

Neo_N703 WCDMA Module AT Command Set

Version 1.0



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Notice

This document provides guide for users to use the N703.

This document is intended for [system engineers \(SEs\)](#), [development engineers](#), and [test engineers](#).

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Revision Record

Issue	Changes	Date
V1.0	Initial draft	2015-11-20

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Boot LOG Instruction

After the 3G/GPRS module is booted, the UART1 outputs the following boot LOG:

+EIND: 128

+EUSIM: 1

	LOG	LOG Description
1	+EIND: 128	Indicates that the module starts up successfully and can receive AT commands.
2	+EUSIM: 1	Detect the SIM card. For a China Mobile card, the module returns +EUSIM: 0. For a China Unicom 2G card, the module returns +EUSIM: 1. When the module does not detect any SIM card, the module returns +EUSIM:ERROR. The return values are varied with MNC: +EUSIM:0 for MNC=00/02/07 +EUSIM:1 for MNC=01/06 +EUSIM:2 for other MNC values +EUSIM:ERROR indicates that the module did not detect SIM card.
Remarks		Users can determine whether the module starts up successfully or not by detecting "+EIND:128".

LED Indicators

	TE Status	LED Status
1	Registered 2G network successfully and in the idle status	Blinking (500 ms ON / 1500 ms OFF)
2	Registered 3G network successfully and in the idle status	Blinking (100 ms ON / 2900 ms OFF)
3	Search networks	Blinking twice (100 ms ON / 100 ms OFF / 100 ms ON / 2700 ms OFF)
4	Service mode (voice, data)	Blinking (125 ms ON / 125 ms OFF)
Remarks		To make the indicator blink as described above, execute the AT+ SIGNAL=1 command.

1 General Commands

1.1 Querying the Manufacturer: +CGMI

Description	To query the manufacturer information	
Format	AT+CGMI<CR>	
Parameter	N/A	
Return Value	<CR><LF><manufacturer><CR><LF> <CR><LF>OK<CR><LF>	
Example	AT+CGMI +CGMI: Neoway Corp Ltd OK	Query the manufacturer information.
Remarks	N/A	

1.2 Querying the Module Model: +CGMM

Description	To query the module model	
Format	AT+CGMM<CR>	
Parameter	N/A	
Return Value	<CR><LF><model><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+CME ERROR:<err><CR><LF>	
Example	AT+CGMM +CGMM: N703 OK	Query the product model.
Remarks	N/A	

1.3 Querying the Version: +CGMR

Description	To query the software version	
Format	AT+CGMR<CR>	
Parameter	N/A	
Return Value	<CR><LF><version><CR><LF> <CR><LF>OK<CR><LF> or	

	<CR><LF>+CME ERROR:<err><CR><LF>	
Example	AT+CGMR +CGMR: E9C34501 OK	Query the software version of the module.
Remarks	N/A	

1.4 Querying Device Manufacturer Information: ATI

Description	To obtain the manufacturer information including manufacturer name, model, and version	
Format	ATI<CR>	
Parameter	<CR><LF><manufacturer> <CR><LF><module_version> <CR><LF><soft_version> <CR><LF>OK<CR><LF>	
Return Value	<manufacturer>: Manufacturer name <module_version>: Module model <soft_version>: Software version	
Example	ATI NEOWAY N703 V501 OK	Manufacturer name Module model Software version
Remarks	N/A	

1.5 Obtaining the Module Software Version: +GMR

Description	To obtain the software version of the module	
Format	AT+GMR<CR>	
Parameter	<CR><LF><revision> <CR><LF>OK<CR><LF>	
Return Value	<revision>: Software version of the module	
Example	AT+GMR V501 OK	Query the software version
Remarks	N/A	

1.6 Querying IMEI: +CGSN

Description	To query the International Mobile Equipment Identity (IMEI) of the module	
Format	AT+CGSN<CR>	
Parameter	N/A	
Return Value	<CR><LF><IMEI><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+CME ERROR:<err><CR><LF>	
Example	AT+CGSN +CGSN: "355897043139120" OK	Query the IMEI of the module
Remarks	The IMEI is a character string of 15 digits.	

1.7 Querying the IMSI: +CIMI

Description	To query the international mobile subscriber identification (IMSI)	
Format	AT+CIMI<CR>	
Parameter	N/A	
Return Value	<CR><LF><IMSI><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>ERROR<CR><LF>	
Example	AT+CIMI 460022201575463 OK	Obtain the IMSI number.
	AT+CIMI ERROR	Query the IMSI without SIM card installed.
Remarks	IMSI is a character string of 15 digits and starts with 3-bit MCC and 2-bit MNC. It is used to authenticate the SIM card.	

1.8 Obtaining the ICCID of the SIM Card: +CCID

Description	To obtain the integrated circuit card identifier (ICCID) of the SIM card	
Format	AT+CCID<CR>	
Parameter	N/A	
Return Value	<CR><LF>+CCID: <ICCID><CR><LF>	

	<CR><LF>OK<CR><LF> Or <CR><LF>ERROR<CR><LF>	
Example	AT+CCID <CR> +CCID: 89860002190810001367 OK	Read command
	AT+CCID <CR> ERROR	Read command The SIM card is not inserted.
Remarks	The ICCID number is a character string of 20 digits.	

