AT Command Manual
For ZTE Corporation's ME3000 Module

VER: V2.00

ZTE Corporation

This manual is applicable for MG3006、MG3030、MG3036、MG3082、MG3088 modules also.

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Preface

Summary

This manual is applicable for ME3000、MG3006、MG3030、MG3036、MG3082、MG3088 modules. Taking ME3000 for example, this manual describes the AT command interfaces of the modules, which contains standard GSM voice and data applications. According to GSM standard, some specific ZTE commands are added for users' convenience.
This manual might help you to understand how to use AT commands of these modules.

Target Readers

- System Designing Engineers
- Hardware Engineers
- Software Engineers
- Testing Engineers

Brief Introduction

Chapters	Contents
1 General Description	Briefly introduces the types and basic formats of ME3000、MG3006、MG3030、MG3036、MG3082、MG3088 modules.
2 AT Command	Explains AT command operations of ME3000 modules in details.
3 Applications and cautions	Introduces the SMS and Phonebook

Update History

The update history includes the update descriptions each time. The update contents will be included in the latest version.

Document Version: V2.00 (2008-03-14)

This is the eighth time to release formally. The update contents include:
Add AT+ZCALLTONE，AT+ZDTMFTONE

Document Version: V1.90 (2007-12-25)

This is the seventh time to release formally. The update contents include:
Add AT+ZGETICCID

Document Version: V1.80 (2007-11-21)

This is the sixth time to release formally. The update contents include:
Revise +ZPNUM，+IPR，+ZIPSEND，+ZIPSENDU
Delete +ZDSLEEP
Add 3 Applications and cautions

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Document Version: V1.4 (2007-07-05)

This is the fifth time to release formally. The update contents include:

Add 3 types of modules which are Applicable: ME3006, ME3080, ME3086

Add 2.1.26 +CPWD: modify password

Add 2.6.5 +CNUM: obtain number of current terminal

Add 2.5.12 +ZSMGS: full SMS indication

2.10 change contents of TCP/IP chapter

Document Version V1.3 (2007-06-15)

This is the fifth time to release formally. The update contents include:

Add 2.1.23 AT+CCWA

Add 2.1.24 AT+CHLD

Add 2.7.7 +ZEDT: set DTR signal detecting

Revise 2.10.5 +ZIPSEND：send TCP data to destination address

Revise 2.10.12 +ZIPSENDU：send TCP data to destination address

Document Version: V1.2 (June-4-2007)

Change the manual name from 《AT Command Manual for ZTE Corporation's GSM/GPRS Modules》 to《AT Command Manual for ZTE Corporation's ME3000 Modules》.

Add the applicable modules such as ME3000, ME3006, ME3030 and ME3036 modules.

Document Version: V1.1 （April-17-2007）

This is the second time to release formally. The update contents include:

2. AT Command

Newly added commands:

ATO: Switch from command mode to data mode

+++: Switch from data mode to command mode

CLIP: Set caller ID presentation

CCFC: Set call forwarding number and conditions

CLCK: Lock device or network

CPWD: Modify password

CNMA: SMS confirmation

CSCA: Set short message center number

CPBS: Select contacts memorizer

CPBR: Read contacts

CPBW: Write contacts

CPBF: Search for contacts

IFC: Set flow control

&D: Set DTR mode

&C: Set DCD mode

CGACT: Deactivate/activate PDP mode

CGATT: Set GPRS startup

CGCLASS: Device class

ZIPSETUPU: Bundle UDP port
ZIPSENDU: Send UDP data
ZIPSTATUSU: Query UDP status
ZIPCLOSEU: Close UDP port
ZIPRECVU: Receive UDP data

Document Version: V1.0 （March-05-2007）

This is the first time to release formally.

Table of Contents

1 General Description

1.1 AT Commands

ME3000、MG3006、MG3030、MG3036、MG3082、MG3088 modules provide AT command interfaces, through which the modules could communicate with external devices. AT command set provided by ME3000、MG3006、MG3030、MG3036、MG3082、MG3088 modules not only covers standard GSM voice and short message applications, but adds some commands according to GSM specification and some ZTE exclusive commands for users.

1.1.1 Type of AT Commands

Since AT command is used as a standard interface, the returned values and formats of the command are both fixed. As a whole, AT command could be divided into four types:

- Non-parameter command: a type of simple command with the format of AT[+|&]<command>,e.g.: AT+CSQ, AT&W
- Query command: used to inquire the current setting value. The format is AT[+|&]<command>?, e.g.: AT+CNMI?
- Help command: used to list the possible parameters of the command. The format is AT[+|&]<command>=?, e.g.: AT+CMGL=?
- Parameter command: normally used format which provides strong flexibility. The format is AT[+|&]<command>=<par1>,<par2>,<par3>…

  The returned values of this type of command are all the same. This will be clarified in details later. The basic frame format of the returned value is:

  <CR><LF><Response string><CR><LF>

  <CR><LF><OK/ERROR>[ERROR INFO]<CR><LF>

1.1.2 Returned Type and Format of AT Commands

The following are ME3000、MG3006、MG3030、MG3036、MG3082、MG3088 modules' AT command and their format and returned descriptions:

- AT command format:
  --AT command starts with "AT" and ends with <CR>;
  --After the module runs, the serial port default setting will be: 8-digit data bit, 1-digit stop bit, no parity check, no CTS/RTS, data rate 115200bps.
- AT command returned format:
  --<CR><LF><corresponding strings ><CR><LF>
  --An exceptional case: e.g.: AT+ZPOWEROFF (response format) directly return with "OK"
- AT command status report (OK, ERROR):
  --If there is error in AT command format, "Error" will return;
  --If AT command executes successfully, "OK" will return.

1.2 GSM Glossary

Abbreviations	Definitions
ADC	Analog-Digital Converter
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
ARFCN	Absolute Radio Frequency Channel Number
ARP	Antenna Reference Point
ASIC	Application Specific Integrated Circuit
BER	Bit Error Rate
BTS	Base Transceiver Station
CDMA	Code Division Multiple Access
CDG	CDMA Development Group
CS	Coding Scheme
CSD	Circuit Switched Data
CPU	Central Processing Unit
DAI	Digital Audio interface
DAC	Digital-to-Analog Converter
DCE	Data Communication Equipment
DSP	Digital Signal Processor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
DTR	Data Terminal Ready
EFR	Enhanced Full Rate
EGSM	Enhanced GSM
EMC	Electromagnetic Compatibility
EMI	Electro Magnetic Interference
ESD	Electronic Static Discharge
ETS	European Telecommunication Standard
FDMA	Frequency Division Multiple Access
FR	Full Rate
GPRS	General Packet Radio Service
GSM	Global Standard for Mobile Communications
HR	Half Rate
IC	Integrated Circuit
IMEI	International Mobile Equipment Identity
ISO	International Standards Organization
ITU	International Telecommunications Union
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MCU	Machine Control Unit
MMI	Man Machine Interface

Abbreviations	Definitions
MS	Mobile Station
PCB	Printed Circuit Board
PCL	Power Control Level
PCS	Personal Communication System
PDU	Protocol Data Unit
PLL	Phase Locked Loop
PPP	Point-to-point protocol
RAM	Random Access Memory
RF	Radio Frequency
ROM	Read-only Memory
RMS	Root Mean Square
RTC	Real Time Clock
SIM	Subscriber Identification Module
SMS	Short Message Service
SRAM	Static Random Access Memory
TA	Terminal adapter
TDMA	Time Division Multiple Access
TE	Terminal Equipment also referred it as DTE
UART	Universal asynchronous receiver-transmitter
UIM	User Identifier Management
USB	Universal Serial Bus
VSWR	Voltage Standing Wave Ratio
ZTE	ZTE Corporation

2 AT Command

2.1 Common Command

2.1.1 A/: repeat previous command

Description	This command is used to repeat the previous command.	
Format	A/	
Example	AT+CSQ	Inquire current signal strength
	A/	Repeat AT+CSQ command

2.1.2 ATA: answer a call

Description	This command is used to answer a call.	
Format	ATA	
Example	RING	Incoming call
	ATA	Answer a call

2.1.3 ATD: dial a number

Description	This command is used to dial a number, transmit data or send a fax.	
Format	ATD<string>; ATD><mem><n>; ATD><n>;	
Example	AT+CPBS="SM" ATD13024540756;	Select SIM card phonebook as the current contacts Search for this number in SIM card phonebook and dial it
	AT+CPBS="SM" ATD>2; OK	Select SIM card phonebook as the current contacts Dial the second number in the current phonebook
	ATD>SM1;	Dial the first number in SIM card phonebook
Description	<mem>: contacts "SM": SIM card phonebook; "LD": last dialled number in the contacts; "MC": missed call contacts; "ME": local contacts; <n>: the n-th option of the contacts. <string>: called number, e.g. *99#.	

2.1.4 ATDL: dial the last outgoing number

Description	This command is used to dial the last outgoing number.

Format	ATDL	
Example	ATD34394036; OK	Call 34394036
	ATH OK	Hang up the call
	ATDL	Dial 34394036 again

2.1.5 ATE: enable echo

Description	This command is used to enable echo.	
Format	ATE<n>	
Example	ATE0 OK OK	ATE0, don't display input command on the terminal
	ATE1 OK ATE1 OK	
Parameters	<n>=0 Disable. <n>=1 Enabled.	

