

BroadMobi BM806U User AT Commands



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BroadMobi

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1 Scop

The present document describes the AT Command Set for the BroadMobi Module:
BM806U

More information about the BroadMobi Module which includes the Software Version information can be retrieved by the command ATI. In this document, a short description, the syntax, the possible setting values and responses, and some examples of AT commands are presented.

Prior to using the Module, please read this document and the Version History to know the difference from the previous document.

In order to implement communication successfully between Customer Application and the Module, it is recommended to use the AT commands in this document, but not to use some commands which are not included in this document.

1. 1 Product

BroadMobi BM806U series products is based on Qualcomm MDM9225 chipset developed LTE wireless communication module. Through the integration of BM806U can make the client's terminal or device with wireless communication function, can connect to any LTE network. BM806U series of products through the FDD-LTE, TDD-LTE, TD-SCDMA, HSPA, UMTS, EDGE, GPRS, GSM to achieve high-speed data connection, as well as GPS positioning services.

BM806U also provides SMS, address book, voice and other functions, can be widely used in a variety of mobile broadband access scenarios, such as: wireless routing, video surveillance, handheld communications terminal, desktop communications terminal, vehicle equipment.

1. 2 Purpose

This document describes the interface of 5 die wireless communication module products BM806U series products (including BM806U/BM806U-C1/BM806U-T1/BM806U-E1). The aim of this study was to describe the AT command to BM806U products to provide a set, for users based on the application and development of the product provides software operation.

1. 3 Proposal

The reader of this paper is to participate in the design of the BM806U development personnel, testing personnel, as well as product development based on BM806U customers and so on.

Readers of this article to deal with computer and mobile communication technology more familiar with, all involving the concept and principle of these areas in this paper will be used directly, will not repeat them.

1. 4 Agreement

1.4.1 Glossary Of Terms

Table 1 : Glossary of Terms Table

Abbreviation	Description
AMR	Adaptive Multi-rate
BER	Bit Error Rate
BTS	Base Transceiver Station

PCI	Peripheral Component Interconnect
CS	Circuit Switched (CS) Domain
CSD	Circuit Switched Data
DCE	Data Communication Equipment
DTE	Data Terminal Equipment
DTR	Data Terminal Ready
EDGE	Enhanced Data Rates For GSM Evolution
EFR	Enhanced Full Rate
EGSM	Enhanced GSM
EMC	Electromagnetic Compatibility
ESD	Electrostatic Discharge
FR	Frame Relay
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Input Output
GPRS	General Packet Radio Service
GSM	Global Standard For Mobile Communications
HR	Half Rate
HSDPA	High Speed Downlink Packet Access
HSUPA	High Speed Uplink Packet Access
HSPA	HSPA High-Speed Packet Access
IEC	International Electrotechnical Commission
IMEI	International Mobile Equipment Identity
I/O	Input/Output
ISO	International Standards Organization
ITU	International Telecommunications Union
bps	Bits Per Second
LED	Light Emitting Diode
LTE	Long Term Evolution
M2M	Machine To Machine
MO	Mobile Originated
MT	Mobile Terminated
NTC	Negative Temperature Coefficient
PC	Personal Computer
PCB	Printed Circuit Board
PCS	Personal Cellular System
PCI	Peripheral Component Interconnect
PCM	Pulse Code Modulation
PCS	Personal Communication System
PDU	Packet Data Unit
PPP	Point-To-Point Protocol
PS	Packet Switched
QPSK	Quadrature Phase Shift Keying

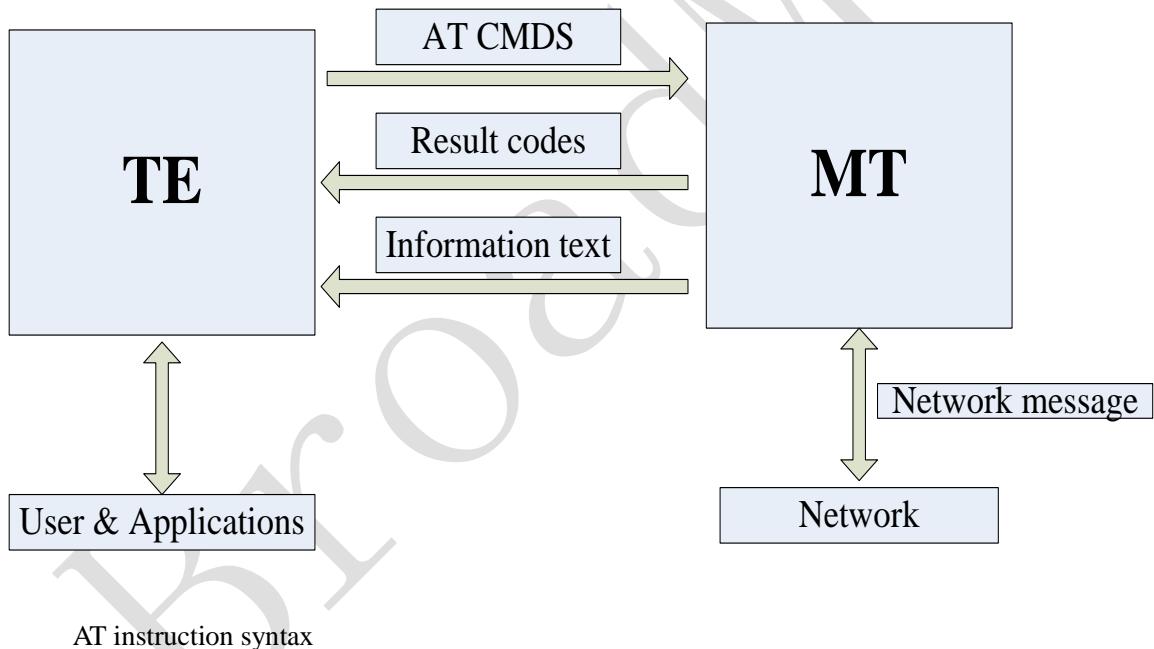
SIM	Subscriber Identity Module
TE	Terminal Equipment
TA	Terminal Adaptor
TCP/IP	Transmission Control Protocol/ Internet Protocol
UART	Universal asynchronous Receiver-Transmitter
USIM	Universal Subscriber Identity Module
UMTS	Universal Mobile Telecommunications System
USB	Universal Serial Bus
WCDMA	Wideband Code Division Multiple Access

1.4.2 AT Instruction Format And Syntax

The BM806U module provided by the AT module contains the Rec.07.07,07.05,3GPP TS 27.005,27.007 ITU-T and Rec. V25ter GSM standards, as well as Broadmobi own development instructions.

AT instruction description

Figure 1 describes the interaction between TE and AT for the MT instruction:



AT instruction syntax

1) basic grammar

The basic syntax of the format is: AT<x><n><cr>, where <x> is the corresponding instruction,<n> is one or more Parameter,<cr> for the end of the instruction.

For example: ATE <n> <CR>, the command is used for the TA switch back display function, that is, TA will be based on the "n" value determines whether the received characters back to the DTE. "n" is optional Parameter, if not assigned, the module will use the default value.

2) extended grammar

The Extended Command has several formats, as following Table list:

Table 2 : Type of extended syntax instruction

Type	Syntax	Description
Test Command	AT+<x>=?	Test the existence of the command; give some information about the command subparameters
Read Command	AT+<x>?	Check the current values of subparameters
Execution Command(Parameter)	AT+<x>=<...>	Set user-definable subparameter values.
Execution Command(no Parameter)	AT+<x>	Read non-variable subparameters determined by internal processes.

AT instruction format

Each AT command line begins with a AT character (Note: section begins with "+") and ends with <cr>;

Each instruction line may consist of multiple instructions that are separated from each other by ";" ;

Standard AT instructions in accordance with the Rec. 07.07,07.05,3GPP TS 27.005,27.007 GSM and Rec. V25ter ITU-T standard;

Each extension is provided with a Command Test to detect the presence of the instruction and the type or scope of the Parameter;

Instructions with Parameter generally provide a Read Command to read the current value of the Parameter;

Command Set used to set the Parameter and complete the corresponding function.

chart 2 BM806U AT Structure of a command line

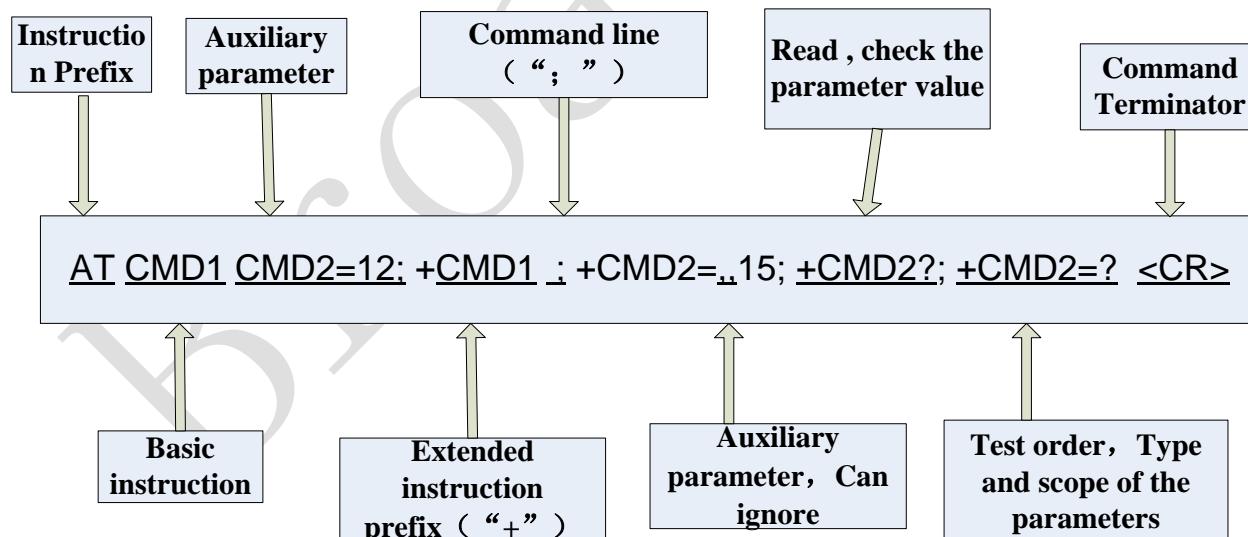


chart1 : AT instruction line structure

AT Instruction return

- 1) the return Result of the AT instruction is the beginning and end of the<CR><LF> , with the exception of AT&V0 (return Result 0) and AT&Q1 (no return Result);
- 2) AT instruction syntax error,return "ERROR" string;

- 3) AT command syntax is correct, Parameter error, will return +CME ERROR:<err> (non short message instruction) or +CME ERROR:<err> (short message instruction);
- 4) AT instruction is executed correctly, return OK;
- 5) received a short message, there will be a certain format of the string sent to the terminal, refer to the subsequent AT instructions;
- 6) returns the error message, can pass CMEE=< AT<...> Set different return Results, refer to the AT directive.

2 BM 3GPP Command

2.1 General Commands

2.1.1 Request Manufacturer Identification: AT+CGMI/GMI

Table 3: AT+CGMI Operation Commands

AT+CGMI Request Manufacturer Identification		
Test Command	AT+CGMI=?	Response
Execution Command	AT+CGMI	Response TA reports one or more lines of information text which permit the user to identify the manufacturer. <Manufacturer> OK

2.1.2 Request TA Model Identification: AT+CGMM/GMM

Table 4: AT+CGMM Operation Commands

AT+CGMM Request TA Model Identification		
Test Command	AT+CGMM=?	Response
Execution Command	AT+CGMM	Response TA returns a product model identification text. LTE WIRELESS MODEM OK

2.1.3 Request TA Revision Identification of Software Release: AT+CGMR/GMR

Table 5: AT+CGMR Operation Commands

AT+CGMR Request TA Revision Identification of Software Release		
Test	AT+CGMR=?	Response

Command		OK
Execution Command	AT+CGMR	Response +CGMR: <Firmware Ver> OK
Example Command	AT+CGMR	Result +CGMR: 1.0.2 OK

2.1.4 Request International Mobile Equipment Identity (IMEI): AT+CGSN/GSN

Table 6: AT+CGSN Operation Commands

AT+CGSN Request International Mobile Equipment Identity (IMEI)		
Test Command	AT+CGSN=?	Response OK
Execution Command	AT+CGSN	Response TA response IMEI <SN> OK
Example Command	AT+CGSN	Result 869601012433269 OK

2.1.5 Request International Mobile Subscriber Identity (IMSI): AT+CIMI

Table 7: AT+CIMI Operation Commands

AT+CIMI Request International Mobile Subscriber Identity (IMSI)		
Test Command	AT+CIMI=?	Response OK
Execution Command	AT+CIMI	Response TA returns <IMSI> for identifying the individual SIM/USIM which is attached to ME <IMSI> OK Failure, USIM/SIM card is not found, not initialized or SIM is locked, you need to enter the PIN code or PUK code is locked, then return:ERROR/+CME ERROR: <err> Parameter description

		<IMSI> International Mobile Subscriber Identity
Example Command	AT+CIMI	<p>Result 460110583784689</p> <p>OK</p>

2.1.6 Show ICCID: AT+ ICCID

Table 8: AT+ICCID Operation Commands

AT+ICCID Show ICCID		
Test Command	AT+ICCID=?	Response OK
Execution Command	AT+ICCID	<p>Response ICCID:XXX</p> <p>OK</p>
Example Command	AT+ICCID	<p>Result ICCID: 89860460097552087105</p> <p>OK</p>

2.1.7 Display Product Identification Information: ATI

Table 9: ATI Operation Commands

ATI Display Product Identification Information		
Execution Command	ATI	Response TA issues product information text. OK
Example Command	ATI	<p>Result Manufacturer: GMI: Model: +CGMM: LTE WIRELESS MODEM Revision: 1.0.2 IMEI: 869601012433269 +GCAP: +CGSM</p> <p>OK</p>

2.1.8 Request Version Information: AT+BMSWVER

Table 10: AT+BMSWVER Operation Commands

AT+BMSWVER Request Version Information
--

Execution Command	AT+BMSWVER	Response +BMSWVER:<modem_ver>,<efs_ver>,<CDROM_ver>,<apps_ver> OK
Example Command	AT+BMSWVER	Result +BMSWVER: P520A_1.0.2_160121,BMC_P520A_0FLD_3102_1.0.0_160113,,P 510A_1.0.9_160119 OK

2.2 Call Control Commands

2.2.1 Select Type of Address: AT+CSTA

Table 11: AT+CSTA Operation Commands

AT+CSTA Select Type of Address		
Test Command	AT+CSTA=?	Response Set the instruction by the GSM specification, select the type of the dial instruction (ATD). Command Test returns the type value supported by TA. +CSTA: (list of supported <type>) OK
Read Command	AT+CSTA?	Response +CSTA: <type> OK
Set Command	AT+CSTA=<type>	Response OK If the <type> is not in the parameter list,return: ERROR/+CME ERROR:<err> Parameter description <type> Current address type setting. [145] International type(contains the character "+") 129 unknown type

Example Command	AT+CSTA=145	Result OK
	ATD139*****;	OK RING_BACK +DISC:1,0,0,8,"139*****",145
	ATD+86139*****;	OK +DISC:1,0,0,31,"+86139*****",145

2.2.2 Call Mode: AT+CMOD

Table 12: AT+ CMOD Operation Commands

AT+CMOD Call Mode		
Test Command	AT+CMOD=?	Response +CMOD:(0) OK
Read Command	AT+CMOD?	Response +CMOD: <mode> OK
Set Command	AT+CMOD=[<mode>]	Response OK ERROR/+CME ERROR:<err>
		Parameter description <mode>0 Single mode
Example Command	AT+CMOD=0	Result OK

2.2.3 Audio Dialing: ATT

Table 13: ATT Operation Commands

ATT Audio Dialing		
Execution Command	ATT	Response This command is set to audio dialing OK

Table 14: ATP operation commands

ATP Pulse Dialing		
Execution	ATP	Response

Command		This command is set to pulse dialing OK
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2.2.5 Telephone Dialing: ATD

2.2.5.1 Mobile Originated: ATD[<dial_string>][;]

Table 15: ATD[<dial_string>][;] Operation Commands

ATD[<dial_string>][;] Mobile Originated	
Execution Command	Response
ATD[<dial_string>][;]	<p>This command can be used to set up outgoing voice,data or FAX calls.It also serves to control supplementary services.</p> <p>If a ATH command is received during the execution, the command may be terminated. However, in some of the state of the connection (such as a signal exchange), the command will not be terminated.</p> <p>This error is related to the function of ME ERROR/+CME ERROR: <err></p> <p>Busy(parametersetting ATX3) BUSY</p> <p>If a connection cannot be established NO CARRIER</p> <p>If connection is successful and non-voice call. TA switches to data mode. CONNECT<text> <text>outputsonly when<value>>0 in ATX<value>parameter setting.</p> <p>When TA returns to command mode after call release: OK</p> <p>If connection is successful and voice call: OK</p> <p>Parameter <dial_string> String of dialing digits and optionally V.25ter modifiers.Dialingdigits:0~9, *, #, +, A, B, C. Following V.25ter modifiers are ignored:,(comma), T, P, !, W, @ In case of an emergency call, use the general emergency call number 112, do not need USIM/SIM card [:] Only required to set up voice call, return to command state</p>

Example Command	ATD139*****;	<p>Result Indicates that the serial port responds to the instruction, and the phone is switched on. OK</p> <p>CONNECT</p> <p>Indicates that the serial response command, but the other is a call, or refused to answer the phone is not connected.OK</p> <p>RING_BACK</p> <p>+DISC:1,0,0,31,"+86139*****",145</p> <p>Indicates that the serial response command, but no one answered the phoneOK</p> <p>RING_BACK</p> <p>+DISC:1,0,0,19,"+86139*****",145</p>
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2.2.5.2 Initiate Call By Telephone Book: ATD><str>[I][G];

Table 16: ATD><str>[I][G] [;] Operation Commands

ATD><str>[I][G]

Execution Command	<p>Response</p> <p>This instruction is used to dial the telephone number in the telephone directory. Before the implementation of the directive, the first to execute the AT+CPBF directive, used to find a specific user string <str> in the current phone book, if you find the item exists, you can call the appropriate number. Using AT+CPBS, can be set to the current phone book, AT+CPBW used to write to the phone book to a specific user string. TA attempt to call a stored number. In some states that are connected to a connection (such as a signal exchange), the command does not terminate execution. Its return Result like ATD[<dial_string>][;]</p> <p>This error is related to the function of ME ERROR/+CME ERROR: <err></p> <p>Busy(parametersetting ATX3) BUSY</p> <p>If a connection cannot be establishes NO CARRIER</p> <p>If connection is successful and non-voice call. TA switches to data mode. CONNECT<text></p> <p><text>outputsonly when<value>>0 in ATX<value>parameter setting.</p> <p>When TA returns to command mode after call release: OK</p> <p>If connection is successful and voice call: OK</p>
	<p>Parameter</p> <p><str> character: should find the same memory at least a phonebook entry field (take alphanumeric mixed mode) of the same, and use AT+CSCS of instruction selection using the character set.</p> <p>In the following two cases, <str> must be placed in double quotes. Otherwise, double quotation marks are optional. Use the escape character or parameters [I], [G], a string of alphanumeric mixed spaces.</p> <p>[I] Ignore the calling line identification restriction supplementary service registered;</p> <p>I=Activates CLIR (Disable presentation of own number to called party);</p> <p>i=Deactivates CLIR(Enable presentation of own number to called</p>

		<p>party)</p> <p>Please refer to the "caller identification limit: AT+CLIR" command.</p> <p>[G] Control the CUG supplementary service of the call; use the AT+CCUG directive to use the collection of index and information values:</p> <p>G=Activates closed user group invocation for this call only; g=Deactivates closed user group invocation for this call only; Please refer to the "closed user group: AT+CCUG" command. [;]can not be omitted, because the phone book dial only supports voice calls.</p>
Example Command	ATD>"TEST";	<p>Result</p> <p>Find the user in the phone book, and the current phone number is dialed.</p> <p>OK</p> <p>RING_BACK</p> <p>CONNECT</p> <p>The user is not found in the phone book.</p> <p>ERROR</p>

2.2.5.3 Redial Last Call Number: ATDL[;]

Table 17: ATDL Operation Commands

ATDL[;]

Execution Command	ATDL[;]	<p>Response Redial last call number No last call number or last call number is invalid ERROR/+CME RROR: <err></p> <p>Busy(parametersetting ATX3) BUSY</p> <p>If a connection cannot be established NO CARRIER</p> <p>Connected to the successful and non voice calls, TA switch to the data state, PS: if the value of the +ATX parameter settings is greater than 0, then only the output <text> CONNECT<text></p> <p>When TA returns to command mode after call release: OK</p> <p>If connection is successful and voice call: OK OK</p>
Example Command	ATDL;	<p>Result set up OK</p> <p>RING_BACK</p> <p>CONNECT</p> <p>busy OK</p> <p>RING_BACK</p> <p>+DISC: 1,0,0,31,"...",129</p> <p>Unconnection OK</p> <p>RING_BACK</p> <p>+DISC: 1,0,0,31,"...",129</p>

2.2.5.4 Calling Mem< n > Number: ATD>mem< n >[I][G][;]

Table 18: ATD>mem< n >[I][G][;] Operation Commands

ATD>mem< n >[I][G][;] Calling Mem< n >Number	
Execution Command ATD>mem< n >[I][G][; ;]	<p>Response</p> <p>Execution Command for a given call number in the phone book When a call is initiated, an abbreviation of the two letter is required for the telephone book <mem>, and the storage unit of the required item is followed. The position of each domain phonebook can check by AT+CPBR. TA try to set up call number. In some states that are connected to a connection (such as a signal exchange), the instruction does not terminate execution.</p> <p>This error is related to the function of ME ERROR/+CME ERROR: <err></p> <p>Busy(parametersetting ATX3) BUSY</p> <p>If a connection cannot be established NO CARRIER</p> <p>When TA returns to command mode after call release: OK</p> <p>If connection is successful and voice call: OK</p> <p>Parameter</p> <p><mem> Telephone book "MT" Merge of ME phone book and abbreviated dial phone book (not standard) including ME and SIM phone book "FD" SIM fixed dial telephone directory (this function opens and stores the capacity depends on the SIM card) "DC" ME recent dial telephone directory (not standard) "MC" ME recently missed number book (non standard) "RC" ME recently answered telephone directory (non standard) "ON" This machine number (MSISDN), the storage capacity depends on the SIM card "EN" Emergency call number telephone directory (this function opens and stores the capacity depends on the SIM card) "SD" Service dial telephone directory (this function opens and stores the capacity depends on the SIM card)</p> <p><n> An integer type storage unit in the range of the selected memory is available, for example, using an index number returned by the</p>

		<p>AT+CPBR</p> <p>[I] Ignore the calling line identification restriction supplementary service registered; I=Activates CLIR (Disable presentation of own number to called party); i=Deactivates CLIR(Enable presentation of own number to called party) Please refer to the "caller identification limit: AT+CLIR" command.</p> <p>[G] Control the CUG supplementary service of the call; use the AT+CCUG directive to use the collection of index and information values: G=Activates closed user group invocation for this call only; g=Deactivates closed user group invocation for this call only; Please refer to the "closed user group: AT+CCUG" command. [;]can not be omitted, because the phone book dial only supports voice calls.</p> <p>Explain Emergency call without <mem>; This directive does not apply to the data call, any number of calls from the <mem> call will return "+DISC: 1,0,0,31,...,129"; The parameters of [I] or [G] only applicable to non *# code dial string case; With *# code ATD instructions will be used as voice call processing, therefore, the instruction must end with a semicolon; For details on the setting of the Result code and call monitoring parameters, please refer to the ATX directive; Please refer to the mobile station to call a certain number: ATD.</p>
Example Command	ATD>SM2; Dial the number of the 2 cell in the SIM card phone book. ATD>DC2; Dial the SIM card on the last call is stored in a 2 unit number	<p>Result</p> <p>The number exists, and the telephone is connected. OK RING_BACK CONNECT The number does not exist ERROR</p> <p>The number exists, and the telephone is connected. OK RING_BACK CONNECT The number does not exist ERROR</p>

2.2.5.5 The calling number storage unit <n>: ATD><n>[I][G] [;]

Table 19: ATD><n>[I][G] [;] Operation Commands

ATD><n>[I][G][;]		The calling number storage unit <n>
Execution Command	ATD><n>[I][G][;]	<p>Response This instruction is used to initiate a call to the number in the memory cell <n>, and to execute the number used in the current memory. Can use the "select telephone directory" of the AT+CPBS=? find available memory. When the call is initiated, just enter the storage location of the required number. The position of each domain can query through the AT+CPBR . TA try to create a call to the selected number. Usually, if the character is received during the execution, the instruction will be terminated. However, in some of the state of the connection (such as a signal exchange), the instruction will not be terminated.</p> <p>This error is related to the function of ME ERROR/+CME ERROR: <err></p> <p>Busy(parametersetting ATX3) BUSY</p> <p>If a connection cannot be establishes NO CARRIER</p> <p>When TA returns to command mode after call release: OK</p> <p>If connection is successful and voice call: OK</p> <p>Parameter <n> An integer type storage unit in the range of the selected memory is available, for example, using an index number returned by the AT+CPBR [I] Ignore the calling line identification restriction supplementary service registered; I=Activates CLIR (Disable presentation of own number to called party); i=Deactivates CLIR(Enable presentation of own number to called party) Please refer to the "caller identification limit: AT+CLIR" command.</p> <p>[G] Control the CUG supplementary service of the call; use the AT+CCUG directive to use the collection of index and information values: G=Activates closed user group invocation for this call only; g=Deactivates closed user group invocation for this call only; Please refer to the "closed user group: AT+CCUG" command.</p> <p>[;]can not be omitted, because the phone book dial only supports voice</p>

		calls.
Example Command	AT+CPBS="SM" ATD>2;	<p>Result To the SIM card storage unit 2 the number of calls but busy, the phone is not connected OK</p> <p>RING_BACK</p> <p>+DISC: 1,0,0,31,"...",129</p> <p>Initiate a call to the number of the SIM card storage unit 2 and call the OK</p> <p>RING_BACK</p> <p>CONNECT</p>

2.2.6 Call Hang Up Report Information Instruction +DISC

Table 20: +DISC Report Command

+DISC Call Hang Up Report Information Instruction	
Report Command	<p>Active report command , when the call is over, the module will take the initiative to connect to hang up information in +DISC format</p> <p>Parameter <id> Link Id</p> <p><idr> Call direction 0 outgoing call 1 Incoming call</p> <p><mode> type 0 Voice 1 CS Data 2 PS Data 3 SMS</p> <p><cause code> Reasons for the hang up, Reference protocol GSM 04.0 and Table21</p> <p><number> call number</p> <p><num_type> type</p>

		<alpha_text> Number in the phone book in the text string
Example Command	ATD139*****;	<p>Result Said the serial response command, but the other is a call, or refused to answer the phone is not connected.</p> <p>OK</p> <p>RING_BACK</p> <p>+DISC:1,0,0,31,"+86139*****",145</p> <p>Said the serial response command, but no one answered the phone</p> <p>OK</p> <p>RING_BACK</p> <p>+DISC:1,0,0,19,"+86139*****",145</p>

Table 21: +DISC Parameter<cause code>

Parameter	Explane
0	In addition to the following agreement except for the provisions of the circumstances (such as: no signal causes the line is interrupted, similar to NO CARRIER)
1	Unassigned (unallocated) number
3	No route to destination
6	Channel unaccepTable
8	Operator determined barring
16	Normal call clearing
17	User busy
18	No user responding
19	User alerting, no answer
21	Call rejected
22	Number changed
25	Pre-emption
26	Non selected user clearing
27	Destination out of order
28	Invalid number format (incomplete number)
29	Facility rejected
30	Response to STATUS ENQUIRY
31	Normal, unspecified
34	No circuit/channel available
38	Network out of order
41	Temporary failure
42	Switching equipment congestion

43	Access information discarded
44	requested circuit/channel not available
47	Resources unavailable, unspecified
49	Quality of service unavailable
50	Requested facility not subscribed
55	Incoming calls barred within the CUG
57	Bearer capability not authorized
58	Bearer capability not presently available
63	Service or option not available, unspecified
68	ACM equal to or greater than ACMmax, ACM
65	Bearer service not implemented
69	Requested facility not implemented
70	Only restricted digital information bearer capability is available
79	Service or option not implemented, unspecified
81	Invalid transaction identifier value
87	User not member of CUG
88	Incompatible destination
91	Invalid transit network selection
95	Semantically incorrect message
96	Invalid mandatory information
97	Message type non-existent or not implemented
98	Message type not compatible with protocol state
99	Information element non-existent or not implemented
100	Conditional IE error
101	Message not compatible with protocol state
102	Recovery on timer expiry
111	Protocol error, unspecified
127	Interworking, unspecified

2.2.7 Answer An Incoming Call: ATA

Table 22: ATA Operation Commands

ATA Answer An Incoming Call	
Execution Command	<p>Response TA to send a signal to the network terminal</p> <p>Note 1: ignore the additional commands on the back of the same command line in the A.</p> <p>Note 2: in the execution of the process of receiving a character, the order may be terminated. However, in some state of the connection (e.g., in a handshake), the command will not be terminal.</p> <p>Return to voice call and connect to build success</p> <p>CONNECT</p> <p>Response</p>

		Returns the data call and the connection is successful; <text> rate, error control, etc. CONNECT<text>
		Response OK
		Response Unable to establish connection NO CARRIER
		Response Return the error in the online instruction mode ERROR/+CME ERROR:<err>
Example Command	RING ATA	Result Return to the voice call and connect to the end of a successful call OK +DISC:1,0,0,16,"+86139*****",145

2.2.8 Hang Up Call (voice): AT+CHUP

Table 23: AT+CHUP Operation Commands

AT+CHUP Hang Up Call (voice)		
Test Command	AT+CHUP=?	Response OK
		Response To cancel the current call or suspend the current call OK
Execution Command	AT+CHUP	Fail ERROR/+CME ERROR:<err> Explain The use of the AT+CHUP scene is the call process, that the two sides have established a call connection, but the situation is not incloud when calling is connecting; The function of AT+CHUP is only a subset of ATH, not exactly equivalent to ATH.