1.9 Enabling & Disabling the Terminal Display: ATE

Description	To specify whether to enable the terminal display	
Format	ATE<mode><CR>	
Parameter	<CR><LF>OK<CR><LF>	
Return Value	<mode>: 0: disable the terminal display 1: enable the terminal display	
Example	ATE0 OK +CSQ: 7,99 OK	Disable the terminal display
	ATE1 OK AT+CSQ +CSQ: 7,99 OK	Enable the terminal display
Remarks	N/A	

1.10 Restarting the Module: +SRST

Description	To restart the module
Format	AT+SRST<CR>
Parameter	<CR><LF>SOFT RESET OK<CR><LF>

Return Value	N/A	
Example	AT+SRST SOFT RESET OK	Restart the module.
Remarks	N/A	

1.11 Powering Off: +PWRD

Description	To power off the module	
Format	AT+PWRD<CR>	
Parameter	<CR><LF>PWR OFF OK<CR><LF>	
Return Value	N/A	
Example	AT+PWRD PWR OFF OK	Power off
Remarks	N/A	

1.12 Getting ADC Value: +GETADC

Description	To query the environment temperature	
Format	AT+GETADC<CR>	
Return Value	<CR><LF>+GETADC: <adc_val>,<temp> <CR><LF>OK<CR><LF>	
	<CR><LF>+GETADC: OVL <CR><LF>OK<CR><LF>	
	<CR><LF>+GETADC: OVH <CR><LF>OK<CR><LF>	
Parameter	<adc_val>: ADC value <temp>: temperature, °C OVL: The temperature exceeds the lower threshold -40°C OVH: The temperature exceeds the higher threshold 85°C	
Example	AT+GETADC +GETADC: 1901,13 OK	Get the temperature, the voltage, and the ADC port.
Remarks	Refer to Neoway temperature sensing scheme.	

1.13 Querying Environment Temperature: \$MYADCTEMP

Description	To query the environment temperature	
Format	- AT\$MYADCTEMP=<mode><CR> - AT\$MYADCTEMP=?	
Return Value	<CR><LF>\$MYADCTEMP: <temp>,<volt> <CR><LF>OK<CR><LF>	
	<CR><LF>\$MYADCTEMP: <adc_val> <CR><LF>OK<CR><LF>	
	<CR><LF>\$MYADCTEMP: OVL <CR><LF>OK<CR><LF>	
	<CR><LF>\$MYADCTEMP: OVH <CR><LF>OK<CR><LF>	
	<CR><LF>\$MYADCTEMP: (list of supported <mode>)<CR><LF> <CR><LF>OK<CR><LF>	
Parameter	<mode>: 0: temperature and voltage at ADC port 1: ADC value <temp>: Temperature, °C <volt>: Voltage, mV <adc_val>: ADC value OVL: The temperature exceeds the lower threshold -40°C OVH: The temperature exceeds the higher threshold 85°C	
Example	AT\$MYADCTEMP=0 \$MYADCTEMP: 30,701 OK	Get the temperature and voltage at the ADC port.
	AT\$MYADCTEMP=1 \$MYADCTEMP: 1303 OK	Get the ADC value
	AT\$MYADCTEMP=? \$MYADCTEMP: (0-1) OK	Query the available value range.
Remarks	Refer to Neoway temperature sensing scheme.	

2 Mobile Device Control and Status Report

2.1 Querying the Module Status: +CPAS

Description	To query the work status of the module	
Format	- AT+CPAS<CR> - AT+CPAS=?<CR>	
Parameter	<pas>: 0: ready. The module is ready and is able to execute AT commands. 1: unavailable (MT does not allow commands) 2: unknown 3: ringing. There is an incoming call and the module is ringing. The module can execute AT commands. 4: call in progress. A call is going on and the module can execute AT commands. 5: asleep (low functionality)	
Return Value	<CR><LF>+CPAS: <pas><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+CME ERROR: <error><CR><LF>	
Example	AT+CPAS +CPAS: 0 OK	The module is ready.
	AT+CPAS=? +CPAS: (0-5) OK	The module is in any possible status.
	AT+CPAS +CME ERROR: <error>	Error is the type of the returned error. It can be digits or character string.
Remarks	N/A	

2.2 Querying the Network Registration Status: +CREG

Description	To query the network registration status of the module	
Format	- AT+CREG=<n><CR> - AT+CREG? <CR> - AT+CREG=?<CR>	
Parameter	<n>: 0: Forbid unsolicited result codes of network registration (default setting). 1: Allow unsolicited result codes of network registration.	

	2: Allow unsolicited location information (Cell ID, Local ID) of network registration.	
Return Value	<CR><LF>+CREG: <n>,<stat>[,<lac>,<ci>[,<Act>]]<CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+CME ERROR: <err><CR><LF> <n>: 0: Forbid unsolicited result codes of network registration (default setting). 1: Allow unsolicited result codes of network registration. 2: Allow unsolicited location information (Cell ID, Local ID) of network registration. <stat>: 0: Unregistered. The device is not searching for new carriers. 1: Registered the local network 2: Unregistered. The device is searching for base stations. 3: The registration is rejected. 4. Unknown code 5: Registered, roaming <lac>: Location Area Code <ci>: string type; two-byte cell ID in hexadecimal format <Act>: 0: GSM 2: UTRAN 3: GSM w/EGPRS	
Example	AT+CREG=1 OK	Enable network registration unsolicited result code.
	AT+CREG? +CREG: 1,1 OK	Query the current network registration status.
	AT+CREG=? +CREG: (0-2) OK	Query the valid parameter value range.
Remarks	N/A	

2.3 GPRS Network Registration: +CGREG

Description	To control the presentation of an unsolicited result code of the module's GPRS network registration status
Format	- AT+CGREG=[<n>]<CR> - AT+CGREG?<CR>