2.1.6 ATH: hang up the call

Description	This command is used to hang up the call.	
Format	ATH	
Example	ATA OK	Answer the call
	ATH	Hang up the call

2.1.7 ATI: Prompt manufacturer identification

Description	This command is used to prompt manufacturer identification.	
Format	ATI	
Example	ATI ZTE Mobile Ltd GSM/GPRS Mobile Station Revision: 1.0 OK	Prompt manufacturer identification

2.1.8 ATQ: set if returned value displayed on the terminal

Description	This command is used to set if the returned value is displayed on the terminal.	
Format	ATQ<n>	
Example	ATQ0 OK ATQ0 OK	Display the returned value on the terminal
	ATQ1 OK ATQ1ATQ1	Do not display the returned value on the terminal

2.1.9 +++: switch from data mode to command mode

Description	This command is used to switch from data mode to command mode.	
Format	+++	
Example	ATD*99# CONNECT +++ …… AT OK	Dial and enter data mode switch from data mode to command mode

2.1.10 ATO: switch from command mode to data mode

Description	This command is used to switch from command mode to data mode.	
Format	ATO	
Example	ATD*99# CONNECT +++ …… ATO ……	Dial and establish GPRS data connection Switch from data mode to command mode Switch from command mode to data mode

2.1.11 ATP: perform pulse dialing

Description	This command is used to perform pulse dialing.	
Format	ATP	
Example	ATP OK	Set pulse dialing method

2.1.12 ATS0: set auto answer

Description	This command is used to control auto answer mode of the module.	
Format	ATS0=<value>	
Example	ATS0=2 OK	Auto answer after ringing twice
	ATS0? 2 OK	Query the current setting
	ATS0=0 OK	Cancel auto answer
Parameters	<value>:times for ringing.	

2.1.13 +CRC: set incoming call type

Description	This command is used to set the incoming call type.	
Format	AT+CRC=num	
Example	AT+CRC=1 OK +CRING: VOICE	RING prompts the incoming call type Set CRC as the prompt of incoming call
Parameters	num: 0: don't display incoming call type; 1: display incoming call type Incoming call type: -VOICE; -GPRS; -FAX.	

2.1.14 +CLVL: set call volume

Description	This command is used to set the volume of the speaker.	
Format	AT+CLVL=<level>	
Example	AT+CLVL=100 OK	Set the current volume as 100 for the receiver
	AT+CLVL? +CLVL:100	Query the current volume
Parameters	<level> between 0 and 100 <the number is smaller, the volume is lower >.	

2.1.15 +CLIP: set caller ID presentation

Description	This command is used to set caller ID presentation. The default setting is "Turn off caller ID presentation".

Format	AT+CLIP=<mode> +CLIP: <mode> retuned value of AT+CLIP? Command +CLIP: <number>,<type>,<> caller ID presentation format	
Example	AT+CLIP=1 OK RING:+CLIP: "130********",129, "","",0	Turn on caller ID presentation. There is an incoming call, and the number is 130********
	AT+CLIP=0 OK RING	Turn off caller ID presentation. No alert upon an incoming call
Parameters	<mode>: 0: Turn off caller ID presentation; 1: Turn on caller ID presentation. <number>: Incoming call number (need apply for relevant service). <type>: 129.	

2.1.16 +ZSETMUTE: mute control

Description	This command is used for mute control, and it can be used only during the calling.	
Format	AT+ZSETMUTE=<Mode>	
Example	AT+ZSETMUTE=? +ZSETMUT:(0-1) OK	Query the settable parameters
	AT+ZSETMUTE=1 OK	Turn on mute
	AT+ZSETMUTE=0 OK	Turn off mute
Parameters	<Mode> 0: Turn on mute; 1: Turn off mute.	

2.1.17 +CIMI: inquire International ID

Description	This command is used to read SIM card's international ID and query the PIN code you need input.	
Format	AT+CIMI	
Example	AT+CIMI 460030916875923 OK	Inquire CIMI Return with CIMI

2.1.18 +CGMR: obtain product version

Description	This command is used to obtain the product version.	
Format	AT+CGMR	
Example	AT+CGMR=? OK	No meaning
	AT+CGMR <Revision>	Return with the current module version

2.1.19 +ECHO: remove echo

Description	This command is used to remove echo.	
Format	AT+ECHO=num	
Example	AT+ECHO? +ECHO:1 OK	Inquire the current echo setting
	AT+ECHO=0 OK	Cancel remove echo
Parameters	Num: default value,1. 1:set remove echo; 0:cancel remove echo.	

2.1.20 +(C) GSN: obtain current IMEI

Description	This command is used to obtain the current IMEI of the device.	
Format	AT+GSN	
Example	AT+GSN N	Return with the current IEMI

2.1.21 +ZVERS: obtain current software version

Description	This command is used to obtain current software version	
Format	AT+ZVERS	
Example	AT+ZVERS +ZVERS: ***.bin OK	Obtain the current software version

2.1.22 +CLCK: function lock

Description	This command is used to lock the terminal or the network..
Format	AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]] +CLCK:<status>

Example	AT+CLCK=? +CLCK：（“SC”，“AO”，“OI”，“OX”，“AI”，“IR”，“AB”，“AG”，“AC”，“FD”，“BN”，“PN”，“PU”，“PP”，“PC”） OK	
Parameters	<fac>: “SC”: SIM card, “AO”: All originated calls, “OI”: Originate International Calls, “OX”: All international calls except local area; “AI”: All Incoming Calls, “IR”: Roam all incoming calls except local area; “AB”: All call services, “AG”: all outgoing call services, “AC”: all incoming call services, “FD”: SIM card fixed dial space, “PN”: network certification; “PU”network unit certification;“PP”: provider certification; “PC”corporate certification. <mode>: 0: unlock; 1: lock; 2: query status. <passwd>:password, character string “***” <class>: 1: voice service; 2: data service; 4: fax service; 7: all service. <status>: 0: Disable; 1: Enable.	

2.1.23 +CCFC: set call forwarding number and conditions

Description	This command is used to set call forwarding number and conditions.	
Format	AT+CCFC=<reason>,<mode>[,<number> [,<type>[,<class>[,<subaddr>[,<saytype>[,time]]]]]] If mode!=2,return after setting is successful: OK; If mode=2, return after setting is successful: +CCFC:<status>,<class>	
Example	AT+CCFC=? +CCFC: (0,1,2,3,4,5) OK	Query call forwarding setting range Return with reason

Parameters	<reason> 0: unconditional; 1: mobile device busy; 2: no reply; 3: unreachable ; 4: all calls; 5: All. <mode> 0: disable; 1: enable; 2: query; 3: register; 4: delete. number: phone number. <type> 145: international number; 129: other number. <subaddr>: string address. <saytype>:128. <class> 1: voice; 2: data; 4: fax; 7: all. Time:1..20..30 (muliply 5) <status>: 0: Disable; 1: Enable.

2.1.24 +CCWA：call waiting control

Description	This command is used to control call waiting.	
Format	AT+CCWA=[<n>] [,<mode> [,<class>]]	
Example	AT+CCWA=?	Enumerate all supported<n> +CCWA: (list of supported <n>s) OK
	AT+CCWA?	Read current<n> +CCWA: <n> OK

	AT+CCWA=[<n>] [,<mode> [,<class>]]	Call waiting setup When mode!=2，if succeed： OK When mode==2，respond： +CCWA:<status>,<class1>[<CR><LF> +CCWA:<status>,<class2>[...]] OK If operation is incorrect： +CME ERROR: <err> If <n>=1, it will generate call waiting result code： +CCWA: <number>,<type>,<class> [,<alpha>][,<CLI validity>] When call waiting function is enabled, in the initial process, or system terminates the establishment, it will generate this result code automatically.
Parameters	<n> 0：don't generate call waiting result code; 1:generate call waiting result code on its own. <mode> 0：disable call waiting;1：enable call waiting;2：inquire current status <class> 1：voice service <status> 0：disabled； 1:enabled. <number> call address number in waiting state, whose type is defined by<type>parameter. <type> <number> format <alpha>,<CLI validity> please refer to AT+CLIP	

2.1.25 +CHLD：call hold and multiple session

Description	This command is used to call hold and multiple session.	
Format	AT+CHLD=[<n>]	
Example	AT+CHLD=?	Inquire supported<n> +CHLD: (list of supported <n>s) OK
	AT+CHLD=[<n>]	Configure call hold and multiple session operation: If setup is successful: OK If operation is incorrect: +CME ERROR: <err>
Parameters	**<n>** 0：release all held call or set a waiting call as UDUB. 1：release all active call and receive a held or waiting call. 1X：release call X. 2：hold all active calls, and receive another held or waiting call. 2X：hold all calls except X 3：join a held call to multiple session.	

Remark	1、this command is only used for telecommunication service 11. 2、the value range of X is: 1～7. 3、if both held and waiting calls exist, above flow should be used for waiting call. 4. please use AT+CHLD=1first to release current call and use ATH to hang up. 5. the usage of AT+CHLD=3 depends on multiple application supplied by service provider.

