4G MODULE GCT450 PLATFORM

AT Command User Guide

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Revision	Date	Description of Major Changes
1.0	2017/11/29	Initial Release
1.1	2019/07/13	Adjust the sequence of some AT commands in the list
1.2	2019/10/08	Add APN settings support
1.3	2020/4/8	Update the Doc ID
1.3	2020/8/25	Add AT%WMODE , AT!MSTATUS, AT%GICCID

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Content

1 Introduction

This document describes the AT command list which is implemented into our GDM7234ST based products in details, and provides application design reference. With the help of this document, users can quickly understand and design application products based on our module easily.

2 Generic Commannds

2.1 ATE Command echo

2.1.1 Control the Command Character Echo

Command	Response
ATE<value>	OK ERROR

- <value>:

0 : no echo, 1 : echo.

Examlpe:

ATE 1

OK

2.2 Request Information Commands

2.2.1 Request Manufacturer Identification [AT+CGMI]

Command	Response
AT+CGMI	<manufacturer> +CME ERROR:<err>

- <manufacturer>: the total number of characters, including line terminators, in the information

text shall not exceed 2048 characters.

Example:

AT+CGMI

GCT

OK

2.2.2 Request Model Identification [AT+CGMM]

Command	Response
AT+CGMM?	<model> +CME ERROR:<err>
AT+CGMM=?	

- <model>: the total number of characters, including line terminators, in the information text

shall not exceed 2048 characters.

Example:

AT+CGMM?

+CGMM: GDM7243

OK

2.2.3 Request Revision Identification [AT+CGMR]

Command	Response
AT+CGMR	<revision> +CME ERROR:<err>

-<revision>: the total number of characters, including line terminators, in the information text

shall not exceed 2048 characters.

Example:

AT+CGMR

FW_VER: 0.3.3.1

OK

2.2.4 Request Product Serial Number Identification [AT+CGSN]

Command	Response
AT+CGSN	<sn> +CME ERROR:<err>

Example:

AT+CGSN

355708092000115

OK

2.2.5 Request TE Character Set [AT+CSCS]

Command	Response
AT+CSCS=[<chset>]	
AT+CSCS?	+CSCS:<chset>

-<chset>: character set as a string type (conversion schemes not listed here can be defined by manufacturers).

"GSM" GSM 7 bit default alphabet (3GPP TS 23.038 [25]); 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"

"IRA" International reference alphabet.

"UTF-8" Octet (8-bit) lossless encoding of UCS characters.

"HEX" or "UCS2". This character set requires an 8-bit TA – TE interface.

Example:

AT+CSCS?

+CSCS: "IRA"

OK

2.2.6 Request International Mobile Subscriber Identity [AT+CIMI]

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

-<IMSI>: International Mobile Subscriber Identity (string without double quotes).

Example:

AT+CIMI

460015047209494

OK

2.2.7 Request ICCID info [AT%GICCID]

Command	Response
AT%GICCID	<ICCID> +CME ERROR: <err>
AT%GICCID=?	OK

Example:

AT%GICCID

%GICCID: 89860118803330779924

OK

3 Network Service Related Commands

3.1 SIM PIN SET

3.1.1 SIM Enter PIN [AT+CPIN]

Command	Response
AT+CPIN?	+CPIN:<code> +CME ERROR:<err>
AT+CPIN=<pin>	OK

-<pin>: string type values.

-<code> values reserved by the present document:

READY MT is not pending for any password.

SIM PIN MT is waiting SIM PIN to be given.

SIM PUK MT is waiting SIM PUK to be given.

Example:

AT+CPIN? **//Get SIM status**

+CPIN: SIM PIN

OK

AT+CPIN="1234" **//Input SIM PIN code**

OK

//If PIN code is input wrongly for 3 times, the SIM card will enter to the SIM Lock mode, on such case ,need to input the correct PUK to unlock the SIM

AT+CPIN?

+CPIN: SIM PUK

OK

AT+CPIN="88122847","1234" //**Input SIM PUK code and new PIN**

OK

AT+CPIN?