	• AT+CGREG=?<CR>	
Parameters	<n>: Specifies whether to enable network registration unsolicited result code 0: Disable network registration unsolicited result code (default) 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>: GPRS registration status, integer type 0: Not registered, the module is not currently searching an operator to register to 1: Registered the home network 2: Not registered, but the module is currently trying to attach or searching an operator to register to 3: Registration denied 4. Unknown code 5: Registered, roaming <lac>: Two byte location area code in hexadecimal format, string type <ci>: four byte GERAN/UTRAN cell ID in hexadecimal format, string type <Act>: The access technology of the serving cell, integer type 0: GSM 2: UTRAN 3: GSM w/EGPRS	
Return Value	<CR><LF>+CGREG: <n>,<stat>[,<lac>,<ci>[,<Act>]]<CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>OK<CR><LF> or <CR><LF>ERROR<CR><LF>	
Example	AT+CGREG=1 OK AT+CGATT=0 +CGREG: 0 OK	Enable network registration result code. Set GPRS detaching. The module returns unsolicited result code.
	AT+CGREG=2 OK AT+CGATT=1 +CGREG: 1, A547, 1EB6AAF OK AT+CGREG? +CGREG: 2,1, A547, 1EB6AAF OK	Enable network registration and location information result code. Set GPRS attachment. The module returns unsolicited result code. The module returns OK after attaching GPRS successfully. The module returns unsolicited result code.

	AT+CGREG? +CGREG: 0,1 OK	Query the current GPRS network registration status. The network registration unsolicited result code is disabled.
	AT+CGREG? +CGREG: 1,1 OK	Query the current GPRS network registration status. The network registration unsolicited result code is enabled.
	AT+CGREG? +CGREG: 2,1, A547, 1EB6AAF OK	Query the current GPRS network registration status. The network registration and location information unsolicited result code is enabled.
	AT+CGREG=3 ERROR	The set value exceeds the parameter range and the module returns ERROR .
	AT+CGREG=? +CGREG: (0-2) OK	Query the available parameter range.
Remarks	N/A	

2.4 Setting GPRS Attach and Detach: +CGATT

Description	To set GPRS attach and detach	
Format	AT+CGATT=<state><CR> AT+CGATT?<CR> AT+CGATT=?<CR>	
Parameter	<state>: 0, 1 0: indicates detach 1: indicates attach	
Return Value	See the Example.	
Example	AT+CGATT=1 OK	GPRS attach is set successfully.
	AT+CGATT=0 OK	GPRS detach is set successfully.
	AT+CGATT=0 +PPPSTATUS:CLOSED OK	PPPSTATUS:CLOSED is returned if you run this command after PPP connection is set up (AT+XIIC=1).
	AT+CGATT=0	This value is returned if you run the

	\$MYURCACT: 0,0 OK	command after the PPP connection is set up (AT\$MYNETACT=0,1).
	AT+CGATT=0 ERROR	No SIM card is installed, so the module returns ERROR .
	AT+CGATT? +CGATT: 0 OK	Query the GPRS status.
	AT+CGATT=? +CGATT: (0,1) OK	Query the valid parameter values for the command.
Remarks	- By default, the module can automatically perform GPRS attach. - Ensure that the GPRS attach is set before the PPP connection is set up. - It is recommended that you add the AT+CGATT? command to the process to query the GPRS status. If the module returns 1, you can set up PPP connection directly; otherwise, you need to set GPRS attach manually by executing the command AT+CGATT=1.	

2.5 Setting Module Functionality: +CFUN

Description	To select the functions of the module by setting <fun> <fun> supports only a few values.
Format	- AT+CFUN=<fun>[,<rst>]<CR> - AT+CFUN=?<CR> - AT+CFUN?<CR>
Parameter	<fun>: 0: Turn off the radio and SIM power (minimum functions). 1: All functions 4: Turn off the RF transmit and receive circuit of the module (flight mode). 6: Ready to restart (the module is set to restart, and you can query this status before the restart.) 7: Offline state (During the restart, the module is offline and then searches for the network but fails. The module enters this state, which can be queried only.) <rst>: 0: Do not reset the MT before setting it to <fun> power level. 1: Reset the MT before setting it to <fun> power level
Return Value	<CR><LF>+CFUN: (list of supported <fun>s), (list of supported <rst>s) <CR><LF> <CR><LF>OK<CR><LF> OR <CR><LF>+CME ERROR: <err><CR><LF>

Example	AT+CFUN=1 OK	Set the module online.
	AT+CFUN=1,1 OK	Set all functions for the module and restart it.
	AT+CFUN? +CFUN: 1 OK	Query the current functionality level.
	AT+CFUN=? +CFUN: (0-1,4,6-7),(0-1) OK	Query the valid parameter value ranges.
Remarks	- If using the UART Debug Tool on the PC, you must close and then open the UART after you enter restart parameters so that the module can respond to the AT command. - AT+CFUN=4,1 is not supported. After the module restarts, it enters all function mode.	

2.6 Setting the Signal Indicator Mode: +SIGNAL

Description	To set the mode of the signal indicator	
Format	- AT+SIGNAL=<mode><CR> - AT+SIGNAL?<CR>	
Parameter	< mode>: 0: China Grid Regulation mode 1: Standard indicator mode	
Return Value	See the Example	
Example	AT+SIGNAL=1 OK	Set the signal indicator to the standard mode.
	AT+SIGNAL? +SIGNAL: 1 OK	Query the current signal indicator mode.
	AT+SIGNAL=? +SIGNAL: (0-1) OK	Query the valid parameter value range.
Remarks	The setting of this command can be saved after the module is powered off.	