2.1.26 *TSIMINS: inquire SIM card status

Description	This command is used to inquire SIM card status.	
Format	AT*TSIMINS=num, status	
Example	AT*TSIMINS? *TSIMINS:0,0 OK	Inquire SIM card status No SIM card
Parameters	num:0 or 1 has no meaning. status: 0:no SIM card; 1:SIM card.	

2.1.27 +CPWD：change password

Description	This command is used to change password.	
Format	AT+CPWD=<fac>,<passwd>,<newpasswd> +CPWD:<fac,length>s	
Example	AT+CPWD=? +CPWD: ("SC",8),("AO",4), ("OI",4),("OX",4),("AI",4), ("IR",4),("AB",4),("AG",4), ("AC",4),("FD",8),("BN",8), ("P2",8) OK AT+CPWD ="SC","1234","2345" OK	Inquire setup range of this command Returned parameter list Change password of SIM card
Parameters	fac: "SC":SIM card; "AO" : originated call; "OI": international originated call; "OX":all international originated calls except local;"AI": all incoming calls,"IR":all incoming calls after roaming from local address,"AB": all call service,"AG": all originated call service,"AC": all incoming call service,"FD":SIM card fixed dial space,"PN": network authentication,"PU": network sub-system anthentication,"PP":service provider anthentication,"PC":corporate anthentication. passwd: password or operation code, character type "***". newpasswd: new password or operation code, character type "***". length: code length supported by fac.	

2.1.28 +CGMI：inquire manufacturer identification

Description	This command is used to inquire manufacturer identification.	
Format	AT＋CGMI	
Example	AT+CGMI ZTE Mobile Ltd OK	Inquire manufacturer identification

2.1.29 +ATZ：reset parameters according to memory setting

Description	This command is used to read the parameters in module's NVRAM and set into current value..	
Format	ATZ<n>	
Example	ATZ0 OK	reset parameter according to memory setting correctly

2.2 DTMF Command

2.2.1 +VTD: set DTMF duration

Description	AT+VTD set DTMF duration.	
Format	AT+VTD=<duration>	
Example	AT+VTD=? +VTD:(1-255) OK	Query the range for DTMF duration
	AT+VTD? OK	Return with "OK"
	AT+VTD=200 OK	Set DTMF duration as 20s
Parameters	<duration> 0:default setting. 1-255 length, unit: 100ms.	

2.2.2 +VTS: send DTMF

Description	This command is used to send DTMF.	
Format	AT+VTS=<string>	
Example	AT+VTS=? +VTS:(0-9,*#,A,B,C,D),,(1-255) OK	Query +VTS parameter

	ATD********; AT+VTS=“3,6,9”	Dial the call Send DTMF 369
Parameters	String, use comma to separate the symbols. Symbols 0-9,*,#,A-D.	

2.3 Network Service Command

2.3.1 +CREG: network registration and roam

Description	This command is used to query the module’s registration and roaming status. Note: need AT&W command to save the results as you set 0 or 1.	
Format	AT+CREG=<mode> +CREG :<mode>,<stat> return code	
Example	AT+CREG=0 OK	Forbid network registration to provide result code
	AT+CREG? +CREG: 0,1	Display module registration status
	AT+CREG=? +CREG: (0-2) OK	Quert status range
Parameters	<mode> 0: Forbid network registration to provide result code(default setting); 1:allow network registration to provide result code:+CREG:<stat>; 2:allow network registration to provide local information. <stat> 0:Unregistered, terminal isn’t searching for new operator; 1:Registered to local network; 2:Unregistered, terminal is searching for BS; 4:Unknow code; 5:Registered, roaming.	

2.3.2 +COPS: network choice

Description	This command is used to choose network.	
Format	AT+COPS=[<mode>[,<format>[,<oper>]]]	
Example	AT+COPS? +COPS=<mode>[,<format>,<oper>] OK	Return to current network’s register mode and register network
	AT+COPS=[<mode>[,<format>[,<oper>]]] OK	Choose and register network

Parameters	<mode>: 0 choose network automatically，ignoring parameter <format><oper> 1 choose network manually with parameter <format><oper> 3 this command is used to set <format> with the parameter <format> 4 if register network manually is unsuccessful, then register network automatically. <format>: 0 long format alpha <oper>,up to 16 character 1 short <oper>, up to 8 character 2 numeric <oper> (MCC+MNC), default. <stat>: 0 unknown 2 current register network 3 forbid register network

2.4 Mobile Device Control and Status Report

2.4.1 +CPAS: module status query

Description	This command is used to query the module's work status.	
Format	AT+CPAS	
Example	AT+CPAS +CPAS:2 OK	Query the module's current work status
Parameters	<pas>: 0:get ready to receive AT command; 2:unknow status (default); 3:Incoming call (ring); 4:In calling.	

2.4.2 +CFUN: set module function

Description	This command is used to set module function.	
Format	AT+CFUN=<func>,<rst>	
Example	AT+CFUN=? +CFUN(0,1,4),(0-1) OK	Query setting range
	AT+CFUN=1,0	Setting valid immediately
	AT+CFUN=1,1	Reset valid

Parameters	<func>: 0: minor function; 1: Full function; 4: Turn off RF Rx/Tx circuit. <rst> : 0: the function activated immediately after setting; 1: the function activated after reset.

2.4.3 +CMEE：mobile device error report

Description	This command is used for mobile device error report.	
Format	AT+CMEE=<n>	
Example	AT+CMEE?	+CMEE:<n> OK Inquire current error providing method.
	AT+CMEE=<n>	OK Choose error providing method
Parameters	<n> 0 Only the indication: ERROR 1 Provide the mistake number codes 2 Provide the mistake number codes and indications for detail	

2.4.4 +ZPWROFF: turn off module

Description	This command is used to turn off the module.	
Format	AT+ZPWROFF	
Example	AT+ZPWROFF OK	Turn off the module

2.4.5 +CPIN: input PIN code

Description	This command is used to query PIN code status and input PIN code. The functions can be used only after the correct PIN code is entered.	
Format	AT+CPIN=<pin>	
Example	AT+CPIN? +CPIN:READY OK	Query current PIN code No need to input new PIN code
	AT+CPIN? +CPIN:SIM PIN AT+CPIN="****" OK	Query current PIN code status PIN code must be correct Enter the correct PIN code

Parameters	AT+CPIN?: check if what kind of passwords should be entered. +CPIN: READY: don't need enter any password. +CPIN: SIM PIN: need enter PIN code. +CPIN: SIM PUK： PIN code unlock password +CPIN: PH-SIM PIN: SIM card bundle password +CPIN: SIM PIN2: PIN2 code password +CPIN: SIM PUK2: PIN2 code unlock password +CPIN: PH-NET PIN: network password Pin: string value.

2.4.6 +CSQ: signal strength query

Description	This command is used to inquire receive signal strength indicator(rssi) and bit error rate (ber)	
Format	AT+CSQ	
Example	AT+CSQ +CSQ:<rssi>,<ber>	
Parameters	<rssi>: 0–113dbm; 1-111dbm; 2..30–109..-53dbm; 31-51dbm; 99: network unavailable. <ber>: 0~7: normal; 99: network unavailable.	

2.4.7 +CCLK: clock management

Description	This command is used to set and query the data/time of real-time clock.	
Format	AT+CCLK=<time>	
Example	AT+CCLK? +CCLK: "04/02/09,17:34:23+8"	Query current time and date Current network time and date
	AT+CCLK="04/02/09,18:34:23+08"	Set the data/time of real-time clock
Parameters	Time format:"yy/mm/dd,hh:mm:ss±zz"; ±zz time difference between local time and GMT.	

2.5 SMS Command

2.5.1 +CSCA: set SMS center number

Description	This command is used to set SMS center number.	
Format	AT+CSCA=<sca>[,<tosca>]	
Example	AT+CSCA="1380****500" OK	Set SMS center number
Parameters	<sca>: SMS center address. <tosca>: SMS center format.	

2.5.2 +CNMA: confirm SMS

Description	This command is used to confirm the receipt of short messages.	
Format	AT+CNMA	
Example	at+cnmi=2, 2, 0, 0, 0 OK at+csms=1 +CSMS: 1, 1, 1 OK +CMT:60 …… AT+CNMA OK	Set SMS indicator format Set SMS service format Confirm the receipt of short message
Parameters	It is valid when setting +CNMI=2, 2, 0, 0, 0 and +CSMS=1, 1, 1, 1.	

2.5.3 +CMGF: set SMS mode

Description	This command is used to set SMS input mode.	
Format	AT+CMGF=< num>	
Example	AT+CMGF=1 OK AT+CMGF? +CMGF:1 AT+CMGF=? +CMGF=(0-1)	OK Set SMS input mode as text input Query current input mode setting Current setting as text mode Query current setting range
Parameters	0: PDU mode; 1: Text mode.	