+CPIN: SIM PIN

OK

AT+CPIN="1234"

OK

3.1.2 SIM PIN Lock [AT+CLCK]

Command	Response
AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]	+CME ERROR: <err> when <mode>=2 and command successful: +CLCK: <status>[,<class1> [<CR><LF>+CLCK: <status>,<class2> [...]]
AT+CLCK=?	OK

-<fac> values reserved by the present document:

"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued).

"UP" GCT specific facility code for universal PIN.

"P2" SIM PIN2

Example:

AT+CLCK="SC",2 //**Get SIM card lock status**

+CLCK: 1

OK

AT+CLCK="SC",0,"1234" //**Disable SIM card lock**

OK

AT+CLCK="SC",1,"1234" //**Enable SIM card lock**

OK

3.1.3 Change PIN Code [AT+CPWD]

Command	Response
AT+CPWD=<fac>,<oldpwd>,<newpwd>	+CME ERROR: <err>
AT+CPWD?	+CPWD: list of supported (<fac>,<pwdlength>)s +CME ERROR: <err>

- <fac>:

"P2" SIM PIN2

refer Facility Lock +CLCK for other values <code>.

Example:

AT+CPWD="SC","4321","1234" //**Change password <fac>,<pin>,<newpin>**

OK

3.1.4 Remaining PIN Retries [AT+CPINR]

Command	Response
AT+CPINR=[sel_code]	+CPINR: <code>,<retries>[,<default_retries>] +CME ERROR: <err>
AT+CPINR=?	OK

-<retries>: integer type. Number of remaining retries per PIN.

-<default_retries>: integer type. Number of default/initial retries per PIN.

-<code>: Type of PIN. All values listed under the description of the AT+CPIN command, <code> parameter, except 'READY'.

Example:

AT+CPINR?

+CPINR: SIM PIN, 3, 3

+CPINR: SIM PUK, 10, 10

+CPINR: SIM PIN2, 3, 3

+CPINR: SIM PUK2, 10, 10

OK

AT+CPINR="SIM PIN" //**Get remaining SIM PIN retries**

+CPINR: SIM PIN, 3, 3

OK

AT+CPINR="SIM PUK" //**Get remaining SIM PUK retries**

+CPINR: SIM PUK, 10, 10

OK

3.1.5 Unblock PIN2 [AT+CPUK]

Command	Response
AT+CPUK=<fac>,<pin>, <newpin>	OK ERROR

-<fac>

"SC" SIM

"P2" SIM PIN2

"UP" Universal PIN

3.1.6 Generic SIM Access [AT+CSIM]

Command	Response
AT+CSIM=<length>,<command>	+CSIM=<length>,<command> +CMS ERROR: <err>
AT+CSIM=?	

-<length>: integer type; length of the characters that are sent to TE in <command> or <response> (two times the actual length of the command or response).

-<command>: command passed on by the MT to the SIM in the format as described in 3GPP TS 51.011 [28] (hexadecimal character format; refer +CSCS).

-<response>: response to the command passed on by the SIM to the MT in the format as described in 3GPP TS 51.011 [28] (hexadecimal character format; refer +CSCS).

3.1.7 Restricted SIM Access [AT+CRSM]

Command	Response

AT+CRSM=<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>[,<pathid>]]]]	+CRSM: <sw1>,<sw2>[,<response>] +CME ERROR: <err>
AT+CRSM=?	

-<command> (command passed on by the MT to the SIM; refer 3GPP TS 51.011 [28]):

176 READ BINARY

178 READ RECORD

192 GET RESPONSE

214 UPDATE BINARY

220 UPDATE RECORD

242 STATUS

203 RETRIEVE DATA

219 SET DATA

all other values are reserved.

-<fileid>: integer type; this is the identifier of a elementary datafile on SIM.

-<data>: information which shall be written to the SIM (hexadecimal character format; refer +CSCS).

-<pathid>: string type; contains the path of an elementary file on the SIM/UICC in hexadecimal format as defined in ETSI TS 102 221 [60] (e.g. "7F205F70" in SIM and UICC case).

