



L651_AT_Command_User_Guide

NB-IOT Module Series

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1.Introduction

1.1 Overview

This document introduces the supported AT command set of L651project.

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.General Commands

2.1 AT

Return to online command state from online data state

Execution Command AT	Response OK
--------------------------------	-----------------------

2.2 ATE

This setting determines whether or not the TA echoes characters received from TE during command state.

Execution Command ATE[<value>]	Response OK
Reference V.25ter	Note

Parameters are defined below:

Parameters	Description
<value>	0 Echo mode off 1 Echo mode on Default parameter is 1,so echo mode is on

2.3 ATI

Set result code format mode

Execution Command ATI	Response <text> OK
Reference text	Note Product information Model Revision

	IMEI
--	------

2.4 +++

Switch from Data Mode or PPP Online Mode to Command Mode

Execution Command +++	Response The +++character sequence causes the TA to cancel the data flow over the AT interface and switch to Command mode. This allows you to enter AT Command while maintaining the data connection to the remote server. OK To prevent the +++escape sequence from being misinterpreted as data, it should comply to following sequence: 1. No characters entered for T1 time (1 second) 2. "+++" characters entered with no characters in between (0.5 second) 3. No characters entered for T1 timer (0.5 second) 4. Switch to Command mode, otherwise go to step 1.
Peference	Note
	To return from Command mode back to data mode: Enter ATO0

2.5 ATO

Switch from Data mode/ppp Online to command mode

Execution Command ATO<value>	Response CONNECT
Peference	Note
ATO0	CONNECT

2.6 ATQ

Set result code suppression mode

Read Command ATQ[<value>]	Response 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
---	--

Example:

AT Command	Response
ATQ0	OK
ATQ1	
ATQ	OK

Parameters are defined below:

Parameters	Description
value	0 DCE transmits result code 1 Result codes are suppressed and not transmitted.

2.7 ATS3

Command line termination character

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

Execution Command ATS3=<value>	Response OK or +CME ERROR:<err>
Read Command ATS3?	Response <value> OK

Parameters are defined below:

Parameters	Description
value	13 Carriage return character(CR IA5 0/13) 0-31 Set Command line termination character to this value

2.8 ATS4

Response formatting character

This S-parameter represents the decimal IA5 value of the character generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter(see the description of the V parameter for usage).

Execution Command ATS4=<value>	Response OK or +CME ERROR:<err>
Read Command ATS4?	Response Value OK or +CME ERROR:<err>
Parameters value	Description 10 Line feed character(LF,IA50/10) 0-31 Set response formatting character to this value

2.9 ATS5

Command line editing character.

This S-parameter represents the decimal IA5 value of the character recognized by the DCE as are quest to delete from the command line the immediately preceding character.

Execution Command ATS5=<value>	Response OK or +CME ERROR:<err>
Read Command ATS5?	Response Value OK or +CME ERROR:<err>

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

Parameters are defined below:

Parameters	Description
<value>	8 Backspace character(BS,IA50/8)
	0-31 Set command line editing character to this value

2.10 ATV

Set DCE response format

Execution Command ATV[<value>]	Response OK or +CME ERROR:<err>
Parameter <value>	Note 0: Information response:<text><CR><LF>Short result code format:<numeric code><CR> 1: Information response:<CR><LF><text><CR><LF>Long result code format:<CR><LF><verbose code><CR><LF>

2.11 ATX

The setting of this parameter determines whether or not the DCE transmits particular result codes to the DTE. It also controls whether or not the DCE verifies the presence of dial tone when it first goes off-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 always checks for dial tone regardless of this setting, nor on the busy signal detection capability of the W and @dialmodifiers. See Table.

Execution Command ATX[<value>]	Response OK or +CME ERROR:<err>
--	--

Parameters are defined below:

Parameters	Description
------------	-------------

<value>	<p>0 CONNECT result code is given upon entering online data state. Dial tone and busy detection are disabled.</p> <p>1 CONNECT <text> result code is given upon entering online data state. Dial tone and busy detection are disabled.</p> <p>2 CONNECT <text> result code is given upon entering online data state. Dial tone detection is enabled, and busy detection is disabled.</p> <p>3 CONNECT <text> result code is given upon entering online data state. Dial tone detection is disabled, and busy detection is enabled.</p> <p>4 CONNECT <text> result code is given upon entering online data state. Dial tone and busy detection are both enabled.</p>
----------------------	--

2.12 ATZ

Reset to default configuration

Execution Command ATZ[<value>]	Response OK or +CME ERROR:<err>
Reference V.25ter	Note

Parameters are defined below:

Parameters	Description
<value>	0 The default configure of the manufacturer.

2.13 AT&W

Display Current Configuration

Execution Command AT&W[<n>]	Response TA stores the current parameter setting in the user defined profile OK or +CME ERROR:<err>
Parameters <n>	Description 0 Store the current configuration in profile 0

2.14 AT&F

Set to factory-defined configuration

Execution Command AT&F[<n>]	Response OK or +CME ERROR:<err>
Parameters <n>	Description 0 Set all parameters to manufacturer default value

2.15 AT+GMI

Same as AT+CGMI

2.16 AT+GMM Request TA model identification

This command requests TA model identification(may equal to +CGMM)

Test Command AT+GMM=?	Response OK
Execution Command AT+GMM	Response +CGMM:<module identification> OK

2.17 AT+GMR Request revision identification

This command request TA revision identification(may equal to +CGMR)

Test Command AT+GMR=?	Response OK
Execution Command AT+GMR	Response +CGMR:<version number>,build_time: <load file compile_time> OK

2.18 AT+IPR AT UART BAUD rate setting

Specifies the data rate, in addition to 57600 bits/s or 9600 bits/s, at which the DCE will accept

commands. May be used to select operation at rates at which the DCE is not capable of automatically detecting the data rate being used by the DTE.

Test Command AT+IPR=?	Response +IPR:(list of supported<rate>s) OK
Execution Command AT+IPR=<rate>	Response OK
Read Command	Response +IPR:<rate> OK
Parameters <rate>	Description The rate, in bits per second, at which the DTE-DCE interface should operate. Currently, the following rates are supported: 2400,4800, 9600, 14400, 19200, 28800, 33600,38400, 57600. If unspecified, Default rate is 57600 bps.

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 the manufacturer of the phone to which it is connected to

Test Command AT+CGMI=?	Response OK
Execution Command AT+CGMI	Response +CGMI:<brand> OK
Parameter note: <brand>	Description Product brand text

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

Test Command AT+CGMM=?	Response OK
Execution Command AT+CGMM	Response +CGMM:<module> OK
Parameter note: <module>	Description Product module id text

3.3 AT+CGMR Request revision identification

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

Test Command AT+CGMR=?	Response OK
Execution Command AT+CGMR	Response +CGMR:<revision>,<build_time> OK or +CME ERROR:<err>
Parameter note: <rrevision> <build_time>	Description Product revision Compile soft time

3.4 AT+CGSN Request product serial number identification

Returns the IMEI number of the phone

Execution Command AT+CGSN	Response <IMEI> OK or +CME ERROR:<err>
Test Command AT+CGSN=?	Response OK

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

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

Execution Command AT+GSN	Response <IMEI> OK or +CME ERROR:<err>
------------------------------------	---

Test Command AT+GSN=?	Response OK
---------------------------------	-----------------------

3.6 AT+CSCS Select TE character set

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

Execution Command AT+CSCS=<chset>	Response OK or +CME ERROR:<err>
Test Command AT+CSCS=?	Response +CSCS: (list of supported<chset>s) OK
Read Command AT+CSCS?	Response +CSCS:<chset> OK

Parameters are defined below:

Parameters <chset>	Description "GSM" GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily software flow 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 to the original MT character set shall be done "PCCP936" PC character set Code Page 936 "UCS2" 16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2 character strings are converted to hexadecimal numbers from 0000 to e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99
---	---

3.7 AT+CIMI Request international mobile subscriber identity

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

4.NB-IOT Commands

4.1 AT+CPSMS Power Saving Mode Setting

Read Command AT+CPSMS?	Response +CPSMS:1,,,"01000101","00000000" OK or +CME ERROR:<err>
Write Command AT+CPSMS=<mode>[,<Requested_Periodic-RAU>[,<Requested_GPRS-READY-timer>[,<Requested_Periodic-TAU>[,<Requested_Active-Time>]]]]	Response OK or +CME ERROR: <err>
Test Command AT+CPSMS=?	Response +CPSMS: mode=[0-1],,,Requested_Periodic-TAU="8bitStringofByte eg. 01000111", Requested_Active-Time="8bitString of Byte eg. 01100101" OK

Note:

Parameters	Description
<mode>	0 Disable the use of PSM 1 Enable the use of PSM
<Requested_Periodic-RAU> <Requested_GPRS-READY-timer>	Not Supported
<Requested_Periodic-TAU>	String type; one byte in an 8 bit format. Requested extended periodic TAU value (T3412) to be allocated to the UE in E-UTRAN. The requested extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours). For the coding and the value range, see the GPRS Timer 3 IE in 3GPP TS 24.008 [8] Table 10.5.163a/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.

<Requested_Active-Time>	String type; one byte in an 8 bit format. Requested Active Time value (T3324) to be allocated to the UE. The requested Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes). For the coding and the value range, see the GPRS Timer 2 IE in 3GPP TS 24.008 [8] Table 10.5.163/3GPP TS 24.008. See also 3GPP TS 23.682 [149], 3GPP TS 23.060 [47] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.
--------------------------------------	---

Turn on PSM Example:

AT Command AT+CEREG?	Response +CEREG: 1,1,"5b65","1888b1a0",7 OK
AT+NVSETPM=2	OK
AT+CSCLK=2	OK
AT&W	OK
AT+CPSMS=1,,,"01000011", "00000000"	OK *MNBIOTEVENT: "ENTER PSM" *MNBIOTEVENT: "EXIT PSM"

4.2 AT+NVSETPM PM1/3 set PM 1/3

The Execution command is used to set PM 1/2/3

Write Command AT+NVSETPM=value	Response OK or +CME ERROR: <err>
Test Command AT+NVSETPM=?	Response +NVSETPM:(0,1,2,9,10) 0:close,1:pm1,2:pm1+pm3,9:dynamic,10:pm1+pm2 OK

Parameters are defined below:

Parameters <value>	Description
0	UE will not enter PM1/PM2/PM3
1	UE will enter PM0/PM1
2	UE will enter PM0/PM1/PM3 For all PSM and eDRX with PTW>300s,will use PM3;other use PM1
9	UE will enter PM0/PM1/PM2/PM3 A=1s B=300s When sleep time <=A,enter PM1 when sleep time>A and<=B,enter PM2 when sleep time >B,enter PM3 It is the configuration with best power consumption performance
10	UE will enter PM0/PM1/PM2 When PSM/DRX/EDRX>800ms,use PM2. When PSM/DRX/EDRX<=800ms,use PM1. This is not best performance of power consumption.Scenerio that not a Allow PSRAM power down requires this setting.

Note:

Mode	Description	AT	PSRAM	wakeup
PM0	normal	work	work	
PM1	Light sleep	work	work	AT UART
PM3	Deep sleep	Not work	Power down	Wakeup pin
PM2		Not work	work	Wakeup pin

4.3 AT+CEDRXS Entended-DRX Setting

Test Command AT+CEDRXS=?	Response +CEDRXS: (list of supported<mode>s),(list of supported<AcT-types>s),(list of supported<Requested_eDRX_value>s) OK
Read Command AT+CEDRXS?	Response [+CEDRXS: <mode>,<AcT-type>,<Requested_eDRX_value> [<CR><LF>+CEDRXS: <mode>,<AcT-type>,<Requested_eDRX_value> [...]] OK
Execution Command AT+CEDRXS=<mode>[,<AcT-type>[,<Requested_eDRX_value>]]	Response OK

Parameters are defined below:

Parameters <mode>	Description integer types, enable or disable eDRX of UE. The parameter is suitable for all specified types of access technology 0 disable eDRX 1 enable use eDRX 2 enable eDRX and enable the request object code +CEDRXP: < AcT - type > [, < Requested_eDRX_value > [, < NW - provided_eDRX_value > [, < Paging_time_window >]] 3 ban the use of discarding the eDRX eDRX and all parameters, if available, please reset to manufacturer specific default values.
< AcT-type>	0 not active 1 Cat-M 2 GSM(Not Support) 3 UMTS(Not Support) 4 LTE(Not Support) 5 NB-IoT (Support)
<Requested_eDRX_value>	Requested eDRX value. 4 bit format. "0000"- "1111"

Turn on eDRX Example

AT Command AT+CEREG?	Response +CEREG: 1,1,"5b65","1888b1a0",7 OK
AT+NVSETPM=2	OK
AT+CSCLK=2	OK
AT&W	OK
AT+Cedrxs=1,5,"0000"	OK

4.4 AT+CEDRXRDP Entended-DRX Reading

Test Command AT+CEDRXRDP=?	Response OK
Write Comand AT+CEDRXRDP	Response +CEDRXRDP: <AcT-type>[, <Requested_eDRX_value>[, <NW-provided_eDRX_value>[, <Paging_time_window>]]] OK

Parameter note:

Parameters	Description
< AcT-type>	0 not active 1 Cat-M (Not Support) 2 GSM (Not Support) 3 UMTS (Not Support) 4 LTE (Not Support) 5 NB-IoT (Support)
<Requested_eDRX_value>	Requested eDRX value. 4 bit format. "0000"- "1111"
<NW-provided_eDRX_value>	NW-provided eDRX value. 4 bit format. "0000"- "1111"
<Paging_time_window>	Paging time window. 4 bit format. "0000"- "1111"

4.5 AT+CSCON Connect status

Test Command AT+CSCON=?	Response +CSCON: List of supported(<n>s OK
Read Command AT+CSCON?	Response +CSCON: <n>,<mode> OK

Execution Command AT+CSCON=<n>	Response OK or +CME ERROR:<err>
---	--

Parameter note:

Parameters	Description
<n>	0 close URC 1 open URC,format: +CSCON: <mode> 2 open URC,format: +CSCON: <mode>[,<state>] 3 open URC,format: +CSCON: <mode>[,<state>[,<access>]]
<mode>	0 idle 1 connected

4.6 AT+TUESTATS Query UE status

Read Command AT+TUESTATS=?	Response TUESTATS:(RADIO,CELL,BLER,THP,ALL) OK
Write Command AT+ TUESTATS=<type>	Response TUESTATS:UE status OK or +CME ERROR: <err>

Parameter note:

Parameters	Description
<type>	String type "RADIO" radio specific information "CELL" per-cell information for the top 8 cells "BLER" block error rate information "THP" throughput "ALL" all information. The value of <type> output is the correct one for each data type.