2.2.9 Disconnect Existing Connection(DATA): ATH

Table 24: ATH Operation Commands

ATH Disconnect Existing Connection(DATE)
--

Execution Command	ATH[<n>]	Response Using this command, the current all data connections can be terminated. However, in some of the state of the connection (such as a signal exchange), the command does not terminate the current voice connection. Hang up the voice call please refer to AT+CHUP.
		OK ERROR/+CME ERROR: <err>
		Parameter <n> 0 stop

2.2.10 Select Bearer Service Type: AT+CBST

Table 25: AT+CBST Operation Commands

AT+CBST Select Bearer Service Type		
Test Command	AT+CBST=?	Response +CBST: (List of values<speed>),(List of values<name>),(List of values<ce>) OK
Read Command	AT+CBST?	Response +CBST: <speed>,<name>,<ce> OK
Set Command	AT+CBST=[<spee>[,<name>[,<ce>]]]	Response AT+CBST write command selects the bearer service <name>, the data rate <speed> and the connection element <ce> to be used when data calls are originated. Test command returns the composite value supported by TA. OK ERROR/+CME ERROR: <err>
Example Command	AT+CBST=0,0,1 AT+CBST? AT+CBST=?	Result OK +CBST: 0,0,1 OK +CBST:(0,7,12,14,16,17,39,43,48,51,71,75,80,81,83,84,116,134),(0,1,4),(0,1)

		OK
--	--	----

Table 26: AT+CBST Parameter Description

Parameter	Value	Description
<speed>	0	AUTO
	1	300bps (V.21)
	2	1200bps (V.22)
	3	1200/75bps (V.23)
	4	2400bps (V.22bis)
	5	2400bps (V.26ter)
	6	4800bps (V.25)
	[7]	9600bps (V.25)
	12	9600bps (V.34)
	14	14400bps (V.34)
	15	19200 bps (V.34)
	16	28800 bps (V.34)
	17	33600 bps (V.34)
	34	1200 bps (V.120)
	36	2400 bps (V.120)
	38	4800 bps (V.120)
	39	9600 bps (V.120)
	43	14400 bps (V.120)
	47	19200 bps (V.120)
	48	28800 bps (V.120)
	49	38400 bps (V.120)
	50	48000 bps (V.120)
	51	56000 bps (V.120)
	65	300bps (V.110)
	66	1200bps (V.110)
	68	2400bps (V.110 or X.31 flag stuffing)
	70	4800bps (V.110 or X.31 flag stuffing)
	71	9600bps (V.110 or X.31 flag stuffing)
	75	14400bps (V.110 or X.31 flag stuffing)

	79	19200 bps (V.110 or X.31 flag stuffing)
	80	28800 bps (V.110 or X.31 flag stuffing)
	81	38400 bps (V.110 or X.31 flag stuffing)
	82	48000 bps (V.110 or X.31 flag stuffing)
	83	56000 bps (V.110 or X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI or RDI service in order to get FTM)
	84	64000 bps (X.31 flag stuffing; this setting can be used in conjunction with asynchronous nontransparent UDI service in order to get FTM)
	115	56000 bps (bit transparent)
	116	64000 bps (bit transparent)
	120	32000 bps (PIAFS32k)
	121	64000 bps (PIAFS64k)
	130	28800 bps (multimedia)
	131	32000 bps (multimedia)
	132	33600 bps (multimedia)
	133	56000 bps (multimedia)
	134	64000 bps (multimedia)
<name>	[0]	Asynchronous data circuit (UDI or 3.1 kHz Modem)
	1	Synchronous data circuit (UDI or 3.1 kHz Modem)
	2	PAD Access (asynchronous) (UDI)
	3	Packet Access (synchronous) (UDI)
	4	data circuit asynchronous (RDI)
	5	data circuit synchronous (RDI)
	6	PAD Access (asynchronous) (RDI)
	7	Packet Access (synchronous) (RDI)
<ce>	0	Transparent transmission
	[1]	Non transparent transmission
	2	both, transparent preferred
	3	both, non-transparent preferred

2.2.11 List Current Calls Of ME: AT+CLCC

Table 27: AT+CLCC Operation Commands

AT+CLCC List Current Calls Of ME		
Test Command	AT+CLCC=?	Response OK ERROR/+CME ERROR: <err>
Execution Command	AT+CLCC	Response TA returns a list of current calls of ME. If command executed successfully, but no calls are existed, no information but OK response is sent to TE. [+CLCC:<id1>,<dir>,<stat>,<mode>,<mpty>]

	<p>[,<number>,<type>[,<alpha>]][<CR><LF>+CLCC:<id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>[,<alpha>]]...]]]</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
	<p>Parameter</p> <p><idx> Integer type; call identification number as described in 3GPP TS22.030 sub clause 4.5.5.1; this number can be used in AT+CHLD Command operations</p> <p><dir> 0 Mobile originated (MO) call 1 Mobile terminated (MT) call</p> <p><stat> State of the call</p> <p>0 Active 1 Held 2 Dialing (MO call) 3 Alerting (MO call) 4 Incoming (MT call) 5 Waiting (MT call)</p> <p><mode> Bearer/tele service</p> <p>0 Voice 1 Data 2 FAX 3 Data follow voice, voice mode 4 Alternate voice data, voice mode 5 Voice fax alternate, voice mode 6 Data follow voice, data mode 7 Voice data alternation, data mode 8 Voice fax alternate, fax mode 9 unknow</p> <p><mpty> 0 Call is not one of multiparty (conference) call parties 1 Call is one of multiparty (conference) call parties</p> <p><number> Phone number in string type in format specified by <type></p> <p><type> Type of address of octet in integer format(Refer to 3GPP TS 24.008, subclause 10.5.4.7 for details).Usually,it has two kinds of values:</p>

		129 unknow type 145international type <alpha> Alphanumeric representation of <number>corresponding to the entry found in phonebook.
Example Command	AT+CLCC AT+CLCC=?	Result The telephone call information display. RING +CLCC: 1,1,4,0,0,"139*****",128,"TEST" OK OK

2.3 Configuration Command

2.3.1 Select Radio Link Protocol Parameter: AT+CRLP

Table 28: AT+CRLP Operation Commands

AT+CRLP Select Radio Link Protocol Parameter		
Test Command	AT+CRLP=?	Response +CRLP:(list of supported <iws>),(list of supported <mws>),(<T1>取值列 Table),(<N2>),(<ver>),(<T4>) OK
Read Command	AT+CRLP?	+CRLP:<iws>,<mws>,<T1>,<N2> OK
Set Command	AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]	Response TA returns current settings for RLP version. RLP versions 1 share the same parameter set. TA returns only one line OK ERROR/+CME ERROR: <err>
		Parameter <iws> 0~[61] Interworking window size (IWF to MS) <mws> 0~[61] Mobile window size(MS to IWF) <T1> 38~[48]-255 Acknowledgment timer T1 in a unit of 10ms <N2> 1~[6]-255 Retransmission attempts N2 <ver> RLP version number in integer format <T4> Integer format rearrangement interval

Example Command	AT+CRLP	Result OK
	AT+CRLP?	+CRLP: 61,61,48,6,0 +CRLP: 61,61,48,6,1 +CRLP: 240,240,52,6,2
		OK
	AT+CRLP=?	+CRLP: (0-61),(0-61),(38-255),(1-255),0 +CRLP: (0-61),(0-61),(38-255),(1-255),1 +CRLP: (0-488),(0-488),(42-255),(1-255),2

2.3.2 Service Reporting Control: AT+CR

Table 29: AT+CR Operation Commands

AT+CR Service Reporting Control		
Test Command	AT+CR=?	+CR: (<mode>取值列 Table) OK
Read Command	AT+CR?	+CR: <mode> OK
Set Command	AT+CR=[<mode>]	Response AT+CR controls the module whether or not to transmit an intermediate Result code +CR: <serv> to the TE when a call is being set up. If it is enabled, an intermediate Result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before any final Result code (e.g. CONNECT) is transmitted.
		OK ERROR/+CME ERROR: <err>
		Parameter <mode> [0] disable 1 enable Explain This instruction replaces the [14] V.25ter in the modulation report control command +MR, the latter does not apply to the GSM network;

		Use V.25ter in the error control response command +ER and data compression command+DR Report, you can enable error control reporting (rather than the radio link protocol) and data compression reported.
Example Command	AT+CR=0	Result OK
	AT+CR?	+CR: 0
	AT+CR=?	OK +CR: (0,1) OK

2.3.3 Extended Error Report: AT+CEER

Table 30: AT+CEER Operation Commands

AT+CEER Extended Error Report		
Test Command	AT+CEER=?	Response +CEER: <report> OK
Execution Command	AT+CEER	Response Execution of the instruction, TA will return a row or line of information text <report>. Specific number of lines by the ME manufacturers to decide. ME manufacturers to provide TA users with the following reasons for the expansion of the report: A recent call to establish a failure (initiate or respond) or to modify the call; Recent call release; Recent GPRS attachment or PDP context activation failed; Last time GPRS to attach or PDP context to activate. OK
		Parameter <report> includes line terminator, the information text contains up to 2041 characters. Text should not contain O<CR> or OK<CR> sequences
Example Command	AT+CEER	Result +CEER: Network ended call
	AT+CEER=?	OK OK

2.3.4 Select TE Character Set: AT+CSCS

Table 31: AT+ CSCS Operation Commands

AT+CSCS Select TE Character Set		
Test Command	AT+CSCS=?	Response +CSCS: (list of supported <chset>) OK
Read Command	AT+CSCS?	+CSCS: <chset> OK
Set Command		Response Set character set <chset> which is used by the TE. The TA can then convert character strings correctly between the TE OK
	AT+CSCS=<chset>	Parameter <chset> "GSM" GSM default alphabet ["IRA"] international reference alphabet(ITU-T T.50[13]) "UCS2" The UCS2 string is converted to sixteen decimal values from 0000 to FFFF; for example, "004100620063" can be converted to decimal sixteen bit characters 65, 98, and 99. Reference ([32] ISO/IEC10646)
Example Command	AT+CSCS="GSM"	Result Sets the current character set to "GSM" OK
	AT+CSCS?	Query current character set +CSCS: "GSM" OK

2.3.5 Set Phone Functionality: AT+CFUN

Table 32: AT+CFUN Operation Commands

AT+CFUN Set Phone Functionality		
Test Command	AT+CFUN=?	Response +CFUN: (list of supported <fun>s),(list of supported <rst> OK This error is related to the function of ME ERROR/+CME ERROR:<err>

Read Command	AT+CFUN?	<p>Response +CFUN: <fun></p> <p>OK</p> <p>This error is related to the function of ME ERROR/+CME ERROR:<err></p>
Set Command	AT+CFUN= [<fun>[,<rst>]]	<p>Response</p> <p>Using the Set Command, the ME can be selected in the functional level of <fun>. "Full function" means that the function of the phone is set to be the most powerful; the "minimum function" means that the function of the mobile phone is set to the minimum.</p> <p>OK</p> <p>This error is related to the function of ME ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><fun> 0 Minimum functionality [1] Full functionality (Default) 4 Disable the phone from both transmitting and receiving RF signals 5 FMT (Factory Test Mode) 6 Reset Note: in order to use the instruction RESET module, please enter the AT+CFUN=7, so that the module is in the mode offline, and then enter the AT+CFUN=6 7 Offline Mode <rst> 0 The default value, set ME to <fun> after the entry into force, do not need to restart 1 Set <fun> to ME, to take effect after the restart</p>
Example Command	AT+CFUN=0 AT+COPS? AT+CFUN=1 AT+COPS?	<p>Result</p> <p>Switch phone to minimum functionality</p> <p>OK</p> <p>+COPS: 0</p> <p>OK</p> <p>Switch phone to full functionality</p> <p>OK</p> <p>+COPS: 0,0,"CHINA MOBILE",0</p> <p>OK</p>

2.3.6 Repeat Previous Command Line: A/

Table 33: A/ Operation Commands

A/ Repeat Previous Command Line		
Execution Command	A/	Response Repeat the previous command
Example Command	AT+COPS?	Result Check the current selection operator +COPS: 0,0,"CHINA MOBILE",0
	A/	OK Repeated execution of a AT instruction +COPS: 0,0,"CHINA MOBILE",0 OK

2.3.7 Store Current Parameters to User Defined Profile: AT&W

Table 34: AT&W Operation Commands

AT&W Store Current Parameters to User Defined Profile		
Execution Command	AT&W	Response The instructions will be set by the user some of the Parameter directive AT saved to EFS, you can use the ATZ read out. Instructions for example see AT&F TA saves the current Parameter configuration to the user - defined configuration Table OK

Table 35: AT&W can save the instruction and its

AT	Save Parameter
ATE	<value>
ATQ	<value>
ATS0	<n>
ATS7	<n>
ATS10	<n>
ATV	<value>
ATX	<value>
AT&C	<value>
AT&D	<value>
AT+IFC	<DCE_by_DTE>< DTE_by_DCE >

2.3.8 Restore Configuration Saved By AT&W: ATZ

Table 36: ATZ Operation Commands

ATZ Restore Configuration Saved By AT&W		
Execution Command	ATZ	Response TA sets all the current parameters to the custom configuration for the user OK

Table 37: ATZ instructions can be restored by the AT&W directive to save the instruction Parameter

AT command	Restored command parameter
ATE	<value>
ATQ	<value>
ATS0	<n>
ATS7	<n>
ATS10	<n>
ATV	<value>
ATX	<value>
AT&C	<value>
AT&D	<value>
AT+IFC	<DCE_by_DTE>< DTE_by_DCE >

2.3.9 Set All Current Parameters To Manufacturer Defaults: AT&F

Table 38: AT&F Operation Commands

AT&F Set all Current Parameters to Manufacturer Defaults		
Execution Command	AT&F	Response TA sets all current Parameter settings to the default configuration for the manufacturer OK
Example Command	AT+CMEE?	Result Current use ERROR to return the wrong Result +CMEE: 2 OK
	AT+CMEE=0	Use ERROR OK
	AT&W	Will return the Result type to be saved OK
	AT+CMEE?	Query the current error return Result type +CMEE: 0 OK

	ATZ	Reset the error return Result type to the default value OK
	AT+CMEE?	Query default +CMEE: 2 OK
	AT+CMEE=1	Use digital <err> to return the wrong Result OK
	AT&F	Return the Result type to the factory configuration OK
	AT+CMEE?	Query factory configuration error return Result type +CMEE: 2 OK

Table 39: AT&F restore factory settings from the instructions and parameters

Command(AT&F)	Factory set Parameter
ATS0	0
ATS3	13
ATS4	10
ATS5	8
ATS6	2
ATS7	000
ATS8	2
ATS10	14
ATS30	000
AT+CMEE	2
AT+COLP	<n=0>
AT+CCWA	<n=0>
ATV	<value=1>
ATE	<value=1>
ATQ	<value=0>
ATX	<value=0>
AT+CR	<mode=0>
AT+CRC	<mode=0>
AT+CLIP	<n=0>
AT+DR	<mode=0>
AT+CSDH	<show=0>
AT+CSSN	<n=0,m=0>
AT+CUSD	<n=0>
AT+CAOC	<mode=1>



AT+CGREG	<n=0>
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2.3.10 TA Function List Query: AT+GCAP

Table 40: AT+GCAP Operation Commands

AT+GCAP TA function list query		
Test Command	AT+GCAP=?	Response OK
Execution Command	AT+GCAP	Response TA function list query +GCAP: <name> OK Parameter <name> example: "+CGSM,+FCLASS,+DS"或"+FCLASS"
Example Command	AT+GCAP	Result +GCAP: +CGSM,+FCLASS,+DS OK

2.3.11 Set Command Line Terminator: ATS3

Table 41: ATS3 Operation Commands

ATS3 Set Command line terminator		
Read Command	ATS3?	Response <n> OK
Set Command	ATS3=<n>	Response This parameter setting determines the character recognized by TA to terminate an incoming command line. The TA also returns this character in output. OK Parameter <n> 0~127 Command line termination character(Default 13=<CR>)
Example Command	ATS3?	Result 013 OK

2.3.12 Set Response Formatting Character: ATS4

Table 42: ATS4 Operation Commands

ATS4 Set Response Formatting Character		
Read Command	ATS4?	<n> OK
Set Command	ATS4=<n>	Response This parameter setting determines the character generated by the TA for Result code and information text. OK
		Parameter <n> 0~127 Response formatting character(Default 10=<LF>)
Example Command	ATS4? AT+CFUN? ATS4=32	Result The response format for LF newline character of current 010 OK <CR><LF> is the Result code "<fun> +CFUN:" and "OK" head and tail. Note: to keep the document clean, <CR><LF> only this instruction as a example, in other directives and not repeat them. <CR><LF>+CFUN: <fun><CR><LF><CR><LF>OK<CR><LF> Sets the character of the Result code to spaces OK

2.3.13 Set Command Line Editing Character: ATS5

Table 43: ATS5 Operation Commands

ATS5 Set Command Line Editing Character		
Read Command	ATS5?	<n> OK
Set Command	ATS5=<n>	Response This parameter setting determines the character recognized by TA as a request to delete the immediately OK
		Parameter <n> 0~127 Response editing character(Default 8=<Backspace>)

Example Command	ATS5?	Result The current command line editing character is BackSpace back 008 OK The character of the character in the instruction line is set to spaces
	ATS5=32	OK

2.3.14 Set Command Echo Mode: ATE

Table 44: ATE Operation Commands

ATE Set Command Echo Mode		
Set Command	ATE<value>	Response This setting determines whether or not the TA echoes character received from TE during command state.
		OK Parameter <value> 0 Echo mode off [1] Echo mode on

2.3.15 Set Number Of Rings Before Automatically Answering Call: ATS0

Table 45: ATS0 Operation Commands

ATS0 Set Number Of Rings Before Automatically Answering Call		
Test Command	ATS0=?	Response S0: <n> OK
Read Command	ATS0?	Response <n> OK
Set Command	ATS0=<n>	Response This parameter setting determines the number of rings before auto-answer. OK ERROR/+CME ERROR: <err>
		Parameter <n> [0] Automatic answering is disable 1~255 Enable automatic answering on the ring number specified If the value of the <n> setting is too large, the caller may have hung up before the auto answer;

		The relationship between ATS7 and ATS0 is important, for example, when ATS7=30 and ATS0=20 are set up, the call is likely to fail;
Example Command	ATS0=2	<p>Result In 2 after ringing, automatic answer voice callsOK</p> <p>RING +CLIP:138*****,,129,,,0</p> <p>RING +CLIP: 138*****,,129,,,0</p> <p>^CONN:0,0 ^CEND:0,0,0</p>

2.1.16 Set Pause Before Blind Dialing: ATS6

Table 46: ATS6 Operation Commands

ATS6 Set Pause Before Blind Dialing		
Read Command	ATS6?	<p>Response <n></p> <p>OK</p>
Set Command	ATS6=<n>	<p>Response</p> <p>OK</p>
		<p>Parameter <n> 2~10 Number of seconds to wait before blind dialing</p>

2.3.17 Set Result Code Presentation Mode: ATQ

Table 47: ATQ Operation Commands

ATQ Set Result Code Presentation Mode		
Set Command	ATQ<value>	<p>Response This parameter setting determines whether or not the TA transmits any Result code to the TE. Information text transmitted in response is not affected by this setting.</p> <p>If <value> = 0 OK</p> <p>If <value> = 1 (none)</p> <p>Parameter <value> [0] Send Result code to TE 1 The Result code is suppressed, do not send</p>

Example Command	ATQ0	Result Set to have a return Result code, the CMEE will TA this set the return of the command to the Results reported to the TE
	AT+CMEE?	OK +CMEE: 2 OK

2.3.18 TA Response Format: ATV

Table 48: ATV Operation Commands

ATV TA Response Format		
Set Command	ATV<value>	<p>Response This parameter setting determines the contents of the header and trailer transmitted with Result codes and information</p> <p>When <value>= 0 0</p> <p>When <value>= 1 OK</p> <p>Parameter <value> [0] Information response:<text><CR><LF> Short Result code format:<numeric code><CR> 1 Information response: : <CR><LF><text><CR><LF> Long Result code format: : <CR><LF><verbose code><CR><LF></p> <p>ATV command decided to return the Result code is digital and character formats, ATV0 returned to a digital format, where 0 said OK, one that connect, 2 ring, 3 said no 3 and 4 shows error), specific reference to the protocol 27007.</p>

Example Command	ATV0	Result Setting up ATV0, +CMEE: 2 did not enter into a digital code, return OK 0
	AT+CMEE?	0
		+CMEE: 2
		0
		OK
	ATV1	
	AT+CMEE?	+CMEE: 2
		OK

2.3.19 Connection Result: ATX

Table 49: ATX Operation Commands

ATX Connection Result	
Set Command	ATX<value>

2.3.20 Clock: AT+CCLK

Table 50: AT+CCLK Operation Commands

AT+CCLK Clock	
Read Command	AT+CCLK?

		+ CCLK: YY/MM/DD, hh:mm:ss<+zz> OK
Set Command	AT+CCLK=<time>	Response Set the success, set the module time. OK ERROR/+CME ERROR:<err>
		Parameter <time> Character YY/MM/DD, hh:mm:ss<+zz>
Example Command	AT+CCLK= "16/01/27,10:10:3 6" AT+CCLK?	Result Set the time to 36 seconds in January 27, 2016. OK Check the current time +CCLK: "16/01/27,10:10:36" OK

2.3.21 Error Message Format: AT+CMEE

Table 51: AT+CMEE Operation Commands

AT+CMEE Error Message Format		
Test Command	AT+CMEE=?	Response +CMEE:(<n>value) OK
Read Command	AT+CMEE?	Response +CMEE :<n> OK
Set Command	AT+CMEE=[<n>]	Response Use the Set Command to enable or disable the ERROR: <err> +CME Result code. The code is used to indicate the error associated with the ME function. OK
		Parameter <n> [0] Disable Result code 1 Enable Result code and use numeric values 2 Enable Result code and use verbose values

Example Command	AT+CMEE=0	Result Set "disable Result code + ERROR: <err> CME, using ERROR" OK
	AT+CPIN?	ERROR Set "enable Result code + ERROR: <err> CME, using the numeric value of the <err> value"
	AT+CMEE=1	Reported the error content for ERROR: +CME 10" OK
	AT+CPIN?	+CME ERROR: 10 Set "enable Result code + ERROR: <err> CME, using the <err> value of the lengthy method"
	AT+CMEE=2	Reported the error content for ERROR: SIM not inserted +CME" OK
	AT+CPIN?	+CME ERROR: SIM not inserted

Table 52: <err> Code Description - Common Error

Digital <err> Value	Lengthy <err> Value
0	Phone Failure
1	No Connection To Phone
2	Phone-Adaptor Link Reserved
3	Operation Not Allowed
4	Operation Not Supported
5	PH-SIM PIN Required
6	PH-FSIM PIN Required
7	PH-FSIM PUK Required
10	SIM Not Inserted
11	SIM PIN Required
12	SIM PUK Required
13	SIM Failure
14	SIM Busy
15	SIM Wrong
16	Incorrect Password
17	SIM PIN2 Required
18	SIM PUK2 Required
20	Memory Full
21	Invalid Index
22	Not Found
23	Memory Failure
24	Text String Too Long
25	Invalid Characters In Text String



26	Dial String Too Long
27	Invalid Characters In Dial String
30	No Network Service
31	Network Timeout
32	Network Not Allowed - Emergency Calls Only
40	Network Personalization PIN Required
41	Network Personalization PUK Required
42	Network Subset Personalization PIN Required
43	Network Subset Personalization PUK Required
44	Service Provider Personalization PIN Required
45	Service Provider Personalization PUK Required
46	Corporate Personalization PIN Required
47	Corporate Personalization PUK Required
48	Hidden Key Required (NOTE:This key is required when accessing hidden phonebook entries.)
100	Unknown

Table 53: <err> Code Description - Error Associated With GPRS Attachment

Digital <err> Value	Lengthy <err> Value
103	Illegal MS (#3)
106	Illegal ME (#6)
107	GPRS services not allowed (#7)
111	PLMN not allowed (#11)
112	Location area not allowed (#12)
113	Roaming not allowed in this location area (#13)

Table 54: <err> Code Description - Error Associated With GPRS Activation

Digital <err> Value	Lengthy <err> Value
132	Service Option Not Supported (#32)
133	Requested Service Option Not Subscribed (#33)
134	Service Option Temporarily Out Of Order (#34)
149	PDP Authentication Failure

Table 55: <err> Code Description - Other GPRS Related Errors

Digital <err>Value	Lengthy <err>Value
150	Invalid Mobile Class
148	Unspecified GPRS Error

2.3.22 Terminal Equipment Event Reporting: +CMER

Table 56 : AT+CMER Operation Commands

AT+CMER Terminal Equipment EventReporting		
Test Command	AT+CMER=?	<p>Response +CMER: (<mode>),(<keyp>),(<disp>),(<ind>),(<bfr>)</p> <p>OK</p>
Read Command	AT+CMER?	<p>Response +CMER: <mode>,<keyp>,<disp>,<ind>,<bfr></p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Set Command	AT+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]	<p>Response Using the Set Command, you can enable or disable the non request Result code from the TA to the TE event report. Using the Read Command to get the current Parameter settings, the test command can get the range of the parameters of the instruction.</p> <p>+CMER: (<mode>),(<keyp>),(<disp>),(<ind>),(<bfr>)</p> <p>OK</p> <p>Parameter <mode> 0 Cache the non request Result code into the TA; if the current buf is already full, the non request Result code will be saved in other places or discard the oldest record stored in the buf 1 When there is a TE TA link (in the on_line data mode), discard the non request Result code; in addition, directly sent to the TE 2 When there is a TE TA link (in the on_line data mode), will not request the Result code cache to TA, after it is received to refresh to TE; in addition, directly to the TE 3 Send the requested Result code directly to the TE <keyp> 0 currently does not support the key event report <disp> 0 currently does not support the display event report <ind> 0 does not report to indicate the event report 1 by <ind> <value>Table, +CIEV: shows the event report <bfr> 0 when <mode> 1... 3, empty the TA cache area of the non request Result code defined by the instruction 1 when <mode> 1... 3, the TA cache of the non request Result code defined by the instruction is flushed to the TE.</p>

Example Command	AT+CMER=2,0,0, 1,1	Result OK
	AT+CMER	OK
	AT+CMER?	+CMER: 2,0,0,1,1
		OK
	AT+CMER=?	+CMER:(0-3),(0),(0),(0-1),(0-1) OK

2.4 Network Service Commands

2.4.1 Network Registration: AT+CREG

Table 57: AT+CREG Operation Commands

AT+CREG Network Registration		
Test Command	AT+CREG=?	Response +CREG: (<n>) OK
Read Command	AT+CREG?	Response +CREG: <n>,<stat>[,<lac>,<ci>,<AcT>] OK
Set Command	AT+CREG=[<n>]	<p>Response When <n>=1, set the command control to display the non request Result code +CREG:<stat>, set different CREG values corresponding to different non request Result code.</p> <p>OK ERROR/+CME ERROR:<err></p> <p>Parameter <n> [0] Disable network registration unsolicited Result code 1 Enable network registration unsolicited Result code+CREG: <stat> 2 Enable network registration unsolicited Result codewith location information+CREG:<stat>[,<lac>,<ci>[,<Act>]] <stat> 0 Not registered, ME is not currently searching a new operator to register to 1 Registered, home network 2 Not registered, but ME is currently searching a new operator to register to</p>

		<p>3 Registration denied 4 Unknown 5 Registered, roaming <lac> String type,two byteslocation area code in hexadecimal format <ci> String type,two bytescell ID in hexadecimal format <Act> 0 GSM 1 GSM compact 2 UTRAN 3 GSM w/EGPRS 4 UTRAN w/HSDPA 5 UTRAN w/HSUPA 6 UTRAN w/HSDPA and HSUPA 7 E-UTRAN 8 TDS-CDMA 9 TDS/HSDPA 10 TDS/HSUPA 11 TDS/HSDPA and HSUPA</p>
Example Command	AT+CREG=1 AT+CREG?	Result OK Set query Results for "enable network registration of non request Result code <stat> +CREG:" +CREG: 1,1 OK

2.4.2 LTE Network Registration Status: AT+CEREG

Table 58: AT+CEREG Operation Commands

AT+CEREG LTE Network Registration Status		
Test Command	AT+CEREG=?	Response +CEREG:(<n>) OK
Read Command	AT+CEREG?	Response +CEREG: <n>,<stat>[,<tac>,<rac_mme>,<ci>,<AcT>] OK
Set Command	AT+CEREG=[<n>]	Response Set Command to control the display of some non request Result codes on

	<p>the LTE registry.</p> <p>When the LTE registration state of $<n>=1$ and MT changed, the instruction set control unsolicited Result code + CEREG, which will have +CEREG:<stat> tips</p> <p>When the $<n>=2$ and register area change, there will be: +CEREG:<stat>[, <tac>, <rac_mme>, <ci>, <AcT>] tips</p> <p>Read Command returns the Result code of the display form $<n>$ and a MT network can indicate the status of the parameters of the <stat>. Only when $<n>=2$ and MT are registered in the network, will return to the location information elements <tac>, <rac_mme>, <AcT> and <ci>.</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
	<p>Parameter</p> <p><n> [0] Disable network registration unsolicited Result code</p> <p>1 Enable network registration unsolicited Result code +CEREG:<stat></p> <p>2 Enable network registration and location information unsolicited Result code +CEREG: <stat>[,<tac>,<rac_mme>,<ci>,<AcT>]</p> <p><stat> 0 Not registered, MT is not currently searching an operator to register to</p> <p>1 Registered, home network</p> <p>2 Not registered, but MT is currently trying to attach or searching an operator to register to</p> <p>3 Registration denied</p> <p>4 Registration denied</p> <p>5 Registered, roaming</p> <p><tac> String type,two byte tracking area code in hexadecimal format</p> <p><rac_mme> Character type; when the GSM/WCDMA is registered, the display is RAC; when registered to LTE, the display is MMEC</p> <p><ci> String type,four byte cell ID in hexadecimal format</p> <p><AcT> 0 GSM</p> <p>1 GSM compact</p> <p>2 UTRAN</p> <p>3 GSM w/EGPRS</p> <p>4 UTRAN w/HSDPA</p> <p>5 UTRAN w/HSUPA</p> <p>6 UTRAN w/HSDPA and HSUPA</p>

		7 E-UTRAN 8 TDS-CDMA 9 TDS/HSDPA 10 TDS/HSUPA 11 TDS/HSDPA and HSUPA
Example Command	AT+CEREG=1 AT+CEREG?	Result OK Set query Results for "enable network registration of non request Result code <stat> +CEREG:" +CEREG: 1,1 OK

2.4.3 Operator Selection: AT+COPS

Table 59: AT+COPS Operation Commands

AT+COPS Operator Selection		
Test Command	AT+COPS=?	<p>Response</p> <p>TA returns a setof five parameters, each representing an operator presentingin the network. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in the orderof: home network, networks referenced in SIM and other networks.</p> <p>+COPS: (list of supported<stat>, long alphanumeric <oper>, short alphanumeric <oper>, numeric <oper>s)[,< Act>])s][,(list of supported <mode>s),(list of supported <format>s</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Read Command	AT+COPS?	<p>Response</p> <p>+COPS:<mode>[,<format>,<oper>]<AcT></p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Set Command	AT+COPS=[<mod e> [,<format>[,<oper > [,<AcT>]]]]	<p>Response</p> <p>The instruction set only supports mode=0/3 function and Read Command</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><mode></p> <p>[0] Automatic mode; <oper>field is ignored</p> <p>1 Manual operator selection; <oper>field shall be presentand <Act> optionally</p>

	<p>2 Manual deregister from network 3 Set only <format>(for Read Command +COPS?), do not attempt registration/deregistration (<oper>and <Act>fields are ignored); this value is not applicable in Read Command response 4 Manual/automatic selected, <oper>field shall be presented; if manual selection fails, automatic mode (<mode>=0) is entered</p> <p><format> [0] Long format alphanumeric <oper>; can be up to 16 characters long 1 Short format alphanumeric <oper> 2 Numeric <oper>; GSM location area identification number</p> <p><oper> Operator in format as per <mode>; <format> Said the string using alphanumeric or figure type; font Table shown GSM location area identification number (please refer to the GSM in section 10.5.1.3 4.08 [8]), the number of including a 3 bit BCD country code (according to ITU-T E.212 annex a [10] standard) and a 2 bit BCD code. The latter and management related.</p> <p><stat> 0 Unknown 1 Operator available 2 Current operator 3 Operator forbidden</p> <p><Act> 0 GSM 1 GSM compact 2 UTRAN 3 GSM w/EGPRS 4 UTRAN w/HSDPA 5 UTRAN w/HSUPA 6 UTRAN w/HSDPA and HSUPA 7 E-UTRAN</p>
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Example Command	AT+COPS=3,0	Result Table shows the current network operators with a long character type OK
	AT+COPS?	+COPS: 0,0,"CHINA MOBILE",0
	OK	
	AT+COPS=3,2	Using numbers to represent the current network operator OK
	AT+COPS?	+COPS: 0,2,"46000",0 OK