2.5.4 +CNMI: set SMS indicator format

Description	This command is used to set SMS indicator format.
Format	AT+CNMI=<mode>,<mt>,<bm>,<ds>,<bfr>

Example	AT+CNMI=? +CNMI: (0-3),(0-3),(0,2,3),(0-1),(0) OK	Query the range for current settings
	AT+CNMI=3,1,0,0,0 OK +CMTI: "SM",19	Set SMS receiving mode as +CMTI: men, index format Receive new messages
	AT+CNMI=3,2,0,0,0 OK AT+CMGF=1 OK +CMT: "+86130********","","07/02/14,10:29:04+32" text	Set SMS receiving mode Set current setting as Text Mode Receive SMS text from 130********
Returned Results	+CMTI:<mem>,<index>: indicate receipt of new message. +CMT:,<length><CR><LF><pdu>: directly output received message (PDU mode). +CBM:<length><CR><LF><pdu>: directly output cell broadcast info (PDU mode).	

Description	**<mode>**: Control the handling of message indication code. Support <mode>=2 only, the module could be set as (0, 1, 3), but the handling of code is the same as <mode>=2. 0: the message indication code will be stored in TA, if TA is full, the code will be stored in other places or the original code will be deleted and replaced by the latest received code; 1. As the connection between TA-TE is hold, delete saved message indication code and reject new indication code. In other cases, directly display the code on the terminal; 2. As the connection between TA-TE is hold, message indication code will be saved in TA; while the connection is released, directly display the message indication code on the terminal. In other cases, directly display the code on the terminal.; 3: Directly display the code on the terminal.. **<mt>**: Set new message indication code format; the default value is 1. 0: no any new message indication code, the message won't be saved; 1: new message indication code is +CMTI: "MT", <index>, the message will be saved but not displayed directly; 2: new message indication code format is: (In text mode) +CMT :<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs> <sca>,<tosca>,<length><CR><LF><data>, the message will be displayed directly but not saved. (In PDU Mode) +CMT:[<alpha>],<length><CR><LF><pdu>. **<bm>:** indication method when the broadcast message arrives: 0: don't send CBM indication to terminal; 2: directly send to terminal to display when new cell broadcast arrives: (display as below In text mode) +CBM :<sn>,<mid>,<dcs>,<page>,<pages> <CR><LF><data>(text mode), cell broadcast directly displayed but not saved (display as below in PDU mode) +CBM:<length><CR><LF><pdu>. **<ds>:** indicating status as the message is being sent: 0: status report as no message is sent **<bfr>:** 0: as <mode> is set as 1..3, the code of this command stored in TA will be sent to TE, and "OK" will be returned before the module transmits the code; 1: as <mode> is set as 1..3, the code of this command stored in TA will be cleared.

2.5.5 +CMGR: view SMS

Description	This command is used to view the received messages.
Format	AT+CMGR=?

<table>
<tr><td rowspan="2">Example</td><td>AT+CMGF=1
AT+CMGR=1
+CMGR:"REC UNREAD","133********",,
"04/02/25,12 :58 :04＋04"
ABCD
OK</td><td>
"MT": 1
Receive new message, store it at location 1
Set TEXT mode

View the first message in TEXT mode</td></tr>
<tr><td>AT+CMGF=0
AT+CMGR=1
+CMGR: 1,,127
0891683108705505F00408A17055810600087010919 0
5564236E5C0A656C76845BA26237FF0C60A85DF27ECF
6210529F5F00901A4E8600310030003051430047005 0
0052005359579910 4F1860E04E1A52A1FF0C4ECE0032
0030003000375E74003000326708003000316 5E55F00
59CB751F654830028C228C22FF016DF1573379FB52A8
516C53F8</td><td>Set PDU format

View the first message in PDU format</td></tr>
<tr><td>Returned Results</td><td colspan="2">AT+CMGR=<index>
Returned format:
The terminal adaptor will return the message with index stored in the memorizer.
-If selected text mode (+CMGF=1):
+CMGR :<stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,
<sca>,<tosca>,<length>]
<CR><LF> <data> (used to read received messages)
+CMGR :<stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,
<tosca>,<length>]
<CR><LF> <data> (used to read sent messages)
-if selected PDU mode (+CMGF=0):
+CMGR: <stat>,[<alpha>],<lenth>,<CR>,<LF>,<pdu>
OK
-if there is error, it will prompt:
+CMS ERROR:<err>
Note: after viewing the messages, “REC UNREAD” will change as “REC READ”.</td></tr>
</table>

Parameters	<alpha> the corresponding name of <da> or <oa> on the terminal. <stat>: SMS status in memory. <oa>: SMS original number string. <da>: SMS target address string. <scts>: SMS service center time string. <length>: text length in text mode. <data>: TPDU length in PDU mode. <pdu>: ME/TA's hex value <stat>: 0: "REC UNREAD" received unread messages; 1: "REC READ" received read messages; 2: "STO UNSENT" stored unsent messages; 3: "STO SENT" stored sent messages; 4: "ALL": all messages

2.5.6 +CSMS: select SMS service

Description	This command is used to originate (SMS-MO), terminate (SMS-MT), cell broadcast (SMS-CB).	
Format	AT+CSMS = <service>	
Example	AT+CSMS? +CSMS:128,1,1,1 OK	Query current SMS Support message origination/termination and cell broadcast
	AT+CSMS=0 +CSMS: 1,1,1 OK AT+CSMS? +CSMS:0,1,1,1 OK	Set current SMS as normal mode Support message origination/termination and cell broadcast Inquire setting result Setting succeeded
Parameters	<service> 0: Normal mode ; 128: PDU mode. <mo> 1: support message origination. <mt> 1: support message termination. <bm> 1: support cell broadcast.	

2.5.7 +CMGS: message origination

Description	This command is used to originate the message from the terminal to the network.. Return with parameters to the terminal after the message is originated successfully.

Format	Text mode (AT+CMGF=1) AT+CMGS=<de><CR> <data><Ctrl-Z/ESC> PDU mode (AT+CMGF=0) AT+CMGS=<length><CR> <pdu><Ctrl-Z/ESC>	
Example	AT+CMGF=1 OK	set as text mode
	AT+CMGS="13316538879"<CR> ABC<ctrl/Z> OK AT+CMGF=0 OK	Send the text of "ABC" to 13316538879 Set as PDU mode
	AT+CMGS=17<CR> 0891683108705505f011000b81312 0882624f700f1ff0361f118<Ctrl-Z> +CMGS:2 OK	Send the text of "ABC" to 13028862427
Parameters	<de>:the number which the message is sent to in text mode. <length>: character length of TPDU text in PDU mode. <data>: text in text mode.	

2.5.8 +CPMS: prioritize message memorizer

Description	This command is used to prioritize message memorizer.	
Format	AT+CPMS=<mem1>[,<mem2>[<mem3>]] +CPMS=<used1>,<total>	
Example	AT+CPMS="SM" +CPMS:4,5,4,5,4,5 OK	Query the message memory status of SIM card: mem1's total capacity 5 pieces, 4 pieces used; Mem2's total capacity 5 pieces, 4 pieces used; Mem3's total capacity 5 pieces, 4 pieces used.
Parameters	<mem1>: "SM" : SIM card is used to view, delete message memory. <mem2>: "SM" : SIM card is used to compose, send message memory. <mem3>: "SM" : SIM card message memorizer when not saved to PC. <used>:used capacity. <total>:total capacity of the memorizer.	

2.5.9 +CMGD: delete a message

Description	This command is used to delete a message from selected memorizer.
Format	AT+CMGD=<Index>

Example	AT+CMGF=1 AT+CMGL="all" +CMGL:1,"REC READ","130********","", abcdefg +CMGL:2,"REC READ","131********","", abcdef +CMGL:3,"STO SENT","1331********","" opqrxt OK AT+CMGD=2 OK	Set as text mode List all messages Delete the second message
	AT+CMGF=0 AT+CMGL=4 +CMGL: 1,3,,21 0891683108705505F0010F0B813120882624 F700 0808738B54084F1F5927 +CMGL: 2,3,,21 0891683108705505F001100B813120882624 F700 0808738B54084F1F5927 +CMGL: 3,3,,21 0891683108705505F001110B813120882624 F700 0808738B54084F1F5927 OK AT+CMGD=1 OK	Set as PDU mode List all messages Delete the first message
Parameters	<Index>: record number of stored message	

2.5.10 +CMGL: message list

Description	This command is used to view the stored message, and the message will be viewed in the memorizer selected by +CPMS command.
Format	AT+CMGL=<stat>

Example	AT+CMGF = 1 OK AT+CMGL=“ALL” +CMGL:1,"REC READ","130********","", abcdefg +CMGL:2,"REC READ","131********","", abcdef +CMGL:3,"STO SENT","1331********","", opqrxt OK	Set as text mode Use text mode Query all messages
Returned Format	1) in text mode: +CMGL :<index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>] <CR><LF><data><CR><LF> +CMGL :<index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>] <CR><LF><data> […] (received/sent message list) OK 2) in PDU mode: +CMGL:<index>,<stat>,[<alpha>],<length><CR><LF><pdu>	
Parameters	1. text mode(+CMGF=1) <stat>: REC UREAD: received unread messages; REC READ: received read messages; STO UNSENT: stored unsent messages; STO SENT: stored sent messages; ALL: all messages. 2.PDUmode (+CMGF=0) <stat>: 0: received unread messages; 1: received read messages; 2: stored unsent messages; 3: stored sent messages; 4: all messages. <index> message index. <length> TPDU length in PDU mode. <pdu> binary content in PDU mode. <data> message text in text mode.	