- If <type> = "RADIO" ,Returned entries are of the form:

<signal power in centibels> ,<total power in centibels> ,<current TX power level in centibels > ,<total TX time since last reboot in millisecond> ,<total RX time since last reboot in millisecond> ,<last SIB1 cell ID> ,<last ECL value> ,< last snr value> ,< last earfcn value> ,< last pci value> ,<rsrq in centibels>

<signal power in centibels>	signal power in centibels
<total power in centibels	total power in centibels
<current TX power level in centibels >	current TX power level in centibels
<total TX time since last reboot in millisecond>	total TX time since last reboot in millisecond
<total RX time since last reboot in millisecond>	total RX time since last reboot in millisecond
<last SIB1 cell ID>	last SIB1 cell ID
<last ECL value>	last ECL value
< last snr value>	last snr value
< last earfcn value>	last earfcn value
< last pci value>	last pci value
<rsrq in centibels>	rsrq in centibels

If <type> = "CELL" per-cell information for the top 5 cells. Returned entries are of the form:

<earfcn>,<physical cell id>,<primary cell>,<rsrp>,<rsrq>,<rssi>,<snr>

<earfcn>	absolute radio-frequency channel number
<physical cell id>	physical id of the cell
<primary cell>	1 indicates the current serving cell
<rsrp>	reference signal received power
<rsrq>	reference signal received quality
<rssi>	received signal strength indicator
<snr>	signal to noise ratio

- If <type> = BLER block error rate:

<rlc_ul_bler>,<rlc_dl_bler>,<mac_ul_bler>,<mac_dl_bler>,<total bytes transmitted>,<total bytes received> ,<transport blocks sent>,<transport blocks received>,<transport blocks retransmitted>,<total ack/nack messages received>

<rlc_ul_bler>	RLC layer block error rate (uplink). Integer
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<rlc_dl_bler>	RLC layer block error rate (downlink). Integer
<mac_ul_bler>	physical layer block error rate (uplink). Integer
<mac_dl_bler>	physical layer block error rate (downlink). Integer
<total bytes transmitted>	total bytes transmitted
<total bytes received>	total bytes received
<transport blocks sent>	transport blocks sent
<transport blocks received>	transport blocks received
<transport blocks retransmitted>	transport blocks retransmitted
<total ack/nack messages received>	total ack/nack messages received
If <type> = THP throughput:	
<rlc_ul>	RLC layer throughput (uplink). Integer bps
<rlc_dl>	RLC layer throughput (downlink). Integer bps
<mac_ul>	physical layer throughput (uplink). Integer bps
<mac_dl>	physical layer throughput (downlink). Integer bps

4.7 AT+CFGDFTPDN Set default PDN

The execution command is used to set and get default PDN type and apn

Read Command AT+CFGDFTPDN?	Response +CFGFTPPDN:defaultpdnType=1; [0] <pdnType>=1,apn=; [1] <pdnType>=2,apn=; [2] <pdnType>=3,apn=; [3] <pdnType>=5,apn=; OK or +CME ERROR:<err>
--------------------------------------	--

Test Command AT+ CFGDFTPDN=?	Response +CFGFTPPDN: pdnType=[1,2,3,5], apn="string" OK
Set Command AT+CFGDFTPDN =<mode>[,<apn>]	Response OK or +CME ERROR:<err>

Parameter note:

Parameters	Description
<defaultPdnType>	1 pdnType is IPv4 2 pdnType is IPv6 3 pdnType is IPv4v6 5 pdnType is noIP
Example	AT+CFGDFTPDN=2 //set default is IPV6 AT&W

4.8 AT+CFGDUALMODE Config dual mode

This command config dual mode, the change takes effect after reset

Read Command AT+CFGDUALMODE?	Response +CFGDUALMODE:<dualmode>,<fastswitch> OK or +CME ERROR:<err>
Test Command AT+CFGDUALMODE=?	Response +CFGDUALMODE: dualmode=[0-2](0-Not Support; 1-Single Stand; 2-Dualstand), fastswitch=[0,1] OK
Set Command AT+CFGDUALMODE =<dualmode>[,<fastswitch>]	Response OK or +CME ERROR:<err>

Parameter note:

Parameters	Description
<dualmode>	0-2 0 not support dual mode 1 dual mode single standby 2 dual mode dual standby
<fastswitch>	0 close fastswitch 1 open fastswitch

4.9 AT+CFGRATPRIO Config dual mode single standby priority

The command set RAT priority

Read Command AT+CFGRATPRIO?	Response +CFGRATPRIO:<priority> OK or +CME ERROR:<err>
Test Command AT+CFGRATPRIO=?	Response +CFGRATPRIO: DualModeRatPriority=[2,4](2-2G; 4-NB) OK
Set Command AT+CFGRATPRIO=<priority>	Response OK or +CME ERROR:<err>

Parameter note:

Parameters	Description
<priority>	2 priority 4 NB priority

4.10 AT+NVSETBAND Set Band

Read Command AT+NVSETBAND?	Response Totalband Band in total:band_value OK or +CME ERROR:<err>
Set Command AT+NVSETBAND=[<totalband>,<band1>,<band2>]	Response OK or +CME ERROR:<err>

Parameter note:

Parameters	Description
<totalband>	The total number of band numbers to be set
<band1>	The number of band, the range of 1-6
<band2>	The number of band,the range of 1-3,5,8,20,28

Example:

AT Command	Description
AT+NVSETBAND?	5 band in total:3,5,8,20,28
AT+NVSETBAND=2,3,5	OK

4.11 AT+TRB Restart

Execution command restart the module

Write Command AT+TRB	Response REBOOTING
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5.Call Control Commands

5.1 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;

Test Command AT+CEER=?	Response OK
Execution Command AT+CEER	Response +CEER: <report> OK
Parameter note:	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.

Parameters are defined below:

Parameters	Description
<report>	string type describes cause value.

5.2 AT+CRING 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.

Test Command AT+CRC=?	Response +CRC:(list of supported<mode>s) OK
Read Command AT+CRC?	Response +CRC:<mode> OK
Write Command AT+CRC=<mode>	Response OK or +CME ERROR:<err>

Parameter note:

Parameters	Description
mode	0 disables extended format 1 enables extended format

5.3 AT+CNUM Subscriber Number

The MS ISDN related to the subscriber

Test Command AT+CNUM=?	Response OK
Execute Command AT+CNUM	Response +CNUM:[<alpha>],<number1>,<type>[<CR><LF>] OK

Parameter note:

Parameters	Description
<alpha>	Optional alphanumeric string associated with number used character set should be the one selected with command Select TE Character Set +CSCS

<number>	String type phone number of format specified by <typex>
<typex>	Type of address octet in integer format
<text>	Field of maximum length<length>;character set as specified by command+CSCS.The display of text depending to the storage format in the sim card.If we store the pbk entry with usc2 format,we show Chinese string here,otherwise,we show NON-Chinese string.We do not care about charsets.it is decided by command +CSCS setting when we store them

Example:

AT command	Response
AT+CPBS="ON"	+CPBS:"ON",2,2 OK
AT+CPBW=1,"10600000000",129,"test1"	OK
AT+CPBR=1	+CPBR:1,"10600000000",129,"test1" OK
AT+CNUM	+CNUM:"test1","10600000000",129 OK

6.Network Service related Commands

6.1 AT+COPS Operator Selection

Set command forces an attempt to select and register the GSM/UMTS/NB-IOT network operator. If the 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

Test Command AT+COPS=?	Response +COPS: list of supported (<mode>,<format>s,<oper>),[<long alphanumeric<oper>,short alphanumeric <oper>,numeric <oper>] OK or +CME ERROR: <err>
Write Command AT+COPS=<mode>[,<format>,<oper>[,<Act>]]	Response OK or +CME ERROR: <err>
Read Command AT+COPS?	Response +COPS: <mode>[,<format>,<oper>,<Act>] OK or +CME ERROR: <err>

Rederence	<p>Note</p> <p>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.</p> <p>+COPS? response is not alphanumeric format when setting with alphanumeric format</p> <p>example:</p> <p>+COPS: 0,0," KG Telecom Co."</p> <p>If you got +COPS: 0,0,"46688"</p> <p>This is possibly due to there is no alphanumeric format name mapping to the operator id</p> <p>You can define operator name table in the following file under custom folder.</p> <p>mcu\custom\common\customer_operator_name.c</p> <p>Please check if there is operator name mapping in the name table.</p> <p>If not , Please add your operator name and operator id</p> <p>There is comment information in the file to guide you .</p> <p>Please read the guide before modification.</p> <p>After modification .then 'remake custom'</p> <p>There are two places shall be modified</p> <ol style="list-style-type: none"> 1. RMMI_PLMN_NAME_ENTRIES 2. rmmi_plmn_table <p><mode>=2 supported in projects with __NW_DETACH_SUPPORT__ option. (availableafter W1012)</p>
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Parameter note:

Parameters	Description
<mode>	<p>0 automatic (<oper> field is ignored)</p> <p><IP_address></p> <p>1 manual (<oper> field shall be present)</p> <p><n></p> <p>2 deregister from network (disable form 05.48)</p> <p>3 set only <format> (for read command +COPS?), do not attemptregistration/deregistration</p> <p>4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered</p>
<format>	<p>0 long format alphanumeric <oper></p> <p>1 short format alphanumeric <oper></p> <p>2 numeric <oper></p>

<oper>	string type
<stat>	0 unknown 1 available 2 current 3 forbidden
<Act>	0 GSM 1 GSM_COMPACT 2 UTRAN 3 GSM_EGPRS 4 UTRAN_HSDPA 5 UTRAN_HSUPA 6 UTRAN_HSDPA_HSUPA 7 EUTRAN 8 ECGSM 9 NB-IOT 10 UNDEFINED

6.2 AT+CREG Network Registration

This command be used to query the register status

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

Parameters are defined below:

Parameters	Description
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<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>]
<stat>	0 not registered,MT is not currently searching a new operator to register to 1 registered,home work 2 not registered,but MT is currently searching a new operator to register to 3 registration denied 4 unknown 5 registered,romaing
<lac>	String type,two byte location area code
<ci>	string type,two byte cell ID in hexadecimal format

6.3 AT+CLCK Facility Lock

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

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> [...]] OK or +CME ERROR: <err>
Test Command AT+CLCK=?	Response +CLCK: (list of supported <fac>s) OK or +CME ERROR: <err>

Parameters are defined below:

Parameters	Description
<fac>	"SC","FD","AO","OX","OI"

<mode>	6 unlock 7 lock 8 query status (only "SC" support query mode)
<status>	0 not active
<passwd>	1 active 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

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

6.4 AT+CPWD Change Password

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

Write Command AT+CPWD=<fac>,<oldpwd>,<newpwd>	Response OK or +CME ERROR: <err>
Test Command AT+CPWD=?	Response +CPWD: list of supported (<fac>,<pwdlength>)s OK or +CME ERROR: <err>
Parameters	Description
<fac>	"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code. "P2" SIM PIN2
<oldpwd>	String type
<newpwd>	String type

<pwdlength>	integer type maximum length of the password for the facility
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6.5 AT+CSSN Supplementary service notifications

This command refers to supplementary service related network initiated notifications. The set command enables/disables the presentation of notification result codes from TA to TE. When $\langle n \rangle = 1$ and a supplementary service notification is received after a mobile originated call setup, intermediate result code +CSSI: $\langle \text{code1} \rangle [, \langle \text{index} \rangle]$ is sent to TE before any other MO call setup result codes presented in the present document or in V.250 [14]. When several different $\langle \text{code1} \rangle$ s are received from the network, each of them shall have its own +CSSI result code. When $\langle m \rangle = 1$ and a supplementary service notification is received during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received, unsolicited result code +CSSU: $\langle \text{code2} \rangle [, \langle \text{index} \rangle [, \langle \text{number} \rangle [, \langle \text{type} \rangle [, \langle \text{subaddr} \rangle [, \langle \text{satype} \rangle]]]]$ 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 $\langle \text{code2} \rangle$ s are received from the network, each of them shall have its own +CSSU result code.

Test Command AT+CSSN=?	Response +CSSN: (list of supported $\langle n \rangle$s), (list of supported $\langle m \rangle$s) OK
Read Command AT+CSSN?	Response +CSSN: $\langle n \rangle$, $\langle m \rangle$ OK
Write Command AT+CSSN=[$\langle n \rangle$ [, $\langle m \rangle$]]	Response OK or +CME ERROR: $\langle \text{err} \rangle$
Parameters	Description
$\langle n \rangle$	0 disable 1 enable
$\langle m \rangle$	0 disable 1 enable

6.6 AT+CPOL Preferred operator list

This command is used to edit the SIM preferred list of networks. Execute command writes an entry in the SIM list of preferred operators (EFPLMNsel). If $\langle \text{index} \rangle$ is given but $\langle \text{oper} \rangle$ is left out, entry is deleted. If $\langle \text{oper} \rangle$ is given but $\langle \text{index} \rangle$ is left out, $\langle \text{oper} \rangle$ is put in the next free location. If only $\langle \text{format} \rangle$ is given, the format of the $\langle \text{oper} \rangle$ in the read command is changed.