2.4.4 Signal Quality Report: AT+CSQ

Table 60: AT+CSQ Operation Commands

AT+CSQ Signal Quality Report		
Test Command	AT+CSQ=?	Response +CSQ: (list of supported <rssis>),(list of supported <ber> OK ERROR/+CME ERROR:<err>
Set Command	AT+CSQ=<n>	OK
Execution Command	AT+CSQ	<p>Response Execution Command returns received signal strength indication <rssis> and channel bit error rate <ber> from the +CSQ:<rx_level>,<ber_code>,<rsrp>,<rsrq>,<snr></p> <p>OK</p> <p>Parameter <n> [0] Default mode, display RSSI and ber_code 1 display rx_level,BER Code,RSRP,RSRQ,SNR</p> <p><rssis> Corresponding <Rxlevel> (received signal strength calculated by DBM)</p> <p>0 -113dBm or less 1 -111dBm 2~30 -109~-53dBm 31 -51dBm or greater 99 Not known or not detected RSCP TDS</p>

		100 116dBm or less 101 -115dBm 102-190 -114~ -26dBm 191 -25dBm or greater 199 Not know or not detectable <ber_code> 0~7,99
Example Command	AT+CSQ	Result +CSQ: 27,99 OK
	AT+CSQ=1	OK
	AT+CSQ	+CSQ: 65,99,0,0,-184 OK

2.4.5 Set Network Signal Grid Change Indicator: AT+SIGNALIND

Table 61: AT+SIGNALIND Operation Commands

AT+SIGNALIND Set Network Signal Grid Change Indicator		
Test Command	AT+SIGNALIND =?	Response + SIGNALIND:(<value>) OK
Read Command	AT+SIGNALIND ?	Response +SIGNALIND: <value> OK
Set Command	AT+SIGNALIND =<value>	Response OK Parameter <value> [0] Network type indication when not enabled 1 If the network type indicates that the network type can be dialed, the report value is: "+SIGNALIND:0, rssi,ber" //level:0" "+SIGNALIND:1, rssi,ber " //level:1" "+SIGNALIND:2, rssi,ber " //level:2" "+SIGNALIND:3, rssi,ber " //level:3" "+SIGNALIND:4, rssi,ber " //level:4" "+SIGNALIND:5, rssi,ber " //level:5", "+SIGNALIND:99, rssi,ber " //level:UNKNOWN"

Example Command	AT+SIGNALIND =1	Result Set to report to enable OK
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2.4.6 Search Network Mode Settings: AT+BMMODODR

Table 62: AT+BMMODODR Operation Commands

AT+BMMODODR Search Network Mode Settings		
Test Command	AT+BMMODODR =?	Response +BMMODODR: (<mode>) OK
Read Command	AT+BMMODODR ?	Response +BMMODODR: <mode> OK
Set Command	AT+BMMODODR =<mode>	Response OK ERROR/+CME ERROR:<err> Parameter <mode> 1 UMTS ONLY 2 AUTO mode, LTE priority 3 GSM ONLY 4 AUTO mode, GSM priority (GSM>UMTS) 5 LTE ONLY 6 TDS ONLY 7 TDS and WCDMA
Example Command	AT+BMMODODR ? AT+BMMODODR =6 AT+BMMODODR ?	Result Query the current search network mode is AUTO +BMMODODR: 2 OK Change the current search network mode for ONLY TDS OK Query the current search network mode for ONLY TDS +BMMODODR: 6 OK

2.4.7 Select A Wireless Network: AT+WS46

Table 63: AT+WS46 Operation Commands

AT+WS46 Select A Wireless Network		
Test Command	AT+WS46=?	Response +WS46: (<n>) OK
Read Command	AT+WS46?	Response <n> OK
Set Command	AT+WS46=[<n>]	Response This instruction is related to the current network mode setting command AT+BMMODODR. When the current network mode is set, the wireless network parameters are set to return to OK, but when the wireless network is again, the wireless network parameters corresponding to the network mode AT+BMMODODR are still in the network mode. OK ERROR/+CME ERROR:<err>
		Parameter <n> 12 GSM Digital Cellular Systems (GERAN only) 22 UTRAN only 25 3GPP Systems (GERAN, UTRAN and E-UTRAN) 28 E-UTRAN only 29 GERAN and UTRAN
Example Command	AT+WS46=12 AT+WS46?	Result AT+BMMODODR=3, GSM ONLY OK AT+BMMODODR=2, UMTS greater 25 OK

2.4.8 Query Network Service Type: AT+BMRAT

Table 64: AT+BMRAT Operation Commands

AT+BMRAT Query Network Service Type		
Execution	AT+BMRAT	Response

Command		Returns the type of the current registered network +BMRAT: <rat> OK
		Parameter <rat> Corresponding network type LTE TDS HSPA+ HSUPA HSDPA HSPA HSDPA+ DC HSDPA+ UMTS HDR RevA HDR RevB HDR Rev0 GPRS EDGE GSM 1x NONE
Example Command	AT+BMRAT	Result The current registered network service type is LTE +BMRAT: LTE OK

2.4.9 Automatic Time Zone Update: AT+CTZU

Table 65: AT+CTZU Operation Commands

AT+CTZU Automatic Time Zone Update		
Test Command	AT+CTZU=?	Response +CTZU: (<fun>) OK This error is related to the function of ME ERROR/+CME ERROR:<err>
Read Command	AT+CTZU?	Response +CTZU: <fun>

		OK This error is related to the function of ME ERROR/+CME ERROR:<err>
Set Command	AT+CTZU=<fun>	<p>Response Use settings, can choose whether to start ME NITZ (Network Identity and Time Zone) to automatically update the function of the time zone</p> <p>OK</p> <p>This error is related to the function of ME ERROR/+CME ERROR:<err></p> <p>Parameter <fun> [0] Disable automatic time zone update via NITZ. 1 Enable automatic time zone update via NITZ When leaving factory, the default value is 0 (close this function), if you want to open, you need to set 1, this parameter is stored in the non-volatile memory; When the time zone automatic update function is opened, if the time zone obtained from the network is not consistent with the time zone of the local AT+CCLK, the local time zone will be updated automatically according to the network time.</p>
Example Command	AT+CTZU=0 AT+CTZU=1 AT+CTZU?	<p>Result Disable auto time zone update OK</p> <p>Open auto time zone update OK</p> <p>At this time, the terminal opens the time zone auto update function +CTZU: 1</p> <p>OK</p>

2.4.10 Time Zone Reporting: AT+CTZR

Table 66: AT+CTZR Operation Commands

AT+CTZR Time Zone Reporting		
Test Command	AT+CTZR=?	<p>Response +CTZR: (<fun>)</p> <p>OK</p> <p>This error is related to the function of ME ERROR/+CME ERROR:<err></p>

Read Command	AT+CTZR?	<p>Response +CTZU: <fun></p> <p>OK</p>
		<p>This error is related to the function of ME ERROR/+CME ERROR:<err></p>
Set Command	AT+CTZR=<fun>	<p>Response</p> <p>Using the Set Command, the ME can choose whether to start the time zone reporting function. If the function is enabled, the command is used to indicate the time zone changes, but it must be stressed is that when the can or prohibit the function model will not be saved. After the restart will change to the default value and need to re set. This function is not affected by the AT+CTZU, when the function can be made, as long as the current time zone changes, it will be reported by the initiative to report the Result code <tz> +CTZV: change after the time zone.</p> <p>OK</p>
		<p>This error is related to the function of ME ERROR/+CME ERROR:<err></p>
		<p>Parameter</p> <p><fun> [0] Disable time zone reportingof changedevent</p> <p>1 Enable time zone reportingofchangedevent by unsolicited Result code</p> <p><tz> Time zone ,</p>
Example Command	AT+CTZR=0	<p>Result</p> <p>Forbidden time zone reporting</p> <p>OK</p>
	AT+CTZR=1	<p>Open time zone reporting function, if the time zone changes, there will be <tz> URC +CTZV: reported to the new time zone</p> <p>OK</p> <p>+CTZV: <tz></p>
	AT+CTZR?	<p>At this point, the terminal opens the time zone reporting function</p> <p>+CTZR: 1</p> <p>OK</p>

2.4.11 Network Type Change Prompt: AT+NWTYPEIND

Table 67: AT+NWTYPEIND Operation Commands

AT+NWTYPEIND Network Type Change Prompt		
Test Command	AT+NWTYPEIN D=?	+NWTYPEIND:<value> OK
Read Command	AT+NWTYPEIN D?	+NWTYPEIND: <value> OK
		<p>Response</p> <p>The instruction is used to indicate the change of the network, but it must be emphasized that, when the enable or disable the function, you need to restart the device, otherwise the settings can not be effective. When the function can be made, as long as the current network mode changes, it will automatically report the change of the network type.</p> <p>OK</p>
Set Command	AT+NWTYPEIN D=<value>	<p>Parameter</p> <p><value> 0 Do not enable network type change indication 1 Enable network type change indicator</p> <p>If set enable, the value and its generation Table network type:</p> <p>+NWTYPEIND:31 //"no service", +NWTYPEIND:32 //"network:gsm", +NWTYPEIND:33 //"network:gprs", +NWTYPEIND:34 //"network:edge", +NWTYPEIND:35 //"network:wcdma", +NWTYPEIND:36 //"network:hsdpa", +NWTYPEIND:37 //"network:hsupa" +NWTYPEIND:38 //"network (hsdpa_plus)" +NWTYPEIND:39 //"network (td_scdma)" +NWTYPEIND:40 //"network (lte_fdd)" +NWTYPEIND:41 //"network (lte_tdd)"</p>
Example Command	AT+NWTYPEIN D=1	<p>Result</p> <p>Set to report to enable</p> <p>OK</p>

2.4.12 Set Initialization To Report: AT+URCIND

Table 68: AT+URCIND Operation Commands

AT+URCIND Set Initialization To Report		
Test Command	AT+URCIND=?	<p>Response</p> <p>+ URCIND:<value></p> <p>OK</p>
Read	AT+URCIND?	Response

Command		+ URCIND: <value> OK
Set Command	AT+URCIND=<value>	Response OK Parameter <value> 0 Do not enable to initialize the report instructions 1 Enable to initialize the reporting instructions If set to enable, the reported value is: "+URCIND:0";//model start "+URCIND:1";//phone book init complete "+URCIND:2"; //sms init complete "+URCIND:31",//network init complete(no service) "+URCIND:32",//network init complete(gsm) "+URCIND:33",//network init complete(gprs) "+URCIND:34",//network init complete(edge) "+URCIND:35",//network init complete(wcdma) "+URCIND:36",//network init complete(hsdpa) "+URCIND:37",//network init complete(hsupa) "+URCIND:38", //network init complete(hsdpa_plus) "+URCIND:39", //network init complete(td_scdma) "+URCIND:40", //network init complete(lte_fdd) "+URCIND:41", //network init complete(lte_tdd) "+URCIND:30";//limite service "+URCIND:5"; //model init complete "+URCIND:3";//model init complete(no sim!)
Example Command	AT+URCIND=1	Result Set to report to enable OK

2.4.13 Extract Cell Information: AT+BMTCELLINFO

Table 69 AT+BMTCELLINFO Operation Commands

AT+BMTCELLINFO Extract Cell Information		
Execution Command	AT+BMTCELLINFO	Response The instruction is used to extract the relevant information of the current service cell and the neighbor cell, and the extraction structure is displayed on the TE. LTE mode return: CELL_ID: LAC_ID: RSSI

		RSRP RSRQ SINR ACTIVE_BAND ACTIVE_CHANNEL // EARFCN_DL // Downlink the Evolved-UTRA ARFCN (EARFCN) of the serving system EARFCN_UL // Uplink the EARFCN of serving system. Applicable for LTE systems Other mode: CELL_ID: LAC_ID: ACTIVE_BAND: ACTIVE_CHANNEL:
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2.4.14 Search Network Band Set: AT+BMBANDPREF

Table 70: AT+BMBANDPREF Operation Commands

AT+BMBANDPREF Search Network Band Set		
Test Command	AT+BMBANDPR EF=?	Response +BMBANDPREF: support band: <gw_bd> <lte_bd>, <tds_bd> OK
Read Command	AT+BMBANDPR EF?	+BMBANDPREF: <gw_bd>,<lte_bd>,<tds_bd> OK
Set Command	AT+BMBANDPR EF=<gw_bd>,<lte_bd>,<tds_bd>	Response This AT directive is used to set the GW, LTE, and TDS bands, and note that the set of bands must be included in the support band, otherwise the setup is not successful. OK ERROR/+CME ERROR:<err> Parameter <gw_bd> GSM, WCDMA, CDMA, EVDO related band (16 Decimal, set without adding "0x" prefix) <lte_bd> LTE the preferred frequency band (16 Decimal, the settings do not add "0x" prefix) <tds_bd> TDS the preferred frequency band (16 Decimal, the settings do not add "0x" prefix)

Example Command	AT+BMBANDPR EF=80000,0,0	Result set BAND_GSM850 OK
	AT+BMBANDPR EF=600080,5,1	set BAND_GSM1800_1900_UMTS2100, LTE B1, B3, TDS BandA OK
	AT+BMBANDPRE F=2000004E80380 ,80000D7,21	set GSM: 850/900/1800/1900 W: B1/2/5/8 LTE: B1/2/3/5/7/8/28 TDS band A,band F OK
	AT+BMBANDPR EF=?	Support band +BMBANDPREF: support band: 0x2000005E80380, 0x1E0000800D7, 0x21 OK

Table 71: AT+BMBANDPREF Band Selection Table

Type	Band	Address	Band value
CDMA/EVDO	BC0 A	1	0x1
	BC0 B	2	0x2
	BC1	3	0x4
GSM	GSM_450	16	0x10000
	GSM_480	17	0x20000
	GSM_750	18	0x00040000
	GSM_850	19	0x00080000
	EGSM_900	08	0x000000100
	RGSM_900	20	0x00100000
	PGSM_900	09	0x000000200
	DCS_1800	07	0x000000080
	PCS_1900	21	0x002000000
WCDMA	WCDMA_I_IMT_2000	22	0x004000000
	WCDMA_II_PCS_1900	23	0x008000000
	WCDMA_III_1700	24	0x010000000
	WCDMA_IV_1700	25	0x020000000

	WCDMA_V_850	26	0x04000000
	WCDMA_VI_800	27	0x08000000
	WCDMA_VII_2600	48	0x1000000000000000
	WCDMA_VIII_900	49	0x2000000000000000
	WCDMA_IX_1700	50	0x4000000000000000
LTE	EUTRAN_BAND1	0	0x1
	EUTRAN_BAND2	1	0x2
	EUTRAN_BAND3	2	0x4
	EUTRAN_BAND4	3	0x8
	EUTRAN_BAND5	4	0x10
	EUTRAN_BAND6	5	0x20
	EUTRAN_BAND7	6	0x40
	EUTRAN_BAND8	7	0x80
	EUTRAN_BAND9	8	0x100
	EUTRAN_BAND10	9	0x200
	EUTRAN_BAND11	10	0x400
	EUTRAN_BAND12	11	0x800
	EUTRAN_BAND13	12	0x1000
	EUTRAN_BAND14	13	0x2000
	EUTRAN_BAND15	14	0x4000
	EUTRAN_BAND16	15	0x8000
	EUTRAN_BAND17	16	0x10000
	EUTRAN_BAND18	17	0x20000
	EUTRAN_BAND19	18	0x40000
	EUTRAN_BAND20	19	0x80000
	EUTRAN_BAND21	20	0x100000
	EUTRAN_BAND22	21	0x200000
	EUTRAN_BAND23	22	0x400000
	EUTRAN_BAND24	23	0x800000
	EUTRAN_BAND25	24	0x1000000
	EUTRAN_BAND26	25	0x2000000
	EUTRAN_BAND27	26	0x4000000
	EUTRAN_BAND28	27	0x8000000
	EUTRAN_BAND29	28	0x10000000
	EUTRAN_BAND30	29	0x20000000
	EUTRAN_BAND31	30	0x40000000
	EUTRAN_BAND32	31	0x80000000
	EUTRAN_BAND33	32	0x100000000
	EUTRAN_BAND34	33	0x200000000
	EUTRAN_BAND35	34	0x400000000
	EUTRAN_BAND36	35	0x800000000
	EUTRAN_BAND37	36	0x1000000000

	EUTRAN_BAND38	37	0x200000000000
	EUTRAN_BAND39	38	0x400000000000
	EUTRAN_BAND40	39	0x800000000000
	EUTRAN_BAND41	40	0x100000000000
	EUTRAN_BAND42	41	0x200000000000
	EUTRAN_BAND43	42	0x400000000000
TDS	TDS_BAND A	0	0x1
	TDS_BAND B	1	0x2
	TDS_BAND C	2	0x4
	TDS_BAND D	3	0x8
	TDS_BAND E	4	0x10
	TDS_BAND F	5	0x20
	All TDS_BAND		0x3F

2.4.15 Query Lock Configuration: AT+NWLCFG

Table 72: AT+NWLCFG Operation Commands

AT+NWLCFG Query Lock Configuration		
Read Command	AT+NWLCFG?	+NWLCFG:<action>;[<PLMNlist>] OK Parameter <action> 0 unlock 1 lock <PLMNlist> Set PLMN value
Example Command	AT+NWLCFG?	Result List the PLMN list that has been locked. +NWLCFG:1;46001;46002;46003; 46004;46005;46006;46007;46008; 46009;46010;46011;46012;46013; 46014;46015;46016;46017; OK

2.4.16 Configure PLMN List: AT+NWLPLMN

Table 73: AT+NWLPLMN Operation Commands

AT+NWLPLMN Configure PLMN List		
Set Command	AT+NWLPLMN=<action>,<PLMN>,<num>	+ NWLPLMN: OK Parameter <action> 0 Add a new PLMN to the list

		<p>1 Edit sequence for PLMN <num> 2 Delete the serial number for the PLMN <num></p> <p><PLMN> Need to set the PLMN value <num> 0-24 number in the PLMN list</p>
Example Command	AT+NWLPLMN=0,46018,16	<p>Result Add PLMN46018 to position 16, through AT+NWLCFG? Query Results +NWLPLMN: OK</p>
	AT+NWLPLMN=1,46020,17	<p>Edit position 17 for PLMN 46020, and through AT+NWLCFG query Results +NWLPLMN: OK</p>
	AT+NWLPLMN=2,46020,17	<p>Delete the 17 position of the PLMN, and through the AT+NWLCFG query Results +NWLPLMN: OK</p>

2.4.17 Set PLMN List: AT+NWLSET

Table 74: AT+NWLSET Operation Commands

AT+NWLSET Set PLMN List		
Set Command	AT+NWLSET=<action>,"PLMN1,...,PLMNn"	<p>Response PLMN up to 25 OK</p> <p>Parameter <action> 0 unlock PLMN 1 Add lock to PLMN</p> <p>PLMN Need to set the PLMN value</p>
Example Command	AT+NWLSET=1,"46000,46001,46002" AT+NWLSET=0	<p>Result PLMN460004600146002 lock operation, and add it to the PLMN listOK</p> <p>Unlock all settings in all PLMNTable OK</p>

2.4.18 Indicates The Type Of Network When Dialing: AT+PSDIALIND

Table 75 : AT+PSDIALIND Operation Commands

AT+PSDIALIND Indicates The Type Of Network When Dialing		
Test Command	AT+PSDIALIND=?	Response +PSDIALIND:(<value> OK
Read Command	AT+PSDIALIND?	Response +PSDIALIND: <value> OK
Set Command	AT+PSDIALIND=<value>	Response OK Parameter <value> 0 Network type indication when not enabled 1 Enable dial up network type indication If set to enable, the reported value is: +PSDIALIND:31 // "no service", +PSDIALIND:32 // "psnetwork:gsm", +PSDIALIND:33 // "psnetwork:gprs", +PSDIALIND:34 // "psnetwork:edge", +PSDIALIND:35 // "psnetwork:wcdma", +PSDIALIND:36 // "psnetwork:hsdpa", +PSDIALIND:37 // "psnetwork:hsupa" +PSDIALIND:38 // "psnetwork:hspa plus" +PSDIALIND:39 // "psnetwork:td_scdma" +PSDIALIND:40 // "psnetwork:lte_fdd" +PSDIALIND:41 // "psnetwork:lte_tdd"
Example Command	AT+PSDIALIND=1	Result Set to report to enable OK

2.5 Security Control Instruction

2.5.1 Facility Lock: AT+CLCK

Table 76: AT+CLCK Operation Commands

AT+CLCK Facility Lock		
Test Command	AT+CLCK=?	Response +CLCK: (list of supported <fac>s) OK ERROR/+CME ERROR: <err>

Set Command	AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]	<p>Response</p> <p>This command is used to lock, unlock or interrogate the ME or network facility <fac>. Password is normally needed to do such actions. When querying the status of network service (<mode>=2) the response line for „not active“ case (<status>=0) should be returned only if service is not active for any <class>.</p> <p>If <mode> is not equal to 2 and command is successful:</p> <pre>+CLCK:<status>[,<class1> CR><LF> +CLCK:<status>,<class2>[...]]</pre> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
		<p>Parameter</p> <p><fac> "AO" Ban all out calls "OI" Ban all call international exit "OX" Ban all international calling out, except the home country "AI" A ban on all incoming calls "IR" Home country when roaming, banning all incoming calls "PS" PH—SIM(The phone lock on the SIM card) (when other SIM card into the ME prompted for a password, you can set ME, used to identify a few SIM card, so after insert the card, ME not prompted for a password) "PN" Web personalization (please refer to the GSM 02.22 [33]) "PP" Personalized service suppliers (please refer to the GSM 02.22 [33]) "PU" Personalized network subset (please refer to the GSM 02.22 [33]) "PC" Company personalization (please refer to the GSM 02.22 [33]) "PF" The phone lock to insert the first SIM (this manual is called PH - FSIM) (when other SIM card into the ME prompted for a password.) "SC" SIM "FD" SIM card fixed dial features "AB" Ban all service, only when the mode = 0 "AG" Ban all out service, only when the mode = 0 "AC" Ban all incoming service, only when the mode = 0</p> <p><mode> 0 Unlock 1 Lock 2 Query status</p> <p><status> 0 Off 1 On</p>

		<p><passwd> Character; With ME user interface equipment used password + CPWD, modification of password instructions set at the same password</p> <p><classx></p> <ul style="list-style-type: none"> 1 Voice (telephone) 2 Data (all carry business; when < mode > = 2, if the TA does not support the value of 16, 32, 64, 64, this parameter is only that part of the bearing business) 4 FAX 8 Short message service 16 Data circuit sync 32 Data circuit async 64 Dedicated packet access 128 Dedicated PAD access
Example Command	AT+CLKC="SC",1,"1234" AT+CLKC="SC",0,"1234"	Result Set the SIM card PIN code lock OK Remove SIM card PIN code lock OK

2.5.2 Enter PIN: AT+CPIN

Table 77: AT+CPIN Operation Commands

AT+CPIN Enter PIN		
Test Command	AT+CPIN=?	<p>Response</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
Read Command	AT+CPIN?	<p>Response</p> <p>+CPIN: <code></p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
Set Command	AT+CPIN=<pin>[,<newpin>]	<p>Response</p> <p>Using setup instructions, can send TA operation required password. Inquiry instruction returned string adopts alphanumeric combination method, indicate whether need password</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><pin> The original password (character), such as: SIM card PIN code or</p>

		<p>block code, such as: SIM - PUK or PH - SIM PUK <new pin> The new password (character)</p> <p><code> READY ME is not pending for any password SIM PIN ME is waiting for SIM PIN to be given SIM PUK ME is waiting for SIM PUK to be given PH-SIM PIN ME waiting for the offer from phone to SIM card password PH-FSIM PIN ME waiting for the offer from phone to SIM card password PH-FSIM PUK ME waiting for offer from mobile phones to solution of the original SIM card block code SIM PIN2 ME waiting for provide the SIM card PIN2 (recommended <code> only in the latest using this instruction for PIN2 authentication failure (such as: + CME ERROR: 17) after return; authentication failed, if input the wrong PIN2 again, suggest ME don't block the operation) SIM PUK2 ME waiting for provide the SIM card PUK2 (recommended <code> only in the most recent time using the instructions PUK2 authentication failure (such as: + CME ERROR: 18) after return; authentication failed, if again wrong input PUK2 and new PIN2, suggested ME not to block the operation PH-NET PIN ME is waiting for network personalization password to be given PH-NET PUK ME is waiting for network personalization unblocking password to be given PH-NETSUB PIN ME is waiting for network subset personalization password to be given PH-NETSUB PUK ME is waiting for network subset personalization unblocking password to be given PH-SP PIN ME is waiting for service provider personalization password to be given PH-SP PUK ME is waiting for service provider personalization unblocking password to be given PH-CORP PIN ME is waiting for corporate personalization password to be given PH-CORP PUK ME is waiting for corporate personalization unblocking password to be given</p>
Example Command	AT+CPIN="0000" AT+CPIN?	<p>Result Input PIN OK PIN was lifted, don't need a PIN +CPIN: READY</p>

	AT+CPIN?	OK Need to enter the PIN code +CPIN: SIM PIN
	AT+CPIN?	OK Query a PUK code lock, PUK code is required +CPIN: SIM PUK

2.5.3 Change Password: AT+CPWD

Table 78:AT+CPWD Operation Commands

AT+CPWD Change Password	
Test Command	Response +CPWD: (list of supported <fac>s) OK ERROR/+CME ERROR: <err>
Set Command	Response The instructions can modify equipment lock + CLCK define equipment lock password OK ERROR/+CME ERROR: <err> Parameter <fac> "AO" Ban all out calls "OI" Ban all call international exit "OX" Ban all international calling out, except the home country "AI" A ban on all incoming calls "IR" Home country when roaming, banning all incoming calls "PS" PH—SIM(The phone lock on the SIM card) (when other SIM card into the ME prompted for a password, you can set ME, used to identify a few SIM card, so after insert the card, ME not prompted for a password) "PN" Web personalization (please refer to the GSM 02.22 [33]) "PP" Personalized service suppliers (please refer to the GSM 02.22 [33]) "PU" Personalized network subset (please refer to the GSM 02.22 [33]) "PC" Company personalization (please refer to the GSM 02.22 [33]) "PF" The phone lock to insert the first SIM (this manual is called PH - FSIM) (when other SIM card into the ME prompted for a password.) "P2" SIM PIN 2

		<p>"SC" SIM "AB" Ban all service "AG" Ban all out of service "AC" A ban on all incoming service</p> <p><oldpwd>,<newpwd> Character; With ME user interface equipment used password + CPWD, modification of password instructions set at the same password</p> <p><pwdlength> The maximum length of password integer, equipment support</p>
Example Command	AT+CPWD="SC", "0000","1234"	<p>Result Set a new PIN number is 1234, take effect after restart or to activate a SIM card OK</p>

2.5.4 The Rest Of The PIN And PUK Number: AT+BMCPNCNT

Table 79:AT+BMCPNCNT Operation Commands

AT+BMCPNCNT The Rest Of The PIN And PUK Number		
Query Command	AT+BMCPNCNT	<p>Response This instruction is used to query a SIM card PIN code and PUK code number, the remaining if PIN input over the query result is still not correct, then the SIM locked, needs the PUK code to unlock, but if the PUK code input is beyond the instruction of the query result is still not correctly, then the SIM will be invalid +BMCPNCNT:PIN1=<num>;PUK1=<num>;PIN2=<num>; PUK2=<num> OK</p>
Example Command	AT+BMCPNCNT	<p>Response <num> PIN value range is 0 to 3, can input 3 times at most PUK code value in the range of 0 to 10, can enter at most 10 times +BMCPNCNT: PIN1=2; PUK1=10; PIN2=3; PUK2=10 OK</p>

2.6 Equipment & Port Control Instruction

2.6.1 Mobile Equipment Activity Status: AT+CPAS

Table 80: AT+CPAS Operation Commands

AT+CPAS Mobile Equipment Activity Status
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Test Command	AT+CPAS=?	Response +CPAS: (list of supported <pas>s) OK ERROR/+CME ERROR:<err>
Set Command	AT+CPAS	Response TA returns the activity status of ME: +CPAS: <pas> OK ERROR/+CME ERROR:<err>
		Parameter <pas> 0 Ready 3 Ringing 4 Call in progress or call hold
Example Command	AT+CPAS	Result The READY state, the ME READY +CPAS: 0 OK Is on the phone +CPAS: 4 OK

2.6.2 Select The Schema: AT+FCLASS

Table 81: AT+FCLASS Operation Commands

AT+FCLASS Select The Schema		
Test Command	AT+FCLASS=?	Response +FCLASS: (<n> list of values) OK
Read Command	AT+FCLASS?	Response <n> OK
Set Command	AT+FCLASS=<n>	Response Use this instruction, TA can be set to a particular operation mode, such as data, fax, voice.TA using the proper way to a given operating mode of information processing

		OK
		Parameter <n> 0 Data 1 Fax category 1 (please refer to the TIA - 578 - A) 2.0 2.0 fax category
Example Command	AT+FCLASS=?	Result +FCLASS: (0-1) OK GW network mode returns as a result, the GW mode, the return is: 0,2,0

2.6.3 Query All The AT Commands Available: AT+CLAC

Table 82: AT+CLAC Operation Commands

AT+CLAC Query All The AT Commands Available	
Write Command	Response This instruction is used to query ME in one or more of the AT command line <AT Command1> [<CR><LF><ATCommand2>[...]] OK ERROR/+CME ERROR: <err>

2.7 Additional Business Instruction

2.7.1 Calling Line Identification Presentation: AT+CLIP

Table 83: AT+CLIP Operation Commands

AT+CLIP Calling Line Identification Presentation		
Test Command	AT+CLIP=?	Response +CLIP:(list of supported <n>s) OK
Read Command	AT+CLIP?	Response +CLIP:<n>,<m> OK

Set Command	AT+CLIP=<n>	<p>Response</p> <p>The directive function in fact is what we usually call the caller id of the business. The directive and additional business GSM/UTMS using non-equilibrium CLIP (Calling Line Identification Presentation), called user on the receiving mobile terminate the call at the same time, can get caller id CLI (Calling Line Identification).</p> <p>Set up instructions can be enabled or disabled CLI display on the TE. But has no effect on CLIP in the network to perform additional business.</p> <p>OK</p> <p>Parameter</p> <p><n> Sets or displays the TA result displays a status code</p> <p>[0] Disable</p> <p>1 Enable</p> <p><m> The CLIP shows users in the network business status</p> <p>0 CLIP not provisioned</p> <p>1 CLIP provisioned</p> <p>2 Unknown (Such as: no network etc)</p> <p><number> Phone number in string type of calling address in format specified by <type></p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section). When dialing string, including the international access code "+" characters. The default value is 145; Other cases, the default value is 129</p> <p><subaddr> String type subaddress of format specified by <satype></p> <p><satype> Integer octets address type</p> <p><alpha> Optional character (use alphanumeric mode mixed); According to the corresponding item in the phone book; Use character set should be used to choose TE character set command AT + CSCS are the same</p> <p><CLI validity> 0 CLI valid</p> <p>1 CLI has been withheld by the originator</p> <p>2 CLI is not available due to interworking problems or limitations of originating network</p>
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Example Command	AT+CLIP =1	Result Enable the caller id OK
	AT+CLIP?	Set the caller id +CLIP: 1,1 OK (Call back) DISC:6,1,0,0,"18856466860",128, "ZXY" (Call back) DISC:8,1,0,0,"13817487535",128, "CMCC" (去电返回) +DISC:13,0,0,0,"18856466860",129, "ZXY"
AT+CLIP Calling Line Identification Presentation		
Test Command	AT+CLIP=?	Response +CLIP:(list of supported <n>s) OK
Read Command	AT+CLIP?	+CLIP:<n>,<m> OK
Set Command	AT+CLIP=<n>	<p>Response The directive function in fact is what we usually call the caller id of the business.The directive and additional business GSM/UTMS using non-equilibrium CLIP (Calling Line Identification Presentation), called user on the receiving mobile terminate the call at the same time, can get caller id CLI (Calling Line Identification). Set up instructions can be enabled or disabled CLI display on the TE.But has no effect on CLIP in the network to perform additional business.</p> <p>OK</p> <p>Parameter <n> Sets or displays the TA result displays a status code [0] Disable 1 Enable</p> <p><m> The CLIP shows users in the network business status 0 CLIP not provisioned 1 CLIP provisioned 2 Unknown (Such as: no network etc)</p>