2.7 Enabling or Disabling the Sleep Mode: +ENPWRSAVE

Description	To enable or disable the sleep mode	
Format	- AT+ENPWRSAVE=<n> <CR> - AT+ENPWRSAVE?<CR> - AT+ENPWRSAVE=?<CR>	
Parameter	<n>: 0: Enable the sleep mode. 1: Disable the sleep mode	
Return Value	See the Example.	
Example	AT+ENPWRSAVE=1 OK	Disable the sleep mode.
	AT+ENPWRSAVE=? +ENPWRSAVE: (0-1) OK	Query the valid parameter value range.
	AT+ENPWRSAVE? +ENPWRSAVE: 1 OK	Query current sleep mode status.
Remarks	- If the module communicates with the DTE only through UART, all the following conditions must be met to let the module enter the sleep mode: AT+ENPWRSAVE=0; Set the SLEEP_IN pin low level (by default) The module is idle (no voice, data, and SMS service) - If the module communicates with the DTE only through USB, all the following conditions must be met to let the module enter the sleep mode: All conditions for UART communication USB Suspend function is enabled on the DTE or the USB stops supplying power. - The module will not respond to AT commands after the module enter the sleep mode.	

2.8 Clock: +CCLK

Description	To set and query the real-time clock
Format	- AT+CCLK=<time> <CR> - AT+CCLK? <CR>
Parameter	< time >: Character string in format of YY/MM/DD,hh:mm:ss+TZ. TZ: Two digits, indicating the time lag between the local time and the GMT time. This information is optional because it can be displayed only when the network supports it.
Return Value	See the Example.

Example	AT+CCLK="11/11/14,09:30:16" OK	Set the real-time date and time.
	AT+CCLK? +CCLK: "11/11/14,09:30:26" OK	Query current date and time. Get current date and time.
Remarks	The setting of this command can be saved after the module is powered off.	

2.9 Setting the Baudrate of the Module: +IPR

Description	To set the baudrate of the module	
Format	- AT+IPR=<baud rate> <CR> - AT+IPR? <CR>	
Parameter	<baud rate>: The value can be 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200, 230400, 460800, 921600.	
Return Value	See the Example.	
Example	AT+IPR=115200 OK	Set the baudrate to 115200.
	AT + IPR =? +IPR: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400 OK	Query the available baudrate range.
	AT+IPR? +IPR: 115200 OK	Query the current baudrate.
Remarks	The default baudrate is 115200.	

2.10 Entering the PIN Codes: +CPIN

Description	To query the PIN status and enter the PIN codes	
Format	- AT+CPIN=<pin>[,<newpin>]<CR> - AT+CPIN? <CR> - AT+CPIN=<pin><CR>	
Parameter	<pin>, <newpin>: string type values	
Return Value	<CR><LF>+CPIN:<code><CR><LF> <CR><LF>OK<CR><LF> <code>:	

	READY: No password SIM PIN: Enter PIN code. SIM PUK: Enter PUK code. SIM PIN2: Enter PIN2 code. SIM PUK2: Enter PUK2 code.	
Example	AT+CPIN? +CPIN: READY OK	Query the PIN code status of the module.
	AT+CPIN? +CPIN: SIM PIN OK AT+CPIN="1234" OK	PIN code is required. Enter correct PIN code.
	+EUSIM:1	The USIM card is unlocked.
	AT+CPIN? +CPIN: SIM PUK OK AT+CPIN="12345678","4321" OK	PIN code is entered incorrectly for three times. PUK code is required to unlock the USIM card. Enter the PUK code and new PIN code.
	+EUSIM:1	The USIM card is unlocked.
Remarks	N/A	

2.11 Enabling PIN and Querying MT and Network Device: +CLCK

Description	To lock, unlock or interrogate an MT or a network facility
Format	- AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]<CR> - AT+CLCK=?<CR>
Parameter	<fac> : "OI": Outgoing international calls "AI": All incoming calls "IR": Incoming calls when roaming outside the home country "SC": SIM card "AO": All outgoing calls "OX": All outgoing international calls except to the home country

	"FD": SIM fixed dialing memory feature "PN": Network authentication "PU": Network subsystem authentication "PP": Service provider authentication "PC": Corporate authentication <mode>: 0: Unlock 1: Lock 2: Query the status <status>: 0: not active 1: active <passwd>: Password or code, string type <class>: 1: Voice service 2: Data service 4: Fax service 8: SMS 16: Synchronous data service 32: Asynchronous data service 64: Dedicated packet access 128: Dedicated PAD access	
Return Value	when <mode>=2 and command successful: <CR><LF>+CLCK: <status> [, <class1> [<CR><LF>+CLCK: <status>, <class2> [...]]<CR><LF>	
Example	AT+CLCK="SC",2 +CLCK: 0 OK	Query the SIM card status.
	AT+CLCK=? +CLCK: ("PF","SC","AO","OI","OX","AI","IR", "AB","AG","AC","FD","PN","PU","PP", "PC") OK	Query valid parameter value range.
	AT+CLCK="SC",1,"1234" OK +EIND:128 AT+CPIN? +CPIN: SIM PIN	Enable the SIM card lock. Restart the module. Query if PIN code is required.