2.5.11 +CMSS: send messages stored in SIM card

Description	This command is used to send the messages stored in SIM card.	
Format	AT+CMSS=<index>[,<da> [,<toda>]] Returned format:+CMSS : <mr> or +CMS ERROR: <err> If a new target number is specified, then the number stored in the message will be replaced by the new number	
Example	AT+CMGF=1 AT+CMGW="1331653****";<CR> ABC<ctrl-Z> +CMGW:2	OK Set as text mode Compose a message and send it to 1331653**** The message will be stored in record 2
	AT+CMSS=2 +CMSS:0 OK	Send the message stored in record 2 Message sent successfully CMSS returned value 0
	AT+CMSS=2 +CMSS:1 OK	When the message is stored: Don't specify the number and send the message, Message sent successfully,(send it to the address where the message is stored) CMSS returned value 1
	AT+CMSS=2, "1302755****" +CMSS:2 OK	Replace the original number 1331653**** with 1302755****, and send the message to the new number

2.5.12 +ZSMGS：SMS full indication

Description	This command is used to indicate SMS full status.	
Format	+ZSMGS:<status>	
Example	+ZSMGS:FULL OK	+ZSMGS:FULL OK
Parameters	<status>：SMS full status	

2.6 Phonebook Command

2.6.1 +CPBS: select phonebook

Description	This command is used to select the phonebook..	
Format	AT+CPBS=<type>	
Example	AT+CPBS? +CPBS: "SM",1,250 OK	Query the setting of current phonebook SIM card memory used by current phonebook

	AT+CPBR=1 +CPBR=1,"130********",129,"" OK	Query phonebook status
	AT+CPBS=? +CPBS:("MC","RC","DC","LD","LA","ME", "SM","FD","ON","BN","SD","VM") OK	Select SIM card phonebook
Parameters	Type: "SM":SIM card; "FD":SIM card phonebook; "LD": Last dialed number in SIM card; "MC": Missed calls in NV; "ME": phonebook of current terminal; "DC": Dialed calls in SIM card.	

2.6.2 +CPBR: read phonebook

Description	This command is used to read phonebook.	
Format	AT+CPBR=<index1>,[<index2>] +CPBR:<index>,<number>,<type>,<text>	
Example	AT+CPBR=? +CPBR: (1-10),40,13 OK	Query current phonebook
	AT+CPBR=1 +CPBR=1,"130********",129,"" OK	Read the first the number of selected phonebook
	AT+CPBS="SM" OK AT+CPBR=? +CPBR: (1-10),40,13 AT+CPBR=1,3 +CPBR: 1,"8151****",129,"" +CPBR: 2,"8636****",129,"" +CPBR: 3,"8604****",129,""	Select SIM card phonebook Query SIM card phonebook Read phonebook information saved from 1 to 3

Parameters	index1: read phonebook index. index2: read phonebook from index 1 to index 2 when using this value. index: SN. number: phone number. type: phone type. 129: domestic. 145: international. text: the name of corresponding number.

2.6.3 +CPBW: write phonebook

Description	This command is used to write phonebook.	
Format	AT+CPBW= <index>,<number>,<type>,<name> +CPBW:(<index>),<length>,(<type>),<tlength>	
Example	AT+CPBW=? +CPBW: (1-10),40,(129,145, 161,177),13 OK	
	AT+CPBS="SM" OK AT+CPBW=1,"130********",129,"john" OK AT+CPBR=1 +CPBR:1,"130********",129,"john" OK	
Parameters	index: SN. length: phone number length. type: phone type. 129: domestic. 145: international. tlength: the length of the name of corresponding phone number. number: phone number. name: the name of corresponding number.	

2.6.4 +CPBF: find phonebook

Description	This command is used to search for contacts in the phonebook.
Format	AT+CPBF= <name> +CPBF: <index>,<number>,<type>,<name> +CPBF:<nlength>,<tlength>

Example	AT+CPBF=? +CPBF:40,13 OK	Query current phonebook Phone number length: 40 Name length:13
	AT+CPBS="SM" OK AT+CPBW=1,"130********",129,"john" OK AT+CPBR=1 +CPBR:1,"130********",129,"john" OK AT+CPBF="john" +CPBF: 1,"130********",129,"john" OK	Select phonebook Write the information in the first option in current phonebook Read relevant information Find the information with the name of John
Parameters	index: SN. nlength: phone number length. type: phone type. 129: domestic. 145: international. tlength: the length of the name of corresponding phone number. number: phone number. name: the name of corresponding number.	

2.6.5 +CNUM：obtain number of current terminal

Description	This command is used to read the number of current terminal.	
Format	AT+CNUM	
Example	AT+CNUM +CNUM: "","130********",129,7,4 OK	Read the number of current terminal
Parameters	Steps to read the number: 1. AT+CPBS="ON" 2. Write it into SIM card through AT+CPBW command. 3. read it through AT+CNUM command.	

2.7 Data Compression Command

2.7.1 +IFC: flow control

Description	This command is used to set TE-TA flow control.	
Format	AT+IFC=[<mode1 >[,<mode2>]]	
Example	AT+IFC=2,2 OK	Set TE-TA flow control mode1:RTS; mode2:CTS.

Parameters	mode1: 0: No flow control; 1: XON/XOFF, don't transmit data; 2: RTS; 3: XON/XOFF, transmit data. mode2: 0: No flow control; 1: XON/XOFF; 2: CTS.

2.7.2 &D: set DTR mode

Description	This command is used to set DTR mode.	
Format	AT&D[<value>]	
Example	AT&D0 OK	Ignore DTR signal
Parameters	value: 0: ignore DTR signal; 1: DTR from OFF to ON; 2: DTR from ON to OFF.	

2.7.3 &C: set DCD mode

Description	This command is used to set DCD mode.	
Format	AT&C[<value>]	
Example	AT&C0 OK	DCD signal is always valid
Parameters	value: 0:DCD signal is always valid; 1: DCD signal is only valid when there is data.	

2.7.4 +IPR: set the module's baud rate

Description	This command is used to set the module's baud rate, and save the new baud rate automatically.	
Format	AT+IPR=<baud rate>	
Example	AT+IPR? +IPR: 115200 OK	Query the module's current baud rate
	AT+IPR=?	Query the supported baud rates

	AT+IPR=115200 OK	Set baud rate as 115200
Remarks	Baud rates higher than 115200bps could only be used on EDGE and 3G platform. Use AT&W to save the setting baud rate, otherwise, it will reset to 115200bps if the module is turned off.	

2.7.5 &F: factory default

Description	This command is used to return to factory default setting.	
Format	AT&F	
Example	AT&F	Factory default

2.7.6 &W: save setting

Description	This command is used to save the current setting.	
Format	AT&W	
Example	AT&W	Save setting

2.8 ZTE Exclusive Command

2.8.1 +ZGPIO: read/write GPIO

Description	This command is used to set the port as input/output, and read/write GPIO value.	
Format	AT+ZGPIO=<flag>,<index>,<value>	
Example	AT+ZGPIO=0,5(read) +ZGPIO: 0 OK	
	AT+ZGPIO=1,22,1(write) OK	
Parameters	<flag>: 0: read; 1: write. <index>: the GPIO index to be read/written. <value>: 0: I/O set as 0; 1: I/O set as 1.	
Remarks	Only GPIO5, GPIO22 could be provided to users to operate.	

2.8.2 +SPEAKER: switch audio channel

Description	This command is used to switch between earpiece and receiver.

Format	AT+SPEAKER=<mode>	
Example	AT+SPEAKER=0 OK	Receiver
	AT+SPEAKER=1 OK	Earpiece
	AT+SPEAKER=? +SPEAKER:(0-1) OK	Query status
Parameters	<mode> 0: receiver(default); 1: earpiece.	

2.8.3 +ZSTR: query module's status

Description	This command is used to query the module's status.	
Format	AT+ZSTR=<status> +ZSTR: <status>,<value>	
Example	AT+ZSTR=1	Query the initializing status
	AT+ZSTR=2	Query network status
	AT+ZSTR=?	Query parameter list
Parameters	<status> 1:No meaning. Input AT+ZSTR=1 and display ZSTR: 1, 2; 2:Network status. <value> 0: network unavailable; 1: network available; 2: no meaning.	

2.8.4 +ZGETICCID: Set ICCID Parameter

Description	Read SIM's ICCID	
Format	AT+ZGETICCID	
returned value	+ZGETICCID:89860042190733578148 OK	Remark : ICCID value is 89860042190733578148

2.9 GPRS Command

2.9.1 +CGDCONT: set PDP format

Description	This command is used to set GPRS's PDP format.
Format	at+CGDCONT=cid, type, APN[,PDP_ADDR]

Example	At+CGDCONT=1, "IP","CMNET" ATD*99# …… Connect	At+CGDCONT=1, "IP","CMNET" ATD*99# …… Connect
Parameters	cid: used to define PDP number; min.:1. type: PDP packet type, IP: use TCP/IP packet. APN: access node network name.. PDP_ADDR: IP address specified by user (optional).	