		<p><number> Phone number in string type of calling address in format specified by <type></p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section).When dialing string, including the international access code "+" characters. The default value is 145;Other cases, the default value is 129</p> <p><subaddr> String type subaddress of format specified by <satype></p> <p><satype> Integer octets address type</p> <p><alpha> Optional character (use alphanumeric mode mixed);According to the corresponding item in the phone book;Use character set should be used to choose TE character set command AT + CSCS are the same</p> <p><CLI validity> 0 CLI valid 1 CLI has been withheld by the originator 2 CLI is not available due to interworking problems or limitations of originating network</p>
Example Command	AT+CLIP =1 AT+CLIP?	Result Enable the caller id OK Set the caller id +CLIP: 1,1 OK 139 ***** as the caller id, AAA for storing the name of the number in the telephone directory +CLIP: "139*****",128,,,"AAA",0 RING

2.7.2 Calling Line Identification Restriction: AT+CLIR

Table 84: AT+CLIROperation Commands

AT+CLIR Calling Line Identification Restriction		
Test Command	AT+CLIR=?	Response +CLIR: (list of supported <n>s) OK
Read	AT+CLIR?	Response

Command		+CLIR: <n>,<m> OK
Set Command	AT+CLIR=[<n>]	<p>Response This command and GSM 02.81 [3] CLIR business related standards. When outgoing calls, using the commands can be enabled or disabled in the called side shows the CLI (Calling Line Indication). Query the instructions for the state of a given <n>, and based on GSM 02.81 [3], can trigger the configuration status of CLIR business query (given in the <m>).</p> <p>OK</p> <p>Parameter</p> <p><n> Parameter sets the adjustment for outgoing calls</p> <p>[0] Presentation indicator is used according to the subscription of the CLIR service</p> <ul style="list-style-type: none"> 1 CLIR invocation 2 CLIR suppression <p><m> Parameter shows the subscriber CLIR service status in the network</p> <ul style="list-style-type: none"> 0 CLIR not provisioned 1 CLIR provisioned in permanent mode 2 Unknown (e.g. no network, etc.) 3 CLIR temporary mode presentation restricted 4 CLIR temporary mode presentation allowed
Example Command	AT+CLIR=?	<p>Result</p> <p>+CLIR: (0-2)</p> <p>OK</p>

2.7.3 Connected Line Identification Presentation: AT+COLP

Table 85:AT+COLP Operation Commands

AT+COLP Connected Line Identification Presentation		
Test Command	AT+COLP=?	<p>Response</p> <p>+COLP:(list of supported <n>s)</p> <p>OK</p>
Read Command	AT+COLP?	<p>Response</p> <p>+COLP:<n>,<m></p> <p>OK</p>
Set Command	AT+COLP=[<n>]	<p>Response</p> <p>When the caller calls, use this command to enable or disable the called side shows the CLI.Query the instructions for the state of a given <n>, and</p>

		<p>based on GSM 02.81 [3], triggers the configuration status of COLP business query (given in the < m >).</p> <p>OK</p> <p>Parameter</p> <p>Parameter</p> <p><n> Parameter sets the adjustment for outgoing calls</p> <p>[0] Presentation indicator is used according to the subscription of the CLIR service</p> <p>1 CLIR invocation</p> <p>2 CLIR suppression</p> <p><m> Parameter shows the subscriber CLIR service status in the network</p> <p>0 CLIR not provisioned</p> <p>1 CLIR provisioned in permanent mode</p> <p>2 Unknown (e.g. no network, etc.)</p> <p>3 CLIR temporary mode presentation restricted</p> <p>4 CLIR temporary mode presentation allowed</p>
Example Command	AT+COLP=?	<p>Result</p> <p>+COLP: (0-1)</p> <p>OK</p>

2.7.4 Closed User Groups: AT+CCUG

Table 86: AT+CCUG Operation Commands

AT+CCUG Closed User Groups		
Test Command	AT+CCUG=?	<p>Response</p> <p>OK</p>
Read Command	AT+CCUG?	<p>Response</p> <p>+CCUG: <n>,<index>,<info></p> <p>OK</p>
Set Command	AT+CCUG=[<n>[<index>[,<info>]]]	<p>Response</p> <p>Use this instruction can control CUG (Closed User Group) additional business (for details, please refer to GSM 02.85 [21]). Using set commands, users can choose CUG index to inhibit the OA (Outgoing Access) and priority in CUG</p> <p>OK</p> <p>Parameter</p> <p><n> [0] Disable mode provides CUG business for the time being</p> <p>1 Enable mode provides CUG business for the time being</p>

		<p><index> [0]~9 CUG Index 10 No index (CUG priority from user data)</p> <p><info> [0] There is no information 1 Inhibition of OA 2 Inhibition of priority CUG 3 Inhibition of OA and priority in CUG</p>
Example Command	AT+CCUG=1,2,3 AT+CCUG?	Result OK +CCUG: 1,2,3 OK

2.7.5 Call Forwarding Number And Conditions Control: AT+CCFC

Table 87: AT+CCFC Operation Commands

AT+CCFC Call Forwarding Number And Conditions Control		
Test Command	AT+CCFC=?	Response +CCFC: (list of supported <reads>s) OK
Set Command	AT+CCFC=<reason>,<mode>[,<number>] [,<type>[,<class>[,<subaddr> [,<atype>[,<time>]]]]]	Response This instruction based on GSM 02.82 [4], to control additional business call forward, at the same time support register, delete, activation, to activate and status query <mode>≠2 And the instruction execution success OK <mode>=2 And the instruction execution success.if<mode>=2, <reason> Not equal to 4 or 5 +CCFC:<status>,<class1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][<CR><LF> +CCFC:<status>,<class2>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][...]] OK ERROR/+CME ERROR: <err>

	<p>4 All call forwarding (Please refer to the GSM 02.30 [19]) 5 All conditional call forwarding (Please refer to the GSM 02.30 [19])</p> <p><mode> 0 Disable 1 Enable 2 Query status 3 Registration 4 Delete</p> <p><number> Phone number in string type of forwarding address in format specified by <type></p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section). When dialing string, including the international access code "+" characters. The default value is 145; Other cases for 129</p> <p><subaddr> String type sub-address of format specified by <satype></p> <p><satype> Integer types of eight word she address (please refer to the GSM04.08 [8] the first 10.5.4.8 section), the default value of 128</p> <p><classx> 1 Voice 2 Data (All carry business; When < mode > = 2, such as fruit TA does not support, 32, 64, 16 and 128, this parameter is only that part of the bearing business) 4 FAX 8 Short message service 16 Data circuit sync 32 Data circuit async 64 Dedicated packet access 128 A dedicated PAD access</p> <p><time> 1...30 When "no reply" (<reads>=no reply) is enabled or queried, this gives the time in seconds to wait before call is forwarded; default value is 20</p> <p><status> 0 Not active 1 Active</p>
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Example Command	AT+CCFC=0,3,"1 39*****"	Result Set the unconditional jump to 139 * * * * * * * OK
	AT+CCFC=0,2	Query transfer Settings, set up successfully +CCFC: 1,1,"+86139*****",145,,
	AT+CCFC=0,4	OK
	AT+CCFC=0,2	Delete the unconditional transfer Settings OK
	AT+CCFC=0,2	Query again, show deleted successfully +CCFC: 0,255 OK

2.7.6 Call Waiting Control: AT+CCWA

Table 88: AT+CCWA Operation Commands

AT+CCWA Call Waiting Control		
Test Command	AT+CCWA=?	Response +CCWA: (list of supported <n>s) OK
Read Command	AT+CCWA?	Response +CCWA: <n> OK
Set Command	AT+CCWA=[<n>[,<mode>[,<class>]]]	Response This instruction based on GSM 02.83 [5], to control the call waiting additional business OK <mode>=2 and command successful: +CCWA:<status>,<class1>[<CR><LF> +CCWA:<status>,<class2>[...]] OK ERROR/+CME ERROR:<err>
		Parameter <n> Whether in TE display the results [0] Disable

		<p>1 Enable <mode> If not given this parameter, it can't ask network 0 Disable 1 Enable 2 Query status</p> <p><classx> 1 Voice (telephony) 2 Data (bearer service) 4 FAX (facsimile) 8 Short message service 16 Data circuit sync 32 Data circuit async 64 Dedicated packet access 128 A dedicated PAD access</p> <p><status> 0 Disable 1 Enable</p>
Example Command	AT+CCWA=1,1 ATD10086; AT+CCWA=1,2 AT+CCWA?	<p>Result Open the call waiting OK</p> <p>And 10086 calls RING_BACK</p> <p>CONNECT</p> <p>Prompt the user have another call in all the way at this time +CCWA: "139*****",128,1 To track the status of call waiting +CCWA: 1,1</p> <p>OK Query whether the call waiting to open +CCWA: 1</p> <p>OK</p>

2.7.7 Call Related Supplementary Services: AT+CHLD

Table 89: AT+CHLD Operation Commands

AT+CHLD Call Related Supplementary Services

Test Command	AT+CHLD=?	<p>Response</p> <p>[+CHLD: (list of supported <n>s)]</p> <p>OK</p>
Set Command	AT+CHLD=[<n>]	<p>Response</p> <p>Use the instructions, but the current call temporarily released from ME, but the network and multiparty calls are still maintain the connection. With two calls (a talk on the phone, keep another call in or tips) users can connect to the other parties to speak, and release its own connection</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><n> Integer;The equivalent of GSM02.30 [19] in the first section 4.5.5.1 input Numbers before the SEND button</p> <p>0 Integer;The equivalent of GSM02.30 [19] in the first section 4.5.5.1 input Numbers before the SEND button</p> <p>1 Terminate all active calls (if any) and accept the other call (waiting call or held call).</p> <p>1X Terminate the specific call number X (X=1-7)</p> <p>2 Place all active calls on hold (if any) and accept the other call (waiting call or held call) as the active call</p> <p>2X Place all active calls except call X (X=1-7) on hold</p> <p>3 Add the held call to the active calls</p> <p>4 Connects the two calls and disconnects the subscriber from both calls (ECT)</p>

Example Command	AT+CCWA=1, 1	Result Open the call waiting OK
	ATD139*****;	With 139 * * * * * users to establish a call OK RING_BACK CONNECT
		The 136 ***** user calls +CCWA: "136*****",128,1 Keep the first all the way, and connect the two OK
	AT+CHLD=2	CLCC show two-way conversation at this time +CLCC: 1,0,1,0,0," 139*****",129 +CLCC: 2,1,0,0,0," 136*****",128,"TEST"
	AT+CLCC	OK Cut back to the first all the way OK
	AT+CHLD=21	

2.7.8 Unstructured Supplementary Service Data: AT+CUSD

Table 90: AT+CUSD Operation Commands

AT+CUSD Unstructured Supplementary Service Data		
Test Command	AT+CUSD=?	Response +CUSD: (list of supported <n>s) OK
Read Command	AT+CUSD?	Response +CUSD: <n> OK
Set Command	AT+CUSD=[<n>[,<str>[,<dcs>]]]	Response This instruction based on GSM 02.90 [23], of USSD (Unstructured Supplementary Service Data). This instruction support network and mobile operations. <n> is used to enable or disable the unsolicited result code (return of USSD returns results or network launched operation) + CUSD: <m> [, <STR>, <DCS>] displayed on the TE. <STR> when specified, mobile launch of USSD string or network launched operation returns the result of USSD string will be sent to the network. Through unsolicited result code + CUSD, return to the network

		<p>side returns the result of USSD string OK</p> <p>ERROR/+CME ERROR:<err></p>
		<p>Parameter</p> <p><n> [0] Disable the result code presentation to the TE 1 le the result code presentation to the TE 2 Cancel session(not applicable to read command response)</p> <p><str> Character: USSD string (if not given <STR>, do not ask network) : if < dcs> said use GSM03.38 [25] the default symbol value, ME/TA according to GSM07.05 [24] Annex A, set of symbols to GSM is converted to A current TE character set</p> <p><dcs> GSM 03.38 [25] cell broadcast data using integer coding scheme (the default value is 0)</p> <p><m> 0 No further user action required (network initiated USSD Notify, or no further information needed after mobile initiated operation) 1 Further user action required (network initiated USSD Request, or further information needed after mobile initiated operation) 2 USSD terminated by network 3 Another local client has responded 4 Operation not supported 5 Network time out</p>
Example Command	AT+CUSD=?	<p>Result</p> <p>+CUSD: (0-2)</p> <p>OK</p>

2.7.9 Billing Notification: AT+CAOC

Table 91: AT+CAOC Operation Commands

AT+CAOC Billing Notification		
Test Command	AT+CAOC=?	<p>Response</p> <p>[+CAOC: (list of supported <mode>s)]</p> <p>OK</p>
Read Command	AT+CAOC?	<p>+CAOC:<mode></p> <p>OK</p>
Set Command	AT+CAOC[=<mode>]	<p>Response</p> <p>This command and GSM 02.24 02.86 [27] [26] and GSM billing</p>

		<p>notification of additional business.Through the instructions, the user can know the related information of call charges [+CAOC:<ccm>]</p> <p>OK ERROR/+CME ERROR: <err></p>
		<p>Parameter <mode> 0 query value of CCM [1] To activate the CCM value of report requests 2 Activate the CCM value of report requests</p> <p><ccm> Character;As the number of the current call meter three bytes (using hexadecimal,Such as: with the "00001 e" corresponds to the decimal value of 30);In its own currency units and byte code expressed with ACMmax in SIM card</p>
Example Command	AT+CAOC=0	<p>Result Query the current call +CAOC: "000000"</p> <p>OK</p>

2.7.10 Supplementary Service Notifications: AT+CSSN

Table 92AT+CSSN Operation Commands

AT+CSSN Supplementary Service Notifications		
Test Command	AT+CSSN=?	<p>Response +CSSN:(list of supported <n>s),(list of supported <m>s)</p> <p>OK</p>
Read Command	AT+CSSN?	<p>Response +CSSN: <n>,<m></p> <p>OK</p>
Set Command	AT+CSSN=<n>[,<m>]]	<p>Response The instructions said notice by the network associated with additional business.Use the setup instructions, can enable or disable the TA notice results code shown on the TE.</p> <p>When < n > = 1, and call on the mobile terminal in the process of receiving additional business notice, the intermediate result code + CSSI: ,<< code1 > [index >] will be sent to TE.</p> <p>When < m > = 1, and in the process of mobile terminal call or terminate the call in the process of receiving additional business notice, or to check before receiving notice from the additional business, will be sent to TE unsolicited</p>

	<p>result code + CSSU: <code2> [, <index> [, <number>, <type> [, <subaddr>, <satype>]]]</p> <p>OK</p> <p>Parameter</p> <p><n> Integer type, parameter sets/shows the +CSSI intermediate result code presentation status to the TE</p> <p>[0] Disable 1 Enable</p> <p><m> Integer type (parameter sets/shows the +CSSU unsolicited result code presentation status to the TE)</p> <p>[0] Disable 1 Enable</p> <p><index> [0]~9 CUG index 10 No index (CUG priority from user data)</p> <p><code1> 0 Unconditional call forwarding is active 1 Some of the conditional call forwardings are active 2 Call has been forwarded 3 Waiting call is pending 4 CUG call (<index>) 5 Barring out call 6 Ban on incoming calls 7 Refused to CLIR inhibition 8 Call deflection</p> <p><code2> 0 Before the call transfer (MT call setup) 1 CUG call (<index>) (MT call setup) 2 In call (voice calls) 3 Retrieve the call () when the voice call 4 To enter multiple calls (voice calls) 5 Release on hold (don't belong to the SS notification) (voice calls) 6 Receive the check SS the forwarded message (can receive at any time) 7 In the process of explicit call forwarding (voice calls), is in a state of ringing with the remote call establish call (ring) 8 In the process of show call forwarding (refer to voice calls or MT call setup, and the number and the address parameter must exist), have establish a call with remote calls 9 Refers to the call of deflection (MT call setup) 10 Additional call transfer</p>
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		<p><number> Character;Call forward address telephone number, the format must be in accordance with the < type ></p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section).When dialing string, including the international access code "+" characters. The default value is 145;Other cases for 129</p> <p><subaddr> Character;The < satype > character of address format</p> <p><satype> Integer types of eight word she address (please refer to the GSM04.08 [8] the first 10.5.4.8 section), the default value of 128</p>
Example Command	AT+CSSN=?	<p>Result</p> <p>+CSSN: (0-1),(0-1)</p> <p>OK</p>

2.7.11 Preferred Operator List: AT+CPOL

Table 93: AT+CPOL Operation Commands

AT+CPOL Preferred Operator List		
Test Command	AT+CPOL=?	<p>Response</p> <p>+CPOL:(list of supported <index>s),(list of supported <format>s)</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Read Command	AT+CPOL?	<p>Response</p> <p>+CPOL:<index1>,<format>,<oper1>[<CR><LF></p> <p>+CPOL:<index2>,<format>,<oper2>[...]]</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Set Command	AT+CPOL=[<index>][,<format>[,<oper>]]	<p>Response</p> <p>The optimal selection operator of the instructions used to edit a SIM card list.Using executes instructions, can be in the list (EFPLMNsel) writes new affairs.If the given < index >, but empty < oper >, then the column items will be deleted.If only given the < oper >, but empty < index >, < oper > will be put under a free location.If only given the format >, query directives in < oper > format will be modified</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>

		<p>Parameter</p> <p><indexn> Integer;Serial number of the SIM card selection operator list operators</p> <p><format> 0 Long format alphanumeric <oper> 1 Short format alphanumeric <oper> 2 Numeric <oper></p> <p><oper> String type; <format> indicates the format is alphanumeric or numeric (see +COPS)</p>
Example Command	AT+CPOL=,0 AT+CPOL?	<p>Result</p> <p><format> String to use growth type OK</p> <p>Digital type +CPOL: 1,2,"46000" +CPOL: 2,2,"46002" +CPOL: 3,2,"41004"</p>

2.7.12 Read Operator Names: AT+COPN

Table 94: AT+COPN Operation Commands

AT+COPN Read Operator Names		
Test Command	AT+COPN=?	<p>Response</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
Read Command	AT+COPN	<p>Response</p> <p>Executes instructions for returning from ME operator name, including the operator code <numericaln>. The latter have corresponding coding in ME <alphan> (alphanumeric combination way)</p> <p>OK</p> <p>Parameter</p> <p><numericaln> Character;Digital format of operators (please refer to the +COPS)</p> <p><alphan> Character;Long string format (using alphanumeric format) operator (see + COPS)</p> <p>AT+COPN Instruction has finished running, and output the return operator name "OK";</p> <p>AT+COPN Command is run, before returning to "OK" do not run the command again, otherwise it will lead to reset the module.</p>

		The directive applies only to the 3 GPP specification
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2.8 GPRS Instruction

2.8.1 Define PDP Context: AT+CGDCONT

Table 95: AT+CGDCONT Operation Commands

AT+CGDCONT Define PDP Context		
Test Command	AT+CGDCONT=?	<p>Response</p> <p>CGDCONT: (range of supported <cid>s), <PDP_type>, <APN>, <PDP_addr>, (list of supported <data_comp>s), (list of supported <head_comp>s)</p> <p>OK</p>
Read Command	AT+CGDCONT?	<p>Response</p> <p>CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[<CR><LF>]</p> <p>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>]</p> <p>OK</p>
Set Command	AT+CGDCONT=[<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>]]]]]]	<p>Response</p> <p>Using set commands, can define the parameters for the PDP context, the PDP context is < cid > that identifies a parameter identification by the local context. This setting instruction of special form + CGDCONT = < cid > will make context number < cid > value undefined values. Return value of a composite test instructions. If MT support several kinds of PDP type < PDP_type >, each < PDP_type > range of parameter values in a single line to return</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><cid> PDP context identifier, a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value=1) is returned by the test form of the command.</p> <p><PDP_type> ["IP"] (packet data protocol type) character parameters; Is used to specify the type of packet data protocol. Default support "IP" Internet Protocol IP (Internet Protocol) (IETF STD5) X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)</p>

		<p>IPV6 Internet Protocol, version 6 (IETF RFC 2460) OSPIH Internet Hosted Octet Stream Protocol (Obsolete) PPP Point to Point Protocol (IETF STD 51)</p> <p><APN> Access point name, a string parameter that is a logical name used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.</p> <p><PDP_address> A string parameter identifies the MT in the address space applicable to the PDP. If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The allocated address may be read using the +CGPADDR command.</p> <p><d_comp> 0 Off (Default if value is omitted) 1 On (Manufacturer preferred compression) 2 V.42 3 V.44 Other value preserving</p> <p><h_comp> 0 Off 1 On 2 RFC114 (Applies only to SNDCP) 3 RFC2507 4 RFC3095 (applicable for PDCP only) Other value preserving</p>
Example Command	AT+CGDCONT? AT+CGDCONT= 1 AT+CGDCONT? AT+CGDCONT= 1,"IPV4V6","CM NET"	<p>Result</p> <p>+CGDCONT: 1,"IPV4V6","","0.0.0.0",0,0</p> <p>OK</p> <p>Delete <cid></p> <p>OK</p> <p>+CGDCONT:</p> <p>OK</p> <p>The APN is CMNET, PDP type for IPV4V6</p> <p>OK</p>

2.8.2 Define The Secondary PDP Activation Context: AT+CGDSCONT

Table 96: AT+CGDSCONT Operation Commands

AT+CGDSCONT Define The Secondary PDP Activation Context		
Test Command	AT+CGDSCONT=?	<p>Response</p> <p>+CGDSCONT: (list of supported<cid>s),(list of supported<p_cid>s),<PDP_type>,,,(list of supported<d_comp>s),(list of supported<h_comp>s)[<CR><LF></p> <p>+CGDCONT:(list of supported<cid>s),(list of supported<p_cid>s),<PDP_type>,,,(list of supported<d_comp>s),(list of supported<h_comp>s)[...]]</p>
Read Command	AT+CGDSCONT?	<p>Response</p> <p>+CGDSCONT:<cid>,<p_cid>,<d_comp>,<h_comp>[<CR><LF></p> <p>+CGDSCONT:<cid>,<p_cid>,<d_comp>,<h_comp>[...]]</p>
Set Command	AT+CGDSCONT=[<cid>,<p_cid>[,<d_comp>,<h_comp>]]]	<p>Response</p> <p>Using setup instructions, can be twice the PDP context definition parameters, the PDP context is < cid > that identifies a parameter identification by the local context.This setting instruction of special form + CGDSCONT = < cid > will make context number < cid > value undefined values, which is to cancel the current Settings.Return value of a composite test instructions.If MT support several kinds of PDP type < PDP_type >, each < PDP_type > range of parameter values in a single line to return</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><cid> PDP context identifier, a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value=1) is returned by the test form of the command.</p> <p><p_cid> + CGDCONT defined in the < cid > numeric parameters;Pertaining to + CGDCONT defined in the <cid>, this parameter in TE - MT interface, the possible value range through test instruction to return</p> <p><PDP_type> ["IP"] (packet data protocol type) character parameters;Is used to specify the type of packet data protocol.Default support "IP" Internet Protocol IP (Internet Protocol) (IETF STD5) X.25 ITU-T/CCITT X.25 layer 3 (Obsolete) IPV6 Internet Protocol, version 6 (IETF RFC 2460) OSPIH Internet Hosted Octect Stream Protocol (Obsolete)</p>

		<p>PPP Point to Point Protocol (IETF STD 51)</p> <p><d_comp> 0 Off (Default if value is omitted) 1 On (Manufacturer preferred compression) 2 V.42 3 V.44 Other value preserving</p> <p><h_comp> 0 Off 1 On 2 RFC114 (Applies only to SNDCP) 3 RFC2507 4 RFC3095 (applicable for PDCP only) Other value preserving</p> <p>As defined by the < cid > cannot be defined with + CGDSCONT < cid > repeat; The value defined by the < p_cid > must be + CGDCONT < cid >; In setting up the directive, < cid > with < p_cid > equal.</p>
Example Command	AT+CGDSCONT=?	<p>Result</p> <p>+CGDSCONT: (1-50),"IP",,(0-2),(0-4) +CGDSCONT: (1-50),"PPP",,(0-2),(0-4) +CGDSCONT: (1-50),"IPV6",,(0-2),(0-4) +CGDSCONT: (1-50),"IPV4V6",,(0-2),(0-4)</p> <p>OK</p>

2.8.3 Quality Of Service Profile (Requested): AT+CGQREQ

Table 97: AT+CGQREQ Operation Commands

AT+CGQREQ Quality Of Service Profile (Requested)		
Test Command	AT+CGQREQ=?	<p>Response</p> <p>+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s)</p> <p>OK</p>
Read Command	AT+CGQREQ?	<p>Response</p> <p>+CGQREQ:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[<CR><LF> +CGQREQ:<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[...]</p> <p>]</p>

		OK
Set Command	<pre>AT+CGQREQ=<c id> [,<precedence > [,<delay>[,<reliabi lity>, <peak> ,<mean>]]]]]</pre>	<p>Response</p> <p>This directive allows the MT send network "PDP context activation request message," TE to specify a service quality. Using setup instructions, can provide the context specified by a (local) context identifier with parameter <cid> presentation. Instruction set by local context identification parameter <cid> identifies the context of a specified application. This is the same as +CGDCONT instructions used parameters, so the +CGQREQ instructions is actually +CDDCONT expansion. The QoS application is composed of many parameters, the value of each can be set to separate. A special form of the directive, namely +CGQREQ = <cid>, cancel the definition of <cid> service quality. The query command returns the context of the definition of each current Settings. Returns a compound value test instructions. If MT support several kinds of PDP type, the parameter value scope of each type of PDP returns on a single line</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
		<p>Parameter</p> <p><cid> 0 Default parameters, when the PDP activation, if corresponding cid service quality is not specified, this parameter is used, cid = 0 query command is not supported(1-16) numeric parameters; Is used to specify a particular PDP context defines the parameters for TE - MT interface is local, and can be used for other PDP context related instructions</p> <p><precedence> A numeric parameter which specifies the precedence class</p> <ul style="list-style-type: none"> 0 Network subscribed value 1 High Priority. Service commitments shall be maintained ahead of precedence classes 2 and 3 2 Normal priority. Service commitments shall be maintained ahead of precedence class 3 3 Low priority. Service commitments shall be maintained <p><delay> Numeric parameters; Is used to specify the level of delay</p> <ul style="list-style-type: none"> 0 Network subscribed value 1 - 2 - 3 - 4 - <p><reliability> A numeric parameter which specifies the reliability class</p> <ul style="list-style-type: none"> 0 Network subscribed value 1 n real-time traffic, error-sensitive application that cannot cope with data loss

	<p>2 real-time traffic, error-sensitive application that can cope with infrequent data loss</p> <p>3 Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and SMS</p> <p>4 al-time traffic, error-sensitive application that can cope with data loss</p> <p>5 eal-time traffic, error non-sensitive application that can cope with data loss</p> <p><peak> A numeric parameter which specifies the peak throughput class, in octets per second.</p> <ul style="list-style-type: none">0 Network subscribed value1 Up to 1 000 (8 kbit/s)2 Up to 2 000 (16 kbit/s)3 Up to 4 000 (32 kbit/s)4 Up to 8 000 (64 kbit/s)5 Up to 16 000 (128 kbit/s)6 Up to 32 000 (256 kbit/s)7 Up to 64 000 (512 kbit/s)8 Up to 128 000 (1024 kbit/s)9 Up to 256 000 (2048 kbit/s) <p><PDP_type> Packet Data Protocol type “IP”</p> <p><mean> A numeric parameter which specifies the mean throughput class, in octets per hour.</p> <ul style="list-style-type: none">0 Network subscribed value1 100 (\sim0.22 bit/s)2 200 (\sim0.44 bit/s)3 500 (\sim1.11 bit/s)4 1 000 (\sim2.2 bit/s)5 2 000 (\sim4.4 bit/s)6 5 000 (\sim11.1 bit/s)7 10 000 (\sim22 bit/s)8 20 000 (\sim44 bit/s)9 50 000 (\sim111 bit/s)10 100 000 (\sim0.22 kbit/s)11 200 000 (\sim0.44 kbit/s)12 500 000 (\sim1.11 kbit/s)13 1 000 000 (\sim2.2 kbit/s)14 2 000 000 (\sim4.4 kbit/s)15 5 000 000 (\sim11.1 kbit/s)16 10 000 000 (\sim22 kbit/s)17 20 000 000 (\sim44 kbit/s)
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		<p>18 50 000 000 (\sim111 kbit/s) 31 Best effort</p> <p>AT+CGQREQ=<cid> can be used to cancel the setup parameters, cid is 1 or 2; All the quality of service option to 0, for example: the AT+CGQREQ = 1,0,0,0,0,0 will give cancel the default parameters, rather than the corresponding parameters of cid to be cancelled.</p>
Example Command	AT+CGQREQ=?	<p>Result</p> <p>+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "IPV4V6",(0-3),(0-4),(0-5),(0-9),(0-18,31)</p> <p>OK</p>

2.8.4 3G Quality Of Service Profile (Requested): AT+CGEQREQ

Table 98: AT+CGEQREQ Operation Commands

AT+CGEQREQ 3G Quality Of Service Profile (Requested)	
Test Command	<p>Response</p> <p>+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s), (list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s), (list of supported <Delivery order>s), (list of supported <Maximum SDU size>s), (list of supported <SDU error ratio>s), (list of supported <Residual bit error ratio>s), (list of supported <Delivery of erroneous SDUs>s), (list of supported <Transfer delay>s), (list of supported <Traffic handling priority>s), (list of supported <Source statistics descriptor>s), (list of supported <Signalling indication>s)</p> <p>OK</p>
Read Command	<p>Response</p> <p>+CGEQREQ: <cid>,<Traffic class>,<Maximum bitrate UL>,<Maximum bitrate DL>,<Guaranteed bitrate UL>,<Guaranteed bitrate DL>,<Delivery order>,<Maximum SDU size>,<SDU error ratio>,<Residual bit error</p>