-<response>: response of a successful completion of the command previously issued (hexadecimal character format; refer +CSCS).

<response> is not returned after a successful UPDATE BINARY, UPDATE RECORD or SET DATA command.

Example:

At+CRSM=176,28473,0,4,3

+CRSM: 105,129

OK

3.2 BAND SET

3.2.1 Get Lists of Current/Support Band List [AT%GGETBAND]

Command	Response
AT%GGETBAND=<n>	OK ERROR
AT%GGETBAND?	%GGETBAND: <cur_band>[,<sur_band1>,<sur_band2>,<sur_band3>, ...]

Description:

Set command registers reading format.

Read command returns the all/current band list.

Parameter definition:

-<n> integer:

0(defafult) - Current band and support band are returned.

1 - Current band is returned.

-<cur_band> Integer: Current camped on band.

-1 : Invalid value(before camp-on.

-<sur_band> Integer: support band lists.

Example:

//**Befor registration**

AT%GGETBAND?

%GGETBAND: -1,3,7,20,31

OK

//**After registration**

AT%GGETBAND? //**Get current band list**

%GGETBAND: 3,3,7,20,31

OK

AT%GGETBAND=1

OK

AT%GGETBAND?

%GGETBAND: 3

OK

3.2.2 Set Band [AT%GPLSE]

Command	Response
AT%GPLSE=?	Help information
AT%GPLSE="search_list",<type>/<number>/<value>	OK ERROR

Function:

AT%GPLSE=?

%GPLSE: "select_mode",(0-3)

0 : Automatic network / 1 : Manual network / 2 : Manual to automatic fallback / 3 : Manual CSG selection

%GPLSE: "operation_mode",(0-1)

0 : Normal searching/ 1 : Emergency searching

%GPLSE: "plmn_id",PLMN ID

%GPLSE: "roaming",(0-1)

0 : Allowed/ 1 : Not allowed

%GPLSE: "search_list", [type]/[number]/[value]/...../[type]/[number]/[value]

[type] = 1(MRU Search), 2(EARFCN), 3(Band), 4(EARFCN Range) :

[number] = the number of each items (MAX is 16) :

[value] = type 1 : N/A

type 2 : earfcn1/earfcn2/...

type 3 : band1/band2/...

type 4 : start_earfcn1/end_earfcn1/...

OK

Example:

//**Set single band**

AT%GPLSE="search_list",3/1/3

OK

AT%GPLSE?

%GPLSE:

Selection_mode=0

Operation_mode=0

PLMN_ID=000000

Roaming=0

Power_scan=0

ECI=1702000229

Fast_scan=115

Search_list(number=1)

1 : BAND 1 3

//**Set multiple bands**

AT%GPLSE="search_list",3/2/3/7

OK

AT%GPLSE?

%GPLSE:

Selection_mode=0

Operation_mode=0

PLMN_ID=000000

Roaming=0

Power_scan=0

ECI=1702000229

Fast_scan=115

Search_list(number=1)

1 : BAND 2 3 7

OK

AT+COPS=5

OK

AT+CGATT=1 //attach

OK

3.3 APN SET

3.3.1 GET APN SETTINGS

APN: AT%SYSCMD=”ucfg get config wan lte apntable apn1 apn_name “
USERNAME: AT%SYSCMD=”ucfg get config wan lte apntable apn1 username”
PASSWORD: AT%SYSCMD=” ucfg get config wan lte apntable apn1 password”
IP_TYPE:
AT%SYSCMD=” ucfg get config wan lte apntable apn1 pdn_type”
pdn_type=0 // 0: IPv4 / 1: IPv6 / 2: IPv4&v6
AUTH_TYPE:
AT%SYSCMD=” ucfg get config wan lte apntable apn1 auth_flag”
auth_flag=0 // 0: PAP / 1: CHAP