2.9.2 + CGACT: deactivate/activate PDP setting

Description	This command is used to deactivate/activate PDP setting.	
Format	at+CGACT=[<state>[,<cid>[,<cid>[,..]]]]	
Example	At+CGDCONT=1,"IP","CMNET" OK AT+CGACT=1,1 OK	
Parameters	cid: used to define PDP number. state: indicate PDP status: 0: deactivated; 1: activated.	

2.9.3 +CGATT: set GPRS

Description	This command is used to set GPRS.	
Format	AT+CGATT=[<state>]	
Example	AT+CGATT? +CGATT: 0 OK AT+CGATT=1 OK	Query GPRS Set GPRS
Parameters	state: 0: not connected; 1: connected.	

2.9.4 +CGCLASS: query GPRS class

Description	This command is used to query GPRS class.	
Format	AT+CGCLASS=[<class>]	
Example	AT+CGCLASS? +CGCLASS:"B" OK	Query GPRS class

Parameters	class: A: support class A; B: support class B; CG :support GPRS only; CC: support circuit exchange only.

2.10 TCP/IP Command

2.10.1 +ZPNUM: set APN, username, password

Description	This command is used to set the operator's APN, username and password, and save the message automatically.	
Format	AT+ZPNUM=<APN>,<USER>,<PWD>	
Example	AT+ZPNUM="cmnet","user","pwd" OK	
	AT+ZPNUM?	Inquire currently setting: APN,USER,PWD
Parameters	APN: GPRS (APN) provided by GPRS operator. USER: username. PWD: password. APN:USER, PWD "string".	

2.10.2 +ZPPPOPEN: open GPRS data link

Description	This command is used to open GPRS data link.	
Format	AT+ZPPPOPEN	
Example	AT+ZPNUM="cmnet","user","pwd" OK AT+ZPPPOPEN +ZPPPOPEN:CONNECTED OK …. AT+ZPPPOPEN +ZPPPOPEN: ESTABLISHED OK	

2.10.3 +ZPPPCLOSE: close GPRS data link

Description	This command is used to close GPRS data link.	
Format	AT+ZPPPCLOSE	
Example	AT+ZPPPCLOSE OK	

	AT+ZPPPCLOSE +ZPPPCLOSE: DISCONNECTED OK	

2.10.4 +ZIPSETUP: establish TCP server connection

Description	This command is used to establish TCP server connection.	
Format	AT+ZIPSETUP=<N>,<IP>,<M>	
Example	AT+ZIPSETUP=1,61.144.216.219,2332 +ZIPSETUP:CONNECTED OK	Establish TCP server connection
Parameters	N: max. TCP links is 1, number is 1. IP: IP for next target address, *.*.*.*. * ranges from 0 to 255 M: port.	

2.10.5 +ZIPSEND: send TCP data to target address

Description	This command is used to connect to target server.	
Format	AT+ZIPSEND= port,length<CR> prompt :'>' then send data	
Example	AT+ZIPSEND=1,10 >abcdefghij<CR> +ZIPSNED:OK OK	After connecting server successfully, send 10-byte data (abcdefghij) to TCP server
Parameters	port:: TCP links is 1, number is 1. length:: data length (max. 1000 characters supported, send as 0x00~0xff).	

2.10.6 +ZPPPSTATUS: query GPRS connecting status

Description	This command is used to inquire GPRS link status.	
Format	AT+ZPPPSTATUS	
Example	AT+ZPPPSTATUS ＋ZPPPSTATUS: ESTABLISHED OK	Query GPRS connecting status
	AT+ZPPPSTATUS +ZPPPSTATUS: DISCONNECTED OK	Query GPRS connecting status

2.10.7 +ZIPCLOSE: close TCP link

Description	This command is used to close TCP link.
Format	AT+ZIPCLOSE=<N>

Example	AT+ZIPCLOSE=1 OK	Close TCP link
Parameters	N: max. TCP links is 1, number is 1.	

2.10.8 +ZIPGETIP: query current IP address of the module

Description	This command is used to obtain the IP address of the module.	
Format	AT+ZIPGETIP	
Example	AT+ZIPGETIP +ZIPGETIP: *.*.*.* OK	Obtain the IP address of the module
Parameters	A value between 0 and 255.	

2.10.9 +ZIPSTATUS: query current TCP link status

Description	This command is used to query current TCP link status.	
Format	AT+ZIPSTATUS=<N>	
Example	AT+ZIPSTATUS=1 +ZIPSTATUS: ESTABLISHED OK	Query current TCP link status
Parameters	ESTABLISHED: TCP link has been established. DISCONNECTED: TCP link disconnected.	

2.10.10 +ZIPRECV: Prompt to Receive Data from Current Data Link

Description	This command is used to receive data from current data link.	
Format	+ZIPRECV:N,LEN,<DATA>	
Example	…… +ZIPRECV:1,5,abcde ……	…… Receives 5 data abcde
Parameters	N: max. TCP links is 1, number is 1. LEN: length of received data. DATA: received data.	

2.10.11 +ZIPSETUPU: establish UDP server link

Description	This command is used to bundle UDP server connection.	
Format	AT+ZIPSETUPU=<N>,<IP>,<M>	
Example	AT+ZIPSETUPU=1,61.144.216.219,2332 OK	Bundle address: 61.144.216.219; port: 2332 Return with bundle succeeded

Parameters	N: max. UDP links is 1, number is 1. IP: IP address for target server, *.*.*.*. * ranges from 0 to 255. M: port.

2.10.12 +ZIPSENDU: send data to UDP server

Description	This command is used to send data to bundled UDP server.	
Format	AT+ZIPSENDU= port,length<CR> prompt :'>' then send data	
Example	AT+ZIPSENDU=1,10 >abcdefghij<CR> +ZIPSNEDU:OK OK	After connecting server successfully, send 10-byte data (abcdefghij) to UDP server
Parameters	port:UDP links is 1, number is 1. length: data length (max. 1000 characters supported, send as 0x00~0xff).	

2.10.13 +ZIPSTATUSU: query UDP status

Description	This command is used to query current TCP link status.	
Format	AT+ZIPSTATUSU=<N>	
Example	AT+ZIPSTATUSU=1 +ZIPSTATUSU: ESTABLISHED OK	Query UDP status of number 1 Number 1 UDP being used
Parameters	ESTABLISHED: UDP used. DISCONNECTED:UDP OFF.	

2.10.14 +ZIPCLOSEU: close UDP link

Description	This command is used to turn off designated UDP link.	
Format	AT+ZIPCLOSEU=<N>	
Example	AT+ZIPCLOSEU=1 OK +ZIPCLOSEU: 1	Successfully turn off/on number 1 UDP link Prompts number 1 UDP link turned off
Parameters	N: max. UDP links is 1, number is 1.	

2.10.15 +ZIPRECVU: prompt to receive UDP data

Description	This command is used to prompt to receive UDP data from UDP server.
Format	+ZIPRECVU:N,LEN,<DATA>

Example	…… +ZIPRECVU:1,5,abcde ……	…… Receives 5 data abcde
Parameters	N: max. UDP links is 1, number is 1. LEN: length of received data. DATA: received data.	

2.11 Hook off tone, DTMF dial tone Command

2.11.1 +ZCALLTONE：Set hook off tone

Description	This command is used to play/stop hook off tone.	
Format	AT+ZCALLTONE=<n> AT+ZCALLTONE=? AT+ZCALLTONE?	
Parameters	<n> 0：stop hook off tone 1：play 400Hz hook off tone 2：play 400Hz/25Hz hook off tone 3：play 400Hz/50Hz hook off tone	
Returned values	OK +ZCALLTONE:<n> OK	
Example	AT+ZCALLTONE=2 OK at+zcalltone? +ZCALLTONE:2 OK AT+ZCALLTONE=0 OK at+zcalltone? +ZCALLTONE:0 OK	play hook off tone stop hook off tone

2.11.2 +ZDTMFTONE：Set ZDTMF dial tone

Description	This command is used to play/stop hook off tone.
Format	AT+ZDTMFTONE=<n>,<Duration> AT+ZDTMFTONE =? AT+ZDTMFTONE?
Parameters	<n> 0~9：play 0～9 DTMF tone

	10~13：play 0～9 DTMF tone 14：play * DTMF tone 15：play # DTMF tone 16：stop 0～9 DTMF tone <Duration> DTMF tone ‘s duration play time，unit is 20ms,range：0-1000.Set as 0，play continue.	
Returned values	OK +ZDTMFTONE:<n>，<Duration> OK	
Example	AT+ZDTMFTONE=1,0 OK AT+ZDTMFTONE? +ZDTMFTONE:1,0 OK AT+ZDTMFTONE=16,0 OK AT+ZDTMFTONE? +ZDTMFTONE:16,0 OK AT+ZDTMFTONE=2,100 OK	Play key1’s DTMF tone sostenuto Stop DTMF tone Play key 2’s DTMF tone，duration time is 2s

3 Applications and cautions

3.1 SMS

at+cmgf=1
OK
——set SMS input mode as text mode.

at+cmgs="13360504647"<CR>
hallo<ctrl/Z>
+CMGS:1
OK
——send a message. 13360504647" is the MT number, “hello” is the stuff.

at+cmgw="13360504647"<CR>
goodbye<ctrl/Z>
+CMGW: 1
OK
——write new message into ”SM” storage. "13360504647" is the MT number, “goodbye” is the stuff. From

returned information +CMGW, we can observe that this message was stored at index 1.

at+cpms?
+CPMS: "SM",1,50,"SM",1,50,"SM",1,50
OK
——inquire current storage. From the indication of +CPMS, we can observe that there is one message in “SM” storage, which is we just received.

at+cmgr=1
+CMGR: "STO UNSENT","13360504647",
goodbye

OK
——read this message with index number. From returned information +CMGR, we can know that current status of it is "STO UNSENT "

at+cmss=1
+CMSS: 1

OK
——send this stored message.

at+cmgr=1
+CMGR: "STO SENT","13360504647",
goodbye

OK
——read this message with index number. From returned information +CMGR, we can know that current status of it has been changed from “STO UNSENT” to “STO SENT”

at+cnmi=3,2,0,0,0
OK
——set the new message received as display without save.