		<p>ratio>,<Delivery of erroneous SDUs>,<Transfer delay>, <Traffic handling priority>, <Source statistics descriptor>, <Signalling indication>[<CR><LF></p> <p>+CGEQREQ:-</p> <p>OK</p>
Set Command	<p>AT+CGEQREQ=[<cid>[,<Traffic class>[,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL> [,<Guaranteed bitrate DL> [,<Delivery order>[,<Maximum SDU size> [,<SDU error ratio>[,<Residual bit error ratio>[,<Delivery of erroneous SDUs>[,<Transfer delay> [,<Traffic handling priority> [,<Source statistics descriptor> [,<Signalling indication>]]]]]]]]]]]</p> <p><peak>, <mean>]]]]]]]</p>	<p>Response</p> <p>This directive allows the MT send network "PDP context activation request message," TE specify a UMTS network quality of service. Using setup instructions, can provide the context specified by a (local) context identifier with parameter < cid > presentation. Instruction set by local context identification parameter < cid > identifies the context of a specified application. With + CGDCONT and + CGDSCONT command these parameters are the same, so + CGEQREQ instructions is actually the two expansion. The QoS application is composed of many parameters, the value of each can be set to separate. A special form of the directive, namely + CGEQREQ = < cid >, cancel the definition of < cid > service quality. The query command returns the context of the definition of each current Settings. Return value of a composite test instructions. If MT support several kinds of PDP type, the parameter value scope of each type of PDP returns on a single line</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><cid> 0 Default parameters, when the PDP activation, if corresponding cid service quality is not specified, this parameter is used, cid = 0 query command is not supported(1-16) numeric parameters; Is used to specify a particular PDP context defines the parameters for TE - MT interface is local, and can be used for other PDP context related instructions</p> <p><Traffic class> UMTS carry business application type, please refer to the types of QOS UMTS</p> <p>0 Conversational 1 Streaming 2 Interactive 3 Background 4 Subscribed value</p> <p><Maximum bitrate UL>, <Maximum bitrate DL> has the maximum bit rate 0 Subscribed value 65535 0kpbs 1-63 in 1 kbps increment 64-568 in 8 kbps increment</p>

	<p>576-8640 in 64 kbps increment 8641-16000 in 100 kbps increment</p> <p><Guaranteed bitrate UL> <Guaranteed bitrate DL> Parameter selection with <Maximum bitrate UL>, <Maximum bitrate DL></p> <p><Delivery order> Used to indicate whether UMTS bearing order send sdus string 0 No 1 Yes 2 Subscribed value</p> <p><Maximum SDU size> Maximum range of sdus string 0 Subscribed value 10-1500 in 10 octets increments 1502 - 1520 -</p> <p><SDU error ratio> Sdus list of error rate "mEe" form, said 10-3 m * 0E0 Subscribed value 1E2 100 (~0.22 bit/s) 7E3 200 (~0.44 bit/s) 1E3 500 (~1.11 bit/s) 1E4 1000 (~2.2 bit/s) 1E5 2 000 (~4.4 bit/s) 1E6 5000 (~11.1 bit/s)</p> <p><Delivery of erroneous SDUs> Used to indicate the error of the detected sdus string is sent 0 No 1 Yes 2 Not detected 3 Subscribed value</p> <p><Residual bit error ratio> Parameters with<SDU error ratio></p> <p><Transfer delay> 0 Subscribed value 10-150 (value needs to be divisible by 10 without remainder) 200-950 (value needs to be divisible by 50 without remainder) 1000-4000 (value needs to be divisible by 100 without remainder)</p> <p><Traffic handling priority> 0 The user to specify the transmission delay</p>
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		<p>1 Priority 1 2 Priority 2 3 Priority 3</p> <p><Source statistics descriptor> 0 characteristics of SDUs is unknown (default value) 1 characteristics of SDUs corresponds to a speech source</p> <p><Signalling indication> 0 PDP context is not optimized for signalling (default value) 1 PDP context is optimized for signalling <PDP_type>: (see CGDCONT command)</p> <p>AT+CGEQREQ=<cid> Can be used to cancel the setup parameters; All the quality of service option to 0, for example: the AT+CGEQREQ = 1,0,0,0,0,0 will give cancel the default parameters, rather than the corresponding parameters of cid to be cancelled.</p>
Example Command	AT+CGEQREQ=?	<p>Result</p> <p>+CGEQREQ: "IP", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0,1)</p> <p>+CGEQREQ: "PPP", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0,1)</p> <p>+CGEQREQ: "IPV6", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0,1)</p> <p>+CGEQREQ: "IPV4V6", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0,1)</p> <p>OK</p>

2.8.5 Quality Of Service Profile (Minimum Acceptable): AT+CGQMIN

Table 99: AT+CGQMIN Operation Commands

AT+CGQMIN Quality Of Service Profile (Minimum Acceptable)

Test Command	AT+CGQMIN=?	<p>Response +CGQMIN: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s)</p> <p>OK</p>
Read Command	AT+CGQMIN?	<p>Response +CGQMIN: <cid>,<precedence>,<delay>,<reliability>, <peak>,<mean>[<CR><LF> +CGQMIN: <cid>,<precedence>,<delay>, <reliability>,<peak>,<mean>[...]]</p> <p>OK</p>
Set Command	AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>,<mean>]]]]]	<p>Response</p> <p>This directive allows TE specifies a minimum acceptable quality of service. The briefing by the MT inspection, to be used with "the PDP context activation" message returned by the negotiation brief comparison. Instruction set by local context identification parameter < cid > identifies the context of a specified application. This is the same as + CGDCONT instructions used parameters, so the + CGQMIN instructions is actually + CDDCONT expansion. The QoS application is composed of many parameters, the value of each can be set to separate. Using set commands, but by (local) as context to specify a context identifier with parameter < cid > presentation, a special form of the directive, namely + CGQMIN = < cid >, cancel the definition of < cid > service quality. In this case, do not check the application of affirmatory. The query command returns the context of the definition of each current Settings. Returns a compound value test instructions. If MT support several kinds of PDP type, the parameter value scope of each type of PDP returns on a single line.</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
Example Command	AT+CGQMIN=?	<p>Result</p> <p>+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "PPP", (0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "IPV6", (0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "IPV4V6", (0-3),(0-4),(0-5),(0-9),(0-18,31)</p> <p>OK</p>

2.8.6 3G Quality Of Service Profile (Minimum Acceptable): AT+CGEQMIN

Table 100: AT+CGEQMIN Operation Commands

AT+CGEQMIN 3G Quality Of Service Profile (Minimum Acceptable)		
Test Command	AT+CGEQMIN=?	<p>Response</p> <p>+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s), (list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported <Guaranteed bitrate DL>s), (list of supported <Delivery order>s), (list of supported <Maximum SDU size>s), (list of supported <SDU error ratio>s), (list of supported <Residual bit error ratio>s), (list of supported <Delivery of erroneous SDUs>s), (list of supported <Transfer delay>s), (list of supported <Traffic handling priority>s), (list of supported <Source statistics descriptor>s), (list of supported <Signalling indication>s)</p> <p>OK</p>
Read Command	AT+CGEQMIN?	<p>Response</p> <p>+CGQMIN:<cid>,<Traffic class>,<Maximum bitrate UL>,<Maximum bitrate DL>,<Guaranteed bitrate UL>,<Guaranteed bitrate DL>,<Delivery order>,<Maximum SDU size>,<SDU error ratio>,<Residual bit error ratio>,<Delivery of erroneous SDUs>,<Transfer delay>,<Traffic handling priority>,<Source statistics descriptor>,<Signalling indication>[<CR><LF></p> <p>+CGQMIN:-</p> <p>OK</p>
Set Command	AT+CGEQMIN=[<cid>[,<Traffic class>[,<Maximum bitrate UL>[,<Maximum bitrate DL>[,<Guaranteed bitrate UL>[,<Guaranteed bitrate DL>[,<Delivery order>]	<p>Response</p> <p>This directive allows TE specifies a minimum acceptable 3 g service quality.The briefing by the MT inspection, to be used with "the PDP context activation" message returned by the negotiation brief comparison.Instruction set by local context identification parameter <cid> identifies the context of a specified application.This is the same as + CGDSCONT instructions used parameters, so the + CGEQMIN instructions is actually + CGDSCONT expansion.The QoS application is composed of many parameters, the value of each can be set to separate.Using set commands, but by (local) as context to specify a context identifier with parameter <cid> presentation, a special form of the directive, namely + CGEQMIN = <cid>, cancel the definition of <</p>

	<p>[,<MaximumSDU size> [,<SDU error ratio> [,<Residualbit error ratio> [,<Deliveryof erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority> [,<Source statistics descriptor> [,<Signalling indication>]]]]]]]]]]]]]]]<peak>, <mean>]]]]]] [,<peak>,<mean>]]]]]]]</p>	<p>cid > service quality.In this case, do not check the application of affirmatory.The query command returns the context of the definition of each current Settings.Returns a compound value test instructions.If MT support several kinds of PDP type, the parameter value scope of each type of PDP returns on a single line.Reference + CGEQMIN parameter specification</p> <p>OK ERROR/+CME ERROR: <err></p> <p>Result +CGEQMIN: "IP", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0, 1) +CGEQMIN: "PPP", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0, 1) +CGEQMIN: "IPV6", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0,1), (0, 1) +CGEQMIN: "IPV4V6", (0-4), (0-5760), (0-42200), (0-5760), (0-42200), (0-2), (0-1520), ("0E0", "1E1", "1E2", "7E3", "1E3", "1E4", "1E5", "1E6"), ("0E0", "5E2", "1E2", "5E3", "4E3", "1E3", "1E4", "1E5", "1E6", "6E8"), (0-3), (0,100-4000), (0-3), (0, 1), (0,1) <p>OK</p> </p>
Example Command	AT+CGEQMIN=?	

2.8.7 Attachment Or Detachment Of PS: AT+CGATT

Table 101: AT+CGATT Operation Commands

AT+CGATT Attachment Or Detachment Of PS		
Test Command	AT+CGATT=?	Response +CGATT: (list of supported <state>s) OK
Read Command	AT+CGATT?	+CGATT: <state> OK
Set Command	AT+CGATT=[<state>]	Response Executes instructions to attach the MT GPRS business, or from MT GPRS business separation. The instruction execution after the success, MT keep v. 250 ter instruction. If they are in the requested MT, ignore the instruction, and return OK. If unable to complete the requested state, it returns an ERROR or + CME ERROR response. Using + CMEE instructions that can extend error response. When MT by ATTACH into DETTACH state, any PDP context will be null and void automatically activated, will automatically to activate all the PDP context. Read command returns the current state of GPRS service. Test instruction for the request and the support of the GPRS business state information. OK ERROR/+CME ERROR: <err>
		Parameter <state> Indicates the state of PS attachment [0] Detached 1 Attached If omitted parameters < state >, will change the state of GPRS attached
Example Command	AT+CGATT?	Result To track the status of GPRS attached +CGATT: 1 OK
	AT+CGATT=?	+CGATT: (0,1) OK

2.8.8 Activate Or Deactivate PDP Context: AT+CGACT

Table 102: AT+CGACT Operation Commands

AT+CGACT Activate Or Deactivate PDP Context		
Test Command	AT+CGACT=?	<p>Response +CGACT: (list of supported <state>s)</p> <p>OK</p>
Read Command	AT+CGACT?	<p>Response +CGACT: <cid>,<state>[<CR><LF> +CGACT:<cid>,<state>[...]]</p> <p>OK</p>
Set Command	AT+CGACT=<state>,<cid>[,<cid>[,...]]]	<p>Response Use executes instructions, can be activated or to activate specified the PDP context.This instruction after successful execution, MT keep v. 250 ter instruction.If the PDP context is in the requested state, the state remains the same.If cannot access request specified context state, it returns an ERROR or + CME ERROR response.Using + CMEE instruction can extend the error response.When performing the activation of the instruction form, if has not attached MT GPRS, GPRS attached MT first, then try to activate the specified context.If adhesion failure, the MT response ERROR, or, if extended ERROR response can make, the MT with proper cannot connect failed messages response.If not specify < cid >, the instruction of activated form all definitions of context.If not specify < cid >, the instruction of failure forms disable all activation context.</p> <p>Query command returns all the PDP context of the definition of the current state of activation.</p> <p>Test instruction for the PDP context activation state of the request for support information.</p> <p>OK ERROR/+CME ERROR:<err></p> <p>Parameter <state> Indicates the state of PDP context activation [0] Deactivated 1 Activated</p> <p><cid> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p>
Example Command	AT+CGACT=?	<p>Result +CGACT: (0,1)</p> <p>(before the activation context, MT must be finished by automatic GPRS connection to connect to GPRS network)</p> <p>OK</p>

2.8.9 Enter Data State: AT+CGDATA

Table 103: AT+CGDATA Operation Commands

AT+CGDATA Enter Data State		
Test Command	AT+CGDATA=?	<p>Response +CGDATA:(list of supported <L2P>s)</p> <p>OK</p>
Set Command	AT+CGDATA=[<L2P>, [<cid> [,<cid> [...]]]]	<p>Response Executes instructions setting (MT) using one or more of the packet domain PDP type, perform the corresponding operation, establish communication between TE and network.This includes performing PS domain adhesion and activation of one or more of the PDP context.If the instruction execution is successful, will display the CONNECT, and into the v. 250 ter online data state;If the instruction execution failure, such as L2P parameters cannot be accepted by MT, MT return ERROR or + CME ERROR (if enabled) to response.</p> <p>This instruction executed successfully enter into the state of online data input after the AT command, MT unable to deal with.</p> <p>Data transfer is completed, and the layer 2 protocol terminated process successful, then re-enter v. 25 ter instructions state, MT OK to return the final result code.If an ERROR occurs to terminate or startup fails, then re-enter v. 25 ter instruction, MT return the final result code NO CARRIER or + CME ERROR (if enabled).To report the connection, activation and other errors instructions.</p> <p>Test command used to request the support of information related to the layer 2 protocol.This directive can be used in normal mode and modem compatibility mode.</p> <p>If communication to build success, MT return to CONNECT and into the v. 250 ter online data.</p> <p>CONNECT</p> <p>At the end of the data transmission and the layer 2 protocol terminated process completed successfully, re-enter v. 250 ter life state, MT OK to return the final result code.</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter <L2P> "PPP" character parameters;Used to represent a TE and MT between using the layer 2 protocol</p>

		<p><cid> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p> <p>If the cid values of MT is undefined, the MT will return an ERROR or +CME ERROR response. Otherwise, the intermediate result code CONNECT MT, and into the v. 25 ter connection data state;</p> <p>If have no +CGATT and +CGACT GPRS attached instruction execution and activate the PDP context, the two process can be before or at the PDP to start the process;</p> <p>Activation, if in the PDP start context to context activation request to provide the required information, and may designate one or more <cid>. In the process of every aspect of the PDP, MT can get the following some or all of the information - MT with prior knowledge, such as it can only achieve a PDP type. In the process of the PDP start, TE can provide a PDP for MT type and/or the PDP address;</p> <p>If any conflict of information, this command failed. Any of the above information the PDP address will be according to their types and PDP <cid> order of appearance with the instructions specified in any context definition of any types of PDP and comparing the PDP address. With a PDP context definition matching types must strictly match;</p> <p>If the PDP address is the same or one or two of them address is not specified, argues that the PDP address matching. For example, if the PPP NCP request to determine the PDP type for IP without the PDP address, MT will search in the specified context definition a PDP type for the definition of IP and no PDP address. Using the available about PDP types and can use static PDP address matching values, together with the other information in the PDP context definition, to activate the context. If no static PDP address, request a dynamic address;</p> <p>If not given <cid> or there is no matching context definition, MT will attempt to use any available information activation context. The context of the other parameter is set to the default value.</p>
Example Command	AT+CGDATA=?	<p>Result</p> <p>TE and MT between the layer 2 protocol is used "PPP" +CGDATA: ("PPP")</p> <p>OK</p>

2.8.10 Show PDP Address: AT+CGPADDR

Table 104: AT+CGPADDR Operation Commands

AT+CGPADDR Show PDP Address

Test Command	AT+CGPADDR=?	<p>Response +CGPADDR: (list of defined <cid>s) OK</p>
Set Command	AT+CGPADDR=[<cid>[,<cid>[,...]]]	<p>Response Can be returned using the instruction execution, specify the context identifies the PDP address list. After test instruction execution, return < cid > list of values. +CGPADDR:<cid>,<PDP_addr>[<CR><LF> +CGPADDR:<cid>,<PDP_addr>[...]]</p> <p>OK ERROR/+CME ERROR: <err></p> <p>Parameter <cid> A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</p> <p><PDP_address> A string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_address> is omitted if none is available</p>
Example Command	AT+CGPADDR=1 AT+CGPADDR=?	<p>Result Displays the current IP address +CGPADDR: 1,10.72.196.55</p> <p>OK +CGPADDR: (1)</p> <p>OK</p>

2.8.11 GPRS Mobile Station Class: AT+CGCLASS

Table 105: AT+CGCLASS Operation Commands

AT+CGCLASS GPRS GPRS Mobile Station Class		
Test Command	AT+CGCLASS=?	<p>Response +CGCLASS:(list of supported <class>s) OK</p>
Read	AT+CGCLASS?	Response

Command		+CGCLASS:<class> OK
Set Command	AT+CGCLASS=<class>	<p>Response Using set commands, can make the MT according to specified categories.If they do not support the requirements of the category, it returns the ERROR or + CME ERROR response.</p> <p>The query command returns the current GPRS mobile range.</p> <p>Test instructions used to obtain all supported GPRS mobile information list of categories.</p> <p>OK ERROR/+CME ERROR: <err></p> <p>Parameter <class> Character parameters;Said the category of the GPRS mobile station (in descending order function);The current default value is "A", and value range is only "A" “A” Class A phone at the same time provide GPRS and circuit switching carry business ability.Namely, at the same time both general GSM voice business and can receive GPRS packets.GPRS business after launch, users will be able to wear based on the integrated microphone headset bluetooth technology, using PDA with human characteristics, such as business, Palm, WinCE, etc.), make a phone call while surfing on the Internet “B” If MS can listen at the same time two system paging information (such as: through GPRS paging channel), MS can be attached to the GSM system and GPRS system at the same time, but at some point it can only be used or circuit switching operations, or use packet switching operations “C” Only in GPRS mode for category C, MS either adhere to the GSM network, or adhere to the GPRS network.It only by artificial way to switch, there is no way for two kinds of operation at the same time.</p>
Example Command	AT+CGCLASS? AT+CGCLASS=?	<p>Result GPRS mobile station category queries +CGCLASS: "A"</p> <p>OK Mobile station all supported mobile category +CGCLASS: ("A")</p> <p>OK</p>

2.8.12 Packet Domain Event Reporting: AT+CGEREP

Table 106: AT+CGEREP Operation Commands

AT+CGEREP Packet Domain Event Reporting		
Test Command	AT+CGEREP=?	<p>Response +CGEREP: (list of supported <mode>s),(list of supported <bfr>s)</p> <p>OK</p>
Read Command	AT+CGEREP?	<p>+CGEREP:<mode>,<bfr></p> <p>OK</p>
Set Command	AT+CGEREP=[<mode>[,<bfr>]]	<p>Response Using setting commands are available in GPRS MT or network side when some event, enable or disable from MT send unsolicited result code + CGEV: XXX to TE.< mode > control of yard handling request results.</p> <p>The query command returns the current mode and buffer Settings.</p> <p>MT support test instruction to return to the current mode and buffer Settings.</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter <mode> [0] Buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can be discarded. No codes are forwarded to the TE.</p> <p>1 Discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE.</p> <p>2 Buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE.</p> <p><bfr> [0] MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is entered.</p> <p>1 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).</p> <p>If omit < mode > parameters, the parameter values of instructions executed can assume that for the last one or use the default value of [0]; If omit < BFRS > parameters, the parameter values of instructions executed can assume that for the last one of use value, or use the default</p>

		[0].
Example Command	AT+CGEREP=2 AT+CGATT=0	Result PDP context to activate GPRS network mandatory separationOK OK +CGEV: ME DETACH

Table 107 : Currently Defined Active Code And The Corresponding Event

Take the initiative to the result code	The corresponding event	instructions
+CGEV:REJECT <PDP_type>, <PDP_addr>	MT refused to network to activate the PDP context	MT refused to network to the PDP context activation request message, and can't use + CRING will report the request, use this unsolicited result code to report the situation
+CGEV:NWREACT <PDP_type>,<PDP_addr>, [<cid>]	Network request context to reactivate	If MT known < cid > for reactivation of the context, offers
+CGEV:NWDEACT <PDP_type>,<PDP_addr>, [<cid>]	Network context to activate	If MT know < cid > for activation context provides
+CGEV:MEDEACT <PDP_type>,<PDP_addr>, [<cid>]	ME mobile device context to activate	If MT know < cid > for activation context provides
+CGEV: NW DETACH	Forced separation of GPRS network	This means that all context activation failure, won't be going to activate the information in the paper
+CGEV: ME DETACH	Mobile GPRS separation	This means that all context activation failure, won't be going to activate the information in the paper
+CGEV:NW CLASS <class>	Network forced MS category of change	Reporting the highest priority categories available
+CGEV: ME CLASS <class>	Network equipment forced MS category of change	Reporting the highest priority categories available

2.8.13 Network Registration Status: AT+CGREG

Table 108: AT+CGREG Operation Commands

AT+CGREG Network Registration Status		
Test Command	AT+CGREG=?	+CGREG:(list of supported <n>s) OK

Read Command	AT+CGREG?	+CGREG:<n>,<stat>[,<lac>,<ci>,<AcT>] OK
Set Command	AT+CGREG=[<n>]	<p>Response Set the command control of GPRS registered some unsolicited result code display.</p> <p>When $< n > = 1$ and MT GPRS registered state changes, the instruction set control unsolicited result code + CGREG, that there will be a + CGREG: < stat > prompt.</p> <p>When $< n > = 2$ and registered community change, there will be: + CGREG: < stat > [,< lac >,< ci >,< > AcT].</p> <p>Query command returns the code < n > and the display of the form a can show that the parameters of the MT network registration status < stat >. Only when the $< n > = 2$ and MT after registration in the network, did not return to the location information element < lac >,< AcT > and < ci >.</p> <p>OK ERROR/+CME ERROR:<err></p> <p>Parameter <n> [0] Disable network registration unsolicited result code +CGREG 1 Enable network registration unsolicited result code +CGREG:<stat> 2 Enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>[,<Act>]] <stat> 0 Unregistered;ME no current search new registered business operator 1 Registered, local networks 2 Unregistered, but ME is searching new registered business operator 3 Registration is rejected 4 Unknown 5 Registered, roaming <lac> String type, two bytes location area code in hexadecimal format (e.g. “00C3” equals 195 in decimal) <ci> String type, two byte cell ID in hexadecimal format <Act> 0 GSM</p>

		1 GSM compact 2 UTRAN 3 GSM w/EGPRS 4 UTRAN w/HSDPA 5 UTRAN w/HSUPA 6 UTRAN w/HSDPA and HSUPA 7 E-UTRAN 8 TDS-CDMA 9 TDS/HSDPA 10 TDS/HSUPA 11 TDS/HSDPA and HSUPA
Example Command	AT+CGREG=1 AT+CGREG?	Result OK +CGREG: 1,1 OK

2.8.14 Select Service For Mo SMS Messages: AT+CGSMS

Table 109: AT+CGSMS Operation Commands

AT+CGSMS Select Service For Mo SMS Messages		
Test Command	AT+CGSMS=?	Response +CGSMS:(list of currently available <service>s) OK
Read Command	AT+CGSMS?	Response +CGSMS:<service> OK
Set Command	AT+CGSMS=<service>	Response Set up instructions for the MT MO SMS messages sent, specified services or services preferred. Query command returns the currently selected services or services preferred. Test instruction for the request associated with the service and service priority of the currently available information. OK ERROR/+CME ERROR: <err> Parameter <service> A numeric parameter which indicates the service or service preference to be used 0 GPRS

		1 Circuit switch 2 GPRS preferred (use circuit switched if GPRS not available) 3 Circuit switch preferred (use GPRS if circuit switched not available)
Example Command	AT+CGSMS=?	Result +CGSMS: (0-3) OK

2.8.15 Dial-up Authentication Command: AT\$QCPDPP

Table 110: AT\$QCPDPP Operation Commands

AT\$QCPDPP Dial-up Authentication Command		
Test Command	AT\$QCPDPP=?	Response \$QCPDPP: (1-50),(0-3),, OK
Read Command	AT\$QCPDPP?	Response \$QCPDPP: 1,3,"1234" \$QCPDPP: 2,0 \$QCPDPP: 3,0 \$QCPDPP: 4,0 \$QCPDPP: 5,0 \$QCPDPP: 6,0 \$QCPDPP: 7,0 \$QCPDPP: 8,0 \$QCPDPP: 9,0 \$QCPDPP: 10,0 \$QCPDPP: 11,0 \$QCPDPP: 12,0 \$QCPDPP: 13,0 \$QCPDPP: 14,0 \$QCPDPP: 15,0 \$QCPDPP: 16,0 \$QCPDPP: 17,0 \$QCPDPP: 18,0 \$QCPDPP: 19,0 \$QCPDPP: 20,0 \$QCPDPP: 21,0 \$QCPDPP: 22,0 \$QCPDPP: 23,0 \$QCPDPP: 24,0 \$QCPDPP: 25,0

		<p>\$QCPDPP: 26,0 \$QCPDPP: 27,0 \$QCPDPP: 28,0 \$QCPDPP: 29,0 \$QCPDPP: 30,0 \$QCPDPP: 31,0 \$QCPDPP: 32,0 \$QCPDPP: 33,0 \$QCPDPP: 34,0 \$QCPDPP: 35,0 \$QCPDPP: 36,0 \$QCPDPP: 37,0 \$QCPDPP: 38,0 \$QCPDPP: 39,0 \$QCPDPP: 40,0 \$QCPDPP: 41,0 \$QCPDPP: 42,0 \$QCPDPP: 43,0 \$QCPDPP: 44,0 \$QCPDPP: 45,0 \$QCPDPP: 46,0 \$QCPDPP: 47,0 \$QCPDPP: 48,0 \$QCPDPP: 49,0 \$QCPDPP: 50,0</p> <p>OK</p>
Set Command	AT\$QCPDPP=<cid>, <auth_type>, <password>, <username>	<p>Response OK ERROR/+CME ERROR: <err></p> <p>Parameter <cid> 1-50 index, The default value is 1 <auth_type> Write three authentication mode, by default NONE PAP CHAP PAP&CHAP <password> <username></p>
Example Command	AT\$QCPDPP=1,3, aaaa, 1234	<p>Result OK</p>

2.9 Short Message Commands

2.9.1 Select Message Service: AT+CSMS

Table 111: AT+CSMS Operation Commands

AT+CSMS Select Message Service		
Test Command	AT+CSMS=?	+CSMS:(list of supported <service>s) OK
Read Command	AT+CSMS?	+CSMS:<service>,<mt>,<mo>,<bm> OK
Set Command	AT+CSMS=<service>	<p>Response This instruction is applicable to the PDU format and TEXT format, set up instructions for set short message business ability, supported by a return to ME a short message business types: including mobile station launched SMS - MO < MO > and receive SMS - MT MT > < the short message and cell broadcast message SMS - CB business namely < bm >. +CSMS:<mt>,<mo>,<bm></p> <p>OK ERROR/+CME ERROR: <err></p> <p>Parameter <service> 0 GSM03.40 and 03.41 (SMS the AT command syntax and GSM07.05 4.7.0 version compatibility in Phase 2; support don't need a new command syntax characteristics of Phase 2 + (for example: the new coding scheme using Phase 2 + message routing)) 1 GSM03.40 and 03.41 (SMS the AT command syntax and GSM07.05 Phase 2 + versions compatible)</p> <p><mt> 0 Type not supported 1 Type supported</p> <p><mo> 0 Type not supported 1 Type supported</p> <p><bm> 0 Type not supported 1 Type supported</p>

Example Command	AT+CSMS=0	<p>Result</p> <p>Set the AT command compatible with Phase 2, support SMS - MO, SMS - MT, SMS – CB +CSMS: 1, 1, 1</p>
	AT+CSMS?	<p>OK</p> <p>Set the AT command compatible with Phase 2, support SMS - MO, SMS - MT, SMS – CB +CSMS: 0,1,1,1</p> <p>OK</p>

2.9.2 Preferred Message Storage: AT+CPMS

Table 112: AT+CPMS Operation Commands

AT+CPMS Preferred Message Storage		
Test Command	AT+CPMS=?	<p>Response</p> <p>+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s)</p> <p>OK</p>
Read Command	AT+CPMS?	<p>Response</p> <p>+CPMS:<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3></p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
Set Command	AT+CPMS=<mem1>[,<mem2>[,<mem3>]]	<p>Response</p> <p>The directive instruction is suitable for the pdus and TEXT mode, used to define a short message to read and write operations such as the use of storage area. Use setup instructions, can choose to read, store operations such as memory, including < mem1 >, < mem2 > and < mem3 >, the three memory can be set to SM and ME, SM SIM card, namely the ME for the module.</p> <p>+CPMS:<used1>,<total1>,<used2>,<total2>,<used3>,<total3></p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p>
		<p>Parameter</p> <p><mem1></p> <p>Messages to be read and deleted from this memory storage</p> <p>AT+CMGL, AT+CMGR , AT+CMGD</p> <p>“SM” SIM message storage</p>

		<p>“ME” Mobile equipment message storage</p> <p><mem2></p> <p>Messages will be written and sent to this memory storage</p> <p>AT+CMSS and AT+CMGW</p> <p>“SM” SIM message storage</p> <p>“ME” Mobile equipment message storage</p> <p><mem3></p> <p>Received messages will be placed in this memory storage if routing to PC is not set (“+CNMI”)</p> <p>“SM” SIM message storage</p> <p>“ME” Mobile equipment message storage</p> <p>< used1, 2, 3 > < mem1, 2, 3 > the number of currently stored in the message</p> <p>< total1, 2, 3 > < mem1, 2, 3 > the total number of messages that can be stored</p> <p>The AT + CPMS used? Look at what is the preferred storage, and then according to their own need to choose one of them. For example, using the AT + CPMS = "ME", "SM", "SM" to choose ME. The first choice is to read and write to memory, rather than a new short message storage optimization order. In order to make them consistent, it is recommended that you < mem1 > = < mem3 > or are all the same.</p>
Example Command	AT+CPMS? AT+CPMS="SM"	<p>Result:</p> <p>Read and delete the message priority use memory is the default is ME</p> <p>+CPMS: "ME",0,23,"ME",0,23,"SM",35,50</p> <p>OK</p> <p>Will read and delete the message priority use of memory set to SM. Article 35 - the current Sim card stores the 35 short message; Article 50 - Sim card can store 50 short message; Sim card is not full</p> <p>+CPMS: 35,50,0,23,35,50</p> <p>OK</p>

2.9.3 Message Format: AT+CMGF

Table 113: AT+CMGF Operation Commands

AT+CMGF Message Format		
Test Command	AT+CMGF=?	Response +CMGF: (list of supported <mode>s)

		OK
Read Command	AT+CMGF?	Response +CMGF: <mode> OK
Set Command	AT+CMGF=[<mode>]	Response Set command is used to specify the format of the input and send a short message, namely tell TA input and output message format. The current version supports pdus and TEXT two short message format, and can pass the arbitrary switching OK
		Parameter <mode> Display messages, lists, read and write instructions and to receive message of active use the format of the report 0 PDU mode, default is "0" 1 Text mode
Example Command	AT+CMGF?	Result Query the current short message format, the default is the PDU format +CMGF: 0 OK
	AT+CMGF=1	Set the short message format into a TEXT format OK

2.9.4 Short Message Service Failure Result Code

Table 114: +CMS ERROR Operation Commands

+CMS ERROR Short Message Service Failure Result Code	
-	<p>Short message business fail result code describing a mobile device or network error. Its action is similar to coding error results. The coding is a command fails to. Return the result of the code: + CME ERROR: "err > and + CMS ERROR: < err > used to indicate the ME or network side ERROR code short message business failure description of a mobile device or network ERROR. Its action is similar to coding error results. The coding is a command fails to. The returned result code: + CME ERROR: < err > and + CMS ERROR: < err > used to indicate the ME or network ERROR</p> <p>+CMS ERROR: <err> or +CME ERROR: <err></p>