3.3.2 SET APN SETTINGS

APN: AT%SYSCMD=”ucfg set config wan lte apntable apn1 apn_name 3GNET”
USERNAME: AT%SYSCMD=”ucfg set config wan lte apntable apn1 username APNUSERNAME”
PASSWORD: AT%SYSCMD=”ucfg set config wan lte apntable apn1 password APNPASSWORD”
IP_TYPE: AT%SYSCMD=”ucfg set config wan lte apntable apn1 pdn_type 0” // 0: IPv4 / 1: IPv6 / 2: IPv4&v6
AUTH_TYPE:
AT%SYSCMD=”ucfg set config wan lte apntable apn1 auth_flag 0” // 0: PAP / 1: CHAP; if want to set NONE mode, just clear USERNAME AND password

3.4 PLMN Operation

3.4.1 PLMN Selection [AT+COPS]

Attention: this AT command depends on **AT+CPIN** command (PIN status:READY).

Command	Response
AT+COPS?	+COPS:<mode> +CME ERROR:<err>
AT+COPS=[<mode>[,<format>[,<oper>[,<AcT>]]]]	+cops:<mode>[,<format>,<oper>,[,[AcT]] +CME ERROR:<err>
AT+COPS=?	

-<mode> integer :

0 - automatic (<oper> field is ignored).

1 - manual (<oper> field shall be present, and <AcT> optionally).

2 - deregister from network.

3 - Set only <format>.

4 - Set only manual/automatic(<oper> field shall be present).

5 – Automatic with searching information lists.

Example:

AT+COPS=0	This will start to search PLMN automatically.
AT+COPS=1,2,” 311 270”	This will start to search PLMN with MCC=311,MNC=270.
AT+COPS=1,1,” orange”	This will start to search PLMN operater **Orange** network.
AT+COPS=2	This will deregister from network.
AT+COPS=5	This will start to search PLMN with searching information list that is saved in NV

Example:

AT+COPS=0,,,7 //**Automatic mode and E-UTRAN access technology selected**

OK

3.4.2 Preferred PLMN List [AT+CPOL]

Command	Response
+CPOL=[<index>][,<format>[,<oper>[,<GSM_AcT>,<GSM_Compact_AcT>,<UTRAN_AcT>,<EUTRAN_AcT>]]]	+CME ERROR:<err>
AT+CPOL?	+CPOL: <index1>,<format>,<oper1>[,<GSM_AcT1>,<GSM_Compact_AcT1>,<UTRAN_AcT1>,<E-UTRAN_AcT1>][<CR><LF>+CPOL: <index2>,<format>,<oper2>[,<GSM_AcT2>,<GSM_Compact_AcT2>,<UTRAN_AcT2>,<EUTRAN_AcT2>][...]] +CME ERROR: <err>
AT+CPOL=?	+CPOL: (list of supported <index>s),(list of supported <format>s) +CME ERROR: <err>

This command is used to edit the PLMN selector with Access Technology lists in the SIM card or active application in the UICC (GSM or USIM).

- <indexn>: integer type; 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>: GSM access technology:

0 access technology not selected.

1 access technology selected.

- <GSM_Compact_AcTn>: GSM compact access technology:

0 access technology not selected.

1 access technology selected.

- <UTRAN_AcTn>: UTRAN access technology:

0 access technology not selected.

1 access technology selected.

- <E-UTRAN_AcTn>: E-UTRAN access technology:

0 access technology not selected.

1 access technology selected.

Example:

AT+CPOL=1,2,"46008",0,1,0

OK

3.4.3 Selection of Preferred PLMN List [AT+CPLS]

Command	Response
AT+CPLS=<list>	+CME ERROR:<err>
AT+CPLS?	+CPLS: <list> +CME ERROR:<err>
AT+CPLS=?	+CPLS: (list of supported <list>s) +CME ERROR:<err>

- <list>:

0 User controlled PLMN selector with Access Technology EFPLMNwAcT, if not found in the SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC).

1 Operator controlled PLMN selector with Access Technology EFOPLMNwAcT.

2 HPLMN selector with Access Technology EFHPLMNwAcT.

Example:

AT+CPLS=0

OK

4 Commands for Packet Domain

4.1 PS Attach or Detach [AT+CGATT]

Attention: this AT command depends on **AT+COPS** command(return value：except 2).

