info about ftp and active ftp pdp context

Thecommandis usedto set the info about ftp and active ftp pdp context

Format

Write Command **AT+SAPBR=<cmd_type>,<cid>[,<ConParamTag>,<ConParamValue>]**	Response **OK** **If<cmd_type> = 2** **+SAPBR: <cid>,<Status>,<IP_Addr>** **OK** **If <cmd_type>=4** **+SAPBR:** **<ConParamTag>,<ConParamValue>** **OK**
Read Command **AT+ SAPBR?**	Response **OK**
Test Command **AT+ SAPBR =?**	Response **+SAPBR:(0-5),(1-3), "ConParamTag","ConParamValue"** **OK**

Field

Parameters	Description
<cmd_type>	0 Close bearer 1 Open bearer 2 Query bearer 3 Set bearer parameters 4 Get bearer parameters
<cid>	Bearer profile identifier
<Status>	0 Bearer is connecting 1 Bearer is connected 2 Bearer is closing 3 Bearer is closed
<ConParamTag>	"CONTYPE" Type of Internet connection. Valuerefer to
<ConParamValue_ConType>	"APN" Access point name string: maximum 64 characters "USER" User name string: maximum 32 characters "PWD" Password string: maximum 32 characters "PHONENUM" Phone number for CSD call "RATE" CSD connection rate. For value refer to <ConParamValue_Rate>

<ConParamValue_Rate>	0 2400 1 4800 2 9600 3 14400
<IP_Addr>	The IP address of bearer

Example:

Commands	Response
at+sapbr=3,1,"apn","cmnet"	OK
at+sapbr=1,1	OK

19 TTS AT Command

These commands are supported only on L206D product.

19.1 AT+CTTS TTS Operation

19.1.1 Description

The command is used to broadcast text .

19.1.2 Format

Write Command	Response
AT+CTTS=<mode>[,<test>]	**If<mode>=0,reponse** **OK** **If<mode>=1or2,response:** **OK** **+CTTS:0 //speech player over** **If error is related to MS functionality,reponse:** **+CME ERROR:<err>**
Reference	Note Call setup will stop the current tts play TTS can play in call, but call release will stop the tts play TTS play is not allowed when alert or ring **The feature is supported by L206D only.**

19.1.3 Field

Parameters	Description
<mode>	0 stop broadcast speech 1 Start to play synthetic speech,<text> is in UCS2 coding forma 2 Start to play synthetic speech,<text> is in ASCII coding format Chinese text is in GBK coding format

<text>	The text which is synthetized to speech to be played, maximum data length is 956 Bytes

19.2 AT+CTTSPARAM Set Parameters of the TTS Playing

19.2.1 Description

Set Parameters of the TTS Playing.

19.2.2 Format

Write Command **AT+CTTSPARAM=<volume>,<mode>,<pitch>,<speed>[,<channel>]**	Response **OK** **If error is related to MS functionality, response:** **+CME ERROR: <err>**
Read Command **AT+CTTSPARAM?**	Response **+CTTSPARAM: <volume>,<mode>,<pitch>,<speed>,<channel>** **OK**
Test Command **AT+CTTSPARAM=?**	Response **+CTTSPARAM: (0-100),(0-3),(1-100),(1-100),(0,1)** **OK**
Reference	Note TTS play channel setting take no effect in call. The default value of parameter <**channel**>is different amongSIM800 series projects, please refer to chapter 21 for details. **The feature is supported by L206D only**

19.2.3 Field

Parameters	Description
<**volume**>	TTS playing volume, the range is 0-100,the default is 50

<mode>	0 auto read digit, and read digit based on number rule first 1 auto read digit, and read digit based on telegram rule first 2 read digit based on telegram rule 3 read digit based on number rule
<pitch>	TTS playing pitch, the range is 1-100,the default is 50.
<speed>	TTS playing speed, the range is 1-100,the default is 50
<channel>	0 main channel 1 aux channel Parameter Saving

20 LBS AT Command

20.1 AT+GTPOS Get LBS

Get the base station location information

20.1.1 Format

Execution Command **AT+GTPOS**	Response **+GTPOS: Longitude, Latitude,value$** **OK** **OR** **+GTPOS: <status>**
Write Command **AT+GTPOS=<mode>**	Response **mode=0 OK/ERROR** **mode=1 OK** **CONNECT OK or ERROR** **mode=2 +GTPOS: Longitude, Latitude,value$** **OK or ERROR** **mode =3 +GTPOS: Longitude, Latitude,value$** **OK or ERROR**
Reference	Note Note: usingLBS will take up a network channel, if you use the TCPIP protocol, please pay attention do not use the same channel;default LBS use channel 4.

20.1.2 Field

Parameters	Description
< Longitude>	string type Longitude
< Latitude>	string type Latitude
< value$>	Parity bit; odd parity check, the current number of odd numbers is even return 0, odd number is 1

<mode>	0: closed LBS funtion 1: open LBS function 2: get LBS information 3: access to WIFI base station location information
<status>	-1 : Network busy -2: LBS not ready -3:Network error -4: Network timeout -5:Network unack -6:Network EXISTS

Example 1

Command	Result
AT+CGREG?	+CGREG: 0,1 OK
AT+CSTT="CMNET"	OK
AT+CIICR	10.85.182.45 OK
AT+GTPOS	+GTPOS: 121.3955545,31.1560099,0$ OK
AT+CIPSHUT	OK

21 FS AT Command

Overview of file systemAT Commands:

AT Command	Description
AT+FSCREATE	Create a File
AT+FSWRITE	Write data to file
AT+FSWRITEHEX	Write HEX data to file
AT+FSREAD	Read File content
AT+FSREADHEX	Read File content in HEX format
AT+FSSIZE	Get File size
AT+FSMKDIR	Create directory
AT+FSRMDIR	Remove directory
AT+FSLS	List File or directory
AT+FSDEL	Delete a File
AT+FSINFO	Get Disk Free Space Information

Note: The support of these commands depend on firmware verion.