	OK AT+CPIN="1234" OK +EUSIM:1	Enter PIN code. Unlock
	AT+CLCK="SC",0,"1234" OK +EIND:128 +EUSIM:1 AT+CPIN? +CPIN: READY OK	Disable the SIM card lock. Restart the module. Query if the PIN code is required.
Remarks	N/A	

2.12 Modifying the Password of the PIN: +CPWD

Description	To modify the password of the lock function of the module
Format	- AT+CPWD=<fac>,<oldpwd>,<newpwd><CR> - AT+CPWD=?<CR>
Parameter	<fac>: "P2": SIM PIN2 "OI": Outgoing international calls "AI": All incoming calls "IR": Incoming calls when roaming outside the homing place "SC": SIM card "AO": All outgoing calls "OX": All outgoing international calls except to the home country "AB": All calling services "AG": All outgoing call services "AC": All incoming call services <oldpwd>: Old password or code, string type <newpwd>: New password or code, string type
Return Value	<CR><LF>+CPWD: list of supported (<fac>,<pwdlength>)s<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

Example	AT+CPWD=? +CPWD: ("SC",8),("P2",8),("AO",4),("OI",4), ("OX",4),("AI",4),("IR",4),("AB",4), ("AG",4),("AC",4) OK	Query the service range of the PIN password allowed by the module.
	AT+CLCK="SC",1,"1234" OK AT+CPWD="SC","1234","4321" OK +EIND:128 AT+CPIN? +CPIN: SIM PIN OK AT+CPIN="4321" OK +EUSIM:1	Enable the SIM card lock. Modify the PIN code. Restart the module. Query if PIN code is required. PIN code is required. Enter new password. Unlock
Remarks	- Lock the SIM card before modifying the password for the SIM card. Otherwise, the module returns +CME ERROR: SIM failure. - The password is in the string type, for example 1234.	

2.13 Extended Error Report: +CEER

Description	To report the call releasing cause if a call fails to be initiated or answered	
Format	AT+CEER<CR>	
Parameter	N/A	
Return Value	<CR><LF>+CEER: <report ><CR><LF> <CR><LF>OK<CR><LF> <report>: The ME manufacturer provides the extended report about the following error causes: Failure of the latest call (initiate or answer) or modification during the call Release of the latest call The latest 3G/GPRS attach failure or PDP context activation The latest 3G/GPRS detach or PDP context deactivation The detailed report causes are defined in GSM 04.08.	
Example	ATH SPEECH OFF	Query after ending a call, which is initiated by the module.

	RELEASE	
	OK	
	AT+CEER +CEER: Client ended call	
	OK	
	AT+CEER +CEER: No cause information available	Query before dialing a number.
	OK	
Remarks	N/A	

2.14 Setting Error Information: +CMEE

Description	To enable or disable the +CME ERROR:<err> result code	
Format	- AT+CMEE=<n><CR> - AT+CMEE? <CR> - AT+CMEE=?<CR>	
Parameter	<n>: 0: Disable the +CME ERROR:<err> result code and display ERROR . 1: Enable the +CME ERROR:<err> result code and use the numeric <err> value. 2: Enable the +CME ERROR:<err> result code and use verbose <err> values.	
Return Value	See the Example.	
Example	AT+CMEE=1 OK AT+CSQ=1 +CME ERROR: 3	Enable the result code in digit format.
	AT+CMEE=? +CMEE: (0,1,2) OK	Query the status range of error code.
	AT+CMEE? +CMEE: 1 OK	Query the status of the current result code.
	AT+CMEE=0 OK AT+CSQ=1	Disable the result code. Display ERROR only.

	ERROR	
	AT+CMEE=2 OK AT+CSQ=1 +CME ERROR: operation not allowed	Enable the result code and display verbose error value.
Remarks	The default value is 2.	

2.15 Enabling the Flow Control Function: +IFC

Description	To enable the flow control function	
Format	- AT+IFC=<n1>,<n2><CR> - AT+IFC=?<CR> - AT+IFC?<CR>	
Parameter	<n1>: TX flow control 0: None, Transmit data flow control disabled. 2: Hardware, Use RTS (Request To Send) /CTS (Clear to Send) signal <n2>: RX flow control 0: None, Receive data flow control disabled. 2: Hardware, Use CTS (Clear To Send) signal (default)	
Return Value	See the Example.	
Example	AT+IFC=2,2 OK	Enable the hardware flow control.
	AT+IFC=0,0 OK	Disable the flow control function.
	AT+IFC=? +IFC: (0,2),(0,2) OK	Query the valid parameter value ranges.
	AT+IFC? +IFC: 0, 0 OK	Query the current status of flow control.
Remarks	- The setting of this command will not be saved after the module is powered off. - The flow control function is disabled by default.	

2.16 Setting the Network Model: +PREF

Description	To set the network model
Format	AT+PREF=<value> <CR>

	- AT+PREF=? <CR> - AT+PREF? <CR>	
Parameter	<value>: 4: AUTO 13: GSM 14: WCDMA	
Return Value	See the Example.	
Example	AT+PREF=14 OK	Set the network model to WCDMA.
	AT+PREF=? +PREF: (4,13,14) OK	Query the valid parameter value range.
	AT+PREF? +PREF: WCDMA OK	Query current network model.
Remarks	- The default status setting is AUTO. The parameter setting of this command can be saved after the module is powered off. - The setting of this command takes effective only after the module is restarted.	