+CMT: "+8615986672056","OK","07/08/27,13:23:56+32"
WESDDR
——received a new message display without save. “+8615986672056” is the MO number, “07/08/27,13:23:56+32” is the sending time, “WESDDR” is the stuff.

at+cnmi=3,1,0,0,0
OK
——set the new message received as save without display.

+CMTI: "SM",28

——received a new message save without display. From the indication of +CMTI, we can know that it was stored at index 28 in “SM” storage

at+cmgr=28
+CMGR: "REC UNREAD","15986672056",,"07/08/27,13:36:48+32"
CDFF

OK
——read this message with index number. “REC UNREAD” is the status of it, “15986672056” is the MO number,07/08/27,13:36:48+32”is the sending time, “CDFF” is the stuff.

3.2 Phonebook

at+cpbs?
+CPBS:"SM",0,200

OK
——inquire current storage. From the indication of +CPMS, we can observe that there is no message in “SM” storage.

at+cpbw= 1,"13086672098",129,"john"
OK
——write a contact number into ”SM” storage. “1”means searching blank item to save automatically. "13086672098" is the contact number, “129” is the number type, “john” is the contact name.

at+cpbs?
+CPBS:"SM",1,200

OK
——inquire current storage. From the indication of +CPMS, we can observe that there is one message in “SM” storage.

at+cpbr=1
+CPBR: 1,"13086672098",129,"john"
OK
——read this phonebook record

atd>1;
OK
——originate a call with index number from current phonebook memory.

atd>"john";
OK
——originate a call with contact name from current phonebook memory.

ath
OK
——terminate a call forwardly through ATH command

at+cpbs=" ME "
OK
——select”ME”as phonebook storage

at+cpbs?
+CPBS: "ME",0,18
OK
——inquire current storage. From the indication of +CPMS, we can observe that there is no message in “ME” storage.

at+cpbw= 1,"13086672098",129,"john"
OK
——write a contact number into ”ME” storage. “1”means searching blank item to save automatically. "13086672098" is the contact number, “129” is the number type, “john” is the contact name.

at+cpbs?
+CPBS:"ME ",1,18

OK
——inquire current storage. From the indication of +CPMS, we can observe that there is one message in “ME” storage, which is we just received.

at+cpbr=1
+CPBR: 1,"13086672098",129,"john"
OK
——read this phonebook record

Appendix

CME Error Codes

1. General CME Error Codes

Verbose CME Error Code	Short CME Code	Description
phone failure	0	Phone failure
no connection to phone	1	No connection to phone
phone-adaptor link reserved	2	The requested connection is not allowed due to one or more other active connections.
operation not allowed	3	The operation requested is not allowed (generally operations performed in a restrictive state i.e. fixed dialling)
operation not supported	4	The operation requested is not supported (generally parameters in operations which aren't supported)
PH-SIM PIN required	5	PIN required for the SIM the phone is locked to
PH-FSIM PIN required	6	PIN required for the First SIM the phone is locked to
PH-FSIM PUK required	7	PUK required for the First SIM the phone is locked to
SIM not inserted	10	Operation not allowed: SIM Card hasn't been inserted (or has been removed)
SIM PIN required	11	Operation not allowed: SIM PIN required (possibly as a result of the pending command failing)
SIM PUK required	12	Operation not allowed: SIM PUK required (possibly as a result of the pending command failing)
SIM failure	13	Operation not allowed: SIM fault has occured (possibly as a result of the pending command failing)
SIM busy	14	Operation not allowed: SIM is being used by another procedure
SIM wrong	15	Operation not allowed: MEP check has failed
incorrect password	16	The incorrect password for the operation has been provided
SIM PIN2 required	17	Operation not allowed: SIM PIN2 required (possibly as a result of the pending command failing)
SIM PUK2 required	18	Operation not allowed: SIM PUK2 required (possibly as a result of the pending command failing)
memory full	20	Operation failed due to SIM memory being full
invalid index	21	Operation failed – invalid memory index supplied

not found	22	The requested index (call, memory) has not been found
memory failure	23	NVRAM read/write has failed
text string too long	24	The entered text string is longer than allowed
invalid characters in text string	25	Invalid characters in string (i.e. characters in expected numeric string)
dial string too long	26	The entered dial string is longer than allowed
invalid characters in dial string	27	Invalid characters in dial string
no network service	30	Operation can't be performed due to ME not currently camped on network
network timeout	31	Operation failed: network timed out
network not allowed - emergency calls only	32	Only emergency calls are currently allowed (due to either requiring PIN/PUK or reduced network coverage)
network personalisation PIN required	40	Operation failed: require MEP PIN code
network personalisation PUK required	41	Operation failed: require MEP PUK code
network subset personalisation PIN required	42	Operation failed: require MEP PIN code
network subset personalisation PUK required	43	Operation failed: require MEP PUK code
service provider personalisation PIN required	44	Operation failed: require MEP PIN code
service provider personalisation PUK required	45	Operation failed: require MEP PUK code
corporate personalisation PIN required	46	Operation failed: require MEP PIN code
corporate personalisation PUK required	47	Operation failed: require MEP PUK code
Unknown	100	An unknown error has occurred

2. Audio/Sppech CME Error Codes

Verbose CME Error Code	Short CME Code	Description
audio manager not ready	673	The protocol stack is still initialising
audio format cannot be configured	674	Audio format cannot be configured
tag does not exist	681	The specified speech tag does not exist
tag already used	682	The specified speech tag is already used
library failure	683	Speech library failure
unspecified voice recognition error	684	Unspecified voice recognition error
process requires more iterations	685	Speech processing still running
SP task already busy	686	Speech task already running
VR engine not present or initialised	687	Speech library nor present or un-initialised
VR general failure	688	General speech failure
Invalid input channel	689	Invalid speech input channel
Invalid output channel	690	Invalid speech output channel
VR requirements returned	691	Speech requirements returned
insufficient memory available	692	Not enough memory for operation
failed to interact with storage media	693	Media failure
library is corrupt	694	Speech library corrupt
failed prompt request	695	Failed prompt request
tag not available or does not exist	696	Speech tag not available or does not exist
bad mode	697	Bad speech mode
bad context	698	Bad speech context
language not supported	699	Specified language not supported
unknown status from SP module	700	Unknown status from SP module

3. SIM Toolkit/CRSM/CSIM CME Error Codes

Verbose CME Error Code	Short CME Code	Description
sim toolkit menu has not been configured	705	Menu has been removed or menu does not exist
sim toolkit already in use	706	A proactive STK session is already running
sim toolkit not enabled	707	There is no current STK session
invalid command length	749	Invalid command length provided to CSIM
invalid input string	750	Invalid command string provided to CSIM
missing required cmd parameter	753	Command type parameter missing from CRSM command
invalid SIM command	754	Command type parameter for CRSM invalid
invalid File Id	755	FileID parameter for CRSM invalid
missing required P1/2/3 parameter	756	P1/2/3 for CRSM command missing
invalid P1/2/3 parameter	757	P1/2/3 for CRSM command invalid
missing required command data	758	Command Data for CRSM command missing
invalid characters in command data	759	Command Data for CRSM command invalid

4. +CSCS CME Error Codes

Verbose CME Error Code	Short CME Code	Description
+CSCS type not supported	737	The CSCS mode specified is not supported
+CSCS type not found	738	The CSCS mode specified is not supported

5. +CPOL CME Error Codes

Verbose CME Error Code	Short CME Code	Description
must include <format> with <oper>	741	Operator format parameter is missing
incorrect <oper> format	742	Operator data is in incorrect format
<oper> length too long	743	Operator data is too long
SIM full	744	PLMN data cannot be written as the PLMN store is full
unable to change PLMN list	745	The SIM PLMN list cannot be changed since CPOL cannot access it
network operator not recognised	746	Operator specified is not recognised

6. CTM CME Error Codes

Verbose CME Error Code	Short CME Code	Description
CTM call is not setup	761	CTM entry attempted with no CTM call established

7. CURSOR CME Error Codes

Verbose CME Error Code	Short CME Code	Description
cursor busy. Stop first	721	Cursor currently running – must be stopped before another operation can be executed
cursor cannot be (re-)configured	723	Configuration error
number not recognised	724	Number not recognised
parameter out of range	725	Parameter out of range
read - write error	726	Error reading/writing parametric data
unspecified cursor error	727	Unspecified cursor error

8. Miscellaneous Proprietary CME Error Codes

Verbose CME Error Code	Short CME Code	Description
invalid input value	765	One or more input values are invalid
unsupported value or mode	766	One or more input values are unsupported
operation failed	767	Operation failed
multiplexer already active	768	Multiplexer already active – cannot be changed or re-activated
unable to get control of required module	769	Command cannot be executed since a required resource cannot be allocated
SIM invalid - network reject	770	The SIM has been rejected by the network
call setup in progress	771	A dialling operation is in progress and this prevents further calls to be set-up.