21.1 AT+FSCREATE Create a File

This command is used to create a File.

Test Command	Response
AT+FSCREATE=?	**OK** Or **ERROR**

Write Command	Response
AT+FSCREATE=<file>	**OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.

Example：

Commands	Response
AT+FSCREATE="file.txt"	**OK**
AT+FSCREATE="/ni/file.txt"	**OK**

21.2 AT+FSWRITE Write data to file

This command is used to Write data to file.

Test Command	Response
AT+FSWRITE=?	**OK** Or **ERROR**

Write Command	Response
AT+FSWRITE=<file>,<mode>,<size>	**OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.
<mode>	1 append to the end of the file (support this only until now)
<size>	1-1024 Size of data to be written

Example：

Commands	Response
AT+FSWRITE="file.txt",1,512	**>**
(input data)	**OK**

21.3 AT+FSWRITEHEX Write HEX data to file

This command is used to Write HEX data to file.

Test Command **AT+FSWRITEHEX=?**	Response **OK** Or **ERROR**
Write Command **AT+FSWRITEHEX=<file>,<mode>,<size>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.
<mode>	0 Write to the start of the file 1 append to the end of the file (support this only until now)
<size>	1-1024 Size of HEX data to be written

Example：

Commands	Response
AT+FSWRITEHEX="USER/1.amr",1,4	**>**
(input HEX data, For example: 3132)	**OK**

21.4 AT+FSREAD Read File content

This command is used to read File content.

Test Command **AT+FSREAD=?**	Response **OK** Or **ERROR**
Write Command **AT+FSREAD=<file>,<offset>,<size>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.
<offset>	0-65536 offset from the file beginning.
<size>	1-1024 Size of data to be read

For example：

Commands	Response
AT+FSREAD="1.txt",0,5	**……(data)** **OK**

21.5 AT+FSREADHEX Read File content in HEX format

This command is used to read File content in HEX format.

Test Command **AT+FSREADHEX=?**	Response **OK** Or **ERROR**
Write Command **AT+FSREADHEX=<file>,<offset>,<size>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.
<offset>	0-65536 offset from the file beginning.
<size>	1-1024 Size of data to be read

For example：

Commands	Response
AT+FSREADHEX="1.txt",0,5	**3131333435** **OK**

21.6 AT+FSSIZE Get File size

This command is used to get file size.

Test Command **AT+FSSIZE=?**	Response **OK** Or **ERROR**
Write Command **AT+FSSIZE=<file>**	Response **<size>** **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.
<size>	File size.

Example：

Commands	Response
AT+FSSIZE="/test.txt"	**10** **OK**

21.7 AT+FSMKDIR Create directory

This command is used to create directory.

Test Command **AT+FSMKDIR=?**	Response **OK** Or **ERROR**
Write Command **AT+FSMKDIR=<dir>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<dir>	A String with double quotes. The string length of <file> should be less than 64 bytes.

Example：

Commands	Response
AT+FSMKDIR="USER"	**OK**

21.8 AT+FSRMDIR Remove directory

This command is used to remove directory.

Test Command **AT+FSRMDIR=?**	Response **OK** Or **ERROR**
Write Command **AT+FSRMDIR=<dir>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<dir>	A String with double quotes. The string length of <dir> should be less than 64 bytes. (Note: this directory must be empty.)

Example：

Commands	Response
AT+FSRMDIR="USER"	**OK**

21.9 AT+FSLS List File or directory

This command is used to list file or directory.

Test Command **AT+FSLS=?**	Response **OK** Or **ERROR**
Write Command **AT+FSLS=<directory >**	Response **<file or directory>** **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
< directory >	A String with double quotes. The string length of <file> should be less than 64 bytes.
<file or directory>	A String without double quotes.

For example：

Commands	Response
AT+FSLS="/"	**@pbapc** **@pbap** **file.txt** **NVRAM** **USER** **OK**

AT+FSLS="USER"	**.** **..** **file1.txt** **file2.txt** **file3.txt** **OK**

21.10 AT+FSDEL Delete a File

This command is used to delete a File.

Test Command **AT+FSDEL=?**	Response **OK** Or **ERROR**
Write Command **AT+FSDEL=<file>**	Response **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<file>	A String with double quotes. The string length of <file> should be less than 64 bytes.

Example :

Commands	Response
AT+FSDEL="file.txt"	**OK**

21.11 AT+FSINFO Get Disk Free Space Information

This command is used to get disk space information.

Test Command	Response
AT+FSINFO=?	**OK** Or **ERROR**
Write Command	Response
AT+FSINFO=<drive>	**<size>** **OK** Or **ERROR**
Reference	Note

Parameters are defined below:

Parameters	Description
<drive>	A String with double quotes. The string length of <drive> should be less than 64 bytes.

Example:

Commands	Response
AT+FSINFO="Z:"	**337408** **OK**