2.17 Querying the Network Standards

Description	To query or set the network standards
Format	- AT+ERAT=<rat mode>[,<prefer rat>]<CR> - AT+ERAT=?<CR> - AT+ERAT?<CR>
Parameter	<rat mode>: 0: GSM only 1: WCDMA only 2: AUTO <prefer rat>: 0: no preference 1: GSM preferred (when rat mode=2) 2: WCDMA preferred (when rat mode=2)
Return Value	<CR><LF>+ERAT: <current rat>,<GPRS status>,<rat mode>,<prefer rat><CR><LF> <CR><LF>OK<CR><LF> <CR><LF>+ERAT:<rat mode>,<prefer rat><CR><LF> <CR><LF>OK<CR><LF>

	<current rat>: 0: GSM 2: UTRAN 3: GSM w/EGPRS 4: UTRAN w/HSDPA <GPRS status>: 0: GPRS 1: EDGE 2: HSDPA 255: unknown	
Example	AT+ERAT=2,0 OK	Set the network standard to AUTO.
	AT+ERAT=? +ERAT:(0-2),(0-2) OK	Query the valid parameter value ranges.
	AT+ERAT? +ERAT: 4,2,2,0 OK	Query the current network standard.
Remarks	- The settings of this command will be saved after the module is powered off. - The network standard setting takes effective only after the module is powered on again. - When <rat mode> is set to 0 or 1, <prefer rat> can be set only to 0.	

3 Network Service Commands

3.1 Querying Signal Quality: +CSQ

Description	To check the receiving signal strength indication (RSSI) and the bit error rate (BER) of the channel																										
Format	- AT+CSQ<CR> - AT+CSQ=?<CR>																										
Parameter	N/A																										
Return Value	<CR><LF> +CSQ: < signal >, <ber><CR><LF> <CR><LF> OK <CR><LF> < signal > The following table shows the relationship between the signal and the RSSI. <table><tr><td></td><td>signal</td><td>rsi</td></tr><tr><td>0</td><td><4 or 99</td><td><-107 dBm or unknown</td></tr><tr><td>1</td><td><10</td><td><-93dBm</td></tr><tr><td>2</td><td><16</td><td><-71 dBm</td></tr><tr><td>3</td><td><22</td><td><-69dBm</td></tr><tr><td>4</td><td><28</td><td><-57dBm</td></tr><tr><td>5</td><td>>=28</td><td>>=-57 dBm</td></tr></table> <ber> <table><tr><td>0...7</td><td>Refer to the value of RXQUAL in the table of GSM 05.08 8.2.4.</td></tr><tr><td>99</td><td>Unknown or not detectable</td></tr></table>			signal	rsi	0	<4 or 99	<-107 dBm or unknown	1	<10	<-93dBm	2	<16	<-71 dBm	3	<22	<-69dBm	4	<28	<-57dBm	5	>=28	>=-57 dBm	0...7	Refer to the value of RXQUAL in the table of GSM 05.08 8.2.4.	99	Unknown or not detectable
	signal	rsi																									
0	<4 or 99	<-107 dBm or unknown																									
1	<10	<-93dBm																									
2	<16	<-71 dBm																									
3	<22	<-69dBm																									
4	<28	<-57dBm																									
5	>=28	>=-57 dBm																									
0...7	Refer to the value of RXQUAL in the table of GSM 05.08 8.2.4.																										
99	Unknown or not detectable																										
Example	AT+CSQ +CSQ: 24,99 OK	Query the current RSSI.																									
	AT+CSQ=? +CSQ: (0-31,99),(0-7,99) OK	Query the value range of the RSSI.																									
Remarks	N/A																										

3.2 Selecting and Registering a GSM Network: +COPS

Description	To select and register a network
Format	AT+COPS=<mode>[,<format>[,<oper>>[,<AcT>]]]<CR>

	• AT+COPS?<CR> • AT+COPS=?<CR>	
Parameter	<mode>: To set automatic network selection or manual selection 0: Automatic selection (ignore the parameter <oper>) 1: Manual selection 2: Deregister from the network 3: Set <format> only 4: Manual/automatic selection (if the manual selection fails, automatic mode starts) <format>: 0: Long alphanumeric <oper> (default value) 1: Short format alphanumeric <oper> 2: Numeric <oper> <oper>: It is given in <format>. This field may be in 16-character long alphanumeric format, 8-characters short alphanumeric format, or 5-character numeric format (MCC/MNC). <AcT>: Indicates the radio access technology and its value can be 0, 1, and 2. 0: GSM 1: GSM compact 2: UTRAN	
Return Value	N/A	
Example	AT+COPS=0,0 OK	Set to the long alphanumeric format
	AT+COPS=0,2 OK	Set to digital mode
	AT+COPS? +COPS: 0,0, " CHINA MOBILE ",0" OK	China Mobile
	AT+COPS? +COPS: 0,2,"46000",0 OK	If it is set to digital mode, get the number 46000
	AT+COPS? +COPS: 0,0," CHN-UNICOM ",2 OK	China Unicom
	AT+COPS? +COPS: 0,2,"46001",2 OK	If it is set to digital mode, then get the number 46001.

	AT+COPS=? +COPS: (2,"CHN-UNICOM","UNICOM","46001",2),(1,"CHN-UNICOM","UNICOM","46001",0),(3 ,"CHINA MOBILE","CMCC","46000",0),,(0,1,2,3,4),(0, 1,2) OK	Query available networks.
Remarks	• When you try to query the current network selection parameters, <AcT> is displayed only if the device supports UMTS. • <AcT> indicates the access technology of the manual attach procedure if you choose GSM/UMTS dual mode and select network manually. • Ignore the parameter <AcT> if you set automatic network selection.	