Test Command AT+CPOL=?	Response +CPOL: (list of supported <index>s), (list of supported <format>s) OK or +CME ERROR: <err>
Execution Command AT+CPOL=<index>[,<format>[,<oper>[<GSM_AcT>,<GSM_compact_AcT>,<UTRAN_AcT>]]]	Response OK or +CME ERROR: <err>
Read Command AT+CPOL?	Response +CPOL: <index1>,<format>,<oper1>[,<GSM_AcT1>,<GSM_Compact_AcT1>,<UTRAN_AcT1>] [<CR><LF>+CPOL: <index2>,<format>,<oper2>[,<GSM_AcT2>,<GSM_Compact_AcT2>,<UTRAN_AcT2>] [...]] OK or +CME ERROR: <err>

Parameter note:

Parameters	Description
<indexn>	the order number of operator in the SIM/USIM preferred operator list
<format>	0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper>
<opern>	string type; <format> indicates if the format is alphanumeric or numeric (see +COPS)
<GSM_AcTn>	0 access technology not selected 1 access technology selected
<GSM_Compact_AcTn>	0 access technology not selected 1 access technology selected
UTRAN_AcTn	0 access technology not selected 1 access technology selected
Reference	Note: when adding preferred operator, <format> can only be 2

Example:

AT Commands	Response
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AT+CPOL=?	+CPOL: (1-8),(0,1,2) OK
AT+CPOL?	+CPOL: 1,2,"46000" OK
AT+CPOL=2,2,"46001"	OK <Note:>Add a preferred operator
AT+CPOL?	+CPOL: 1,2,"46000" +CPOL: 2,2,"46001" OK
AT+CPOL=,0	OK <Note :>Set the display format as long format alphanumeric <oper>
AT+CPOL?	+CPOL: 1,0,"China Mobile" +CPOL: 2,0,"China Unicom" OK
AT+CPOL=1 AT+CPOL?	OK <Note :>Delete the preferred operator with index of 1 +CPOL: 2,0,"China Unicom"

6.7 AT+CEREG EPS network registration status

The set command controls the presentation of an unsolicited result code +CEREG: <stat> when <n>=1 and there is a change in the MT's EPS network registration status in E-UTRAN, or unsolicited result code +CEREG: <stat>,[<tac>],[<ci>],[<AcT>]] when <n>=2 and there is a change of the network cell in E-UTRAN. The parameters <AcT>, <tac> and <ci> are provided only if available. The value <n>=3 further extends the unsolicited result code with [<cause_type>,<reject_cause>], when available, when the value of <stat> changes. If the UE wants to apply PSM for reducing its power consumption, see +CPSMS command and 3GPP TS 23.682 [149], the set command controls the presentation of an unsolicited result code +CEREG:

<stat>,[<tac>],[<ci>],[<AcT>],[<cause_type>],[<reject_cause>],[<Active-Time>],[<Periodic-TAU>]]]. When <n>=4 the unsolicited result code will provide the UE with additional information for the Active Time value and the extended periodic TAU value if there is a change of the network cell in E-UTRAN. The value <n>=5 further enhances the unsolicited result code with <cause_type> and <reject_cause> when the value of <stat> changes. The parameters <AcT>, <tac>, <ci>, <cause_type>, <reject_cause>, <Active-Time> and <Periodic-TAU> are provided only if available. Refer subclause 9.2 for possible <err> values.

NOTE 1: If the EPS MT in GERAN/UTRAN/E-UTRAN also supports circuit mode services and/or GPRS services, the +CREG command and +CREG: result codes apply to the registration status and location information for those services.

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

<ta>, <ci> and <AcT>, if available, are returned only when <n>=2 and MT is registered in the network. The parameters

[,<cause_type>,<reject_cause>], if available, are returned when <n>=3.

Test command returns values supported as a compound value.

Write Command AT+CEREG=<n>	Response OK or +CME ERROR:<err>
Test Command AT+CEREG=?	Response +CEREG: (list of supported <n>s) OK
Read Command AT+CEREG?	Response when <n>=0, 1, 2 or 3 and command successful: +CEREG: <n>,<stat>[,<ta>], [<ci>],[<AcT>[,<cause_type>], <reject_cause>]]] when <n>=4 or 5 and command successful: +CEREG: <n>,<stat>[,<ta>],[<ci>], [<AcT>],[<cause_type>], [<reject_cause>],[[<Active-Time>], [<Periodic-TAU>]]]] OK

Parameter note:

Parameters	Description
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<n>	<p>integer type</p> <p>0 disable network registration unsolicited result code</p> <p>1 enable network registration unsolicited result code +CEREG: <stat></p> <p>2 enable network registration and location information unsolicited result code +CEREG:</p> <p><stat>[,<tac>],<ci>[,<AcT>]]</p> <p>3 enable network registration, location information and EMM cause value information unsolicited result code +CEREG:</p> <p><stat>[,<tac>],<ci>[,<AcT>][,<cause_type>,<reject_cause>]]</p> <p>4 For a UE that wants to apply PSM, enable network registration and location information unsolicited result code +CEREG:</p> <p><stat>[,<tac>],<ci>[,<AcT>][,<Active-Time>,<Periodic-TAU>]]]]</p> <p>5 For a UE that wants to apply PSM, enable network registration, location information and EMM cause value information unsolicited result code +CEREG:</p> <p><stat>[,<tac>],<ci>[,<AcT>][,<cause_type>,<reject_cause>][,<Active-Time>],<Periodic-TAU>]]]]</p>
<stat>	<p>integer type; indicates the EPS registration status</p> <p>0 not registered, MT is not currently searching an operator to register to</p> <p>1 registered, home network</p> <p>2 not registered, but MT is currently trying to attach or searching an operator to register to</p> <p>3 registration denied</p> <p>4 unknown (e.g. out of E-UTRAN coverage)</p> <p>5 registered, roaming</p> <p>6 registered for "SMS only", home network (not applicable)</p> <p>7 registered for "SMS only", roaming (not applicable)</p> <p>8 attached for emergency bearer services only (See NOTE 2)</p> <p>9 registered for "CSFB not preferred", home network (not applicable)</p> <p>10 registered for "CSFB not preferred", roaming (not applicable)</p> <p>NOTE 2: 3GPP TS 24.008 [8] and 3GPP TS 24.301 [83] specify the condition when the MS is considered as attached for emergency bearer services.</p>
tac	<p>string type; two byte tracking area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)</p>
ci	<p>string type; four byte E-UTRAN cell ID in hexadecimal format</p>

AcT	<p>integer type; indicates the access technology of the serving cell</p> <p>0 GSM (not applicable)</p> <p>1 GSM Compact (not applicable)</p> <p>2 UTRAN (not applicable)</p> <p>3 GSM w/EGPRS (see NOTE 3) (not applicable)</p> <p>4 UTRAN w/HSDPA (see NOTE 4) (not applicable)</p> <p>5 UTRAN w/HSUPA (see NOTE 4) (not applicable)</p> <p>6 UTRAN w/HSDPA and HSUPA (see NOTE 4) (not applicable)</p> <p>7 E-UTRAN</p> <p>8 EC-GSM-IoT</p> <p>9 E-UTRAN(NB-S1 mode)</p> <p>NOTE 3: 3GPP TS 44.060 [71] specifies the System Information messages which give the information about whether the serving cell supports EGPRS.</p> <p>NOTE 4: 3GPP TS 25.331 [74] specifies the System Information blocks which give the information about whether the serving cell supports HSDPA or HSUPA.</p>
cause_type	integer type; indicates the type of <reject_cause>.

7.MT control and status Commands

7.1 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.

Test Command AT+ CPAS=?	Response +CPAS: list of supported <pas>s OK or +CME ERROR: <err>
Execution Command AT+ CPAS	Response +CPAS:<pas> OK
Parameters <pas>	Description 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)

7.2 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)

Test Command AT+ CFUN=?	Response +CFUN: (list of supported <fun>s), (list of supported <rst>s) OK or +CME ERROR: <err>
-----------------------------------	---

Write Command AT+CFUN=<fun>[,<rst>]	Response +CME ERROR: <err>
Read Command AT+CFUN?	Response +CFUN:<fun> OK
Parameter note:	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 <u>AT_CFUN_FLIGHTMODE_SUPPORT</u> option.

Parameters are defined below:

Parameters	Description
<fun>	0 enable functionality 1 full functionality 4 disable phone both transmit and receive RF circuits (supported only for module solution)
<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

7.3 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.

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

Parameters are defined below:

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

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

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

Execution Command	Response
AT+ CSQ	+CSQ: <rss>,<ber> OK or +CME ERROR:<err>

Test Command AT+CSQ=?	Response +CSQ: (0-31,99),(0-7,99) OK
---------------------------------	--

Parameters are defined below:

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 99 not known or not detectable

7.5 AT+CIND Indicator control

Displays the value of ME indicators

Test Command AT+CIND=?	Response +CIND: (<descr>,(list of supported <ind>s)) [,(<descr>,(list of supported <ind>s))][,...] OK or +CME ERROR: <err>
Read Command AT+CIND?	Response +CIND: <ind>[,<ind>[,...]] OK or +CME ERROR: <err>
Write Command AT+CIND=[<ind>[,<ind>[,...]]	Response OK or +CME ERROR: <err>

Reference note:	Note "call setup" is proprietary defined in MTK solution and only used when BT supported.
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Parameters are defined below:

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" signal quality (0-5) "service" service availability (0-1) "sunder" (0-1) "message" message received (0-1) "call" call in progress (0-1) "roam" roaming indicator (0-1) "smsfull" a short message memory storage in the MT has become full(1) or memory locations are available (0)

7.6 AT+CMER Mobile Termination event reporting

Set command enables or disables sending of unsolicited result codes from TA to TE in the case of key pressings, display changes, and indicator state changes. Test command returns the modes supported as compound values.

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) OK
Read Command AT+CMER?	Response +CMER:<mode>,<keyp>,<disp>,<ind>,<bfr> OK
Write Command AT+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]	Response OK or +CME ERROR:<err>

Reference	<p>Note</p> <p>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.</p> <p>The +CKEV URC which set by <keyp> parameter only reports when UART setting is SIM1.</p> <p><tscrn> parameter take effect after W1021.</p>
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Parameters are defined below:

Parameters	Description
<mode>	<p>0 buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded</p> <p>1 discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line datamode); otherwise forward them directly to the TE</p> <p>2 buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-linedata mode) and flush them to the TE after reservation; otherwise forward them directly to the TE</p> <p>3 forward unsolicited result codes directly to the TE; TA-TE link specific in band technique used to embed result codes and data when TA is in on-line data mode</p>
<keyp>	<p>0 no keypad event reporting</p> <p>1 keypad event reporting using result code +CKEV: <key>, <press>, <key> indicates the 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). Only those key pressing, which are not caused by +CKPD shall be indicated by the TA to the TE.</p> <p>NOTE 1: When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.</p> <p>2 Keypad event reporting using result code +CKEV: <key>, <press>. All key pressings shall be directed from TA to TE.</p> <p>NOTE 2: When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.</p>
<disp>	<p>0 no display event reporting</p>

<ind>	0 no indicator event reporting 1 indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator events, which are not caused by +CIND shall be indicated by the TA to TE 2 indicator event reporting using result code +CIEV: <ind>,<value>. All indicator events shall 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 TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes)

7.7 AT+CCLK Clock

Set command sets the real-time clock of the MT.

Read command returns the current setting of the clock.

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

Parameters are defined below:

Parameters <time>	Description string type value; format is "yy/MM/dd,hh:mm:ss+timezone", where characters indicate year (two last digits), month, day, hour, minutes, seconds. If does not support timezone,the <time> format is "yy/MM/dd,hh:mm:ss" or "yy/MM/dd,hh:mm:ss+"
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7.8 AT+CTZR Time Zone Reporting

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

Write Command AT+CTZR=<mode>	Response OK or +CME ERROR:<err>
Read Commands AT+CTZR?	Response +CTZR: <mode> OK or +CME ERROR: <err>
Test Command AT+CTZR=?	Response +CTZR: (list of supported <mode>s) OK
Reference note	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.

Parameters are defined below:

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

8.GPRS Commands(27.007)

8.1 AT+CGDCONT Define PDP Context

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

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)]]] [...] OK
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]]] [...] OK
Write Command AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<pd1>[,...[,pdN]]]]]]]]]	Response OK or +CME ERROR:<err>

Reference	Note
	Only set 1 PDP channel parameter(APN,pdptype,cid etc..) to execute AT+CGACT=1 and active PDP context.

Parameters are defined below:

Parameters	Description
<cid>	(PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.
<PDP_type>	(Packet Data Protocol type) a string parameter. IP Internet Protocol (IETF STD 5)
<APN>	(Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.
<PDP_address>	a string parameter that identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.
<d_comp>	a numeric parameter that controls PDP data compression (applicable for SDCP only) 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>

8.2 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.

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

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

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

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

Parameters are defined below:

Parameter	Description
PDP_type	IP Internet Protocol IPv6 Internet Protocol IPv4v6 Virtual introduced to handle dual IP stack UE capability PPP Point to Point Protocol
<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

8.4 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

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

Parameters are defined below:

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

8.5 AT+CGACT PDP Context activate or deactivate

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

Write Command AT+CGACT=<state>[,<c id>]	Response OK or +CME ERROR:<err>
---	--

Parameters are defined below:

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> is specified, then UE will return ERROR. The usage of omitted <cid> to activate/deactivate all is not supported. Only cid 1 is supported .

8.6 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.

Write Command AT+CGDATA=<L2P> ,<c id>	Response CONNECT[<rate>] or +CME ERROR:<err>
Test Command AT+ CGDATA=?	Response +CGDATA: (list of supported <L2P>s) OK

Parameters are defined below:

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 IP Other values will result in an ERROR response.
<cid>	a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and+CGDSCONT commands). Range from 1 to 7.
<rate>	bandrate

8.7 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.

Write Command AT+CGPADDR=<cid>	Response +CGPADDR: <cid>,<PDP_addr>[<CR><LF> +CGPADDR:<cid>,<PDP_addr>[...]] OK Or +CME ERROR:<err>
Test Command AT+CGPADDR=?	Response +CGPADDR: (list of defined <cid>s) OK

Parameters are defined below:

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 address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT and assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_address> is omitted if none is available.

8.8 AT+CGAUTO Automatic response to network request PDP context activation

The set command disables or enables an automatic positive response (auto-answer) to the receipt 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 is attached. 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 if it is not

already attached. Failure will result in ERROR or, if enabled, +CME ERROR being returned to the TE. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING to the TE, this is followed by the intermediate result code CONNECT. The MT then enters V.250 online data state and follows the same procedure as it would after having received a +CGANS=1 with no <L2P> or <cid> values specified.

Write Command AT+CGAUTO=<n>	Response OK or +CME ERROR:<err>
Read Command AT+CGAUTO?	Response +CGAUTO: <n> OK
Test Command AT+CGAUTO=?	Response +CGAUTO: (list of supports <n>) OK

Parameters are defined below:

Parameters	Description
<n>	<p>0 turn off automatic response for Packet Domain only</p> <p>1 turn on automatic response for Packet Domain only</p> <p>2 modem compatibility mode, Packet Domain only</p> <p>3 modem compatibility mode, Packet Domain and circuit switched calls</p> <p>For <n> = 0 Packet Domain network requests are manually accepted or rejected by the +CGANS command.</p> <p>For <n> = 1 Packet Domain network requests are automatically accepted according to the description above.</p> <p>For <n> = 2 automatic acceptance of Packet Domain network requests is Controlled by the 'S0' Command.</p>

8.9 AT+CGANS Manual response to a network request for PDP context activation

The execution command requests the MT to respond to a network request for Packet Domain PDP 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.