9. GPRS CME Error Codes

Verbose CME Error Code	Short CME Code	Description
illegal MS	103	Illegal MS
illegal ME	106	Illegal ME
gprs services not allowed	107	Attach not allowed due to SIM/network restrictions
plmn not allowed	111	Operation failed due to incorrect PLMN
location area not allowed	112	Operation failed due to incorrect LA
roaming not allowed in this location area	113	Operation failed due to incorrect LA
service option not supported	132	Operation failed due to service not being supported
requested service option not subscribed	133	Operation failed due to service not being subscribed
service option temporarily out of order	134	Operation failed due to service option being temporarily out of order
Unspecified gprs error	148	Operation failed due to unknown GPRS error
PDP authentication failure	149	Operation failed due to PDP authentication failure
invalid mobile class	150	Operation failed due to invalid ME operation class
GPRS - activation rejected by GGSN	577	Activation failed due to rejection by Gateway GPRS Support Node
GPRS - unspecified activation rejection	578	Activation failed for unspecified reason
GPRS - bad code or protocol rejection	579	PPP failure due to bad code or protocol rejection
GPRS - can't modify address	580	PPP failure, address cannot be modified
GPRS - CHAP close	581	PPP failure – CHAP close
GPRS - profile (cid) currently unavailable	582	CID is currently in use by another entity
GPRS - a profile (cid) is currently active	583	An active context currently exists
GPRS - combined services not allowed	584	Combined services are not allowed
GPRS - conditional IE error	585	Conditional IE error
GPRS - context activation rejected	586	PPP failure – context activation rejected
GPRS - duplicate TI received	587	Duplicate Transaction Identifier received
GPRS - feature not supported	588	Feature not supported
GPRS - service not available	589	PPP Failure – either service not available or device powering down
GPRS - unknown IE from network	590	IE non-existent or not implemented

GPRS - implicitly detached	591	GMM Implicitly detached
GPRS - insufficient resources	592	Insufficient resources to complete action
GPRS - invalid activation state (0-1)	593	An operation has been carried out where the context is in the incorrect state
GPRS - invalid address length	594	PPP Failure – invalid address length
GPRS - invalid character in address string	595	PPP Failure – invalid character in address string
GPRS - invalid cid value	596	The supplied CID value is out of the allowed range
GPRS - invalid dialstring length	597	PPP Failure – invalid dialstring length
GPRS - mode value not in range	598	Invalid mode for GPRS event reporting
GPRS - invalid MAND information	599	Invalid MAND information
GPRS - SMS service preference out of range	600	Invalid SMS service preference value supplied
GPRS - invalid TI value	601	Invalid Transaction Identifier
GPRS - IPCP negotiation timeout	602	PPP Failure – IPCP negotiation timeout
GPRS - LCP negotiation	603	PPP Failure – LCP negotiation timeout
timeout		
GPRS - LLC error	604	LLC error
GPRS - LLC or SNDCP failure	605	LLC or SNDCP failure
GPRS - lower layer failure	606	Lower layer failure
GPRS - missing or unknown APN	607	Missing or unknown APN specified
GPRS - mobile not ready	608	Mobile not ready
GPRS - MS identity not in network	609	MS ID not in network
GPRS - MSC temporarily not reachable	610	MSC temporarily not reachable
GPRS - message incompatible with state	611	Message incompatible with state
GPRS - message type incompatible with state	612	Message type incompatible with state
GPRS - unknown message from network	613	Unknown message from network
GPRS - NCP close	614	PPP Failure – NCP close
GPRS - network failure	615	Network failure
GPRS - no echo reply	616	PPP Failure – no echo reply
GPRS - no free NSAPIs	617	PPP Failure – no free NSAPIs
GPRS - processing of multiple cids not supported	618	Only a single CID may be active at any one time
GPRS - no PDP context activated	619	No PDP context activated
GPRS - normal termination	620	PPP Failure – normal termination

GPRS - NSAPI already used	621	NSAPI already used
GPRS - address element out of range	622	PPP Failure - address element out of range
GPRS - PAP close	623	PPP Failure – PAP close
GPRS - PDP context w/o TFT already activated	624	PPP Failure - context without TFT already activated
GPRS - pdp type not supported	625	PPP Failure – invalid PDP type
GPRS - peer refuses our ACCM	626	PPP Failure - peer refuses our ACCM
GPRS - peer refuses our IP address	627	PPP Failure - peer refuses our IP address
GPRS - peer refuses our MRU	628	PPP Failure - peer refuses our MRU
GPRS - peer rerequested CHAP	629	PPP Failure - peer rerequested CHAP
GPRS - profile (cid) not defined	630	Operation on an inactive/undefined CID
GPRS - unspecified protocol error	631	Unspecified protocol error
GPRS - QOS not accepted	632	PPP Failure - QOS not accepted
GPRS - QOS validation fail	633	PPP Failure - QOS validation fail
GPRS - reactivation required	634	Reactivation required
GPRS - regular deactivation	635	Regular deactivation
GPRS - semantic error in TFT operation	636	Semantic error in TFT operation
GPRS - semantic errors in packet filter	637	Semantic errors in packet filter
GPRS - semantically incorrect message	638	Semantically incorrect message
GPRS - service type not yet available	639	Service type not available
GPRS - syntactical error in TFT operation	640	Syntactical error in TFT operation
GPRS - syntactical errors in packet filter	641	Syntactical errors in packet filter
GPRS - too many RXJs	642	PPP Failure - too many RXJs
GPRS - unknown PDP address or type	643	Unknown PDP address or type
GPRS - unknown PDP context	644	Unknown PDP context
GPRS - user authorisation failed	645	User authorisation failed

10. CMS Error Codes

Verbose CMS Error Code	Short CMS Code	Description
ME failure	300	General Mobile Equipment failure
SMS ME reserved	301	SMS ME reserved
operation not allowed	302	Failed due to either attempting to send an incorrect PDU (i.e. not a SUBMIT) or due to a currently active submit operation.
operation not supported	303	SMS operation has failed due to it not being supported
invalid PDU mode	304	SMS Operation has failed due to an incorrect PDU mode parameter
invalid text mode	305	SMS Operation has failed due to an incorrect text mode parameter
SIM not inserted	310	SMS Operation not allowed: SIM Card hasn't been inserted (or has been removed)
SIM pin necessary	311	SMS Operation not allowed: SIM PIN is required
PH SIM pin necessary	312	PIN required for the SIM the phone is locked to
SIM failure	313	SIM fault has occurred
SIM busy	314	SIM is busy
SIM wrong	315	MEP check failed
SIM PUK required	316	SIM PUK is required
SIM PIN2 required	317	SIM PIN2 is required
SIM PUK2 required	318	SIM PUK2 is required
memory failure	320	SMS Operation failed due to memory error
invalid memory index	321	SMS Operation failed due to invalid SM index
memory full	322	SMS Operation failed due to SM memory full
SMSC address unknown	330	SMS Operation failed due to invalid SMSC address
no network	331	No network coverage
network timeout	332	SMS Operation failed due to network timeout
unknown	500	SMS Operation failed, cause unknown
SIM not ready	512	Operation failed due to SIM card not ready
unread records on SIM	513	(Generally unsolicited) There are unread SM on the SIM
CB error unknown	514	Unknown Cell Broadcast error has occured
PS busy	515	Protocol stack currently running other processes
Couldn't read SMS parameters from SIM	516	SM parameters (VP, SMSC address etc.) read fail from NVRAM
SM BL not ready	517	Protocol stack currently initialising
Invalid (non-hex) chars in PDU	528	Non hexadecimal characters in entered TPDU data
Incorrect PDU length	529	Entered PDU is either too long or data longer than specified length
Invalid MTI	530	Invalid Message Type Indication on PDU

Invalid (non-hex) chars in address	531	Non hexadecimal characters in entered DA
Invalid address (no digits read)	532	No DA supplied
Incorrect PDU length (UDL)	533	PDU User Data length exceeds allowed size or differs from specified length
Incorrect SCA length	534	Service Centre address too long
Invalid First Octet (should be 2 or 34)	536	Invalid FO for SMS COMMAND
Invalid Command Type	537	Invalid SMS COMMAND type specified
SRR bit not set	538	SRR bit for SMS COMMAND ENQUIRY not set
SRR bit set	539	SRR bit for SMS COMMAND is set
Invalid User Data Header IE	540	Invalid User Data Header Information Element data entered