Table 115: +CMS ERROR Parameters in detail

Parameter	Values	Instructions	Related to the AT command
<err>	0~127	GSM value in Annex E 04.11-2	+CMGS, +CMSS
	128~255	GSM in section 03.40 the first 9.2.3.22 the values	
	300	ME the fault	
	301	Leave ME SMS business	+CSMS
	302	Operation is not allowed	All SMS related the AT command
	303	Operation is not supported	All SMS related the AT command
	304	Invalid parameter PDU mode	+CMGS, +CMGW
	305	Invalid parameter TEXT mode	+CMGS, +CMGW, +CMSS
	310	SIM card is not inserted	All SMS related the AT command
	311	Need a SIM card PIN	All SMS related the AT command
	312	Need PH - SIM card PIN	All SMS related the AT command
	313	SIM card fault	All SMS related the AT command
	314	SIM card is busy	All SMS related the AT command
	315	SIM error	All SMS related the AT command
	316	Need a SIM card PUK	All SMS related the AT command
	317	Need a SIM card PIN2	All SMS related the AT command
	318	Need a SIM card PUK2	All SMS related the AT command
	320	Storage failure	-
	321	Invalid index of storage	+CMGR, +CMSS, +CMGD
	322	Storage is full	+CMGW
	330	The SMSC address is unknown	+CSCA?, +CMSS, +CMGS
	340	No expectations + CNMA confirmed	+CNMA
	500	An unknown error	All SMS related the AT command
	511	The reserved values within 256 ~ 511	-
	512	According to the manufacturer	+CMGS, +CMSS

2.9.5 Service Center Address (Not Effective in CDMA Network): AT+CSCA

Table 116: AT+CSCA Operation Commands

AT+CSCA Service Center Address		
Test Command	AT+CSCA=?	Response OK
Read Command	AT+CSCA?	Response +CSCA:<sca>,<tosca> OK
Set Command	AT+CSCA=<sca>[,<osca>]	Response This instruction is applicable to the PDU format and TEXT format, use the setup instructions, can upgrade the SMSC (Short Message Service Center) address. By the address, can send SMS, mobile terminal TEXT

		<p>mode, send instructions and write can use the Settings; PDU mode, send and setup instructions can also use the Settings, but on condition that after the PDU encoding the SMSC address length is equal to 0. Here must be though the user was able to set the short message service center address, but I can't follow one's inclinations, or the short message is sent out, so before sending short message you must first get a SIM card belonging to a short message service center address</p> <p>OK</p>
Example Command	AT+CSCA="+8613800210500",145 AT+CSCA?	<p>Parameter</p> <p><sca> GSM 04.11 RP SC address value field using character; BCD number (or GSM alphabetic characters by default) need to convert character; <tosca> the address specified type</p> <p><tosca> Service center address format; GSM 04.11 RP SC type integer 8-bit address (please refer to the default value <toda>) ISDN/telephone numbering 129, the state of/the unknown of the world. ISDN/telephone numbering 145 design, the number of the world. ISDN/telephone numbering 161, the state's number. Other values refer to 128 ~ 255 GSM 10.5.4.7 04.08 chapter</p> <p>Enter the SMS service center address should be used when the format prescribed by the service provider.</p> <p>Result Set the SMS service center address, and save it in a SIM card OK</p> <p>The current Sim card short message service center address is +8613800210500 +CSCA:"+8613800210500",145 OK</p>

2.9.6 Set SMS Text Mode Parameters: AT+CSMP

Table 117: AT+CSMP Operation Commands

AT+CSMP Set SMS Text Mode Parameters		
Test Command	AT+CSMP=?	Response OK
Read Command	AT+CSMP?	Response +CSMP:<fo>,<vp>,<pid>,<dcs> OK
Set	AT+CSMP=[<fo>[,<v	Response

Command	<p><code>p>[,<pid>[,<dcs>]]]</code></p> <p>This directive is only used to TEXT format. When the network side send short messages or send short messages stored in the memory, using set commands can choose need additional parameter selection. In addition, also can be used to set from the SMSC receives the short message when the period of validity of (<code>< vp ></code> scope: 0 ~ 255) or define valid termination of absolute time (<code>< vp ></code> string).</p> <p><code>< the vp ></code> format designated by <code>< fo ></code>. If TA EVPF support enhanced valid format, please refer to the GSM 03.40) should put the hexadecimal code strings in double quotes (please refer to the <code>< pdu ></code>).</p> <p>OK</p>																
	<p>Parameter</p> <p><code><fo></code> Depends on the instruction or the code; GSM SMS - 03.40 DELIVER before 8; SMS - SUBMIT (the default value: 17); Or SMS -command using integer (default: 2)</p> <p><code><vp></code> Depending on the SMS - SUBMIT <code>< fo ></code> Settings; Using integer (default: 167) or time - character (please refer to the <code>< dt ></code>) or enhanced (located in hexadecimal code string in double quotes, and support \$(EVPF \$) of GSM 03.40 TP - the period of validity</p> <p><code><pid></code> Please refer to the GSM 03.40; The integer TP - agreement - logo (the default: 0)</p> <p><code><dcs></code> Depends on the instruction or the code; GSM SMS data encoding scheme in 03.38; Or cell broadcast data using integer coding scheme</p> <p>Default value that:</p> <p><code><fo>:</code> 17(0x11)</p> <p>By MTI worth <code>< fo ></code> defines the SMS SMS - SUBMIT type parameters of six domains (please refer to GSM, 03.40).</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>B7</th><th>B6</th><th>B5</th><th>B4</th><th>B3</th><th>B2</th><th>B1</th><th>B0</th></tr> <tr> <td>RP</td><td>UDHI</td><td>SRR</td><td>VPF</td><td>-</td><td>RD</td><td>MTI</td><td>-</td></tr> </table> <p>MTI: Message type <code>b1=0&b0=0</code> Said SMS-DELIVER <code>b1=0&b0=1</code> Said SMS-SUBMIT</p> <p>Please refer to the GSM 03.40 other message type</p> <p>VPF: To format the text effective time <code>b4=1&b3=0:</code> Relative format <code><vp>:</code> Valid time of 167 short messages defined If the VPF is relative format, is defined as follows:</p>	B7	B6	B5	B4	B3	B2	B1	B0	RP	UDHI	SRR	VPF	-	RD	MTI	-
B7	B6	B5	B4	B3	B2	B1	B0										
RP	UDHI	SRR	VPF	-	RD	MTI	-										

		<table border="1"> <tr> <td><vp> value</td><td>Valid time</td></tr> <tr> <td>0-143 (00 to 8F)</td><td>(vp + 1) x5 minutes</td></tr> <tr> <td>144-167(90 to A7)</td><td>12 小时 + ((vp - 143) × 30 minutes</td></tr> <tr> <td>168-196(A8 to C4)</td><td>(vp - 166) × 1 day</td></tr> <tr> <td>197-255(C5 to FF)</td><td>(vp - 192) × 1 week</td></tr> </table> <p><pid>: 0-255 protocol identifier, integer format. The default is 0, refer to section 07.05 9.2.3.9</p> <p><dcs>: 0-255 data decoding scheme. With reference to the GSM 03.38. UCS2.</p> <p>The SMS TEXT mode, the TE - DELIVER messages stored in optimizing memory (please refer to the message written to storage instruction + CMGW), <the vp> field can replace <SCTS> use; For parameter < DCS > different SIM CARDS may have different default values, and TEXT in the TEXT mode is used when coding scheme. DCS, for example, a value of 8 representative UCS2 code, DCS value is 0 ASCII.</p>	<vp> value	Valid time	0-143 (00 to 8F)	(vp + 1) x5 minutes	144-167(90 to A7)	12 小时 + ((vp - 143) × 30 minutes	168-196(A8 to C4)	(vp - 166) × 1 day	197-255(C5 to FF)	(vp - 192) × 1 week
<vp> value	Valid time											
0-143 (00 to 8F)	(vp + 1) x5 minutes											
144-167(90 to A7)	12 小时 + ((vp - 143) × 30 minutes											
168-196(A8 to C4)	(vp - 166) × 1 day											
197-255(C5 to FF)	(vp - 192) × 1 week											
Example Command	AT+CSMP=17,167,0, 8 AT+CSMP?	Result Set the effective time of 167 of TP, namely 24 hours; Data encoding scheme for UCS2 SMS OK +CSMP: 17,167,0,8 OK										

2.9.7 Show SMS Text Mode Parameters: AT+CSDH

Table 118: AT+CSDH Operation Commands

AT+CSDH Show SMS Text Mode Parameters		
Test Command	AT+CSDH=?	Response +CSDH:(list of supported <show>s) OK
Read Command	AT+CSDH?	Response +CSDH:<show> OK
Set Command	AT+CSDH=[<show>]	Response The directive is only used to TEXT format, use the setup instructions, whether can be controlled in TEXT mode code shown in the results of detailed header information, thus the result code to TEXT format to provide more information OK

		ERROR/+CME ERROR: <err> Parameter <show> 0 Do not show header values defined in commands +CSCA, +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid>, <dcs>) and <length>, <toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERS and SMS-SUBMITs in text mode 1 Show the values in result codes
Example Command	AT+CSDH?	Result Query the current value, the return to "0", in + CMT, + CMGL, + CMGR does not display the header information +CSDH: 0
		OK
	AT+CMGF=1	OK
	AT+CMGR=20	+CMGR:"REC READ","10086","","16/01/28,13:24:31+32",6D3B3002 OK Query the current value, return to a "1", directives in the relevant information displayed in the head OK
	AT+CSDH=1	+CMGR:"REC READ","10086",, "16/01/28,13:25:03+32",161,100,0,8,"+8613800210502",145,2,6D3B30 02
	AT+CMGR=20	OK

2.9.8 Select Cell Broadcast Message Types: AT+CSCB

Table 119: AT+CSCB Operation Commands

AT+CSCB Select Cell Broadcast Message Types		
Test Command	AT+CSCB=?	Response +CSCB: (list of supported <mode>s) OK
Read Command	AT+CSCB?	Response +CSCB:<mode>,<mids>,<dcss> OK
Set	AT+CSCB=[<mode>[Response

Command	,<mids>[,<dcss>]]]	<p>The instruction is used for PDU format and TEXT format, using set commands, the types of CBM can choose ME to receive</p> <p>OK ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><mode> [0] Message types specified in <mids> and <dcss> are accepted 1 Message types specified in <mids> and <dcss> are not accepted</p> <p><mids> String type, all different possible combinations of CBM message identifiers (refer to <mid>) (default is empty string), e.g. “0,1,5,320-478,922”</p> <p><dcss> String type, all different possible combinations of CBM data coding schemes (refer to <dcs>) (default is empty string), e.g. “0-3,5”</p> <p>< mids > and < DCSS > supported parameter values; Can declare the 20 most value range for each parameter.</p>
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2.9.9 Save Settings: AT+CSAS

Table 120: AT+CSAS Operation Commands

AT+CSAS Save Settings		
Test Command	AT+CSAS=?	<p>Response</p> <p>+CSAS: (list of supported <profile>s)</p> <p>OK</p>
Set Command	AT+CSAS=[<profile>] Currently only supports <profile>=0	<p>Response</p> <p>Use the instruction execution, can set the current message service saved to permanent memory. Set a TA can include several presentations. Can save the following instructions specified Settings:</p> <p>Service center address: +CSCA</p> <p>Set the TEXT format parameters: +CSMP</p> <p>Choose the cell broadcast message types: + CSCB (if)</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><profile> [0] ~ 255 briefing number related to the manufacturer; Used to store the Settings, the scope for the largest scope, related to the manufacturer.</p>

Example Command	AT+CSAS=0 AT+CSAS=?	Result OK +CSAS: 0 OK
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2.9.10 Restore Settings: AT+CRES

Table 121: AT+CRES Operation Commands

AT+CRES Restore Settings		
Test Command	AT+CRES=?	Response +CRES:(list of supported <profile>s) OK
Set Command	AT+CRES=[<profile>] Currently only supports <profile>=0	Response Using executes instructions, can set the message service recovery to the current memory from permanent memory. Set a TA can include several presentations. Can restore the following instruction set: Service center address: +CSCA Set the TEXT format parameters: +CSMP Choose the cell broadcast message types: + CSCB (if) OK ERROR/+CME ERROR: <err> Parameter <profile> [0] ~ 255 briefing number related to the manufacturer; Used to store the Settings

2.9.11 SMS Event Reporting Configuration: AT+CNMI

Table 122: AT+CNMI Operation Commands

AT+CNMI SMS Event Reporting Configuration		
Test Command	AT+CNMI=?	Response +CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s) OK
Read Command	AT+CNMI?	Response +CNMI:<mode>,<mt>,<bm>,<ds>,<bfr> OK

		<p>Response</p> <p>The instruction is used for PDU format and TEXT format, when TE is in a state with (such as: DTR signal in the "ON" state), using set commands, how can be set up new information from the network side sent to TE. If TE in the inactive state (such as: DTR signal in the "OFF" state), message receiving process should be in accordance with the provisions of the GSM 03.38. If DTR signals are unavailable or state are ignored (v. 25 ter instructions: & D0), can use + CNMA verification process to ensure the reliable transmission of the message. Select the message service instruction + CSMS should be used to detect whether the ME support receives the SM and CBM, and determine whether the messages sent directly to the TE need to confirm (please refer to the + CNMA instruction)</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Set Command	AT+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	<p>Parameter</p> <p><mode> Control on the progress of the specified unsolicited result code</p> <p>[0] Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.</p> <p>1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.</p> <p>2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.</p> <p><mt> The rules for storing received SMS depend on its data coding scheme (refer to GSM 03.38 [2]) and preferred memory storage (+CPMS setting; and the value is:</p> <p>[0] No SMS-DELIVER indications are routed to the TE.</p> <p>1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE by using unsolicited result code: +CMTI: <mem>,<index></p> <p>2 SMS-DELIVERS (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or+CMT:<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosc a>,<length>]<CR><LF><data> (Text mode enabled; about parameters in</p>

		<p>italics,</p> <p>refer to Command Show Text Mode Parameters +CSDH or ^HCMT: <oa>,<scts>,<lang>,<fmt>,<length>,<prt>,<prv>,<type>,<stat><CR><LF><data> (Text mode for CDMA SMS). Class 2 messages result in indication as defined in <mt>=1.</p> <p>3 Class 3 SMS-DELIVERS are routed directly to TE by using unsolicited result codes defined in <mt>=2. Messages of other classes result in indication as defined in <mt>=1.</p> <p><bm> The rules for storing received CBMs depend on its data coding scheme (refer to GSM 03.38 [2]) and the setting of Select CBM Types (+CSCB); and the value is:</p> <ul style="list-style-type: none"> [0] No CBM indications are routed to the TE. 2 New CBMs are routed directly to the TE using unsolicited result code: +CBM:<length><CR><LF><pdu> (PDU mode); or +CBM:<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode) <p><ds> [0] No SMS-STATUS-REPORTS are routed to the TE.</p> <p>1 SMS-STATUS-REPORTS are routed to the TE using unsolicited result code: +CDS:<length><CR><LF><pdu> (PDU mode) +CDS:<fo>,<mr>,[<ra>],<scts>,,<st> (text mode)</p> <p><bfr> [0] TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1...3 is entered ("OK" response shall be given before flushing the codes).</p> <p>1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered.</p>
Example Command	AT+CNMI=2,1 AT+CNMI=2,2	<p>Result</p> <p>To store SMS to ME or after a SIM card, give a new message OK</p> <p>+CMTI: "SM",1</p> <p>Received text messages and direct message content is given. OK</p> <p>+CMT:"+86139*****","16/02/01,13:06:16+32" hi</p>

1) the <mt> parameter



<mt>		Receiving procedure for different message data coding schemes (refer 3GPP TS 23.038 [2])
0		no class: as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory class 0: as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory if message is tried to be stored class 1: as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory class 2: as in 3GPP TS 23.038 [2] class 3: as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory message waiting indication group (discard message): as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory if message is tried to be stored message waiting indication group (store message): as in 3GPP TS 23.038 [2], but use <mem3> as preferred memory
1		as <mt>=0 but send indication if message stored successfully
2		no class: route message to TE class 0: as in 3GPP TS 23.038 [2], but also route message to TE and do not try to store it in memory class 1: route message to TE class 2: as <mt>=1 class 3: route message to TE message waiting indication group (discard message): as in 3GPP TS 23.038 [2], but also route message to TE and do not try to store it in memory message waiting indication group (store message): as <mt>=1
3		class 3: route message to TE others: as <mt>=1

2) SMS-DELIVER result code and acknowledgement

<mt>	no class or class 1	class 0 or message waiting indication group (discard)	class 2 or message waiting indication group (store)	class 3
1	+CMTI	[+CMTI ¹⁾]	+CMTI	+CMTI
2	+CMT & +CNMA ³⁾	+CMT [& +CNMA ²⁾]	+CMTI	+CMT & +CNMA ³⁾
3	+CMTI	[+CMTI ¹⁾]	+CMTI	+CMT & +CNMA ³⁾
¹⁾ result code is sent when ME does not have other display device than AT interface. ²⁾ acknowledgement command must be sent when +CSMS <service> value equals 1 and ME does not have other display device than AT interface. ³⁾ acknowledgement command must be sent when +CSMS <service> value equals 1.				

3) <bm> parameter

<bm>	Receiving procedure for different message data coding schemes (refer 3GPP TS 23.038 [2])
0	all schemes: as in 3GPP TS 23.038 [2]; if CBM storage is supported, store message to "BM" (or some manufacturer or data coding scheme specific memory)
1	all schemes: as <bm>=0 but send indication if message stored successfully
2	all schemes: route message to TE unless ME has detected a special routing to somewhere else (e.g. to (U)SIM; an indication may be sent if message stored successfully)
3	class 3: route message to TE others: as <bm>=1 (if CBM memory storage is supported)

4) SMS-STATUS-REPORT result code and acknowledgement

<ds>	result codes and commands
1	+CDS & +CNMA ¹⁾
2	+CDSI
¹⁾ acknowledgement command must be sent when +CSMS <service> value equals 1	

2.9.12 List Messages: AT+CMGL

Table 123: AT+CMGL Operation Commands

AT+CMGL List Messages		
Test Command	AT+CMGL=?	Response +CMGL: (list of supported <stat>s) OK
		<p>Response The message is used for PDU format and TEXT format, use the set command, query optimization can be message storage < mem1 >, the status value for the < stat > message displayed in TE. If the message is in "has been receiving unread" state, it is state into a "has been receiving have read"</p> <p>PDU mode (+ CMGF = 0) and the instruction execution success +CMGL:<index>,<stat>,[<alpha>],<length><CR><LF><pdu><CR><LF> +CMGL:<index>,<stat>,[<alpha>],<length><CR><LF><pdu>[...]]</p> <p>OK</p>
Set Command	AT+CMGL=[=<stat>]]	<p>The TEXT mode (+ CMGF = 1) and the instruction execution success; SMS - SUBMIT and/or SMS to DELIVER +CMGL:<index>,<stat>,<oa/da>,[<alpha>],[<scts>][,<tooa/toda>,<leng th>]<CR><LF><data>[<CR><LF> +CMGL:<index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<leng th>]<CR><LF><data>[...]]</p> <p>OK</p> <p>SMS-STATUS-REPORT +CMGL:<index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[<CR><LF> +CMGL:<index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[...]]</p>

	<p>OK</p> <p>SMS-COMMAND</p> <p>+CMGL:<index>,<stat>,<fo>,<ct>[<CR><LF></p> <p>+CMGL:<index>,<stat>,<fo>,<ct>[...]]</p> <p>OK</p> <p>+CME ERROR:<err></p>
	<p>Parameter</p> <p><stat> In text mode:</p> <p>"REC UNREAD" Received unread messages</p> <p>"REC READ" Received read messages</p> <p>"STO UNSENT" Stored unsent messages</p> <p>"STO SENT" Stored sent messages</p> <p>"ALL" All messages</p> <p>In PDU mode:</p> <p>0 Received unread messages</p> <p>1 Received read messages</p> <p>2 Stored unsent messages</p> <p>3 Stored sent messages</p> <p>4 All messages</p> <p><alpha> String type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specified; the used character set should be the one selected with command Select TE Character Set +CSCS (see definition of this command in TS 07.07).</p> <p><dt> Using GSM 03.40 time - string format TP - Discharge - Time: "yy/MM/dd, hh: MM: ss - zz", in the format of the message, character part said year (the last two digits), month, day, hours, minutes, seconds, and Time zone. For example: 7 th of May 2015: GMT + 2 hours then equivalent "15/05/07 17:22:13 + 08".</p> <p><fo> Dependent on the result of the instruction or the instruction code: GSM 03.40 SMS - DELIVER, SMS - SUBMIT news (the default value: 17) or the integer SMS - the COMMAND messages (default: 2) before eight</p> <p><length> Message length, integer type, indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0) the length of the actual TP data unit in octets (i.e. the RP layer SMSC</p>

	<p>address octets are not counted in the length).</p> <p><ct> GSM 03.40 TP -command - Type integer (default: 0)</p> <p><da> Character of GSM 03.40 TP - Destination - the Address in the Address field values; Will BCD value (or the default GSM letters format of characters) into the currently selected TE characters in a character set (please refer to the TS in 07.07 + CSCS instruction); Type < toda > the given address</p> <p><index> Integer type, in the range of location numbers supported by the associated memory</p> <p><mr> Integer GSM 03.40 TP - the Message - the Reference</p> <p><oa> Originating address. GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command +CSCS in TS 27.007); type of address is given by <tooa>.</p> <p><pdu> In the case of SMS: GSM 03.40 SC address followed by 3GPP TS 23.040 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))3GPP TS 27.007.</p> <p><ra> Character of GSM 03.40 TP Recipient - "to Address - value" field in the Address; Will BCD value (or the default GSM letters format characters) into a character; Type < tora > the given address</p> <p><scts> Use Time - string format of GSM 03.40 TP - Service - Centre - Time - Stamp</p> <p><st> Integer GSM 03.40 TP - Status</p> <p><toda> Type of recipient address. GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format.</p> <p><tooa> Type of originating address. 3GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer to <toda>).</p>
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		<tora> Integer GSM 04.11 TP - Recipient - 8 "type - Address in the Address section (please reference about the default < toda >)
Example Command	AT+CMGF=1 AT+CMGL="ALL"	<p>Result</p> <p>Enumerate the current storage area in TEXT format (sim card) all of the short message</p> <p>+CMGL:0,"REC READ", "+86136*****,,,"16/02/01,16:59:23+32" Hello</p> <p>+CMGL:1,"REC READ", "+86139*****,,,"16/02/01,17:30:17+32" Hi</p> <p>OK</p>

2.9.13 Read Message: AT+CMGR

Table 124: AT+CMGR Operation Commands

AT+CMGR Read Message		
Test Command	AT+CMGR=?	Response
		<p>Response</p> <p>TA returns SMS message with location value <index> from message storage <mem1> to the TE. If status of the message is “REC UNREAD”, status in the storage changes to “REC READ”.</p>
Set Command	AT+CMGR=<index>	<p>Use PDU mode (+ CMGF = 0) and the instruction execution success</p> <p>+CMGR:<stat>,[<alpha>],<length> <CR><LF><pdu></p> <p>OK</p> <p>Use the TEXT mode (+ CMGF = 1) and the instruction execution success;</p> <p>SMS-DELIVER</p> <p>+CMGR:<stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data></p> <p>OK</p> <p>Use the TEXT mode (+ CMGF = 1) and the instruction execution success;</p> <p>SMS-SUBMIT</p> <p>+CMGR:<stat>,<da>,[<alpha>][,<toda>,<fo>,<pid>,<dcs>,[<vp>],<sca>,<tosca>,<length>]<CR><LF><data></p>

	<p>OK</p> <p>Use the TEXT mode (+ CMGF = 1) and the instruction execution success SMS-STATUS-REPORT +CMGR:<stat>,<fo>,<mr>,[<ra>],<tora>,<scts>,<dt>,<st></p> <p>OK</p> <p>Use the TEXT mode (+ CMGF = 1) and the instruction execution success; SMS-COMMAND +CMGR:<stat>,<fo>,<ct>[,<pid>,<mn>],[<da>],[<toda>],<length><CR><LF><cdata>]</p> <p>OK</p> <p>+CMS ERROR: <err></p>
	<p>Parameter</p> <p><dcs> Data coding scheme. Depending on the command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format.</p> <p><cdata> Text mode to return the result of GSM03.40 TP -command -Data;ME/TA convert each an 8-bit characters to contain two hexadecimal digits of IRA characters (such as: integer values for 42 8-bit characters as two characters (65) 2 a, namely IRA50 and sent to TE)</p> <p><pid> Protocol identifier. GSM 03.40 TP-Protocol-Identifier in integer format (default 0).</p> <p><sca> Service center address. GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command +CSCS in 3GPP TS 07.07); type of address is given by <tosca>.</p> <p><tosca> Type of service center address. GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer to <toda>).</p> <p><vp> Depending on the SMS - SUBMIT < fo > Settings; Using integer (default: 167) or time - string format (please refer to the < dt >) or enhanced format (hexadecimal code strings in double quotes, and support \$(EVPF) \$) of GSM 03.40 TP - the period of validity</p>

Example Command	AT+CPMS="SM"	Result In TEXT format to read the unread message, the message is located in the SIM card in the < index > 2 the location of the area OK
	AT+CMGF=1	OK
	AT+CMGR=2	"REC UNREAD", "+86136*****", , "16/02/01,15:31:52+32" Hi OK

2.9.14 New Message Acknowledgement: AT+CNMA

Table 125: AT+CNMA Operation Commands

AT+CNMA New Message Acknowledgement		
Test Command	AT+CNMA=?	Response
		Response Using executes instructions, can confirm whether it is right to receive new messages (SMS - DELIVER or SMS - STATUS - REPORT), the new short message is sent to TE directly by the MT
	AT+CNMA	The TEXT mode and successful OK The TEXT mode and failure ERROR/+CMS ERROR: <err>
Set Command	AT+CNMA[=<n>[,<l ength>[<CR>PDU is given<ctrl-Z/ESC>]]]	And successful PDU mode OK PDU mode and failure ERROR/+CMS ERROR: <err>
		Parameter <n> 0 mand operates similarly as in text mode 1 positive (RP-ACK) acknowledgement to the network. Accepted only in PDU mode 2 Send the RP - ERROR (if the PDU has not given ME/TA will send GSM 03.40 TP - FCS value set to "FF" SMS - DELIVER - REPORT request (not the reason for the ERROR))
		Given by AT + CNMA SMS confirmation need to satisfy two conditions: by AT + CSMS = 1, the < service > is set to 1; Through the AT + CNMI chief = 2 will < mt > set to 2 or AT + CNMI chief =,, 1, will < ds > is set to 1; After satisfy the two conditions, if after receiving messages didn't pass the AT + CNMA give confirmation, the parameters of the CNMI chief <

		mt > and < ds > will be heavy is 0, messaging, AT the same time will be affected.
Example Command	AT+CMGF=1 AT+CNMI=2,2,0,0,0 AT+CNMA	<p>Result Set the text format and will < mt > set to 2 OK</p> <p>OK +CMT: "+86136*****", ,," 16/02/01,15:31:52+32" Hi</p> <p>Short message received + CNMA notify the network side has received a short message OK</p>

2.9.15 Send Message: AT+CMGS

Table 126: AT+CMGS Operation Commands

AT+CMGS Send Message		
Test Command	AT+CMGS=?	Response OK
Set Command	AT+CMGS=<da>[,<oda>]<CR> text to send <ctrl-Z/ESC>	Response Using set commands, can send SMS (SMS - SUBMIT) from TE to the network side. After the success, messages sent reference < Mr > will be returned to the TE. Received the request to send a status report result code, using the values can be used to identify the message. Text mode (+ CMGF = 1) sent successfully +CMGS:<mr>[,<scts>] OK Text mode (+ CMGF = 1) send failure ERROR/+CME ERROR: <err>
	AT+CMGS=<length><CR> PDU to send <ctrl-Z/ESC>	PDU mode (+ CMGF = 0) sent successfully +CMGS:<mr>[,<ackpdu>] OK PDU mode (+ CMGF = 0) send failure ERROR/+CME ERROR: <err>
		Parameter <da> Destination address. GSM 03.40 TP-Destination-Address

		<p>Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command +CSCS in 3GPP TS 07.07); type of address is given by <toda>.</p> <p><pdu> SMS cases: 03.40 TPDU GSM, hexadecimal, follow GSM04.11 SC address; The TP ME/TA converting each 8-bit characters in the data unit contains the two hexadecimal digits of IRA characters (such as integer values as 2 digits for 8-bit characters of 42 (65) 2 a, namely IRA50 and sent to TE). CBS case: use hexadecimal GSM 03.41 TPDU</p> <p><length> Message length. Integer type, indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length).</p> <p><mr> Message reference. GSM 03.40 TP-Message-Reference in integer format.</p> <p><scts> Time - character (please refer to the <dt>) of GSM 03.40 TP - Service - Centre - Time - Stamp</p> <p><dt> Time - the character of GSM 03.40 TP - Discharge - Time: "yy/MM/dd, hh: MM: ss - zz", in the format of the message, character part said year (the last two digits), month, day, hours, minutes, seconds, and Time zone. For example: 7 th of May 2015: GMT + 2 hours then equivalent to "15/05/07, 17:22:13 + 08"</p> <p><ackpdu> RP - ACK PDU in the GSM 03.40 RP - User - Data elements; SMS, and <pdu> format is the same, but no GSM 04.11 SC address field; This parameter should be put in double quotation marks, the same as the ordinary character parameters</p> <p><toda> Integer GSM 04.11 TP Destination - 8 "type - Address" field in the Address (when the first character of the <da> for +43 (IRA), the default value is 145; otherwise the default value is 129)</p>
Example Command	AT+CMGF=1 AT+CSCS="GSM" AT+CMGS="136***"	Result Sending short message text format "136*****"-- The receiver number Hi-- The content of the short message OK

	*****" >Hi<ctrl-Z >	OK +CMGS: 23 OK
--	------------------------	-------------------------------

Table 127 : Send The PDU Message Format

SCA	PDU-Type	MR	DA	PID	DCS	VP	UDL	UD
1-12	1	1	2-12	1	1	0,1,7	1	0-140
00	11	00	0D91683106718481F7	00	08	00	0A	00480065006C006C006F

Table 128 : SMS PDU Basic Elements

Element	Name	Length	describe
SCA	Service Center Adress	1-12	Short message service center of information
PDU-type	Protocol Data Unit Type	1	Protocol data unit type
MR	Message Reference	1	All successful SMS - SUNMIT reference number (0-255)
OA	Originator Adress	2-12	The address of the sender SME
DA	Destination Adress	2-12	The address of the receiver SME
PID	Protocol Identifier	1	Parameters according to the SMSC in what way deal with SM
DCS	Data Coding Scheme	1	Parameters for user data (UD) coding scheme used
SCTS	Service Center Time Stamp	7	Parameter indicates the timestamp of the SMSC receives the message
VP	Validity Period	0,1,7	Parameter message length in the SMSC is no longer valid
UDL	User Data Length	1	User data length
UD	User Data	0-140	SM data

2.9.16 Write Message To Memory: AT+CMGW

Table 129: AT+CMGW Operation Commands

AT+CMGW Write Message To Memory		
Test Command	AT+CMGW=?	Response OK
Set Command		Response TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to „stored unsent“, but parameter <stat> also allows other status values to

	<p>AT+CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]]<CR> text is entered <ctrl-Z/ES C></p> <p>AT+CMGW=<length>[,<stat>]<CR> PDU is given <ctrl-Z/ESC></p>	<p>be given.</p> <p>TEXT mode (+CMGF=1) Write to successful +CMGW: <index></p> <p>OK</p> <p>TEXT mode (+CMGF=1) Write failed ERROR/+CME ERROR: <err></p> <p>PDU mode (+CMGF=0) Write to successful +CMGW: <index></p> <p>OK</p> <p>PDU mode (+CMGF=0) Write failed ERROR/+CME ERROR: <err></p>
		<p>Parameter</p> <p><da> Destination address. GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command +CSCS in 3GPP TS 07.07); type of address is given by <toda>.</p> <p><oa> Originating address. GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set; type of address given by <tooa>.</p> <p><toda> Type of recipient address. GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format.</p> <p><tooa> Type of originating address. GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer to <toda>).</p> <p><stat> Text mode REC NREAD Received unread messages (+CMGF=1) REC READ Received read messages (+CMGF=1) STO UNSENT Stored unsent messages (+CMGF=1) STO SENT Stored sent messages (+CMGF=1)</p> <p><stat> PDU mode 0 Received unread messages (+CMGF=0) 1 Received read messages (+CMGF=0) 2 Stored unsent messages (+CMGF=0) 3 Stored sent messages (+CMGF=0)</p>

Example Command	AT+CMGF=1	Result To the <mem2> store text format of short message, the message will be sent to the "136 *****", the content of the short message for Hello OK
	AT+CSCS="GSM"	OK
	AT+CMGW="136*** *****" >Hello<ctrl-Z >	+CMGW: 0
		OK

2.9.17 Send Message From Storage: AT+CMSS

Table 130: AT+CMSS Operation Commands

AT+CMSS Send Message From Storage		
Test Command	AT+CMSS=?	Response
Set Command	AT+CMSS=<index>[, <da>[,<toda>]]	Response TA sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT). If new recipient address <da> is given, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code.
		The TEXT mode (+ CMGF = 1) sent successfully +CMSS:<mr>[,<scts>]
		OK The TEXT mode (+ CMGF = 1) send failure ERROR/+CME ERROR: <err>
		OK PDU mode (+ CMGF = 0) sent successfully +CMSS:<mr>[,<ackpdu>]
		OK PDU mode (+ CMGF = 0) send failure ERROR/+CME ERROR: <err>
		Parameter <ackpdu> Format is same for <pdu> in case of SMS, but without GSM 03.40 SC address field and parameter shall be bounded by double quote characters like a normal string type parameter.