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

Parameters are defined below:

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 +CGDATA command).
<cid>	a numeric parameter which specifies a particular PDP context definition

8.10 AT+CGCLASS GPRS mobile station class

The set command is used to set the MT to operate according to the specified GPRS mobile class. If the requested class is not supported, an ERROR or +CME ERROR response is returned. 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.

Write Command AT+CGCLASS=<class>	Response OK or +CME ERROR:<err>
Read Command AT+CGCLASS?	Response +CGCLASS:<class> OK
Test Command AT+CGCLASS=?	Response +CGCLASS: (list of supported <class>s) OK

Parameters are defined below:

Parameters	Description
<class>	<p>A string parameter which indicates the GPRS mobile class (in descending order of functionality) (not support)</p> <p>A class-A mode of operation(A/Gb mode),or CS/PS mode of operation(lu mode)(highest mode of operation)</p> <p>B class-B mode of operation(A/Gb mode),(not application in lu mode)</p> <p>CG class-C mode of operation in PS only mode(A/Gb mode),or PS mode of operation(lu mode)</p> <p>CC class-C mode of operation in CS only mode(A/Gb mode),or CS(lu mode)(lowest mode of operation)</p> <p>NOTE:<class>A means that the MT would operate simultaneous PS and CS service <class> B means that the MT would operate PS and CS Services but not simultaneously <class>CG means that the MT would only operate PS services<class>CC means that the MT would only operate CS services Other values are reserved and will result in an ERROR response to the set command</p> <p>If the MT is attached to the PS domain when the set command is issued with a <class> = CC specified,a PS detach shall be performed by the MT.</p>

8.11 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 to send 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 and service preferences.

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

Parameters are defined below:

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)

8.12 AT+CGEREP Control Unsolicited GPRS Event Reporting

This command is used to control unsolicited GPRS event reporting.

Write Command AT+CGEREP=[<mode>[, <bfr>]]	Response OK or +CME ERROR:<err>
Read Command AT+CGEREP?	Response +CGEREP: <mode>,<bfr> OK
Test Command AT+CGEREP=?	Response +CGEREP: (0,1),(0,1) OK

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
<bfr>	0 MT buffer of unsolicited result code defined within this command is cleared when<mode> 1 or 2 is entered 1 MT buffer of unsolicited result code defined within this command is flushed to the TE when<mode> 1 or 2 is entered

9.Mobile Termination Errors

9.1 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.

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

Parameters are defined below:

Parameters	Description
------------	-------------

<n>

0 disable +CME ERROR: <err> result code and use ERROR instead
1 enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)

2 enable +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

10.SMS AT Commands

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.

Write Command AT+CSMS=<service>	Response +CSMS: <service>, <mt>,<mo>,<bm> OK or +CMS ERROR: <err>
Read Command AT+ CSMS?	Response +CSMS: <service>,<mt>,<mo>,<bm> OK
Test Command AT+ CSMS=?	Response +CSMS: (list of supported <service>s) OK

Parameters are defined below:

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 not

appropriate for the ME (but is supported by the TA), +CME ERROR is returned.

Write Command AT+CPMS=<mem1>[,<mem2>[,<mem3>]]	Response +CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> OK or +CMS ERROR: <err>
Read Command AT+ CPMS?	Response +CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> OK or +CMS ERROR: <err>
Test Command AT+ CPMS=?	Response +CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s) OK

Parameters are defined below

Parameters	Description
<mem1>	SM SIM card ME modem SM_P SIM priority(not support) ME_P Modem NV priority(not support) MT Modem terminal
<mem2>	SM SIM card ME modem SM_P SIM priority(not support) ME_P Modem NV priority(not support) MT Modem terminal
<mem3>	SM SIM card ME modem SM_P SIM priority(not support) ME_P Modem NV priority(not support) MT Modem terminal
<usedX>	Num of memX used

10.3 AT+CMGF Message Format

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

Write Command AT+CMGF=[<mode>]	Response OK
Read Command AT+CMGF?	Response +CMGF: <mode> OK
Test Command AT+CMGF=?	Response +CMGF: (list of supported <mode>s) OK

Parameters are defined below:

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 text mode, the setting is used by send (AT+CMGS) and write (AT+CMGW) commands. In PDU mode, the setting is used by the same commands, but only when the length of the SMCS address (coded into <pdu> parameter) equals zero..

Write Command AT+CSCA=<sca>[,<tosca>]	Response OK or +CME ERROR:<err>
Read Command AT+CSCA?	Response +CSCA: <sca>,<tosca> OK

Test Command AT+ CSCA=?	Response OK
Reference	Note This AT is related to local operators,CTCC dont support it for the moment.

Parameters are defined below:

Parameters	Description
<sca>	GSM 04.11 RP SC address Address-Value filed in string format
<tosca>	GSM 04.11 RP SC address Type-of-address octet in integer format

Example:

AT Command	Response
AT+CSCA="+8613800100500"	OK
AT+CSCA?	+CSCA: "8613800100500",145 OK

10.5 AT+CSMP Set Text Mode Parameters

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>.

Write Command AT+CSMP=<fo>[,<vp>[,<pid>[,<dc>]]]	Response OK or +CMS ERROR:<err>
Read Command AT+ CSMP?	Response +CSMP:<fo>,<vp>,<pid>,<dc> OK Or +CMS ERROR:<err>

Test Command AT+ CSMP=?	Response OK or +CMS ERROR:<err>
-----------------------------------	--

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.

Write Command AT+CSDH=<show>	Response OK or +CMS ERROR:<err>
Read Command AT+ CSDH?	Response +CSDH: <show> OK
Test Command AT+ CSDH=?	Response +CSDH: (list of supported <show>s) OK

Parameters are defined below:

Parameters	Description
<show>	0 do not show the values in result codes 1 show the values in result codes

10.7 AT+CSCB Select Cell Broadcast Message Types

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

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> OK
Test Command AT+ CSCB=?	Response +CSCB: (0,1),(0,1,5,320-478,922),(0-3,5) OK

Parameters are defined below:

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 <dc>) (default is empty string);e.g. "0-3,5"

Example:

AT Command	Response
AT+CSCB=?	+CSCB:(0,1),(0,1,5,320-478,922),(0-3,5) OK
AT+CSCB?	+CSCB:1, "5","3"
AT+CSCB=1, "5","3"	OK

10.8 AT+CNMI New Message Indications to TE

Selects the procedure how the reception of new messages from the network is indicated to the 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

Received SMS	When receiving 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 report following URCs: +CMTI. +CMT: +CDS:
TCPIP events	When execute following 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

Command Description

Write Command AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]	Response OK or +CMS ERROR: <err>
Read Command AT+CNMI?	Response +CNMI: <mode>,<mt>,<bm>,<ds>,<bfr> OK
Test Command AT+CNMI=?	Response +CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s) OK

Parameters are defined below:

Parameters	Description
<mode>	0 disable unsolicited result code 1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-linedata mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. 3 Forward unsolicited result codes directly to the TE. TA-TE link specific in band technique used to embed result codes and data when TA is in on-line data mode

<mt>	<p>0 No SMS-DELIVER indications are routed to the TE.</p> <p>1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index></p> <p>2 SMS-DELIVERs (except class 2 messages and messages in the message waiting indication 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>[,<toa>,<fo>,<pid>,<dc>,<sca>,<tosca>,
 <length>] <CR><LF><data> (text mode enabled; about parameters in italics, refer command Show Text Mode Parameters +CSDH)</p> <p>3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1</p>
<bm>	<p>0 No CBM indications are routed to the TE.</p> <p>2 New CBMs are routed directly to the TE using unsolicited result code: +CBM: <length><CR><LF><pdu> (PDU mode enabled); or +CBM: <sn>,<mid>,<dc>,<page>,<pages><CR><LF><data> (text mode enabled) If ME supports data coding groups which define special routing also for messages other than class 3 (e.g. (U)SIM specific messages), ME may choose not to route messages of such data coding schemes into TE (indication of a stored CBM may be given as defined in <bm>=1).</p>
<ds>	<p>0 No SMS-STATUS-REPORTs are routed to the TE.</p> <p>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)</p>
<bfr>	<p>0 TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>1 is entered (OK response shall be given before flushing the codes).</p> <p>1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered.</p>

11.Hardware Testing AT Commands

11.1 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.

Write Command AT+EGMR= <op>,<type>[,<str>]	Response When type = (5,7): [+EGMR: "str"] OK
Test Command AT+EGMR=?	Response +EGMR: (0,1),(5,7) OK

Parameters are defined below:

Parameters	Description
<op>	0 get 1 set
<type>	5 serial number 7 SIM1 IMEI
<str>	Input/output string

11.2 AT+CSCLK Configure Slow Clock

This Command is used to Configure Slow Clock.

Write Command AT+CSCLK= <n>	Response OK
---	-----------------------

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

Parameters are defined below:

Parameters	Description
<n>	<p>0 Disable slow clock, module will not enter sleep mode.</p> <p>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.</p> <p>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.</p>

12. Proprietary AT Commands For PS

12.1 AT+ECSQ Received signal level indication

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

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

Parameters are defined below:

Parameters	Description
flag	0 Received signal level indicationdisable 1 Received signal level indicationenable
rsi	0-255 Received signal strength indication
ber	0-255 Bit error rate
RSCP	RSCP Inqdbm
EcN0	EcN0 Inqdbm

12.2 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

Execution Command AT+ICCID	Response +ICCID: <iccid> OK or +CME ERROR: <err>
--------------------------------------	---

Parameters are defined below:

Parameters	Description
<iccid>	String type

12.3 AT+CCID Read CCID of SIM Card

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

Execution Command AT+CCID	Response +CCID: <iccid> OK or +CME ERROR: <err>
-------------------------------------	--

Parameters are defined below:

Parameters	Description
<ccid>	String type

13. Proprietary Unsolicited Result Code

13.1 URC: +ECSQ

This URC is to report signal strength

Execution Command	Response Unsolicited result code +ECSQ: <rss>,<ber>,<rss_in_qdbm>[,<RSCP_in_qdbm>,<EcN0_in_qdbm>]
-------------------	--

Parameters are defined below:

Parameters	Description
<rss>	0-255 Received signal strength indication level
ber	0-255 Bit error rate
rss_in_qdbm	Received signal strength in quarter dbm
RSCP_in_qdbm	RSCP in quarter dbm. Only available when camp on UMTS network
EcN0_in_qdbm	EcN0 in quarter dbm. Only available when camp on UMTS network

13.2 URC: +ESIMS

Indicate the SIM is inserted or not and related cause

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

Parameters are defined below:

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
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13.3 URC:+NPSMR

This URC notify enter PSM or Exit PSM

Execution Command	Response
	+NPSMR: in notify enter PSM
	+NPSMR:out notify exit PSM

14.TCPIP AT Commands

14.1 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 +CME ERROR:<err>
Write Command AT+CIPMUX=<multiple>	Response OK or +CME ERROR:<err>
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

14.2 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 +CME ERROR:<err>
Reference	Note Input +++ string to exit transparent mode(sec 2.4)

Parameters are defined below:

Parameters	Description
<mode>	0 Normal Mode 1 Transparent Mode

14.3 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 +CME ERROR:<err>
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 Max valid APN length is 100 bytes.

<user name>	A string parameter which indicates the GPRS user name Max valid user_name length is 50 bytes.
<password>	A string parameter which indicates the GPRS password Max valid password length is 50 bytes.

14.4 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 OK Or +CME ERROR:<err>
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.

14.5 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 +CME ERROR:<err>

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

14.6 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: (0-7),("TCP","UDP"),(0-255).(0-255).(0-255).(0-255)", (1-65535) +CIPSTART: (0-7),("TCP","UDP"),"Domain Name",(1-65535) OK
Write Command 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>,<m ode>,<IP address or domain name>,<port>	Response OK If(AT+CIPQSEND=1) CONNECT OK or +CME ERROR:<err> If already connected, will return: OK [<n>],ALREADY CONNECT

Reference	<p>Note</p> <p>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.</p> <p>When module is in multi-IP state, before this command is executed, it is necessary to process "AT+CSTT, AT+CIICR, AT+CIFSR".</p>
-----------	---

Parameters are defined below:

Parameters	Description
<id>	0-7 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. the max valid length of ip is 256
<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

14.7 AT+CIPSEND Send data through TCP or UDP connection

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

<p>Test Command</p> <p>AT+CIPSEND=?</p>	<p>Response</p> <p>1) For single IP connection (+CIPMUX=0)</p> <p>+CIPSEND: <length></p> <p>OK</p> <p>2) For multi IP connection (+CIPMUX=1)</p> <p>+CIPSEND: <id>,<length></p> <p>OK</p>
--	---

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>	0-7 A numeric parameter which indicates the connection number
<size>	1-1460 A numeric parameter which indicates the data length sent one time

14.8 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: (0-7) 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
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>	0-7 A numeric parameter which indicates the connection number

14.9 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: +CME ERROR:<err>
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.

14.10 AT+CIPSTATUS Query Current Connection Status

This command is used to Query Current Connection Status.

Test Command AT+CIPSTATUS=?	Response OK or +CIPSTATUS:[(0-7)] OK
Write Command If multi IP connection mode (AT+CIPMUX=1) AT+CIPSTATUS=<id>	Response +CIPSTATUS:<id>,<bearer>,<TCP/UDP>,<IPaddress>,<port>,<client state> OK

Execution Command AT+CIPSTATUS	Response 1) If in single-IP mode (AT+CIPMUX=0) OK STATUS:<client state> 2) If in multi-IP mode (AT+CIPMUX=1) STATUS:<client state> C: 0,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state> ... C: 7,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state> OK
--	--

Parameters are defined below:

Parameters	Description
<id>	0-7 A numeric parameter which indicates the connection number
<bearer>	0-1 GPRS bearer, default is 0
<client state>	A string parameter which indicates the progress of connecting In single-IP state: IP INITIAL IP START IP GPRSACT IP STATUS TCP CONNECTING/UDP CONNECTING CONNECT OK IP CLOSING CLOSED PDP DEACT In Multi-IP state: IP INITIAL IP START IP GPRSACT IP STATUS IP PROCESSING CONNECT OK IP CLOSING CLOSED PDP DEACT

14.11 AT+CIPRXGET Get Data from Network Manually

This command is used to Get Data from Network Manually.