Command	Response
AT+CGATT=<state>	OK ERROR
AT+CGATT?	+CGATT:<state>
AT+CGATT=?	+CGATT:(list of supported <state>s)

- <state>: indicates the state of PS attachment.

0 - detached (normal detach).

1 – attached.

Example:

AT+CGATT=1

OK

4.2 PDP Context Activate or Deactivate [AT+CGACT]

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

- <cid>: numeric; specifies a particular PDP context definition.

Example:

AT+CGACT=1,1

OK

4.3 Define PDP Context [AT+CGDCONT]

Command	Response
AT+CGDCONT=[<cid>[,<PDP_type>[,<APN>]]]	OK ERROR

AT+CGDCONT?	+CGDCONT:<cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<IPv4AddrAlloc>[,<emergency indication>[,<PCSCF_discovery>[,<IM_CN_Signalling_Flag_Ind>]]]][<CR><LF>+CGDCONT:<cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<IPv4AddrAlloc>[,<emergencyindication>[,<PCSCF_discovery>[,<IM_CN_Signalling_Flag_ Ind>]]]][...]]
AT+CGDCONT=?	<cid>s),<PDP_type>,,,(list of supported <d_comp>s),(list of supported <h_comp>s),(list of supported <IPv4AddrAlloc>s),(list of supported <emergency indication>s),(list of supported <PCSCF_discovery>s),(list of supported <IM_CN_Signalling_Flag_Ind>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 <IPv4AddrAlloc>s),(list of supported <emergency indication>s),(list of supported <PCSCF_discovery>s),(list of supported <IM_CN_Signalling_Flag_Ind>s) [...]]

- <cid>: numeric; specifies a particular PDP context definition.

-<PDP_type>: string; specifies the type of packet data protocol.

X.25 : ITU-T/CCITT X.25 layer 3 (Obsolete).

IP : Internet Protocol.

IPV6 : Internet Protocol, version 6.

IPV4V6 : Virtual <PDP_type> introduced to handle dual IP stack UE capability.

PPP : Point to Point Protocol (IETF STD 51).

- <APN>: string; a logical name that is used to select the GGSN or the external packet data network.

Example:

AT+CGDCONT=1,” IPV4V6” ,” 3GNET” **//Set apn <cid>,<PDP_type>,<APN>**

OK

4.4 PDP Context Read Dynamic Parameter [AT+CGCONTRDP]

Command	Response
AT+CGCONTRDP=[<p_cid>]	+CGCONTRDP:<p_cid>,<bearer_id>,<apn>[,<ip_addr>,<subnet_mask>[,<gw_addr>[,<DNS_prim_addr>[,<DNS_sec_addr>[,<PCSCF_prim_addr>[, <P-CSCF_sec_addr>]]]]]] [<CR><LF>+CGCONTRDP:<p_cid>,<bearer_id>,<apn>[, <ip_addr>, <subnet_mask>[,<gw_addr>[,<DNS_prim_addr>[, <DNS_sec_addr>[, <PCSCF_prim_addr>[,<P-CSCF_sec_addr>]]]]]]
AT+CGCONTRDP=?	+CGCONTRDP: (list of <p_cid>s associated

- <p_cid>: numeric; specifies a particular non secondary PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands.

- <bearer_id>: numeric; identifies the bearer, EPS Bearer in EPS and NSAPI in UMTS/GPRS.

- <APN>: string; a logical name that was used to select the GGSN or the external packet data
network.

- <ip_addr>: string; shows the IP Address of the MT. The string is given as dot-separated numeric (0-255) parameters on the form: "a1.a2.a3.a4" for IPv4 or "a1.a2.a3.a4.a5.a6.a7.a8", for IPv6.

-<subnet_mask>: string; shows the subnet mask for the IP Address of the MT. The string is givenas dot-separated numeric (0-255) parameters.

-<gw_addr>: string; shows the Gateway Address of the MT. The string is given as dot-separatednumeric (0-255) parameters.

-<DNS_prim_addr>: string; shows the IP Address of the primary DNS Server.

<DNS_sec_addr>: string; shows the IP address of the secondary DNS Server.