4 Calling Control Commands

4.1 Setting the Speaker Volume: +CLVL

Description	To set the level of the speaker volume, which is valid during a call	
Format	- AT+CLVL=<level> <CR> - AT+CLVL?<CR> - AT+CLVL=? <CR>	
Parameter	<level>: Integers, ranging from 0 to 6	
Return Value	See the Example.	
Example	AT+CLVL=3 OK	Set the volume of the module speaker to 3.
	AT+CLVL? +CLVL:3 OK	Query the current volume level of the module.
	AT+CLVL=? +CLVL: (0-6) OK	Query the available value range of the speaker volume level.
Remarks	N/A	

4.2 Mute Control: +CMUT

Description	To set mute control of the voice calls. The setting is valid during a call	
Format	- AT+CMUT=<n> <CR> - AT+CMUT? <CR> - AT+CMUT=?<CR>	
Parameter	<n>: 0: Mute off 1: Mute on	
Return Value	See the Example.	
Example	AT+CMUT=0 OK	Mute off
	AT+CMUT? +CMUT: 0 OK	Query current mute setting.

	AT+CMUT=? +CMUT: (0-1) OK	Query the valid parameter value range of mute settings.
Remarks	This command is valid only during a call. ERROR will be returned in any other situations.	

4.3 Selecting Audio Channel: +SPEAKER

Description	To select an audio channel: earphone I/O, receiver/speaker	
Format	- AT+SPEAKER=<ActiveSpkMic><CR> - AT+SPEAKER?<CR> - AT+SPEAKER=?<CR>	
Parameter	<ActiveSpkMic>: 0: Earphone 1: Receiver	
Return Value	<CR><LF>OK<CR><LF>	
	<CR><LF>+SPEAKER: <ActiveSpkMic><CR><LF>	
	<CR><LF>OK<CR><LF>	
	<CR><LF>+SPEAKER: (0-1)<CR><LF>	
Example	<CR><LF>OK<CR><LF>	
	<CR><LF>ERROR<CR><LF>	
	AT+SPEAKER=0 OK	Select earphone I/O
	AT+SPEAKER=? +SPEAKER: (0-1) OK	Query the available parameter value ranges.
	AT+SPEAKER? +SPEAKER: 1 OK	Query current settings.
	AT+SPEAKER=3 ERROR	The parameter value exceeds the allowed range.
Remarks	The default value is 0.	

4.4 Dialing Command: ATD

Description	To initialize a data, fax, or voice connection For a voice connection, the dialing string consists of numbers and modifiers and must end with a semicolon.	
Format	• ATD<dial string>[;]<CR> • ATD<n>;<CR> • ATD>"name";<CR>	
Parameter	<dial string>: Phone number <n>: The location of phone number name: Name in the current phonebook.	
Return Value	OK SPEECH ON ALERTING If the call is hung up directly on the other side: SPEECH OFF RELEASE BUSY NO CARRIER The phone is picked up on the other side: CONNECT If the call is hung up on the other side during the call SPEECH OFF RELEASE NO CARRIER If a second call comes and is ended during a call, the other side ends the first call after SPEECH OFF is returned. DISCONNECT RELEASE NO CARRIER	
Example	ATD10010; OK	Dial a number.

	SPEECH ON	The receiver answered the call.
	ALERTING	
	CONNECT	
	ATD>4; OK	Use the index in the current phonebook to make a call.
	SPEECH ON	
	ALERTING	
	CONNECT	
	SPEECH OFF	
	RELEASE	
	NO CARRIER	
	ATD>"Comneon"; OK	Use the name in the current phonebook to make a call.
	SPEECH ON	
	ALERTING	
	CONNECT	
Remarks	There are two types of calls: voice call, data and fax call. Semicolon is required for voice calls and not required for data or fax calls. • Data and fax call: ATD<dial string> • Voice call: ATD<dial string>	

4.5 Call Answering: ATA

Description	To answer the call and establish a call connection The return codes containing RING or +CRING indicate an incoming call.
Format	ATA<CR>
Parameter	N/A
Return Value	<CR><LF>SPEECH ON<CR><LF> <CR><LF> OK <CR><LF> If the call is hung up on the other side during the call, the command returns:

	<CR><LF> SPEECH OFF <CR><LF> <CR><LF> RELEASE <CR><LF> <CR><LF> NO CARRIER <CR><LF>	
Example	ATA SPEECH ON OK	Answer the call.
Remarks	N/A	

4.6 Hanging Up Calls: ATH

Description	To hang up all call connections	
Format	ATH<CR>	
Parameter	N/A	
Return Value	<CR><LF> SPEECH OFF <CR><LF> <CR><LF> RELEASE <CR><LF> <CR><LF> OK <CR><LF>	
Example	ATH SPEECH OFF RELEASE OK	End all call connections.
Remarks	N/A	

4.7 Caller ID: +CLIP

Description	To enable or disable caller ID	
Format	• AT+CLIP=<n><CR> • AT+CLIP?<CR> • AT+CLIP=?<CR>	
Parameter	<n>: 0: disable caller ID 1: enable caller ID (default value)	
Return Value	+CLIP: <n> <n>: 0: disable 1: enable	
Example	AT+CLIP=1	Enable the caller ID function.

	OK	
	+CLIP: "136*****",128,"",0,"",0	An incoming call from 136*****.
	RING	
	AT+CLIP? +CLIP: 1	Query the setting of the caller ID.
	OK	
	AT+CLIP=? +CLIP: (0-1)	Query the value range of callee ID function.
	OK	
Remarks	The callee ID function is enabled by default.	