		<p><index> Integer type, in the range of location numbers supported by the associated memory.</p> <p><da> Destination Address. GSM 03.40 TP-Destination-Address Address-Value field instrng format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer to command +CSCS in 3GPP TS 07.07); type of address is given by <toda>.</p> <p><toda> Type of recipient address. GSM 04.11 TP-Recipient-Address Type-of-Address octet in integer format.</p> <p><mr> Integer GSM 03.40 TP - the Message - the Reference < SCTS > "Time - string" format of GSM 03.40 TP - Service - Centre - Time - Stamp (please refer to the < dt >)</p>
Example Command	AT+CMSS=1 AT+CMSS=1,"138** *****" AT+CMSS=1,"138** *****"	<p>Result Send was previously stored Numbers for 1 messages, the recipient's number is still 136***** +CMSS: 116</p> <p>OK Send was previously stored Numbers for 1 text messages, and to change the receiver number 138***** +CMSS: 117</p> <p>OK</p>

2.9.18 Delete Message: AT+CMGD

Table 131: AT+CMGD Operation Commands

AT+CMGD Delete Message		
Test Command	AT+CMGD=?	<p>Response +CMGD:(0-255),(0-4)</p> <p>OK</p>
Set Command	AT+CMGD=<index> [,<delflag>]	<p>Response TA deletes message from preferred message storage <mem1> location <index>.</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter <index> 1 ~ 255 integer; Associated memory support address number range of values</p>

		<p><delflag> - Delete the < index > the specified text</p> <p>0 Delete the message specified in <index></p> <p>1 Delete all read messages from <mem1> storage</p> <p>2 Delete all read messages from <mem1> storage and sent mobile originated messages</p> <p>3 Delete all read messages from <mem1> storage, sent and unsent mobile originated messages</p> <p>4 Delete all messages from <mem1> storage</p>
Example Command	AT+CPMS="SM" AT+CMGD=1 AT+CPMS="SM" AT+CMGD=1,4	<p>Result</p> <p>The first short message remove SIM card</p> <p>OK</p> <p>OK</p> <p>Remove SIM card all short messages, including read, unread, has sent and not send text messages</p> <p>OK</p> <p>OK</p>

2.10 GPS Related Instructions

2.10.1 Set The GPS Mode: AT+GPSMODE

Table 132 : AT+GPSMODE Operation Commands

AT+GPSMODE Set The GPS Mode		
Set Command	AT+GPSMODE=<mode>	<p>Response</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><mode> 1 STANDALONE ONLY (Recommended value) 2 MSBASED 3 PDE CALC ONLY 4 OPTIMAL ACCURACY 5 OPTIMAL SPEED 6 BEST POSITION MODE 7 OPTIMAL DATA</p>
Example Command	AT+GPSMODE=1	<p>Result</p> <p>Set to STANDALONE mode ONLY</p> <p>OK</p>

2.10.2 Start The GPS: AT+GPSSTART

Instructions issued OK, will return to RING in the current AT the mouth, and then have a NMEA GPS access data report.

2.10.3 Stop The GPS: AT+GPSEND

Instructions issued OK, stop GPS pathways NMEA data report.

2.11 STK Instruction

STK instruction, currently only supports the QMI interface can be found in the QMI interface documentation.

2.12 Phone Book Instruction

2.12.1 Select Phonebook Memory Storage: AT+CPBS

Table 133: AT+CPBS Operation Commands

AT+CPBS Select Phonebook Memory Storage		
Test Command	AT+CPBS=?	Response + CPBS(list of supported <storage>s) OK
Read Command	AT+CPBS?	Response +CPBS: < storage >[,<used>,<total>] OK ERROR/+CME ERROR:<err>
		Response Using set commands, can choose phone book storage unit < storage >, < storage > can be used for other phone book orders. Query command is used to return the current storage unit OK ERROR/+CME ERROR:<err>
Set Command	AT+CPBS=<storage>	Parameter <storage> "SM" SIM/USIM phonebook "DC" ME dialed calls list (+CPBW may not be applicable to this storage) "MC" ME missed (unanswered) calls list(+CPBW may not be applicable to this storage) "ME" Mobile equipment phonebook "RC" ME received calls list (+CPBW may not be applicable to this storage) <used> Integer type, indicates the total number of used locations in selected memory <total> Integer type, indicates the total number of locations in selected memory

Example Command	AT+CPBS="SM"	Result OK
	AT+CPBS?	+CPBS: "SM",0,500
		OK
	AT+CPBS=?	+CPBS: ("SM","DC","MC","ME","RC")
		OK

2.12.2 Read Phonebook Entries: AT+CPBR

Table 134: AT+CPBR Operation Commands

AT+CPBR Read Phonebook Entries		
Test Command	AT+CPBR=?	<p>Response +CPBR:(list of supported <index>s),<nlength>,<tlength></p> <p>OK</p>
Set Command	AT+CPBR=<index1>[,<index2>]	<p>Response Use executes instructions, can return location number range for <index1> ~ <index2> phone book records, the location number range by using + CPBS selection from the current phone book store.If <index2> is empty, only return <index1> [+CPBR:<index1>,<number>,<type>,<text>[...]<CR><LF> +CPBR:<index2>,<number>,<type>,<text>]]</p> <p>OK ERROR/+CME ERROR:<err></p> <p>Parameter <index1> The first phone book record to read <index2> The last phonebook record to read <number> Character;The <type> phone number format <type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section) <text> String type, field of maximum length <tlength> in current TE character set specified by +CSCS. <nlength> Integer type, indicates the maximum length of field</p>

		<number> <tlength> Integer type, indicates the maximum length of field <text>
Example Command	AT+CPBR =1,2 AT+CPBR=?	Result Read the phone book memory location number 1-2 phone book content +CPBR: 1,"10086",129,"yidong" +CPBR: 2,"13998765432",129,"test" OK +CPBR: (1-500),40,14 OK

2.12.3 Write Phonebook Entry: AT+CPBW

Table 135: AT+CPBW Operation Commands

AT+CPBW Write Phonebook Entry		
Test Command	AT+CPBW=?	Response +CPBW: (The range of supported <index>s), <nlength>, (list of supported <type>s), <tlength> OK
Set Command	AT+CPBW=[<index>][,<number>[,<type>[,<text>]]]	Response Using executes instructions, but in the current phone book memory location number < index > write the phone book record.By + CPBS, can choose the current phone book memory.Written record of the field is related to the number of phone number < number > (using the < type > format) and text < text >.If omit these fields, it will delete the address book record.If the index > is empty, but given the < number >, the first record will be written to the phone book to idle position OK ERROR/+CME ERROR:<err> Parameter <index> Integer type, in the range of location numbers of phone book memory. If <index> is not given, the first free entry will be used. If <index> is given as the only parameter, the phonebook entry specified by <location> is deleted.

		<p><number> Character;The < type > phone number format</p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section).When dialing string, including the international access code "+" characters. The default value is 145;Other cases, the default value is 129</p> <p><text> String type field of maximum length <tlength> in current TE character set specified by +CSCS.</p> <p><nlength> Integer type, indicates the maximum length of field <number></p> <p><tlength> Integer type, indicates the maximum length of field <text></p> <p><number> Is empty are not allowed to set up, < number > is not null and < text > can set is empty, but the < text > will automatically be set to "Unknown Name"</p>
Example Command	AT+CPBW=2,"13987654321",129,"test" AT+CPBW=?	<p>Result</p> <p>OK</p> <p>+CPBW: (1-500),40,(128-255),14</p> <p>OK</p>

2.12.4 Find Phonebook Entries: AT+CPBF

Table 136: AT+CPBF Operation Commands

AT+CPBF Find Phonebook Entries		
Test Command	AT+CPBF=?	<p>Response</p> <p>+CPBF:[<nlength>,<tlength>]</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p>
Set Command	AT+CPBF=<find text>	<p>Response</p> <p>Using executes instructions, but from the current phone book memory returned in a phone book record.By + CPBS, can choose the current phone book memory.</p> <p>The alphanumeric combination of fields to <findtext> string [+CPBF:<index1>,<number>,<type>,<text>][...]<CR><LF> +CBPF:<index2>,<number>,<type>,<text>]]</p>

		<p>OK</p> <p>ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><index1> In the phone book memory location number within the scope of the integer values</p> <p><index2> In the phone book memory location number within the scope of the integer values</p> <p><number> Character;The <type> phone number format</p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section)</p> <p><text>/<find text> <tlength> maximum length of character field;With "choose TE character set" command + CSCS rules at the same character set</p> <p><nlength> Integer type, indicates the maximum length of field</p> <p><number></p> <p><tlength> Integer type, indicates the maximum length of field</p> <p><text></p> <p>The directive only support ME&SIM phone book</p>
Example Command	AT+CPBF="test" AT+CPBF=?	Result +CPBF: 2,"13987654321",129,"test" OK +CPBF: 40,14 OK

2.12.5 Subscriber Number: AT+CNUM

Table 137: AT+CNUM Operation Commands

AT+CNUM Subscriber Number		
Test Command	AT+CNUM=?	Response OK
Read Command	AT+CNUM	Response Query the machine number (stored in the SIM card), if SIM does not support this field, cannot read into the machine number +CNUM: [<text>],<number>,<type>

		<p>OK</p> <p>ERROR/+CME ERROR:<err></p>
		<p>Parameter</p> <p><text> <tlength> maximum length of character field;With "choose TE character set" command + CSCS rules at the same character set</p> <p><number> Character;The <type> phone number format</p> <p><type> Types of integer octets address (please refer to the GSM 04.08 [8] 10.5.4.7 section)</p>
Example Command	AT+CNUM	<p>Result</p> <p>+CNUM: "aaa","13987654321",129</p> <p>OK</p>

3 Extension AT Instructions

3.1 LOCK FDD OR TDD Instructions: AT+BMBANDLOCK

Table 138: AT+ BMBANDLOCK Operation Commands

AT+BMBANDLOCK lock FDD & TDD Instructions		
Test Command	AT+BMBANDLOCK=?	<p>Response</p> <p>+BMBANDLOCK:(<mode> List of values)</p> <p>OK</p>
Read Command	AT+BMBANDLOCK?	<p>Response</p> <p>+BMBANDLOCK:<mode></p> <p>OK</p>
Set Command	AT+BMBANDLOCK=<mode>	<p>Response</p> <p>OK</p> <p>ERROR/+CME ERROR: <err></p> <p>Parameter</p> <p><mode> 0 lock the directive to LTE Full range 1 lock the directive to FDD range 2 lock the directive to TDD range</p> <p>Note: the switch in automatic mode when you want to lock the directive to LTE Full range of other settings</p>

Example Command	AT+BMBANDLOCK=?	Result +BMBANDLOCK:(0-2)
	AT+BMBANDLOCK?	OK
		+BMBANDLOCK:2
		OK

3.2 NDIS Dial-up: AT\$QCRMCALL

Table 139: AT\$QCRMCALL Operation Commands

AT\$QCRMCALL NDIS Dial-up		
Test Command	AT\$QCRMCALL=?	Response \$QCRMCALL: (0-1),(1,2,3,4,5,6,7,8,9),(1-3),(1-2),(1-50),, OK
Read Command	AT\$QCRMCALL?	Response OK
Set Command	AT\$QCRMCALL=<Acti on>,<Instance>[,<IP type>[,<Tech Pref>[,<umts index>[,<cdma profile profile	Response OK ERROR/+CME ERROR: <err>

	<p>index>[,<APN>]]]]]</p>	<p>Parameter <Action> 0 Disconnect</p> <p>1 Connect</p> <p><Instance> Connection examples</p> <p><IP type> 1 Ipv4 2 Ipv6 3 Ipv4v6</p> <p><Tech Pref> 2 3GPP 1 3GPP2</p> <p><umts profile index>1-16 3GPP Required for dial-up profile of index</p> <p><cdma profile index> 3GPP2 Required for dial-up profile index</p> <p><APN> String type Access point name</p>
Example Command	AT\$QCRM CALL=?	<p>Result \$QCRM CALL: (0-1),(2,3,4,5,6,7,8,9),(1-3),(1-2),(1-50),,</p> <p>OK</p>
	AT\$QCRM CALL=1,1	<p>\$QCRM CALL: 1, V4</p> <p>OK</p>
	AT\$QCRM CALL?	<p>\$QCRM CALL: 1, V4</p> <p>OK</p>

3.3 Read And Write EFS File Instructions: AT+BMEFSRW

Table 140: AT+BMEFSRW Operation Commands

AT+BMEFSRW Read And Write EFS File Instructions		
Test Command	AT+BMEFSRW=?	+BMEFSRW:(0-1),(0-1),””,”” OK
Set Command	AT+BMEFSRW=<mode>,<type>,<efs_path>,<info>	Response OK

		ERROR/+CME ERROR:<err> Parameter <mode> 0 read 1 write <type> 0 Read-only files, for file contents are less than the 512 Bytes 1 Reading and writing a large file using the instructions several times, the contents of the file is greater than the 512 Bytes <efs_path> Needs to read or write efs File path <info> efs File content, 16 Binary mode incoming
--	--	---

3.4 To Restore Factory NV And EFS Instructions: AT+RESTOREFAC

Table 141: AT+RESTOREFAC Operation Commands

AT+RESTOREFAC To Restore Factory NV And EFS Instructions		
Set Command	AT+RESTOREFAC	Response The Instructions Read /default_factory_nv.txt fail NV item Article-by-article recovery The document written in the following format: <NV_ID>,<NV_TYPE>,<EFS_PATH>,<INFO>; OK ERROR/+CME:<err> Parameter <NV_ID> Need read-write NV id If there is no direct writing 0 <NV_TYPE> 0 And the NV Low-order NV No <EFS_PATH> 1 NV For higher-order NV , There are <EFS_PATH> <EFS_PATH> Need read-write efs File path, if it is lower-order can't write <INFO> Write the corresponding NV_ID The content must be written in 16-way
Example Command	AT+RESTOREFAC	OK

3.5 Enabling Mode And Hrssiilvl Report Instructions: AT+NWMINDEN

Table 142: AT+NWMINDEN Operation Commands

AT+NWMINDEN Enabling Mode And Hrssiilvl Report Instructions

Test Command	AT+NWMINDEN=?	Response +NWMINDEN:(<mode>List) OK
Read Command	AT+NWMINDEN?	Response +NWMINDEN:<mode> OK
Set Command	AT+NWMINDEN=<mode>	Response OK ERROR/+CME:<err> Parameter <mode> [0] Do not escalate 1 Report And the note: Effective immediately, restart recovery as the default value
Example Command	AT+NWMINDEN=? AT+NWMINDEN?	Result +NWMINDEN:0-1 OK +NWMINDEN:1 OK

3.6 Setting Equipment Standards, Locking The Device Frequency: AT+BMMOBAPREF

Table 143: AT+BMMOBAPREF Operation Commands

AT+BMMOBAPREF Setting Equipment Standards, Locking The Device Frequency		
Test Command	AT+BMMOBAPREF=?	Response +BMMOBAPREF:(The current <mode_pref>list),(The current <band_pref>list) OK
Read Command	AT+BMMOBAPREF?	Response +MODPREF:<mode_pref> +BANDPREF:<band_pref> OK
Set Command	AT+BMMOBAPREF=<mode_pref>,<band_pref>	Response OK

		ERROR/+CME:<err>
Example Command	AT+BMMOBAPREF=?	Result +BMMOBAPREF: (1-7),(0-11)
	AT+BMMOBAPREF?	OK +MODPREF:2 +BANDPREF:0
		OK

Table 144 : AT+BMMOBAPREF Parameters Introductions

<mode_pref>	<band_pref>	Introductions
1	0/NULL	Open all supported the current device WCDMA Band
	1	WCDMA_I_IMT_2000
	2	WCDMA_II_PCS_1900
	3	WCDMA_III_1700
	4	WCDMA_IV_1700
	5	WCDMA_V_850
	6	WCDMA_VI_800
	7	WCDMA_VII_2600
	8	WCDMA_VIII_900
	9	WCDMA_IX_1700
2	0/null	Open the current device supports all frequency bands
3	0/null	Open all the current device GSM Frequency
	1	EGSM 900
	2	DCS 1800
	3	PCS 1900
	4	GSM 850
4	0/null	Open all the current device GSM Frequency
	1	EGSM 900
	2	DCS 1800
	3	PCS 1900
	4	GSM 850
5	0/NULL	Open all the current device LTE Frequency
	1	EUTRAN_BAND7
	2	EUTRAN_BAND28
	3	EUTRAN_BAND29
	4	EUTRAN_BAND40
6	0/NULL	Open all of the current device TDSCDMA Band
	1	TDS_BAND A

	2	TDS_BAND F
7	0/NULL	Open all of the current device TDSCDMA WCDMA Band
	1	TDS_BAND A
	2	TDS_BAND F
	3	WCDMA_I_IMT_2000
	4	WCDMA_II_PCS_1900
	5	WCDMA_III_1700
	6	WCDMA_IV_1700
	7	WCDMA_V_850
	8	WCDMA_VI_800
	9	WCDMA_VII_2600
	10	WCDMA_VIII_900
	11	WCDMA_IX_1700

3.7 Enabling EHRPD Instructions: AT+EHRPDENABLE

Table 145:AT+EHRPDENABLE Operation Commands

AT+EHRPDENABLE Enabling EHRPD Instructions		
Test Command	AT+EHRPDENABLE=?	Response +EHRPDENABLE:(<val>Value list) OK
Read Command	AT+EHRPDENABLE?	Response +EHRPDENABLE:<val> OK
Set Command	AT+EHRPDENABLE=<val>	Response OK ERROR/+CME:<err> Parameter <val> 0 Disable EHRPD 1 Enable EHRPD note: Instructions Need to restart to take effect
Example Command	AT+EHRPDENABLE=? AT+EHRPDENABLE?	Result +EHRPDENABLE:(0-1) OK +EHRPDENABLE:1 OK

3.8 Status Report, Data link Switching: AT+BMDATASTATUSEN

Table 146:AT+ BMDATASTATUSEN Operation Commands

AT+BMDATASTATUSEN Status Report, Data link Switching		
Test Command	AT+ BMDATASTATUSEN=?	Response +BMDATASTATUSEN: (<val>Value list) OK
Read Command	AT+BMDATASTATUS N?	Response +BMDATASTATUSEN:<val> OK
Set Command	AT+BMDATASTATUS N=<val>	Response OK ERROR/+CME:<err> Parameter <val> [0] When data links changes not reported ^DATACONNECT,^DATADISCONN 1 Established escalation ^DATACONNECT, Reported when data link is broken ^DATADISCONNECT
Example Command	AT+BMDATASTATUS N=? AT+BMDATASTATUS N?	Result +BMDATASTATUSEN: [0,1] OK +BMDATASTATUSEN: 0 OK

3.9 Query The Current link State Data: AT+BMDATATUS

Table 147: AT+BMDATATUS Operation Commands

AT+BMDATATUS Query The Current Link State Data		
Set Command	AT+BMDATATUS	Response +BMDATATUS :<val> OK ERROR/+CME:<err>
		Parameter <val> 0 no data link 1 data link

Example Command	AT+BMDATASTATUS	Result +BMDATASTATUS: 0 OK
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3.10 Enabling Serial Port Function: AT+BMNVUART

Table 148: AT+ BMNVUART Operation Commands

AT+BMNVUART Enabling Serial Port Function		
Test Command	AT+ BMNVUART=?	Response + BMNVUART:(<val>Value list) OK
Read Command	AT+ BMNVUART=<val>	Response OK ERROR/+CME:<err> Parameter <val> [0] Close the serial port 1 Open serial port
Set Command	AT+BMNVUART=?	Result +BMNVUART:(0-1) OK

3.11 SIM Card Type Query: AT+BMSIMTYPE

Table 149: AT+BMSIMTYPE Operation Commands

AT+BMSIMTYPE SIM Card Type Query		
Read Command	AT+BMSIMTYPE?	Response +BMSIMTYPE:<app_type>;<Insert_app_type> OK ERROR/+CME:<err> Parameter <app_type> 0-5 SIM Card initialization is complete, all current SIM Card type : 0: MMGSDI_APP_NONE 1: MMGSDI_APP_SIM 2: MMGSDI_APP_RUIM 3: MMGSDI_APP_USIM

		<p>4: MMGSDI_APP_CSIM 5: MMGSDI_APP_UNKNOWN</p> <p><Insert_app_type> 0-5 Module detected SIM After the card, get the AID In the information SIM Card types, different SIM Card for the AID Number of inconsistencies</p> <p>0: MMGSDI_APP_NONE 1: MMGSDI_APP_SIM 2: MMGSDI_APP_RUIM 3: MMGSDI_APP_USIM 4: MMGSDI_APP_CSIM 5: MMGSDI_APP_UNKNOWN</p>
Example Command	<p>AT+BMSIMTYPE?</p> <p>AT+BMSIMTYPE?</p>	<p>Result No Insert SIM AT+CPIN? +CME ERROR: SIM not inserted</p> <p>+BMSIMTYPE: 0;</p> <p>OK current card types to native 3G Telecom cards +BMSIMTYPE: 1; 1 2</p> <p>OK</p> <p>current card types for mobile 4G +BMSIMTYPE: 3; 3</p> <p>OK</p>

3.12 Nwtime Reported Switching: AT+CURC

Table 150: AT+CURC Operation Commands

AT+CURC NWTIME Reported Switching		
Test Command	AT+CURC=?	<p>Response +CURC:(<val> Support list)</p> <p>OK</p>
Read Command	AT+CURC?	<p>Response +CURC:<val></p> <p>OK</p>
Set Command	AT+CURC=<val>	<p>Response</p> <p>OK</p> <p>ERROR/+CME:<err></p>

		Parameter <val> [0] Boot not reported after registration +NWTIME 1 Boot registration report +NWTIME。But whether the escalation with the card type, GSM TDSCDMA Under the system, other types are not reported
Example Command	AT+CURC=?	Result +CURC:[0,1] OK
	AT+CURC=1	OK

3.13 Search Network Mode Settings: AT+BMMODODR

Table 151: AT+BMMODODR Operation Commands

AT+BMMODODR Search Network Mode Settings		
Test Command	AT+BMMODODR=?	Response +BMMODODR: (1-21) OK
Read Command	AT+BMMODODR?	Response +BMMODODR: <mode> OK
Set Command	AT+BMMODODR=<mode>	Response OK ERROR/+CME:<err> Parameter <mode> 1:WCDMA ONLY 2:AUTO(LTE>TDS>GSM>WCDMA>HDR>CDMA) 3:GSM+CDMA 4:AUTO(TDS>GSM>LTE>WCDMA>HDR>CDMA) 5:LTE ONLY 6:TDS ONLY 7:TDS+WCDMA 8:TDS+GSM 9:LTE+TDS 10:EVDO ONLY 11:AUTO(LTE>EVDO>CDMA>TDS>WCDMA>GSM) 12:AUTO(EVDO>CMDA>LTE>TDS>WCDMA>GSM) 13:EVDO+LTE 14:CDMA+EVDO

		15:CDMA ONLY 16:AUTO (TDS>LTE>GSM>WCDMA>HDR>CMDA) 17:AUTO (LTE>WCDMA>GSM>TDS>HDR>CDMA) 18:AUTO(WCDMA>GSM>LTE>TDS>HDR>CDMA) 19 AUTO(WCDMA>LTE>GSM>TDS>HDR>CDMA) 20:LTE+WCDMA 21:WCDMA+GSM
Example Command	AT+BMMODODR? AT+BMMODODR=3	Result Query current search for AUTO +BMMODODREX: 2 OK Change the current search network mode GSM+CDMA ONLY OK

3.14 Query CELLINFO (LTE) : AT+BMCELLINFO

Table 152: AT+ BMCELLINFO Operation Commands

AT+BMCELLINFO Query CELLINFO (LTE)		
Read Command	AT+ BMCELLINFO	Response, return cell id, phy_cell id and lte mode +BMCELLINFO: <cell id>, <phy_cell_id>,<lte_mode> OK
Example Command	AT+ BMCELLINFO	Parameter <cell id> cell ID <phy_cell_id> phy_cell ID <lte_mode> LTE mode 0: FDD-LTE 1: TDD-LTE Result +BMCELLINFO: 52603-104,223,0 OK

3.15 Query The Current Protocol Mode: AT+BMOPTMOD

Table 153: AT+ BMOPTMOD Operation Commands

AT+BMOPTMOD Query The Current Protocol Mode		
Execution Command	AT+ BMOPTMOD	Response, Return to the run mode in that agreement +BMOPTMOD:<3gpp_mode>

		<p>OK</p> <p>Parameter <3gpp_mode> Communication protocol model 0: 3GPP MODEL (GWL) 1: 3GPP2 MODEL (CDMA/HDR)</p> <p>Before you are not registered on the network, and operation mode is based on the agreement SIM Judgment of card and network mode, such as telecommunication card is inserted, the network mode is set to LTE only , Power on the initial</p> <p>After the Protocol mode will be 3GPP</p>
Example Command	AT+ BMOPTMOD	<p>Result</p> <p>+BMOPTMOD: 0</p> <p>OK</p>

3.16 Query Currently Registered LTE Band (LTE) : AT+BMBAND

Table 154: AT+ BMBAND Operation Commands

AT+BMBAND Query Currently Registered LTE Band (LTE)		
Execution Command	AT+ BMBAND	<p>Response, Returns the current LTE Register band</p> <p>+BMBAND:<current_band></p> <p>OK</p> <p>Parameter <current_band> Currently registered LTE Band 1~43</p> <p>Registration to non- LTE Network is, this value is not accurate</p>
Example Command	AT+BMBAND	<p>Result, Currently registered LTE band1</p> <p>+BMBAND:1</p> <p>OK</p>

3.17 Set SIM Card Registration Process: AT+SIMACT

Table 155: AT+SIMACT Operation Commands

AT+SIMACT Set SIM Card Registration Process		
Execution Command	AT+SIMACT=<n>	<p>Parameter</p> <p><n> [0] SIM Card is not available SIM Card status normal</p> <p>SIMACT 0 , SIM Card is not available, service status to limit services SIMACT 1 If registration status, first disconnect from the network and</p>

		then re-register if you are not registered on the network, SIM Card will re-register again
Example Command	AT+SIMACT=0 AT+SIMACT=1	Result OK +URCIND:3 +URCIND:30 OK +URCIND:3 +URCIND:5 +URCIND:30 +URCIND:1

3.18 Query Traffic Statistics: AT+BMRMCALLSTAT

Table 156: AT+BMRMCALLSTAT Operation Commands

AT+BMRMCALLSTAT Query Traffic Statistics		
Execution Command	AT+BMRMCALLSTAT	Response Current traffic usage OK
Example Command	AT+BMRMCALLSTAT	Result +BMRMCALLST AT :Down Speed:0bpsUp Speed:0bps,Total Speed:0bps,Down:489Bytes,Up:9702Bytes,Total:10191Bytes,[32,Cur UP:9702Bytes,Cur Total:0Bytes ,6,138,0,0,489(Bytes),9702(Bytes),10191(Bytes),0(secs)] OK

3.19 Query Module Supports The Maximum Rate: AT+BMCAT

Table 157: AT+BMCAT Operation Commands

AT+BMCAT Query Module Supports The Maximum Rate

Set Command	AT+BMCAT=<n>	Response , Returns the maximum rate supported by the current model +BMCAT:<n > OK Parameters Description <n> Currently supported speed CAT3/CAT4/CAT6 Note: currently not supported CAT6
Example Command	AT+BMCAT	Result +BMCAT:4 OK

3.2 GetsThe IP Address, Subnet Mask, Gateway Address,DNS1,DNS2:AT+DHCP4

Table 158: AT+DHCP4 Operation Commands

AT+DHCP4 Gets The IP Address, Subnet Mask, Gateway Address,DNS1, DNS2		
Read Command	AT+DHCP4?	Response IP Address, subnet mask, gateway address、DNS1、DNS2 OK
Example Command	AT+DHCP4?	Result +DHCP4:10.178.26.89,255.255.255.252,10.178.26.90,112.4.12.200, 112.4.1.36 OK Note: 2G 、 3G Is CS Network, you must Dial-up Before you can view IP Related information, such as 4G Is PS Network without Dial-up You can view the IP Related information

3.21 Set TTS Voice Broadcast: AT+BMTTS

Table 159: AT+BMTTS Operation Commands

AT+BMTTS Set TTS Voice Broadcast		
Set Command	AT+BMTTS=<coding>,string	Voice broadcast
Example Command	AT+BMTTS=0, hello world AT+BMTTS=1,C9CFBAA3BFED D2EDA3AC77656C636F6D65 (broad mobi, welcome) AT+BMTTS=2,4E0A6D775BBD7 FFCFF0C00770065006C0063006F 006D0065 (broad mobi, welcome) AT+BMTTS=3,0A4E776DBD5BF C7F0CFF770065006C0063006F00 6D006500 (broad mobi, welcome) AT+BMTTS=6,E4B88AE6B5B7E5 AEBDE7BFBCFBC8C77656C63 6F6D65 (broad mobi, welcome)	Result OK Note: code Not 0, Convert the string encoded with a tool at+bmtts =<coding>,string coding: 0 – English coding: 1 – ANSI coding: 2-- unicode bigend coding: 3-- unicode coding: 6-- UTF-8