Test Command AT+CIPRXGET=?	Response If single IP connection (+CIPMUX=0) +CIPRXGET:(list of supported <mode>s),list of supported <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

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<p>Write Command</p> <p>1) If single IP connection (+CIPMUX=0) AT+CIPRXGET=<mode> [,<REQ length>]</p> <p>2) If multi IP connection (+CIPMUX=1) AT+CIPRXGET=<mode> [,<id>,<REQ length>]</p>	<p>Response</p> <p>OK or +CME ERROR:<err></p> <p>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</p> <p>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></p>
Reference	<p>Note</p> <p>To enable this function, parameter <mode> must be set to 1 before connection.</p>

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. 4 Query how many data are not read with a given ID
<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, 0 indicates that no data can be read.

14.12 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 +CME ERROR:<err>
Write Command AT+CIPHEAD=<mode>	Response OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<mode>	0 Normal mode, Not add IP header 1 add IP header(If AT+CIPMUX=0)

14.13 AT+CIPQSEND Select Data Transmitting Mode

This command is used to select Data Transmitting Mode.

Test Command AT+CIPQSEND=?	Response +CIPQSEND: (0,1) OK
Read Command AT+CIPQSEND?	Response +CIPQSEND: <n> OK or +CME ERROR:<err>
Write Command AT+CIPQSEND=<n>	Response OK or +CME ERROR:<err>

Parameters are defined below:

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

14.14 AT+CIPTKA Set TCP Keepalive Parameters

This command is used to set TCP network heartbeat packet function

Execution Command AT+CIPTKA=<mode>[,<keepIdle>[,<keepInterval>[,<keepCount>]]]	Response OK or +CME ERROR:<err>
Read Command AT+CIPTKA?	Response +CIPTKA: <mode>,<keepIdle>,<keepInterval>,<keepCount> OK
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:

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

14.15 AT+CIPACK TCP/IP Data flow calculation

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

Write Command (+CIPMUX=1) AT+CIPACK=<id>	Response OK +CIPACK: <txlen>,<acklen>,<nacklen> or +CME ERROR:<err>
Active Command (+CIPMUX=0) AT+CIPACK	Response OK +CIPACK: <txlen>,<acklen>,<nacklen> or +CME ERROR:<err>
Test Command AT+CIPACK=?	Response OK

Parameters are defined below:

Parameters	Description
id	0-7 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: $2^{32}-1$)

14.16 AT+CIPCCFG Configuration of TCP/IP Transparent mode

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

Write Command AT+CIPCCFG=<retry>,<wait>,<size>,<esc>[,<RxMode>,<RxSize>,<Rxtimer>]	Response OK or +CME ERROR:<err>
Test Command AT+CIPCCFG=?	Response +CIPCCFG: (NmRetry:3-8),(WaitTm:1-10),(SendSz:1-1460),(esc:0,1),(Rxmode:0,1),(RxSize:50-1460),(Rxtimer:20-1000) OK
Read Command AT+CIPCCFG?	Response +CIPCCFG: <retry>,<wait>,<size>,<esc>,<RxMode>,<RxSize>,<Rxtimer> OK or +CME ERROR:<err>

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>	1-1024-1460 Size in bytes of data block to be received from serial port before sending.
<esc>	0-1 Whether turn on the escape sequence, default is TRUE.
<RxMode>	0-1 receive mode (reserved)
<RxSize>	50-1460 Size in bytes of data to receive (reserved)

<Rxtimer>	20-50-1000 receive timer (reserved)
------------------------	-------------------------------------

14.17 AT+CDNSCFG Configure Domain Name Server

Test Command AT+CDNSCFG=?	Response +CDNSCFG: "PrimaryDNS","SecondaryDNS" OK
Read Command AT+CDNSCFG?	Response PrimaryDns: <pri_dns> SecondaryDns: <sec_dns> OK or +CME ERROR:<err>
Write Command AT+CDNSCFG=<pri_dns>[,<sec_dns>]	Response OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<pri_dns>	A string parameter which indicates the IP address of the primary domain name server. Default value is 0.0.0.0.
<sec_dns>	A string parameter which indicates the IP address of the secondary domain name server. Default value is 0.0.0.0.

Example

AT Command	Response
AT+CDNSCFG?	PrimaryDns: <168.48.6.0> SecondaryDns: <0.0.0.0> OK
AT+CDNSCFG="168.48.6.0","8.8.8.8"	OK

14.18 AT+CDNSGIP Get IP address by Domain Name

This command is used to get IP address by Domain Name

Test Command AT+CDNSGIP=?	Response OK
Write Command AT+CDNSGIP=<domain name>	Response OK +CDNSGIP: <result>,<domain name>,<IP addr1> [,<IP addr2>] or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
result	0 get ip address failure 1 get ip address successful
domain name	Domain name string, need use "" double quotes
IP addr1	A string parameter which indicates the first IP address corresponding to the domain name
IP addr2	A string parameter which indicates the second IP address corresponding to the domain name

Example

AT Command	Response
AT+CDNSCFG="114.114.114.114","8.8.8.8"	OK
AT+CDNSGIP="baidu.com"	OK +CDNSGIP: 1,"baidu.com","111.13.100.91","111.13.100.93"

14.19 AT+PING Start Ping IP Address Or Host

This command is used to start ping IP address or host

Test Command AT+PING=?	Response +PING: DNS/IP address, timeout(1~255), packet_lenght(36~1500,ipv4)(56~1500,ipv6), ping_count(1~65535) OK
----------------------------------	---

Write Command	Response
AT+PING=<IPaddress>, [<timeout>,<packet_length>,<ping_count>]	OK Reply from <IP address>: bytes= <nbyte> time = <replyTime>(ms), TTL = <ttl> Reply from <IP address>: bytes= <nbyte> time = <replyTime>(ms), TTL = <ttl> [...]
Or	
AT+PING=<domain name>, [<timeout>,<packet_length>,<ping_count>]	Ping statistics for <IP address>:Packets: Sent = <nsendPackage>, Received = <nreceivePackage>, Lose = <nlostPackage><lostRange>% or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<IP address>	A string parameter which indicates ping IP address
<domain name>	A string parameter which indicates ping domain name
<timeout>	Ping ICMP package timeout (1~255)
<packet_length>	Ping ICMP package size (36~1500 ipv4) (56~1500 ipv6)
<ping_count>	Ping ICMP package send times (1~65535)
<nbyte>	Ping package size
<replyTime>	Time, in units of ms, required to receive the response
<ttl>	Time to live
<nsendPackage>	Send package number
<nreceivePackage>	Receive package number
<nlostPackage>	Lost package number
<lostRange>	Lost package range

14.20 AT+PINGSTOP Stop Ping IP Address Or Host

This command is used to stop ping IP address or host. If you have an ongoing AT+PING, you can use

this command to stop the existing ping and return the statistical results of the AT+PING.

Execution Command AT+PINGSTOP	Response OK or +CME ERROR:<err>
---	--

Example:

AT Command	Response
AT+CSTT="shnbiot","web","password"	OK
AT+CIICR	OK
AT+CIFSR	100.79.203.45 OK
AT+PING="58.246.1.50",60	OK
AT+PINGSTOP	OK

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

This command is used to Show Remote IP Address and Port When Received Data.

Test Command AT+CIPSRIP=?	Response +CIPSRIP: (list of supported < mode>s) OK
Read Command AT+CIPSRIP?	Response +CIPSRIP: <mode> OK
Write Command AT+ CIPSRIP=<mode>	Response OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
------------	-------------

< mode >	<p>A numeric parameter which shows remote IP address and port.</p> <p>0 Do not show the prompt</p> <p>1 Show the prompt, the format is as follows:</p> <p>1) For single IP connection(AT+CIPMUX=0 and AT+CIPSRIP=1)</p> <p>+RECV FROM: <IPADDRESS>: <PORT></p> <p>+RECEIVE,<data length>:<data></p> <p>2) For multi IP connection(AT+CIPMUX=1, AT+CIPSRIP=1)</p> <p>+RECEIVE,<n>,<data length>,<IPADDRESS>: <PORT></p> <p>+RECEIVE,<n>.<data length>:<data></p>
-----------------------	---

14.22 AT+CIPSERVER Configure Model as Server

Test Command AT+CIPSERVER=?	Response +CIPSERVER: (0-close server,1-open server),(1-65535) OK
Read Command AT+CIPSERVER?	Response +CIPSERVER: <mode>[,<port>,<channel id>,<bearer>] OK
Write Command AT+CIPSERVER=<mode>[,<port>]	Response OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
< mode>	0 close server 1 open server
<port>	1-65535 Listening port
<channel id>	Channel id
<bearer>	GPRS bearer

Example:

AT Command	Response
AT+CIPSERVER=?	+CIPSERVER:(0-CLOSE SERVER 1-OPEN SERVER)
AT+CIPSERVER=1,10254	OK SERVER OK

AT+CIPSERVER?

+CIPSERVER:1,10254

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15.HTTP AT Commands

15.1 AT+HTTPINIT Initialize HTTP Service

The command is used to initialize HTTP service

Write Command AT+HTTPINIT	Response OK or +CME ERROR:<err>
Test Command AT+HTTPINIT=?	Response +HTTPINIT OK or +CME ERROR:<err>

15.2 AT+HTTPTERM Terminate HTTP Service

The command is used to terminate http service

Execution Command AT+HTTPTERM	Response OK or +CME ERROR:<err>
Test Command AT+HTTPTERM=?	Response +HTTPTERM OK or +CME ERROR:<err>

15.3 AT+HTTPPARA Set HTTP parameters value

The command is used to set HTTP parameter

Write Command AT+HTTTPARA=<HTTP ParaTag>,<HTTPParam Value>	Response OK or +CME ERROR:<err>
Test Command AT+HTTTPARA=?	Response +HTTTPARA=<Tag>,<Value> OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<HTTPParamTag>	Name of HTTP parameter,parameter list:
<cid>	<Mandatory Parameter>Bearer profile identifier
<URL>	<Mandatory Parameter> 0-255 HTTP client URL:"http://server'/path':tcpPort
<UA>	The user agent string which is set by the application to identify the mobile,Usually this parameter is set as operation system and software version information.Default value is "RDA8955"
<PROIP>	The IP address of HTTP proxy server
<PROPORT>	The port of HTTP proxy server
<REDIR>	This flag controls the redirection mechanism of the RDA8955 when it is acting as HTTP client if the server sends a redirect code,the client will automatically send a new HTTP request when the flag is set to (1)
<BREAK>	Parameter for HTTP method "GET",used for resuming broken transfer
<BREAKEND>	Parameter for HTTP method "GET",used for resuming broken transfer,which is used to gether with "BREAK",if the value of "BREAKEND" si bigger than "BREAK",the transfer scope if 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.
<TIMEOUT>	If both "BREAKEND" and "BREAK" are 0,the resume broken transfer fuction is disabled HTTP session timeout value,scope:30-100 second.Default value is 120 seconds.HTTP parameter value Type and supported content depend on related<HTTPParamTag>
<CONTENT>	Used to set the "Content-type"filed in HTTP header

<USEDATA>	User Data
<HTTPParamValue>	HTTP Parameter value.Type and supported content depend on related<HTTPParamTag>

15.4 AT+HTTPDATA Input HTTP Data

The command is used to read HTTP content back from server

Write Command AT+HTTPDATA	Response OK or +CME ERROR:<err>
Test Command AT+HTTPDATA=?	Response +HTTPDATA OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
>	When receive this parameters,you can enter your data in send box,When you send out your data you should focus your curcor in receive box and use combination key:"CTRL+Z" to finish this command

15.5 AT+HTTPACTION HTTP method Action

This command is used to set http method action

Write Command AT+HTTPACTION=<method_code>	Response OK <method_code>,<status_code>,<content_length> or +CME ERROR:<err>
Test Command AT+HTTPACTION=?	Response +HTTPACTION=(0~5) OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<method_code>	HTTP methods 0 GET 1 POST 2 HEAD 3 DELETE 4 DELETE(for onenet) 5 PUT(for onenet)

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<status_code>

HTTP Status Code responded by remote server, it identifier refer to

HTTP1.1(RFC 2616) 100 Continue

101 Switching Protocols 200 OK 201 Created

202 Accepted

203 Non-Authoritative Information

204 No Content

205 Reset Content

206 Partial Content

300 Multiple Choices

301 Moved Permanently

302 Found

303 See Other

304 Not Modified

305 Use Proxy

307 Temporary Redirect

400 Bad Request

401 Unauthorized

402 Payment Required

403 Forbidden

404 Not Found

405 Method not Allowed

406 Not Acceptable

407 Proxy Authentication Required

408 Request Time-out

409 Conflict

410 Gone

411 Length required

412 Precondition Failed

413 Request Entity Too Large

414 Request-URI Too Large

415 Unsupported Media Type

416 Requested range not satisfiable

417 Expectation Failed

500 Internal Server Error

501 Not Implemented

502 Bad Gateway

503 Service Unavailable

504 Gateway Time-out

505 HTTP Version not support

600 Not HTTP PDU

601 Network error

602 No memory

603 DNS error

604 Stack busy

<content_length>	HTTP content_length responded by remote server
-------------------------------	--

15.6 AT+HTTPREAD Read the http server response

Write Command AT+HTTPREAD=<start_address>,<byte_size>	Response OK +HTTPREAD:<data_len>,<data> or +CME ERROR:<err>
Test Command AT+HTTPREAD=?	Response +HTTPACTION=<start_address>,<byte_size> OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<start_address>	The starting point for data output.0-319488
<byte_size>	The length for data output 0-319488
<data_len>	The actual length of data output
<data>	Data from HTTP server or user input

15.7 AT+HTTPSTATUS Read http status

Write Command AT+HTTPSTATUS	Response OK +HTTPSTATUS:<mode>,<status>,<finish>,<remain> or +CME ERROR:<err>
Test Command AT+HTTPSTATUS=?	Response +HTTPSTATUS OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<mode>	GET PSOT HEAD
<status>	0 idle 1 receiving 2 sending
<finish>	The amount of data which have been transmitted
<remain>	The amount of data remaining to be sent or received