- <P_CSCF_prim_addr>: string; shows the IP Address of the primary P-CSCF Server.

- <P_CSCF_sec_addr>: string; shows the IP Address of the secondary P-CSCF Server.

Example:

AT+CGCONTRDP=1

+CGCONTRDP: 1,0,"VZWIMS","","","","","","","",0

OK

4.5 Get/Set PDN Type of Each CID [AT%GPDNTYPE]

Command	Response
AT%GPDNTYPE=<cid>,<type>	OK ERROR
AT%GPDNTYPE?	%GPDNTYPE: <cid>, <type> ...

Description:

Set command registers PDN type of each CID.

Read command returns the current set PDN type.

-<cid>: integer:

1 ~ 8 : context ID.

-<type> integer,

1 - IMS PDN **//Mainly used for IMS service**

2 – ADMINISTRATION PDN **//Mainly used for OMADM or FOTA service**

3 – INTERNET PDN **//Mainly used for network service**

4 – APPLICATION PDN

5 – EMERGENCY PDN

-<type_str>string,

"lte0pdn0" - INTERNET PDN

"lte0pdn1" - IMS PDN

"lte0pdn2" - ADMINISTRATION PDN

"lte0pdn3" - APP PDN

Example:

AT%GPDNTYPE? **//Get current each cid <type>**

%GPDNTYPE: 1,0

%GPDNTYPE: 2,0

%GPDNTYPE: 3,0

%GPDNTYPE: 4,0

%GPDNTYPE: 5,0

%GPDNTYPE: 6,0

%GPDNTYPE: 7,0

%GPDNTYPE: 8,0

OK

//Set a cid number list from <cid> which you want it to register the network

AT%GPDNTYPE=1,3 **//Set PDN type**

OK

4.6 Define Secondary PDP Context [AT+CGDSCONT]

Command	Response
AT+CGDSCONT=<cid>, <p_cid>,[,<d_comp>[,<h_comp>]]	OK ERROR
AT+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d_comp>, <h_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d_comp>, <h_comp>[...]]
AT+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), (list of supported <d_comp>s), (list of supported <h_comp>s)

For parameter definitions,refer to 2.2.4(AT+CGDCONT)command.

Example:

AT+CGDSCONT=1,"IPV4V6","3GNET"

OK

AT+CGDSCONT?

+CGDSCONT: 1,0,0,0,0

OK

4.7 Secondary PDP Context Read Dynamic Parameters [AT+CGSCONTRDP]

Command	Response
AT+CGSCONTRDP=<cid>	+CGSCONTRDP: <cid>,<p_cid>,<bearer_id>[<CR><LF>+CGSCONTRDP: <cid>,<p_cid>,<bearer_id>[...]]
AT+CGSCONTRDP=?	+CGSCONTRDP: (list of <cid>s associated with active contexts)

4.8 Show PDP(IP) Address [AT+CGPADDR]

Command	Response
AT+CGPADDR=<ip2>,<cid>	OK ERROR
AT+CGPADDR=?	+CGPADDR:(list of supported <L2P>s)

- <cid>: numeric; specifies a particular PDP context definition.

Example:

AT+CGPADDR

+CGPADDR: 3,"10.95.94.158"

OK

4.9 Packet Domain Event Reporting [AT+CGEREP]

Command	Response
AT+CGEREP=<ip2>,<cid>	OK ERROR

AT+CGEREP?	+CGEREP: <mode>,<bfr>
AT+CGEREP=?	+CGEREP: (list of supported <mode>s), (list of supported <bfr>s)

enables or disables sending of unsolicited result codes.

- <mode>: numeric;

* 0 buffer unsolicited result codes in the MT.

- <bfr>: numeric;

* MT buffer of unsolicited result codes defined within this command is cleared when.

-<mode> 1 or 2 is entered;

* MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is entered (OK response shall be given before flushing the codes).

Example:

AT+CGEREP=0,1

OK

4.10 EPS Network Registration Status [AT+CEREG]

Command	Response
AT+CEREG=<n>	OK ERROR
AT+CEREG?	+CEREG: <n>,<stat>
AT+CEREG=?	+CEREG: (list of supported <n>s)

Reports changes in network registration.