3.22 Set TTS Air Volume Adjustment: AT+BMTTSVOL

Table 160: AT+BMTTSVOL Operation Commands

AT+BMTTSVOL Set TTS Air Volume Adjustment		
Test Command	AT+BMTTSVOL=?	Response + BMTTSVOL:<vol> OK
Read Command	AT+BMTTSVOL?	Response + BMTTSVOL: <vol> The current volume value OK
Set Command	AT+BMTTSVOL=<vol>	Response

		<p>OK ERROR/+CME ERROR:<err></p> <p>Parameter <vol> [0-3] The size of the volume Volume 0 Minimum volume Volume 1 Volume 2 The default volume Volume 3 Maximum volume</p> <p>Note: the need to adjust the air volume before the speech, set during a broadcast void; the speech volume to whichever is set for the last time before the broadcast .</p>
Example Command	AT+BMTTSVOL? AT+BMTTSVOL=3 AT+BMTTSVOL=?	Result + BMTTSVOL: 2 OK + BMTTSVOL:<vol> OK

3.23 TTS End OF The Broadcast, And Broadcast Initiative Report: +BMTTS: END

Table 161: +BMTTS : END Operation Commands

+BMTTS: TTS End OF The Broadcast, And Broadcast Initiative Report		
Execution Command	+BMTTS: END	Voice broadcast ends
Example Command	AT+BMTTS=0, "1234567"	Result OK + BMTTS: END Note: at+bmtts =<coding>,"string" coding: 0 – ENGLISH coding: 1 – ANSI coding: 2-- unicode bigend coding: 3-- unicode coding: 6-- UTF-8

3.24 TTS Stop Broadcasting: AT+BMTTSEND

Table 162: AT+BMTTSEND Operation Commands

AT+BMTTSEND TTS Stop Broadcasting

Setup instructions	AT+BMTTSEND	OK ERROR/+CME ERROR:<err>
Instructions Routine	AT+BMTTSEND	Result OK When the voice broadcast, voice broadcast will stop;

3.25 TTS Playback Speed Control: AT+BMTTSSPEED

Table 163: AT+BMTTSSPEED Operation Commands

AT+BMTTSSPEED TTS Playback speed control		
Test Command	AT+BMTTSSPEED=?	Response + BMTTSSPEED:<speed> OK
Read Command	AT+BMTTSSPEED?	Response + BMTTSSPEED: 1 The current speed value OK
Set Command	AT+BMTTSSPEED=<speed>	<p>Response OK ERROR/+CME ERROR:<err></p> <p>Parameter <speed> [0-2] Speed speed Speed 0 The minimum speed Speed 1 The default speed Speed 2 The fastest speed</p> <p>Note: Speed is divided into three levels, namely, 0,1,2, After booting the default speed 1 . To adjust TTS playback speed, you need to call AT+BMTTS before the command. Call AT+ BMTTSSPEED set. .</p>

Example Command	AT+BMTTSSPEED? AT+BMTTSSPEED=2 AT+BMTTSSPEED=? + BMTTSSPEED: <speed> OK	Result + BMTTSSPEED: 1 OK
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3.26 TTS Play Accent Set: AT+BMTTSTONE

Table 164: AT+BMTTSTONE Operation Commands

AT+BMTTSTONE TTS PlayAccent Set		
Test Command	AT+BMTTSTONE=?	Response + BMTTSTONE: <tone> OK
Read Command	AT+BMTTSTONE?	Response + BMTTSTONE: 1 The current accent OK
Set Command	AT+BMTTSTONE=<tone>	Response OK ERROR/+CME ERROR:<err> Parameter <tone> [0-2] Play accent 0 Girls, by default 1 Male voice 2 Children's
Example Command	AT+BMTTSTONE? AT+BMTTSTONE=2 AT+BMTTSTONE=?	Result + BMTTSTONE: 1 OK + BMTTSTONE: <tone> OK

3.27 Extracted Near The Cell Information:AT+BMNEICELLINFO

Table 165: AT+BMNEICELLINFO Operation Commands

AT+BMNEICELLINFO Extracted Near The Cell Information	
Execution Command	<p>Response</p> <p>The command is used to extract information about a neighbor, and displays the extracted structures in LTE Shang</p> <p>LTE Mode</p> <p>Return value:</p> <ul style="list-style-type: none"> LTE_INTRA:NEIGHBOUR CELL PCI RSRQ RSRP RSSI SRXLEV <p>Other network mode:</p> <ul style="list-style-type: none"> NEIGHBOUR CELL RXLEV CELL_ID LAC PLMN

3.28 Open Close Lock Function: AT+BMLOCKCELL

Table 166: AT+BMLOCKCELL Operation Commands

AT+BMLOCKCELL Open Close Lock Function	
Execution Command	<p>Response</p> <p>This command is used to open the current Community lock and close community lock function</p>
Set Command	<p>Result</p> <p>LTE Under the network <val></p> <p>0 Closed cell lock function 1 Open community lock function</p> <p>Note: after a successful setup instructions require a reboot module this directive to enter into force , Community lock function is on the entry into force of the directive, registration no LTE Network.</p>

3.29 Setting Up Community Information: AT+BMSETCELLINFO

Table 167: AT+BMSETCELLINFO Operation Commands

AT+BMSETCELLINFO Setting up community information		
Execution Command	AT+bmsetcellid=<n>,<pci>,<earfcn>[<pci>,<earfcn>,...]	<p>Response</p> <p>Information on the instruction set for the current Community (pci Valid value range: 0 — 503 , Lock Community maximum number allowed is 10) n=1 Set when the top five community information (pci earfcn), n=2 Five community information after a set time (pci earfcn)</p>
Set Command	AT+bmsetcellid=<n>,<pci>,<earfcn>[<pci>,<earfcn>,...]	<p>Results</p> <p>For Example:</p> <p>AT+bmsetcellid=1 , 177 , 25400 , 178 , 35000 , 179 , 34000 , 180 , 34200 , 181 , 34210</p> <p>AT+bmsetcellid=2 , 182 , 25400 , 183 , 35000 , 184 , 34000 , 185 , 34200 , 186 , 34210</p> <p>Note: examples are for reference only.</p>
Example Command	AT+BMSETCELLID	<p>Result</p> <p>+BMSETCELLID:177,25400,178,35000,179,34000,180,34200,181,34210,182,25400,183,35000,184,34000,185,34200,186,34210,</p> <p>OK</p>

3.30 Search Network Mode Settings: AT+BMMODODREX

Table 168: AT+BMMODODREX Operation Commands

AT+BMMODODR Search Network Mode Settings		
Test Command	AT+BMMODODREX=?	<p>Response</p> <p>+BMMODODR:</p> <p>1:WCDMA ONLY</p> <p>2:AUTO(LTE>TDS>GSM>WCDMA>HDR>CDMA)</p> <p>3:GSM+CDMA</p> <p>4:AUTO(TDS>GSM>LTE>WCDMA>HDR>CDMA)</p> <p>5:LTE ONLY</p> <p>6:TDS ONLY</p> <p>7:TDS+WCDMA</p> <p>8:TDS+GSM</p> <p>9:LTE+TDS</p>

		10:EVDO ONLY 11:AUTO(LTE>EVDO>CDMA>TDS>WCDMA>GSM) 12:AUTO(EVDO>CMDA>LTE>TDS>WCDMA>GSM) 13:EVDO+LTE 14:CDMA+EVDO 15:CDMA ONLY 16:AUTO (TDS>LTE>GSM>WCDMA>HDR>CMDA) 17:AUTO (LTE>WCDMA>GSM>TDS>HDR>CDMA) 18:AUTO(WCDMA>GSM>LTE>TDS>HDR>CDMA) 19 AUTO(WCDMA>LTE>GSM>TDS>HDR>CDMA) 20:LTE+WCDMA 21:WCDMA+GSM OK
Read Command	AT+BMMODODREX?	Response +BMMODODR: <mode> OK Response OK ERROR/+CME ERROR:<err>
Set Command	AT+BMMODODREX=<mode>	Parameter <mode> 1:WCDMA ONLY 2:AUTO(LTE>TDS>GSM>WCDMA>HDR>CDMA) 3:GSM+CDMA 4:AUTO(TDS>GSM>LTE>WCDMA>HDR>CDMA) 5:LTE ONLY 6:TDS ONLY 7:TDS+WCDMA 8:TDS+GSM 9:LTE+TDS 10:EVDO ONLY 11:AUTO(LTE>EVDO>CDMA>TDS>WCDMA>GSM) 12:AUTO(EVDO>CMDA>LTE>TDS>WCDMA>GSM) 13:EVDO+LTE 14:CDMA+EVDO 15:CDMA ONLY 16:AUTO (TDS>LTE>GSM>WCDMA>HDR>CMDA) 17:AUTO (LTE>WCDMA>GSM>TDS>HDR>CDMA) 18:AUTO(WCDMA>GSM>LTE>TDS>HDR>CDMA) 19 AUTO(WCDMA>LTE>GSM>TDS>HDR>CDMA) 20:LTE+WCDMA

		21:WCDMA+GSM
Example Command	AT+BMMODODR? AT+BMMODODR=6 AT+BMMODODR?	<p>Result</p> <p>Query the current search network mode is AUTO +BMMODODR: 2</p> <p>OK</p> <p>Change the current search network mode for ONLY TDS OK</p> <p>Query the current search network mode for ONLY TDS +BMMODODR: 6</p> <p>OK</p>

4 AT related extensions TCP/IP

4.1 TCP/IP related PDP document definition:AT+MIPPROFILE

Table 169:AT+MIPPROFILE operating instructions

AT+MIPPROFILE TCP/IP related PDP document definition		
Test Command	AT+MIPPROFILE=?	<p>Response</p> <p>+MIPPROFILE:(1-16),"apn",<"username">,<"password"></p> <p>OK</p>
Read Command	AT+MIPPROFILE?	<p>Response</p> <p>+MIPPROFILE:<cid>,<APN></p> <p>OK</p>
Set Command	AT+MIPPROFILE=<cid>,<APN>[,<username>,<password>]	<p>Response</p> <p>OK</p> <p>ERROR/+CME ERROR:<err></p> <p>Parameter</p> <p><cid> Value 1-16 Profile number</p> <p><APN> Need to use the network side gateway APN</p>

		<p><username> Network side authentication required user name <password> Network side authentication required password</p> <p>If you want to establish a socket connection to the network side, you need to call the instruction first to set the APN</p>
Wxample Command	AT+MIPPROFILE=1,"CMNET"	<p>Feedback results +MIPPROFILE:1,cmnet OK Set China Mobile's APN</p>

4.2 Control PPP GGSN connection: AT+MIPCALL

Table 170:AT+MIPCALL operating instructions

AT+MIPCALL Control PPP GGSN connection		
Test Command	AT+MIPCALL=?	<p>Response +MIPCALL: (0-1) OKat</p>
Read Command	AT+MIPCALL?	<p>Response +MIPCALL:<status>,<ip> OK</p>
Set Command	AT+MIPCALL=<parameter>	<p>Response +MIPCALL:<status>[,<ip>] OK</p> <p>Parameter <parameter> 0 Disconnect PPP connection 1 Establish PPP connection <status> 0 Be in a state of disconnection 1 In connection state <ip> Network measurement distribution IP address Before using this instruction to disconnect the PPP connection, you should first close all socket that are built before, otherwise the execution will return ERROR</p>

Wxample Command	AT+MIPCALL=1	Feedback results +MIPCALL:1,10.251.166.164
	AT+MIPCALL=0	OK +MIPCALL: 0 OK

4. 3Initialization of a new connection to the remote host SOCKET: AT+MIOPEN

Table 171 : AT+MIOPENOperation instruction

AT+MIOPEN Initialization of a new connection to the remote host SOCKET		
Test Command	AT+MIOPEN=?	Response +MIOPEN: (<socket_ID list> <source_port list> , <Destination_IP list> , <destination_port list> , <protocol list> OK)
Read Command	AT+MIOPEN?	Response +MIOPEN:1,2,3,4 OK Returns the socket_id of the current build connection.
Set Command	AT+MIOPEN=<Socket_ID>,<Source_Port>,<Remote_IP>,<Remote_Port>,<Protocol>	Response +MIOPEN=<Socket_ID>,<status> OK Parameter <Socket_ID> Value: 1-4 integer value <Source_Port> Value: 0-65535 integer value <Remote_IP> Can be separated from the IP or domain name <Remote_Port> Remote host port number <Protocol> 0 TCP protocol 1 UDP protocol

		<p><status> 0 Indicates initialization failed 1 Indicates the success of the initialization</p>
Wxample Command	AT+MIPOOPEN=1,0,"w ww.baidu.com",80,0 AT+MIPOOPEN?	Feedback results +MIPOOPEN:1,1 OK +MIPOOPEN:1 OK

4.4 Close SOCKET connection: AT+MIPCLOSE

Table 172 : AT+MIPCLOSEOperation instruction

AT+MIPCLOSE Close SOCKET connection		
Test Command	AT+MIPCLOSE=?	<p>Response +MIPCLOSE: <socket_ID>LIST</p> <p>OK</p>
Read Command	AT+MIPCLOSE?	<p>Response +MIPCLOSE: sock_num</p> <p>OK</p> <p>The directive returns the current number of active socket</p>
Set Command	AT+MIPCLOSE=<Socket_ID>	<p>Response +MIPCLOSE=<Socket_ID>,<send data>,<receive data>,<close type></p> <p>OK</p> <p>Parameter <Socket_ID> Value: 1-4 integer value <send data> Value: 0-65535 integer value, said the number of data sent from the socket after the establishment of the <receive data> Integer value, representing the number of data received from the socket after the establishment of</p>

		<p>the</p> <p><close type> 0 Socket connection is properly closed. 1 Socket connection shutdown failed</p> <p><Protocol> 0 TCP protocol 1 UDP protocol</p> <p><status> 0 Indicates initialization failed 1 Indicates the success of the initialization</p>
Wxample Command	AT+MIPCLOSE? AT+MIPCLOSE=? AT+MIPCLOSE=1	<p>Feedback results</p> <p>+MIPCLOSE:1 Indicates the existence of 1 active socket connections</p> <p>OK</p> <p>+MIPCLOSE:(1-4)</p> <p>OK</p> <p>+MIPCLOSE:1,0,0,0</p> <p>OK</p>

4.5 Set up TCP or UDP server:AT+MIPLISTEN

Table 173 : AT+MIPLISTEN Operation instruction

AT+MIPLISTEN Set up TCP or UDP server		
Test Command	AT+MIPLISTEN=?	<p>Response</p> <p>+MIPLISTEN: <protocol>,<port></p> <p>OK</p>
Read Command	AT+MIPLISTEN?	<p>Response</p> <p>ERROR</p>
Set Command	AT+MIPLISTEN=<protoc al>,<port>	<p>Response</p> <p>OK</p> <p>At the same time can only have a socket server</p> <p>Parameter</p> <p><Protocol> 0 TCP protocol</p>

		<p>1 UDP protocol</p> <p><port> 0-65535 Port for listening to the remote host connection</p> <p>If the remote host connected to the local server request is received, it will be reported to the AT through the +MIPACCEPT=socket_id port, said the remote host link has been accepted</p>
Wxample Command	AT+MIPLISTEN=? AT+MIPLISTEN=0,8000	Feedback results +MIPLISTEN: (0-1),(0-65535) OK OK

4. 6 Close TCP or UDP server:AT+MIPSVCLOSE

Table 174 : AT+MIPSVCLOSE Operation instruction

AT+MIPSVCLOSE Close TCP or UDP server		
Test Command	AT+MIPSVCLOSE=?	Response ERROR
Read Command	AT+MIPSVCLOSE?	Response ERROR
Set Command	AT+MIPSVCLOSE	Response +MIPSVCLOSE: <close type> OK
		Parameter <close type> 0 Socket server connection is properly closed 1 Socket server failed to connect to shutdown
Wxample Command	AT+MIPSVCLOSEAT+ MIPSVCLOSE	Feedback results +MIPSVCLOSE: 0 Successful closure OK +MIPSVCLOSE: 1 Shut down because it has been closed

		before. OK
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4.7 Send data to SOCKET cache:AT+MIPSEND

Table 175 : AT+MIPSEND Operation instruction

AT+MIPSEND Send data to SOCKET cache		
Test Command	AT+MIPSEND=?	Response +MIPSEND:(Socket_ID),"data" OK
Read Command	AT+MIPSEND?	Response <Socket_ID>,<FreeSize> OK
Set Command	AT+MIPSEND=<Socket_ID>,<Data>	Response +MIPSEND: <Socket_ID>,<free_size> OK 参数 <Socket_ID> Value: 1-4 integer value <free_size> Integer values assigned to ID socket remaining cache size If you receive data from the remote host, if it is SOCKET TCP, +MIPRTCP=sock_num, data will be reported to the mouth of the AT; if it is SOCKET UDP, +MIPRUDP=sock_num, data, will be reported to the AT port
Wxample Command	AT+MIPSEND=? AT+MIPSEND? AT+MIPSEND=1,"31323 3"	Feedback results +MIPSEND:(1-4),"data" OK +MIPSEND:1,1440 OK

		+MIPSEND:1,1440 OK To send 3 bytes to ID socket 1, the remaining cache size is 1440
--	--	---

4.8 Send cache data to remote host:AT+MIPPUSH

Table 176 : AT+MIPPUSHOperation instruction

AT+MIPPUSHSend cache data to remote host		
Test Command	AT+MIPPUSH=?	Response +MIPPUSH: <Socket_ID> OK
Read Command	AT+MIPPUSH?	Response +MIPPUSH: List all active <Socket_ID> OK
Set Command	AT+MIPPUSH=<Socket_ID>	Response OK Parameter <Socket_ID> Value: 1-4 integer value
Wxample Command	AT+MIPPUSH=? AT+MIPPUSH? AT+MIPPUSH=1	Feedback results +MIPPUSH:(1-4) OK +MIPPUSH:1 Currently active ID socket has 1 OK OK Clear cached data in Id1 socket

4.9 Send data to remote host:AT+MIPWRITE

Table 177:AT+MIPWRITE operating instructions



AT+MIPWRITE Send data to remote host		
Test Command	AT+MIPWRITE=?	Response +MIPWRITE: <Socket_ID>,"data" OK
Read Command	AT+MIPWRITE?	Response OK
Set Command	AT+MIPWRITE =<Socket_ID>,<Data>	Response OK Combine AT+MIPSEND and AT+MIPPUSH instructions, each time the maximum can only send 1460 bytes
		Parameter <Socket_ID> value: 1-4 integer value
Wxample Command	AT+MIPWRITE=? AT+MIPWRITE? AT+MIPWRITE=1,"BroadMobi"	Feedback results +MIPWRITE:Socket_id , "data" OK OK OK

4.10 Clear all of the data in the SOECKET cache:AT+MIPFLUSH

Table 178:AT+MIPFLUSH operating instructions

AT+MIPFLUSH Clear all of the data in the SOECKET cache		
Test Command	AT+MIPFLUSH=?	Response + MIPFLUSH: <Socket_ID> OK
Read Command	AT+ MIPFLUSH?	Response + MIPFLUSH: List all active <Socket_ID>

		OK
Set Command	AT+ MIPFLUSH =<Socket_ID>	Response + MIPFLUSH: <status> OK parameter <Socket_ID> Value: 1-4 integer value <status> Value 1 indicates successful removal
Wxample Command	AT+ MIPFLUSH=? AT+ MIPFLUSH? AT+ MIPFLUSH=1	Feedback results +MIPFLUSH:1 OK +MIPFLUSH:1 Currently active ID socket has 1 OK OK Clear cached data in Id1 socket

4.11 Query the IP address of the corresponding domain name: AT+MIPDNSR

Table 179:AT+MIPDNSR operating instructions

AT+MIPDNSR Query the IP address of the corresponding domain name		
Test Command	AT+MIPDNSR=?	Response + MIPDNSR: "address" OK
Read Command	AT+ MIPDNSR?	ERROR
Set Command	AT+ MIPDNSR =<address >	Response + MIPDNSR: <ip address > OK Parameter <address> Domain name address

		<ip address> IP address
Wxample Command	AT+MIPDNSR=? AT+MIPDNSR="www.baidu.com"	Feedback results +MIPDNSR:"address" OK +MIPDNSR:111.13.100.91 OK

4.12 Connection success indication: AT+MIPACCEPT

Table 180:AT+MIPACCEPT operating instructions

AT+MIPACCEPT Connection success indication	
Report Command	<p>Response + MIPACCEPT: <socket_id> OK</p> <p>TCP connection only to provide the reporting function</p> <p>Parameters: <socket_id> Value: 1-4 connection successful ID</p>

4.13 TCP receive data report: AT+MIPRTCP

Table 181:AT+MIPRTCP operating instructions

AT+MIPRTCP TCP TCP receive data report	
Report Command	<p>Response + MIPRTCP: <socket_id>,<number>,<data> OK</p> <p>TCP receive data report</p> <p>Parameters: <socket_id> Value: 1-4 connection ID <number> Value: 0-1460 the number of characters received this time <data> The reception of the data content, character type, length of <number></p>

4.14 UDP receive data report:AT+MIPRUDP

Table 182:AT+MIPRUDP operating instructions

AT+MIPRUDP UDP receive data report	
Report Command	Response + MIPRUDP: <socket_id>,<ip>,<port>,<data> OK UDP receive data report Parameters: <socket_id> Value: 0 connection ID <ip> IP address of server <port> Value: 0-65535server side of the port number <data> The reception of the data content, character type, length of <number>

4.15 Sixteen hex conversion control command:AT+MIPHEX

Table 183:AT+MIPHEX operating instructions

AT+MIPHEX Sixteen hex conversion control command	
Test Command	AT+MIPHEX=? Response + MIPHEX: (0,1) OK
Read Command	AT+MIPHEX? + MIPHEX: 0 OK
Set Command	AT+MIPHEX=<value> Response + MIPHEX: <value> OK Parameter <value> 0 Close hex mode 1 Open hex mode

4.16 PING function:AT+MPING

Table 184:AT+MPING operating instructions

AT+MIPDNSRQuery the IP address of the corresponding domain name		
Test Command	AT+MPING=?	Response + AT+MPING: "address",<count>,<size>,<interval>,<timeout> OK
Read Command	AT+MPING?	OK
		Response + AT+MPING: <" Destination_IP" >,<server num>,<RTT>+MPINGSTAT: <status>,<SentMessages>,<ReceivedMessages>,<Average RTT> OK
Set Command	AT+MPING =<"Destination_IP/hostn ame">[,<count>[,<size>[,<interval>[,<TimeOut>]]]]	Parameter <"Destination_IP/hostname"> The destination IP address or domain name for PING <count> ICMP number <size> Bytes sent <interval> Interval time between each PING in order to calculate the MS <TimeOut> PING issued after waiting for the timeout period MS to Response <server num> Sequence values for sending PING packets <RTT> Response time <status> Number 0 to send a message <SentMessages> Send message number <ReceivedMessages> Number of received messages <AverageRTT> average Response time
Wxample Command	AT+MPING =? AT+MPING="www.baidu.com"	Feedback results +MPING:"ipaddr",<1-255>,<1-1460>,<1000-10000>,<1000-6000>

		OK +MPING:111.13.100.91,0,42 +MPING:111.13.100.91,1,95 +MPING:111.13.100.91,2,45 +MPING:111.13.100.91,3,95 +MPINGSTATE:0,4,4,68 OK
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4.17 Transparent transmission mode: AT+MIPTPS

Table 185:AT+MIPTPS operating instructions

AT+MIPTPS Transparent transmission mode		
Set Command	AT+MIPTPS=<Mode>,<Socket_id>,<timeout>,<Max_len>	<p>Response > OK</p> <p>When >OK began to appear, the input data, if the <mode>=1 (i.e., the input end confirmation mode) + + + data input and send</p>
Wxample Command	AT+MIPTPS=3,1,2000,200	<p>Parameter</p> <p><Mode> 1 To confirm the model, the input end of the input and send + + + 2 Timeout mode (temporarily not supported) 3 Full buff mode, when the input exceeds the maximum set length, the truncation and send 4 Automatic mode (not supported)</p> <p><Socket_id> Selected send ID socket</p> <p><timeout> timeout</p> <p><Max_len> A maximum number of bytes sent at a time (max 1460)</p> <p>Feedback results > OK</p>

5 Audio Commissioning Extension AT

Now 9X25 Platforms audio support PCM Voice, MASTER mode , CLK 1024KHZ , SYNC 8KHZ, 16bit linear . Meanwhile, the module has built-in audio Codec, PCM voice converts analog audio output.

9x15 Platform beginning voice Parameters Through a similar to efs acdb Database configuration, if you need to modify these Parameters , The need to use high-throughput QACT Tool to modify acdb Configuration, use adb acdb Upload to ap Sides, restart to take effect. For the convenience of customers to debug, the module will open the following basic audio AT Instructions.

5.1 Voice Channel Switch Control: AT+AUDIOPATH

Table 186: AT+AUDIOPATH Operation Commands

AT+AUDIOPATH Voice Channel Switch Control		
Test Command	AT+AUDIOPATH=?	Response +AUDIOPATH: (<val>Value list) OK
Read Command	AT+AUDIOPATH?	Response +AUDIOPATH:<val> OK
Set Command	AT+AUDIOPATH=<val>	Response OK Parameter <val> 0 Speech by PCM Channel output 1 Speech by analog channel outputs
Example Command	AT+AUDIOPATH=1	Result OK
	AT+AUDIOPATH?	+AUDIOPATH:1 OK

5.2 Mute Control: AT+CMUT

Table 187: AT+CMUT Operation Commands

AT+CMUT Mute Control		
Test Command	AT+CMUT=?	+CMUT:(<n>Value list) OK

Read Command	AT+CMUT?	Response +CMUT:<n> OK
Set Command	AT+CMUT=<n>	Response enable or disable voice call up voice mute function OK ERROR/+CME ERROR:<err> Parameter <n> [0] Mute off 1 Mute OPEN
Example Command	AT+CMUT=0 AT+CMUT?	Result OK +CMUT:0 OK

5.3 DTMF Send: AT+VTS

Table 188: AT+VTS Operation Commands

AT+VTS DTMF SEND		
Test Command	AT+VTS=?	Response +VTS:(<dtmf>Valuelist)[, (<duration>Valuelist)] OK
Set Command	AT+VTS=<dtmf_str> AT+VTS=<dtmf>[,<duration>]	Response Setup instructions You can send one or more ASCII Characters, these characters were intended to enable MSC (Mobile Switching Center) For a remote user to launch dual-tone multi-frequency DTMF (Dual Tone Multi Frequency) Audio. Allows the user to send over time a sequence of DTMF tones. Allows the user to send single of the DTMF tones. In this case, time periods can be alone during a call. Note: the Setup instructions Only applies to the current voice calls. OK ERROR/+CME ERROR:<err> Parameter <dtmf_str> ASCII String, maximum length is 29 , The string must be enclosed in double quotation marks <dtmf>A single ASCII Characters <duration> 1/10 Audio time within seconds, Value Range: 1~255

Example Command	AT+VTS=1	Result During the call, sent to the called user "1" DTMF Tone OK
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5.4 Eradication In The DTMF Switch: AT+IBDTMF

Table 189: AT+IBDTMF Operation Commands

AT+IBDTMF Eradication In The DTMF Switch		
Test Command	AT+IBDTMF=?	Response +IBDTMF:(<val>Valuelist) OK
Read Command	AT+IBDTMF?	Response +IBDTMF:<val> OK
Set Command	AT+IBDTMF=<val>	Response Instructions Used to set the eradication in the DTMF On and off. Software release switch is off by default, which means that without the Elimination of in-band DTMF OK Parameter <val> [0] Within the closed zone elimination DTMF Function [1] Eradication in the open DTMF Function
Example Command	AT+IBDTMF=1 AT+IBDTMF?	Result Eradication in the open DTMF OK Eradication in the current opening DTMF Function +IBDTMF:1 OK

5.5 Downside Volume Settings: AT+CLVL

Table 190: AT+CLVL Operation Commands

AT+CLVL Downside Volume Settings		
Test Command	AT+CLVL=?	Response +CLVL:(<n>Value list) OK
Read Command	AT+CLVL?	Response +CLVL:<n>

		OK
Set Command	AT+CLVL=<n>	Response Instructions Used to adjust the rx_volume The volume level, 0 Mute, 7 For maximum volume. QueryInstructions is used to Query the current volume levelSetup instructions for setting changes the volume level. Emphasize the downlink (Rx) channel the audio gain adjustments using AT+CLVL and AT+RXVOL
		OK
		Parameter <n> <n> 0~7 Volume Value Range 0~7
Example Command	AT+CLVL=4	Result OK
	AT+CLVL?	+CLVL:4
		OK

5.6 SIDET Gain Settings: AT+SIDET

Table 191: AT+SIDET Operation Commands

AT+SIDET SIDET Gain Settings		
Test Command	AT+SIDET=?	Response +SIDET:(<gain_lvl>ValueList)
		OK
Read Command	AT+SIDET?	+SIDET: <gain_lvl>
		OK
Set Command	AT+SIDET=<gain_lvl>	Response OK
		Parameter <gain_lvl> Instructions AUX PCM Valid only for handset Speaker Valid settings side tone Gain range 0-32767
Example Command	AT+SIDET=512	Result OK

5.7 Switch PCM Master/Slave Mode: AT+PCMCONFIG

Table 192: AT+PCMCONFIG Operation Commands

AT+PCMCONFIG Switch PCM Master/Slave Mode

Test Command	AT+PCMCONFIG=?	Response +PCMCONFIG:(<val>Value list) OK
Read Command	AT+PCMCONFIG?	Response +PCMCONFIG:<val> OK
Set Command	AT+PCMCONFIG=<val>	Response Module is configured by default to Primary PCM . In this mode, users can also use the ATInstructions switch mode (Master Mode) and mode (Slave Mode). PCM is set to Master Mode Shi, module PCM interface driver always signal and synchronizing signal to an external CODEC: When set to Slave Mode Shi, the external CODEC Driving clock and synchronization signals to modules PCM Interface OK
		Parameter <val> 0 Main mode 1 slave mode
Example Command	AT+PCMCONFIG=1	Result OK
	AT+PCMCONFIG?	+PCMCONFIG:1 OK

5.8 PCM Format Control: AT+PCMAUDIO

Table 193: AT+PCMAUDIO Operation Commands

AT+PCMAUDIO PCM PCM Format Control		
Test Command	AT+PCMAUDIO=?	Response +PCMAUDIO: (<val>Value list) OK
Read Command	AT+PCMAUDIO?	Response +PCMAUDIO:<val> OK
Set Command	AT+PCMAUDIO=<val>	Response OK

		Parameter <val> 0 Default internal channel 1 PCM External-channel, in the format PCM 16 bit linear 2 PCM External-channel, in the format PCM 8 bit U law 3 PCM External-channel, in the format PCM 16 bit A law
Example Command	AT+PCMAUDIO=1 AT+PCMAUDIO?	Result OK +PCMAUDIO:1 OK

5.9 PCM End OF The Fill Control: AT+PCMPAD

Table 194: AT+PCMPAD Operation Commands

AT+PCMPAD PCM PCM End of the fill control		
Test Command	AT+PCMPAD=?	Response +PCMPAD: (<val>Value list) OK
Read Command	AT+PCMPAD?	Response +PCMPAD:<val> OK
Set Command	AT+PCMPAD=<val>	Response OK Parameter <val> 0 Do not fill at the end of 1 Padding at the end of
Example Command	AT+PCMPAD=1 AT+PCMPAD?	Result OK +PCMPAD:1 OK

5.10 Starts PCM Loopback Test

AT+SVPB=<mode>
<mode>

- 0 Turn off speech loopback test
- 1 Open the audio loop back test

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