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16.FTP AT Commands

16.1 AT^FTPOPEN Open FTP Connect

Write Command AT^FTPOPEN=<url>,<username>,<password>,<mode>,<tout>,<type>	Response OK or +CME ERROR:<err>
Test Command AT^FTPOPEN=?	Response ^FTPOPEN:<url>,<username>,<password>,<mode>,<tout>,<type> OK or +CME ERROR:<err>
Read Command AT^FTPOPEN?	Response Get the opened status,if has open: ^FTPOPEN:1 Get the opened status,if has not open: ^FTPOPEN:0

Parameters are defined below:

Parameters	Description
<url>	String Server address
<username>	String The username for FTP authentication
<password>	String The password for FTP authentication
<mode>	Int 0 Active FTP mode 1 Passive FTP mode
<tout>	Int 5-180(s) The device will logout in background when no FTP operation during the "tout"
<type>	Int 1 for FTP Binary sessions,0 for ascii session

Example:

AT Command	Response
------------	----------

AT^FTPOPEN="192.168.1.101:21","username","password",0,180,0	OK
AT^FTPOPEN?	^FTPOPEN:1 OK
AT^FTPOPEN=?	^FTPOPEN:<url>,<username>,<password>,<mode>,<tout>,<type> OK

16.2 AT^FTPCLOSE Close FTP Connect

Write Command AT^FTPCLOSE	Response OK URCFTP:0 or +CME ERROR:<err>
-------------------------------------	--

16.3 AT^FTPGETSET Set Get Params

Write Command AT^FTPGETSET=<filename>,[offset],[size]]	Response OK or +CME ERROR:<err>
Test Command AT^FTPGETSET=?	Response ^FTPGETSET:<filename>,[offset, [size]] OK or +CME ERROR:<err>
Read Command AT^FTPGETSET?	Response ^FTPGETSET:<filename>,[offset, [size]] OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<filename>	The file name with full path stored in FTP server
<offset>	Download offset from the file,if this parameter is empty,download from file begin
<size>	Download length from the file<offset>or begin,if this parameter is empty,download file from<offset> or begin to end

Example:

AT Command	Response
AT^FTPGETSET="/file.1M",1024,256	OK
AT^FTPGETSET?	^FTPGETSET:"file.1M",1024,256 OK
AT^FTPGETSET=?	^FTPGETSET:<filename>,[offset],[size] OK

16.4 AT^FTPGET Get File

Write Command	Response
AT^FTPGET=<mode>[,reqlength]	If success,when "mode=1": OK ^FTPGET:1,1 ^FTPGET=2,reqlength If success,when "mode=2 & reqlength=0": OK ^FTPGET=2,0 or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<mode>	1:if mode is 1,reqlength is unused,to start the transfer 2:if mode is 2,reqlength must be 0,to stop the transfer
<reqlength>	When mode is 2,reqlength is 0,stop the transfers

Example:

AT Command	Response
AT^FTPGET=1	OK ^FTPGET:1,1 ^FTPGET:2,1440
AT^FTPGET=2,0	OK ^FTPGET=2,0

16.5 AT^FTPPUTSET Set PUT Params

Write Command AT^FTPPUTSET=<filename>	Response If success OK or +CME ERROR:<err>
Read Command AT^FTPPUTSET?	Response ^FTPPUTSET:<filename> OK or +CME ERROR:<err>
Test Command AT^FTPPUTSET=?	Response ^FTPPUTSET:<filename> OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<filename>	The file name with full path will stored in FTP server

Example:

AT Command	Response
AT^FTPPUTSET="/put.txt"	OK
AT^FTPPUTSET?	^FTPPUTSET:"/put.txt" OK
AT^FTPPUTSET=?	^FTPPUTSET:<filename> OK

16.6 AT^FTPPUT PUT File

Write Command AT^FTPPUT=<mode>[,<reqlength>]	Response If success,when “mode=1”: OK ^FTPPUT:1,3072 If success,when “mode=2 &reqlength!=0”: ... OK If success,when “mode=2 &reqlength=0”: OK ^FTPPUT:2,0 or +CME ERROR:<err>
Test Command AT^FTPPUT=?	Response ^FTPPUT:<mode>[,<reqlength>] OK or +CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<mode>	1: start trans file 2: transfer data
<reqlength>	0-3072 Request length of data bytes to be transmitted,if reqlength is 0,stop transfer

Example:

AT Command	Response
AT^FTPPUT=1	OK ^FTPPUT:1,3072
AT^FTPPUT=2,10	...//input data size is 10 OK
AT^FTPPUT=2,0	OK ^FTPPUT:2,0 //transfer finish confirm
AT^FTPPUT=?	^FTPPUT:<mode>[,<reqlength>] OK

16.7 AT^FTPSIZE GET File Size

Write Command	Response
AT^FTPSIZE=<filename>	If success
>	^FILESIZE:xxx
	OK
	or
	+CME ERROR:<err>

Parameters are defined below:

Parameters	Description
<filename>	The file name with full path which stored in FTP server

Example:

AT Command	Response
AT^FTPSIZE="size.txt"	^FTPSIZE:xxx
	OK

17.COAP AT Commands

17.1 AT^COAPGET Get the resource from COAP server

Write Command AT^COAPGET=<url>,<cmdline>,<timer>	Response +COAP(n):<string> OK If error is related to ME functionality: +CMS ERROR: <err>
Reference	Note If [timer] is set, [timer] needs to be longer than a certain amount of time that it takes to get resources from the coap server.

Parameters are defined below:

Parameters	Description
<url>	A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri- query. Max valid URL length is 512 bytes.
<cmdline>	A string parameter which includes many optional parameters, each optional parameter must be followed by an optional tag
<timer>	A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request. If [timer] is not set, the max response time 90 seconds. If [timer] is set, the max response time [timer]+5 seconds.
<n>	The length of the <string> from COAP server
<string>	The response data from COAP server

<err>	<p>Client Error 4.xx</p> <p>4.00 Bad Resuest</p> <p>4.01 Unauthorized</p> <p>4.02 Bad Option</p> <p>4.03 Forbidden</p> <p>4.04 Not Found</p> <p>4.05 Method Not Allowed</p> <p>4.06 Not Acceptable</p> <p>4.12 Precondition Failed</p> <p>4.13 Request Entity Too Large</p> <p>4.15 Unsupported Content-Format</p> <p>Server Error 5.xx</p> <p>5.00 Internal Server Error</p> <p>5.01 Not Implemented</p> <p>5.02 Bad Gateway</p> <p>5.03 Service Unavailable</p> <p>a) roxying Not Supported</p>
--------------------	---

17.2 AT^COAPPUT Update the resource from COAP server

<p>Write Command</p> <p>AT^COAPPUT=<url>,<cmdline>,[<timer>],[data]]</p>	<p>Response</p> <p>OK</p> <p>Or</p> <p>+COAP(n):<length></p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR: <err></p>
Reference	<p>Note</p> <p>If [timer] is set, [timer] needs to be longer than a certain amount of time that it taks to get resources from the coap server.</p>

Parameters are defined below:

Parameters	Description
<url>	<p>A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri- query.</p> <p>Max valid URL length is 512 bytes.</p>
<cmdline>	<p>A string parameter which includes many optional parameters, each optional parameter must be followed by an optional tag, and cmdline also include must parameter uri, uri doesn't need tag but must be at the end of cmdline.</p>

<timer>	<p>A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request.</p> <p>If [timer] is not set, the max response time 90 seconds.</p> <p>If [timer] is set, the max response time [timer]+5 seconds.</p>
<data>	<p>0 No need data input</p> <p>1 need input data</p>

17.3 AT^COAPPOST Create the resource on the server

<p>Write Command</p> <p>AT^COAPPOST=<url>,<cmdline>,[<timer>],[data]]</p>	<p>Response</p> <p>+COAP(n):<string></p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR: <err></p>
Reference	<p>Note</p> <p>If [timer] is set, [timer] needs to be longer than a certain amount of time that it takes to get resources from the coap server.</p>

Parameters are defined below:

Parameters	Description
<url>	<p>A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri- query.</p> <p>Max valid URL length is 512 bytes.</p>

<cmdline>	<p>Cmdline include many optional parameters, each optional parameter must be followed by an optional tag, and cmdline also include must parameter uri, uri doesn't need tag but must be at the end of cmdline.</p> <p>General tag: -t content-format -p port -k ps-k u userId</p> <p>Content-Format</p> <p>The payload type of the coap message.</p> <ul style="list-style-type: none"> 1: plain 2: text/plain 3: link 4: link-format 5: application/link-format 6: xml 7: binary 8: octet-stream 9: application/octet-stream 10: exi 11: application/exi 12: json 13: application/json
<timer>	<p>0-3600 A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request.</p> <p>If [timer] is not set, the max response time 90 seconds.</p> <p>If [timer] is set, the max response time [timer]+5 seconds.</p>
<data>	<ul style="list-style-type: none"> 0 No need data input 1 need input data

17.4 AT^COAPDELETE Delete the resource on the server

<p>Write Command</p> <p>AT^COAPDELETE=<url>,<cmdline>[,<timer>]</p>	<p>Response</p> <p>OK</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR: <err></p>
Reference	<p>Note</p> <p>If [timer] is set, [timer] needs to be longer than a certain amount of time that it takes to get resources from the coap server.</p>

Parameters are defined below:

Parameters	Description
------------	-------------

<url>	A string parameter which is the address of the resource, usually the url includes uri-host, uri-port, uri-path and uri- query. Max valid URL length is 512 bytes.
<cmdline>	Cmdline include many optional parameters, each optional parameter must be followed by an optional tag, and cmdline also include must parameter uri, uri doesn't need tag but must be at the end of cmdline. General tag: -t content-format -p port -k psk-u userld Content-Format The payload type of the coap message. 1: plain 2: text/plain 3: link 4: link-format 5: application/link-format 6: xml 7: binary 8: octet-stream 9: application/octet-stream 10: exi 11: application/exi 12: json 13: application/json
<timer>	A integer parameter which indicates the execution cycle of the request, and if timeout request must be terminated and clear the request. If [timer] is not set, the max response time 90 seconds. If [timer] is set, the max response time [timer]+5 seconds.

17.5 AT^COAPDATA Input the data from serial port

Test Command AT^COAPDATA=?	Response +COAPDATA:[1-1358][,(1-120)] OK or +CME ERROR:<err>
Read Command AT^COAPDATA?	Response +COAPDATA:0

Write Command AT^COAPDATA=[<length>][,<timer>]	Response OK If error is related to ME functionality: +CME ERROR:<err>
Reference	Note 1. If auto input end with length or timer, if manual end with ctrl+z.

Parameters are defined below:

Parameters	Description
<length>	1- 1358 The data length of input Unit: bytes
<timer>	1-120 Timer is the data input cycle, if timeout data input must be terminated. The<length> is input data already. If [timer] is not set, the time will be 90 seconds. Unit: seconds

17.6 AT^COAPREG Configuration data register to the server

Write Command AT^COAPREG=<reset>	Response If success OK If error is related to ME functionality: +CMS ERROR: <err>
--	---

Parameters are defined below:

Parameters	Description
<reset>	1 Update the ICCID saved in NV item. 0 ICCID saved in NV item without updated.

18.OCEANCONNECTCT Commands

18.1 AT+NCDPOPEN Bind device to OceanConnect server

Test Command AT+NCDPOPEN=?	Response OK or +CME ERROR:<err>
Write Command AT+NCDPOPEN=<ip_addr>[,<port>][,<psk>]	Response OK or +CME ERROR: <err>
Reference	Note IMEI must be set first. Then register devices at https://180.101.147.135:8843 . NodeID must be set as IMEI

Parameters are defined below:

Parameters	Description
<ip_addr>	OceanConnect server IP address(with double quotes)
<port>	OceanConnect server IP port. Defaut is 5683 when not set or set to 0.
<psk>	For safety device. Dynamic generated by OceanConnect or set by user when Bind devices to server.(with double quotes)

18.2 AT+NCDPCLOSE Unbind device from OceanConnect

Execute Command AT+NCDPCLOSE	Response OK or +CME ERROR: <err>
--	---

18.3 AT+NMGS Send message to OceanConnect server

Write Command AT+NMGS=<length>,<data>	Response OK or +CME ERROR: <err>
---	---

Parameters are defined below:

Parameters	Description
<length>	1-512 Decimal length of message
<data>	Data to be transmitted in hex string format

18.4 AT+NMGR Get a Message that have been received from

The command returns the oldest buffered message and deletes from the buffer. If new message indications (AT+NNMI) are turned on then received messages will not be available via this command

Execute Command AT+NMGR	Response If success && received message is not null: <length>,<data> OK If success && received message is null: OK or +CME ERROR: <err>
-----------------------------------	--

Parameters are defined below:

Parameters	Description
<length>	1-512 Decimal length of message
<data>	Data to be transmitted in hex string format

18.5 AT+NNMI New Message Indications

The command sets or gets new message indications that are sent. New message indications can be sent when a downstream message is received by the terminal from the OceanConnect server.

When new message indications and message are enabled (AT+NNMI=1), all currently buffered messages will be returned in the format of "+NNMI: <length>,<data>".

If indications alone are turned on (AT+NNMI=2), each newly received message triggers an indication

that a new datagram is waiting using the unsolicited informational response. The buffered messages can be collected using AT+NMGR. The format of response is: "+NNMI".
The default setting is 0, which indicates no indications are sent.