-<n>: numeric;

* 0 disable network registration unsolicited result code.

* 1 enable network registration unsolicited result code +CEREG: <stat>.

* 2 enable network registration and location information unsolicited result code +CEREG: <stat>.

-<stat>: numeric; EPS registration status.

* 0 not registered, MT is not currently searching an operator to register to.

* 1 registered, home network.

* 2 not registered, but MT is currently trying to attach or searching an operator to register

to.

* 3 registration denied.

* 4 unknown.

* 5 registered, roaming.

Example:

AT+CEREG?

+CEREG: 0,1

OK

5 Mobile Termination Control and Status Commands

5.1 Device Activity Status [AT+CPAS]

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

-<pas>: integer type.

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 (Not Supported : MT is ready for commands from TA/TE, but the ringer is active).

4 call in progress (Not Supported : MT is ready for commands from TA/TE, but a call is in progress).

5 asleep (Not Supported : MT is unable to process commands from TA/TE because it is in a low functionalitystate).

all other values below 128 are reserved by the present document.

MT(Phone side).

Example:

AT+CPAS=?

+CPAS:(0-5)

OK

5.2 Signal Quality [AT+CSQ]

Command	Response
AT+CSQ	+CSQ: <rssi>,<ber> +CME ERROR: <err>
AT+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s) +CME ERROR: <err>

-<rssi>: integer type:

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>: integer type; channel bit error rate (in percent).

0...7 as RXQUAL values in the table in 3GPP TS 45.008 [20] subclause 8.2.4

99 not known or not detectable.

Example:

AT+CSQ

+CSQ: 0, 99

OK

5.3 Clock [AT+CCLK]

Command	Response
AT+CCLK=<time>	+CME ERROR: <err>
AT+CCLK?	+CCLK: <time> +CME ERROR: <err>

<time>: string type value; format is "YY/MM/DD,hh:mm:ss+zz", where characters indicate year (two last digits),month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour,between the local time and GMT; range -12...+12). E.g. 6th of August 2012, 08:00:00 GMT+8 hours equal to"12/08/06,08:00:00+08".

Example:

AT+CCLK="17/11/17,11:00:19+00"

OK

AT+CCLK?

+CCLK: "17/11/17,11:00:24+00"

OK

5.4 Get Several Status Information of RRC [AT!GSTATUS]

Command	Response
AT!GSTATUS	!GSTATUS: Current Time : 0 Mode : <mode> System mode : LTE PS state : Attached LTE band : <band> LTE bw : <bandwidth> LTE Rx chan : <earfcn> LTE Tx chan : <ul_earfcn> EMM state : 0 RRC state : <rrc_st> IMS reg state : No Srv RSSI (dBm) : <rssi> Tx Power : <tx_pwr> RSRP (dBm) : <rsrp> TAC : <tac> RSRQ (dBm) : <rsrq> Cell ID : <ncid> SINR (dB) : <sinr>

Parameter definition:

-<mode> String:

Operating mode of modem. : “ONLINE”, “OFFLINE”.

-<band> String:

LTE Band. B1~B45(Value between 1-45).

-<bandwidth> String:

LTE Bandwidth. : "1.4MHz", "3MHz", "5MHz", "10MHz", "15MHz", "20MHz", “NV” - Invalid.

-<earfcn> Integer:

Rx channel Number.

-<ul_earfcn> Integer:

Tx channel Number.

-<rrc_st> String:

State of RRC. : "RRC IDLE", "RRC CONNECTED", “Unknown”.

-<rssi> Integer:

RSSI value((dBm unit). In case of (-141), it means invalid value.

-<rsrp> Integer,

RSRP value(dBm unit). In case of (-150), it means invalid value.

-<rsrq> Integer:

RSRQ value(dBm unit). In case of (-60), it means invalid value.

-<sinr> Float:

SINR value(dB unit). In case of (-20), it means invalid value.

-<tx_pwr> Integer:

Tx power value (0.1 dBm unit). Value between -550 ~ +230.