Read Command AT+NNMI?	Response +NNMI:<status> OK or +CME ERROR:<err>
Write Command AT+NNMI=<status>	Response OK or +CME ERROR: <err>

Parameters are defined below:

Parameters	Description
<status>	0 No indications, the default setting 1 Indications and message 2 Indications only

19.MQTT AT Commands

19.1 AT+MQTTCONN Client requests a connection to a Server

This command is used to requests a connection to a Server

Test Command AT+MQTTCONN=?	Response +MQTTCONN:"(0,255).(0,255).(0,255).(0,255)",(1-65535),<"clientid"> ,(30-1800),(0-1)[,<"username">,<"password">] OK
Write Command AT+MQTTCONN =<host>,<port>,<clientid>,<keepalive>,<cleansession>,<username>,<password>	Response CONNECT OK OK or +CME ERROR:<err> If connect fail +MQTTDISCONNECTED:256 +CME ERROR:<err>
Reference	Note If server no response,module will return " COMMAND NO RESPONSE!" about 100 seconds

Parameters are defined below:

Parameters	Description
<host>	Host name of MQTT Server
<port>	Server port.
<clientid>	Client id Max valid length is 255 bytes
<keepalive>	Keep-alive of mqtt connections;time in milliseconds
<cleansession>	Whether clear session
<username>	User name
<password>	password

19.2 AT+MQTTSUBUNSUB Subscribe or Unsubscribe a MQTT topic

Write Command AT+MQTTSUBUNSUB= <topic>,<subflag>,<qos> >	Response OK or +CME ERROR:<err>
Reference	Note If server no response,module will return " COMMAND NO RESPONSE!" about 100 seconds
Parameters <topic>	Topic of mqtt,max length is 255
<sub flag>	1:subscribe 0:unsubscribe
<qos>	Quality of service values include 0,1,2

19.3 AT+MQTTPUB Publish a MQTT message on topic

This command is used to publish message

Test Command AT+MQTTPUB=?	Response +MQTTPUB: <"topic">,<"message">,(0-2),(0-1),(0-1) OK
Write Command AT+MQTTPUB=<topic>,<message>,<qos>,<duplicate>,<retain>	Response OK or +CME ERROR:<err>
Reference	Note 1.This command is sent from a Client to a Server or from Server to a Client to transport an Application Message. If server no response,module will return " COMMAND NO RESPONSE!" about 100 seconds 2.the max length of mqtt publish package is set to 256. the total lenght of topic, message and other mqtt package data must be no larger than it, other mqtt package data may use 16 byte at max, so the max length of topic and message is 240.

Parameters are defined below:

Parameters	Description
<topic>	The topic of the Application message. see note for max length
<qos>	Quality of Service: 0 At most once delivery for Application message 1 At least once delivery for Application message 2 Exactly once delivery for Application message
<retain>	Retain Flag: 0 the Server must store the Application Message and its QoS. 1 the Server must not store the Application message and must not remove or replace any existing retained message.
<message>	message to publish, see note for max length
<duplicate>	Duplicate flag of MQTT,value include 0,1

19.4 AT+MQTTDISCONN Disconnect the MQTT connection

This command is used to Subscribe to topics

Test Command AT+MQTTDISCONN=?	Response OK
Write Command AT+MQTTDISCONN	Response CLOSE OK OK or +CME ERROR:<err>
Reference	Note This command is sent from the Client to the Server to create one or more Subscriptions. If server no response,module will return " COMMAND NO RESPONSE!" about 100 seconds

20.ONENET MIPL Commands

20.1 AT+MIPLCREATE Create a basic communication suite instance

Test Command AT+MIPLCREATE=?	Response OK
Write Command AT+MIPLCREATE=<totalsize>,<config>,<index>,<currentsize>,<flag>	Response OK or +CME ERROR: <err>
Execute Command AT+MIPLCREATE	Response +MIPLCREATE:0 OK or +CME ERROR: <err>
Reference	Note 1. If we don't create a basic communication suite instance, we can't connect to the OneNet platform

Parameters are defined below:

Parameters	Description
<totalsize>	Config file total length
<config>	Config file
<index>	Config file index
<currentsize>	Current config file length
<flag>	Message flag 0 Last config file 1 First config file 2 Middle config file

<xml>	Xml format contents
--------------------	---------------------

20.2 AT+MIPLCONFIG Config Host IP address

Write Command AT+MIPLCONFIG=<bootstrap>,<address>	Response +MIPLCONFIG: 0 OK or +CME ERROR: <err>
Test Command AT+MIPLCONFIG=?	Response +MIPLCONFIG:(0,1),"(0-255).(0-255).(0-255).(0-255)" OK
Read Command AT+MIPLCONFIG?	Response <bootstrap>,<address> OK or +CME ERROR:<err>
Reference	Note <Ref> must be a unsigned integer

Parameters are defined below:

Parameters	Description
<address>	Host ip address
<bootstrap>	0 or 1,default is 0

20.3 AT+MIPLDELETE Delete a basic communication suite instance

Write Command AT+MIPLDELETE=<ref>	Response OK or +CME ERROR: <err>
---	---

Reference	Note <Ref> must be a unsigned integer
-----------	--

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index

20.4 AT+MIPLOPEN Register to the OneNet platform

Write Command AT+MIPLOPEN=<ref>,<lifetime>[,<timeout>]	Response If success it returns OK +MIPLEVENT: 0,4 +MIPLEVENT: 0,6 +MIPLOBERVE:0,msgid,1,objectid,instanceid,-1 +MIPLDISCOVER:0,msgid,objectid, if error it returns +CME ERROR: <err>
Reference	Note <Ref> must be a unsigned integer URC "+MIPLEVENT: <ref>, <evtid>"

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<lifetime>	Client register lifetime,the lifetime min value is 0XF, the max value is 0x0FFFFFFF
<timeout>	Waiting time for sending a registration request

<evtid>	Event ID of URC "+MIPLEVENT: <ref>, <evtid>"
	1 EVENT BOOTSTRAP START
	2 EVENT BOOTSTRAP SUCCESS
	3 EVENT BOOTSTRAP FAILED
	4 EVENT CONNECT SUCCESS
	5 EVENT CONNECT FAILED
	6 EVENT REG SUCCESS
	7 EVENT REG FAILED
	8 EVENT REG TIMEOUT
	9 EVENT LIFETIME TIMEOUT
	10 EVENT STATUS HALT
	11 EVENT UPDATE SUCCESS
	12 EVENT UPDATE FAILED
	13 EVENT UPDATE TIMEOUT
	14 EVENT UPDATE NEED
	15 EVENT UNREG DONE
	20 EVENT RESPONSE FAILED
	21 EVENT RESPONSE SUCCESS
	25 EVENT NOTIFY FAILED
	26 EVENT NOTIFY SUCCESS

20.5 AT+MIPLCLOSE Send aderegister request to the OneNet platform

Write Command AT+MIPLCLOSE=<ref>	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note <Ref> must be a unsigned integer

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index

20.6 AT+MIPLADDOBJ Add a dynamic object for communication suite instance

Write Command AT+MIPLADDOBJ=<ref>,<objectid>,<instancecount>,<instancebitmap>,<attributecount>,<actioncount>	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note <Ref> must be a unsigned integer

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<objectid>	Object instance id
<instancecount>	Object instance count
<instancebitmap>	How many instance the object need to create
<attributecount>	The attrubute count of writable and readable resource
<actioncount>	The attrubute count of executable resource

20.7 AT+MIPLDELOBJ Delete a dynamic object for communication suite instance

Write Command AT+MIPLDELOBJ=<ref>,<objectid>	Response If success it returns OK if error it returns +CME ERROR: <err>
--	---

Reference	Note <Ref> must be a unsigned integer
-----------	--

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<objectid>	Object id

20.8 AT+MIPLNOTIFY Notify OneNet platform a value change

Write Command AT+MIPLNOTIFY=<ref>,<msgid>,<objectid>,<instanceid>,<resourceid>,<valuetype>,<len>,<value>,<index>,<flag>[,<ackid>]	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note <Ref> must be a unsigned integer

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<objectid>	Message id
<objectid>	Object id
<objectid>	Object instance id
<resourceid>	Object instance resource id

<valuetype>	Resource data type 1 String 2 Opaque 3 Integer 4 Float 5 Bool
<len>	1-1457 Resource data length,the length of String and Opaque are the string length within double quotes, and Boollength is 1
<value>	Resource data
<index>	The N message combination is a complete instruction, and the index is numbered from N-1 to 0, and when the index number is 0, the local Notify instruction is finished.
<flag>	Message flag 0 Last config file 1 First config file 2 Middle config file
<ackid>	MCU will report message by CON

20.9 AT+MIPLREADRSP Read specific object resource value

Write Command AT+MIPLREADRSP=<ref>,<msgid>,<result>,<objectid>,<instanceid>,<resourceid>,<valuetype>,<len>,<value>,<index>,<flag>	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note Note: 1.After receive the report command +MIPLREAD , it will send this AT command

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index

<msgid>	Message id
<objectid>	Message id
<instanceid>	Object instance id
<resourceid>	Object instance resource id
<valuetype>	Resource data type 1 String (must be started and ended with double-quote) 2 Opaque (must be started and ended with double-quote) 3 Integer 4 Float (can't started and ended with double-quote) 5 Bool (can't started and ended with double-quote)
<len>	1-1457 Resource data length,the length of String and Opaque are the string length within double quotes, and Boollength is 1
<value>	Resource data For example: If String <value> is " cal ", <len>should be 3. If Float <value> is 12.3 , <len>should be 4.
<index>	The N message combination is a complete instruction, and the index is numbered from N-1 to 0, and when the index number is 0, the local Notify instruction is finished.
<flag>	Message flag 0 Last config file 1 First config file 2 Middle config file

20.10 AT+MIPLWRITERSP Change specific object resource value

Write Command AT+MIPLWRITERSP =<ref>,<msgid>,<result> >	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note Note: 1.After receive the report command +MIPLWRITE, it will send this AT command

Parameters are defined below:

Parameters	Description
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<ref>	Basic communication suite instance index
<msgid>	Message id
< result>	Write resource result

20.11 AT+MIPLEXECUTERSP Peform on individual resource

Write Command AT+MIPLEXECUTERSP =<ref>,<msgid>,<result >	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note Note: 1.After receive the report command +MIPLEXECUTE , it will send this AT command

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<msgid>	Message id
< result>	Execute resource result 0 error 1 success 2 response execute 11 response bad request 12 response unauthorized 13 response not found e 14 response method not allowed

20.12 AT+MIPLOBSERVERSP Determine whether the observation

Write Command AT+MIPLOBSERVERSP =<ref>,<msgid>,<result >	Response If success it returns OK if error it returns +CME ERROR: <err>
--	---

Reference	Note Note: 1.After receive the report command +MIPLOBSERVERSP , it will send this AT command
-----------	--

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<msgid>	Message id
<result>	Execute resource result 0 error 1 success

20.13 AT+MIPLDISCOVERRSP Discover all attributes attached to an Object

Write Command AT+MIPLDISCOVERRSP= P=<ref>,<msgid>,<result>,<length>,<valuestring>	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note 1.After receive the report command +MIPLOBSERVERSP , it will send this AT command

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<msgid>	Message id
< result>	discover resource result 0 error 1 success

<length>	Value string length
<valuestring>	Object property requirements, comma partition, for example "1101;1102;1103" Note: 1.After receive the report command +MIPLDISCOVER , it will send this AT command

20.14 AT+MIPLPARAMETERRSP Notify the result for communication suite instances

Write Command AT+MIPLPARAMETERRSP=<ref>,<msgid>,<result>	Response If success it returns OK if error it returns +CME ERROR: <err>
Reference	Note 1.After receive the report command +MIPLPARAMETERRSP , it will send this AT command

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
<msgid>	Message id
< result>	discover resource result 0 error 2 success

20.15 AT+MIPLUPDATE Update register information

Write Command AT+MIPLUPDATE=<ref>,<lifetime>,<withObject Flag>	Response If success it returns OK if error it returns +CME ERROR: <err>
--	---

Reference	Note 1.After receive the report command +MIPLPARAMETERERRSP , it will send this AT command
-----------	--

Parameters are defined below:

Parameters	Description
<ref>	Basic communication suite instance index
< lifetime>	Client register lifetime, the lifetime min value is 0XF, the max value is 0x0FFFFFFF 0 default lifetime(60s)
<withObjectFlag>	If the with ObjectFlag is 0, just update registration, if with ObjectFlag is 1, it will discover resource

20.16 AT+MIPLVER Get Communication suite instances version information

Read Command AT+MIPLVER?	Response If success it returns basic communication suite OK if error it returns +CME ERROR: <err>
Reference	Note 1.After receive the report command +MIPLPARAMETERERRSP , it will send this AT command

21.FILESYSTEM Commands

21.1 AT+FSDWNFILE Write File

Stores a file into the file system

Write Command AT+FSDWNFILE=<filename>,<size>[,<tag>]text	Response OK or +CME ERROR: <err>
Test Command AT+FSDWNFILE=?	Response +FSDWNFILE:filename,size[,tag] OK

Parameters are defined below:

Parameters	Description
<filename>	File name,it is an utf-8 string and file name length must smaller than FILE_NAME_MAX (default 63 bytes)
<size>	File size 0-5120 File size
<tag>	Option parameter that specifies the application file type Default "USER"
<text>	Stream of bytes

Example:

AT Commands AT+FSDWNFILE="test" 10 >1234567890	Response OK
---	-----------------------

21.2 AT+FSLSTFILE List Files Information

Retrieves some information about the file system.

Write Command AT+FSLSTFILE=0	Response +FSLSTFILE:[<filename1>[,<filename2>[...]]] OK or +CME ERROR: <err>
Write Command AT+FSLSTFILE=1 [,<tag>]	Response +FSLSTFILE:<free_fs_space> OK
Write Command AT+FSLSTFILE=2,<filename>[,<tag>]	Response +FSLSTFILE:<file_size> OK
Test Command AT+FSLSTFILE=?	Response +FSLSTFILE:[(0,1,2)[,<param1>,<param2>] OK

Parameters are defined below:

Parameters	Description
<op_code>	0 lists the files belonging to <tag> file type 1 gets the free space for the specific<tag> file type 2 gets the file size expressed in types,belonging to <tag>type
<filename>	File name,it is an utf-8 string FILE_NAME_MAX (default 63 bytes)
<file_size>	Size of the file specified with the<filename>parameter
<tag>	Option parameter that specifies the application file type Default "USER"
<free_fs_space>	Available free space on FS in bytes

Example:

AT Commands	Response
-------------	----------

AT+FSLSTFILE=0	+FSLSTFILE:cfw_nv.bin OK
AT+FSLSTFILE=1	+FSLSTFILE:353408 OK
AT+FSLSTFILE=2,"cfw_nv.bin"	+FSLSTFILE:2468 OK

21.3 AT+FSRDFITE Read File

Retrieves a file from the file system

Write Command AT+FSRDFILE=<filename>[,<tag>]	Response +FSRDFILE:<filename>,<size>,<data> OK
Test Command AT+FSRDFILE=?	Response +FSRDFILE:<filename>[,<tag>] OK

Parameters are defined below:

Parameters	Description
<filename>	File name,it is an utf-8 string FILE_NAME_MAX (default 63 bytes)
< size>	Size of the file specified with the<filename>parameter
<tag>	Option parameter that specifies the application file type Default "USER"
<data>	File content

Example:

AT Commands	Response
AT+FSRDFILE="test"	+FSRDFILE:test,10,1234567890 OK
AT+FSRDFILE="test2"	+FSRDFILE:test2,100000 OK

21.4 AT+FSRDBLOCK Partial Read File

Retrieves a file from the file system. this command allows the user to read only a portion of the file.