Example:

AT!GSTATUS

!GSTATUS:

Current Time : 0 Mode : ONLINE

System mode : LTE PS state : Attached

LTE band : B41 LTE bw : 20MHz

LTE Rx chan : 41350 LTE Tx chan : 41350

EMM state : 0 RRC state : RRC CONNECTED

IMS reg state : No Srv

RSSI (dBm) : -65 Tx Power : 67

RSRP (dBm) : -91 TAC : 0(1)

RSRQ (dBm) : -6.0 Cell ID : 10951

SINR (dB) : 9

OK

5.5 Get some module and RF information(AT!MSTATUS)

AT!MSTATUS
Note: the response is JSON format
	AT!MSTATUS
	{
	"EPS_STATE":"NULL"
	"MODE":"OFFLINE"
	"SYSMODE":"LTE"
	"LTE_BAND":"0"
	"BW":"0MHz"
	"LTE_RX_CHAN":"0"
	"LTE_TX_CHAN":"0"
	"RRC_STATE":"-"
	"RSSI":"-110"
	"TX_POWER":"0"
	"RSRP":"-140"
	"TAC":"0(0)"
	"RSRQ":"-20"
	"CELL_ID":"0"
	"SINR":"-30"
	}
	OK

Example:

AT!MSTATUS

{

"EPS_STATE":"ATTACHED"

"MODE":"ONLINE"

"SYSMODE":"LTE"

"LTE_BAND":"3"

"BW":"20MHz"

"LTE_RX_CHAN":"1650"

"LTE_TX_CHAN":"19650"

"RRC_STATE":"RRC CONNECTED"

"RSSI":"-70"

"TX_POWER":"18"

"RSRP":"-102"

"TAC":"89(33)"

"RSRQ":"-12"

"CELL_ID":"135392021"

"SINR":"-2"

}

OK

5.6 Execute Shell Commands [AT%SYSCMD]

Command	Response
AT%SYSCMD=" <cmd> "	%SYSCMD:" <rtn_str>"
AT%GPDNTYPE?	%GPDNTYPE: <cid>, <type> ...

Descriptions

Set command would be used to execute shell commands.

Parameter definition

<cmd> String:

Shell commands.

Example:

at%syscmd="ucfg set config wan lte vendor 4"

%SYSCMD: vendor=4

OK

at%syscmd="ucfg get config wan lte apntable apn1"

%SYSCMD: ENABLE=1

%SYSCMD: pdn_label=ims

%SYSCMD: apn_name=otasn

%SYSCMD: pdn_type=2

%SYSCMD: ip_alloc=0

%SYSCMD: rat_type=0

%SYSCMD: inactive_timer=900

%SYSCMD: username=

%SYSCMD: password=

%SYSCMD: auth_flag=0

%SYSCMD: use_gen_pco=0

%SYSCMD: gen_pco=0010010010000100

%SYSCMD: use_oper_pco=0

%SYSCMD: oper_pco_len=6

%SYSCMD: oper_pco=0xFF0003130184

%SYSCMD: max_conn_t=300

%SYSCMD: max_conn=1023

%SYSCMD: wait_time=0

%SYSCMD: network_name=

%SYSCMD: nslpi=0

%SYSCMD: secure_pco=0

OK

5.7 List All Available AT Commands [AT+CLAC]

Command	Response
AT+CLAC	<AT Command1> [<CR><LF><AT Command2>[...]] +CME ERROR: <err>
AT+CLAC=?	ERROR OK

-<AT Command>: Defines the AT command including the prefix AT.

6 Other commands

6.1 Work mode read/set [AT%WMODE]

Command	Response
AT%WMODE?	MODE: bridge
AT%WMODE=" String" String: ROUTER, BRIDGE,VLANN	ERROR OK

Example:

Read the current work mode,

AT%WMODE?

MODE:bridge

OK

Set work mode,

AT%WMODE="bridge"

MODE: bridge

OK

7 Contact Us

TURNING POINT SOLUTION
OLTRADE LCC
Email: info@tpsolution.ru