Write Command AT+FSRDBLOCK=<filename>,<offset>,<size>[,<tag>]	Response +FSRDBLOCK:<filename>,<size>,<data> OK
Test Command AT+FSRDBLOCK=?	Response +FSRDBLOCK:<filename>,<offset>,size[,<tag>] OK

Parameters are defined below:

Parameters	Description
<filename>	File name, it is an utf-8 string FILE_NAME_MAX (default 63 bytes)
<size>	0-5120 Size of the file specified with the <filename> parameter
<offset>	Offset in bytes from the beginning of the file
<tag>	Option parameter that specifies the application file type Default "USER"
<data>	File content

Example:

AT Commands	Response
AT+FSRDBLOCK="test",5,5	+FSRDBLOCK:test,5, 67890 OK

21.5 AT+FSDELFILE Delete File

Delete a stored file from the file system

Write Command AT+FSDELFILE=<filename> [,<tag>]	Response OK or +CME ERROR:<err>
--	--

Test Command AT+FSDELFILE=?	Response +FSDEFIL: <filename> [,<tag>] OK
---------------------------------------	---

Parameters are defined below:

Parameters	Description
<filename>	File name, it is an utf-8 string FILE_NAME_MAX (default 63 bytes)
<tag>	Option parameter that specifies the application file type Default "USER"

Example:

AT Commands	Response
AT+FSDELFILE="test"	OK

22.FOTA Commands

22.1 AT+Update Download FOTA file from AT UART

Write Command AT+Update=<filesize>	Response OK or +CME ERROR:<err>
--	--

Parameters are defined below:

Parameters	Description
<filesize>	The fota package size,unit is bytes

22.2 AT+Upgrate Download FOTA file from http server

Write Command AT+Upgrate=<url>,<file size>	Response OK or +CME ERROR:<err>
--	--

Parameters are defined below:

Parameters	Description
<url>	0-255 Fota file uniform resource locator from http server
<filesize>	The fota file size,unit is bytes

23.Application Examples

23.1 PSM Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1,1,"19a5","0e88db1d",9 OK	
2	AT+CPSMS=1,,,"10101010","00000101"	OK	enable PSM features
3	AT+NVSETPM=2	OK	
4	AT+CSCLK=2	OK	

23.2 TCP/UDP Example

1:Single IP State Example

Step	Command	Response	Description
1	AT+CIPMUX=0	OK	
2	AT+CSTT="cmnbiot","web","password"	OK	
3	AT+CIICR	OK	
4	AT+CIPSTART="TCP","58.246.1.50",62125	OK +CSCON: 1 CONNECT OK	
5	AT+CIPSTATUS	OK STATE:CONNECT OK	
6	AT+CIPSEND >aaaa	SEND OK	
7	AT+CIPCLOSE	CLOSE OK	

8	AT+CIPSHUT	SHUT OK	
---	------------	---------	--

2: Multi-IP State Example

Step	Command	Response	Description
1	AT+CIPMUX=1	OK	
2	AT+CSTT="cmnbiot","web","password"	OK	
3	AT+CIICR	OK	
4	AT+CIPSTART=0,"TCP","58.246.1.50",62125	OK +CSCON: 1 0,CONNECT OK	
5	AT+CIPSTART=1,"TCP","58.246.1.50",62125	OK +CSCON: 1 1,CONNECT OK	
6	AT+CIPSTATUS	STATE:CONNECT OK C:0,0,TCP,58.246.1.50,62125,CONNECT OK C:1,0,TCP,58.246.1.50,62125,CONNECT OK C:2,0,TCP,,0,IP INITIAL C:3,0,TCP,,0,IP INITIAL C:4,0,TCP,,0,IP INITIAL C:5,0,TCP,,0,IP INITIAL C:6,0,TCP,,0,IP INITIAL C:7,0,TCP,,0,IP INITIAL	
7	AT+CIPSEND=0 >aaaa	0,SEND OK	

8	AT+CIPCLOSE=0	0,CLOSE OK	
9	AT+CIPSHUT	SHUT OK	

3:TCP Server Example

Step	Command	Response	Description
1	AT+CSTT="cmnbiot","web","password"	OK	
2	AT+CIICR	OK	
3	AT+CIPSERVER=1,11003	OK SERVER OK	
4	AT+CIPSERVER=0	OK SERVER CLOSED	
5	AT+CIPSHUT	SHUT OK	

4:UDP Example

Step	Command	Response	Description
1	AT+CIPMUX=0	OK	
2	AT+CSTT="cmnbiot","web","password"	OK	
3	AT+CIICR	OK	
4	AT+CIPSTART="UDP","58.246.1.50",62125	OK +CSCON: 1 CONNECT OK	
5	AT+CIPSTATUS	OK STATE:CONN ECT OK	
6	AT+CIPSEND >aaaa	SEND OK	
7	AT+CIPCLOSE	CLOSE OK	
8	AT+CIPSHUT	SHUT OK	

23.3 HTTP Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e88db1d",9 OK	
2	AT+CGACT=1,1	OK	Active PDP
3	AT+CDNSCFG="114.114.114.114"	OK	DNS
4	AT+HTTPINIT	OK	Init http data structure
5	AT+HTTPPARA="CID","1"	+CSCON: 1 OK	
6	AT+HTTPPARA="URL","http://api-hecoluds.com/device/25336211/datapoints?type=5"	OK	
7	AT+HTTPPARA="CONTENT","application/json"	OK	
8	AT+HTTPPARA="API_KEY","qnx1RqyuLFOfiMXmwe243HUZeo= "	OK	
9	AT+HTTPDATA >	OK	
10	AT+HTTPACTION=1	OK 1 200 26	
11	AT+HTTPREAD="0","26"	OK +HTTPREAD: 26 {“errno”:0,”error”:”succ”}	

23.4 FTP Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e88db1d",9 OK	

2	AT+CGACT=1,1	OK	Active PDP
3	AT^FTPOPEN="182.148.114.87:2100","cd_ftp","cd_ftp",1,180,0	OK	Connect ftp server
4	AT^FTPOPEN?	^FTPOPEN: 1 OK	
5	AT^FTPSIZE="linux.txt"	^FTPSIZE:408 OK	
6	AT^FTPGETSET="linux.txt"	OK	
7	AT^FTPGET=1	OK ^FTPGET:1,1 ^FTPGET:2,40 8 at+11111111 ^FTPGET:2,0 //transfer finish confirm	//output data
8	AT^FTPPUTSET="/hou.txt"	OK	
9	AT^FTPPUT=1	OK ^FTPPUT:1,30 72	Start transfer
10	AT^FTPPUT=2,10 OK	//input data,size is 10
11	AT^FTPPUT=2,0	OK ^FTPPUT:2,0	//transfer finish confirm

23.5 COAP Example

Step	Command	Response	Description
1	AT+CATT=1	OK	
2	AT+CSTT="cmnbiot","web","password"	OK	
3	AT+CGACT=1,1	OK	
4	AT+CDNSCFG="114.114.114.114"	OK	

5	AT^COAPGET="coap://californium.eclipse.org:5683/", "-p 5683"	OK	
6	AT^COAPDATA=11	testforpost OK	
7	AT^COAPPOST="coap://californium.eclipse.org:5683/large-post", "-t text/plain -p 5683", 20, 1	+COAP(11):TESTFORPOST OK	
8	AT^COAPDELETE="coap://californium.eclipse.org:5683/obs", "-p 5683", 20	OK	
9	AT^COAPDATA=10	Testforput OK	
10	AT^COAPPUT="coap://californium.eclipse.org:5683/large-update", "-t text/plain -p 5683", 20, 1	OK	

23.6 MQTT Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1, "19a5", "0e88db1d", 9 OK	
2	AT+CGACT=1,1	OK	Active PDP
3	AT+MQTTCONN="183.230.40.39", 6002, "23036025", 120, 0, "112333", "ABC123RDA"	CONNECT OK OK	//Create connection
4	AT+MQTTSUBUNSUB="RDATEST_TOPIC", 1, 1	OK	//Subscribe MQTT topic
5	AT+MQTTPUB="RDATEST_TOPIC", "hello published by rda", 1, 0, 0	+MQTTPUBLISH:1,RDATEST_TOPIC,22,hello published by rda OK	
6	AT+MQTTSUBUNSUB="RDATEST_TOPIC", 0	OK	// Unsubscribe MQTT topic
7	AT+MQTTDISCONN	CLOSE OK OK	

23.7 OceanConnect Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e88db1d",9 OK	
2	AT+CGACT=1,1	OK	
3	AT+EGMR=1,7,"866873029765024"	OK	
4	AT+NCDPOpen="180.101.147.115"	+CSCON: 1 OK	
5	AT+NNMI=1	OK	
6	AT+NMGS=7,010548454c4c4f	OK	Send data
7	+NNMI: 6,717771777177		Receive data
8	AT+NCDPClose	OK	

23.8 OneNet Example

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e88db1d",9 OK	
2	AT+CGACT=1,1	OK	
3	AT+MIPLCREATE=0,"183.230.40.40"	0 OK	
4	AT+MIPLADDOBJ=0,3303,2,"11",6,1	+CSCON: 1 OK	
5	AT+MIPLADDOBJ=0,3306,1,"1",5,0	OK	

6	AT+MIPLOPEN=0,3600,30	OK +MIPLEVENT: 0, 0x04 // Connect success +MIPLEVENT: 0, 0x06 // Register success	Register to the onenet platform
7	AT+MIPLDISCOVERRSP=0,61350,1,34,"5700; 5601;5602;5603;5604;5701;5605"	OK	Get object 3303 resource id
8	AT+MIPLDISCOVERRSP=0,61351,1,24,"5850; 5851;5852;5853;5750"	OK	
9	AT+MIPLOBSERVERSP=0,4937,1	OK	
10	AT+MIPLOBSERVERSP=0,4938,1	OK	
11	AT+MIPLREADRSP=0,39279,1,3303,0,5700,4, 13,"6.92655815081",0,0	OK	Read resource value
12	AT+MIPLREADRSP=0,39279,1,3303,0,5700,4, 13,"6.92655815081",0,0	OK	
13	AT+MIPLREADRSP=0,39280,1,3303,0,5700,4, 13,"7.57421538099",6,0	OK	
14	AT+MIPLREADRSP=0,39280,1,3303,0,5601,4, 13,"5.67451324594",5,0	OK	
15	AT+MIPLREADRSP=0,39280,1,3303,0,5602,4, 13,"5.58077212636",4,0	OK	
16	AT+MIPLREADRSP=0,39280,1,3303,0,5603,4, 13,"6.73103056235",3,0	OK	
17	AT+MIPLREADRSP=0,39280,1,3303,0,5604,4, 13,"3.28244762159",2,0	OK	
18	AT+MIPLREADRSP=0,39280,1,3303,0,5701,1, 5,"9Y5FC",1,0	OK	
19	AT+MIPLREADRSP=0,39280,1,3303,0,5605,1, 5,"UXDPF",0,0	OK	
20	AT+MIPLWRITERSP=0,43357,2	OK	Write Resource
21	AT+MIPLWRITERSP=0,43356,2	OK	
22	AT+MIPLPARAMETERRSP=0,41208,3303,0,5 700,"pmin=15; pmax=60; gt=0; lt=0; st=0",34	OK	Observe resource value

23	AT+MIPLOBSERVERSP=0,39283,1	OK	
24	AT+MIPLOBSERVERSP=0,39284,1	OK	
25	AT+MIPLOBSERVERSP=0,39285,1	OK	
26	AT+MIPLOBSERVERSP=0,1063,1	OK	Cancel observe
27	AT+MIPLOBSERVERSP=0,1064,1	OK	
28	AT+MIPLOBSERVERSP=0,1065,1	OK	
29	AT+MIPLNOTIFY=0,5555,3303,0,5700,4,3,"9.8",0,0,15	+MIPLEVENT: 0,0x0b,15 OK	Notify data
30	AT+MIPLUPDATE=0,3600,0	+MIPLEVENT: 0,0x0a OK	Update register
31	AT+MIPLDELOBJ=0,3306	OK	Delete object
32	AT+MIPLCLOSE=0	OK	De-register
33	AT+MIPLDELETE=0	OK	Delete combination suite
33	AT+MIPLCREATE=1,"183.230.40.39"	0 OK +MIPLEVENT: 0,0x01 +MIPLEVENT: 0,0x02 +MIPLEVENT: 0,0x04 +MIPLEVENT: 0,0x06	BootStrap

23.9 File System Example

Step	Command	Response	Description
1	AT+FSDWNFILE="test"10 >1234567890	OK	

2	AT+FSLSTFILE=0	+FSLSTFILE: cfw_nv.bin OK	
3	AT+FSLSTFILE=1	+FSLSTFILE: 353408 OK	
4	AT+FSLSTFILE=2,"cfw_nv.bin"	+FSLSTFILE: 2468 OK	
5	AT+FSRDFILE="test"	+FSRDFILE:te st,10,1234567 890 OK	
6	AT+FSRDFILE="test2"	+FSRDFILE:te st2,100000 OK	
7	AT+FSRDBLOCK="test",5,5	+FSRDBLOC K:test,5, 67890 OK	
8	AT+FSDELFILE="test"	OK	

23.10 FOTA Example(Local)

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e8 8db1d",9 OK	
2	ATi	L651v01.01b0 5 OK	
3	AT+UPDATE=1701	OK	
4	ATi	L651v01.01b0 6 OK	

23.11 FOTA Example(Remote)

Step	Command	Response	Description
1	AT+CEREG?	+CEREG: 1, 1,"19a5","0e88db1d",9 OK	Check network
2	ATi	L651v01.01b0 5 OK	Check fireware version
3	AT+CGDCONT=1,"IP","cmnbiot"	OK	Set APN
4	AT+CGACT=1,1	OK	PDP active
5	AT+UPGRADE="http://58.246.1.50:60091/out put.pack",1701	Will restart OK	Download FOTA file from remote HTTP server
6	ATi	L651v01.01b0 6 OK	Check new fireware version