4.8 Sending DTMF Tone: +VTS

Description	To send the DTMF tone Only for voice services in GSM	
Format	- AT+VTS=<DTMF><CR> - AT+VTS=?<CR>	
Parameter	<DTMF>: A single ASCII character in the set .0-9, #, *, A-D.	
Return Value	See the Example.	
Example	AT+VTS=? +VTS: 0,1,2,3,4,5,6,7,8,9,A,B,C,D,#,*	Query the DTMF signal range of the module.
	OK	
	AT+VTS=0	Send DTMF signals.
	OK	
Remarks	This command is valid during a call.	

4.9 Auto-Answer: ATS0

Description	To control the auto-answer mode of the module	
Format	- ATS0=<value> <CR> - ATS0? <CR>	
Parameter	<value>: Integers, ranging from 0 to 255 If ATS0 is set to 0 , auto-answer is disabled; If ATS0 is set to other values, the module will automatically answer the call after ringing	

	for the set times.	
Return Value	See the Example.	
Example	ATSO=1 OK RING SPEECH ON	Set the auto-answer for one ring. A call in incoming. It is answered automatically after one ring.
	ATSO? 001 OK	Query the status of the auto-answer function.
Remarks	N/A	

4.10 Handfree Switch: +HANDFREE

Description	To control the handfree mode of a voice call	
Format	- AT+HANDFREE=<value> <CR> - AT+HANDFREE? <CR>	
Parameter	<value>: Integer 0: Earphone mode 1: Handfree mode, always valid if the module is not powered off or switched to other modes 2: Handfree mode, only valid for the current call. It will switch to the earphone mode after the call ends.	
Return Value	<CR><LF> +HANDFREE:0<CR><LF> <CR><LF> OK<CR><LF>	
Example	AT+HANDFREE=0 OK	Set to the earphone mode.
	AT+HANDFREE=1 OK	Set to the handfree mode.
	AT+HANDFREE? +HANDFREE:0 OK	The current mode is earphone mode.
Remarks	Earphone mode by default.	

4.11 Starting the DTMF Detection: +DTMFDETECT

Description	To start the DTMF detection during a call	
Format	AT+DTMFDETECT=<value><CR>	
Parameter	<value>: Integer 0: Stop DTMF detection 1: Start DTMF detection	
Return Value	<CR><LF> +DTMF:DETECT START OK<CR><LF> <CR><LF> +DTMF:DETECT STOP OK <CR><LF> <CR><LF> +DTMF:DETECT ALREADY STARTED <CR><LF> <CR><LF> +DTMF:OPERATION NOT ALLOWED <CR><LF>	
Example	AT+DTMFDETECT=1 +DTMF:DETECT START OK	Start the DTMF detection.
	AT+DTMFDETECT=0 +DTMF:DETECT STOP OK	Stop the DTMF detection.
	ATD13510616275; OK SPEECH ON ALERTING CONNECT AT+DTMFDETECT=1 +DTMF:DETECT START OK DTMF KEY(Rec): 1 DTMF KEY(Rec): 3 DTMF KEY(Rec): 0 DTMF KEY(Rec): 9 AT+DTMFDETECT=0 +DTMF:DETECT STOP OK ATH SPEECH OFF RELEASE OK	Detect DTMF signals.

Remarks	N/A
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4.12 MIC Volume Control: +MICL

Description	To set the level of the MIC volume in a call	
Format	- AT+MICL=<level> <CR> - AT+MICL? <CR> - AT+MICL=?<CR>	
Parameter	<level>: Integers, ranging from 0 to 6	
Return Value	See the Example.	
Example	AT+MICL=3 OK	Set the level of the MIC volume to 3.
	AT+MICL? +MICL:3 OK	Query the current level of the MIC volume.
	AT+MICL=? +MICL: (0-6) OK	Query the value range of MIC volume.
Remarks	The setting of this command is not saved after the module is powered off.	

4.13 Echo Control: +ECHO

Description	To enable, disable, and modify the echo cancellation function during a call	
Format	- AT+ECHO=<mode><CR> - AT+ECHO?<CR> - AT+ECHO=?<CR>	
Parameter	<mode>: 0 to 6 0 Vocoder Echo Cancellation Off 1 Ear Seal Echo Cancellation 2 Head Set Echo Cancellation 3 AEC 4 Speaker Echo Cancellation for car kit operation 5 Bluetooth earphone Echo Cancellation (not supported) 6 Default Echo Cancellation for current path settings	
Return Value	<CR><LF>OK<CR><LF>	
	<CR><LF>+ECHO: <mode><CR><LF> <CR><LF>OK<CR><LF>	

	<CR><LF>+ECHO: (0-6)<CR><LF> <CR><LF>OK<CR><LF>	
	<CR><LF>ERROR<CR><LF>	
Example	AT+ECHO=0 OK	Disable the echo cancellation function.
	AT+ECHO=8 ERROR	The command is incorrect. The value set is beyond the parameter value range.
	AT+ECHO? +ECHO: 0 OK	Query the current settings.
	AT+ECHO=2 OK	Enable the echo cancellation function for the earphone.
Remarks	- Echo cancellation function is implemented through the audio match technology of the DSP chipset. - Obtain the echo delay parameter value by comissionning in real application.	

5 SMS Commands

5.1 Selecting SMS Services: CSMS

Description	To select an SMS service among SMS-MO, SMS-MT, and SMS-CB	
Format	- AT+CSMS=<service><CR> - AT+CSMS?<CR> - AT+CSMS=?<CR>	
Parameter	<service>: 0: GSM03.40 and GSM03.41. SMS-related AT commands support GSM07.05 Phase 2. 1: GSM03.40 and GSM03.41. SMS-related AT commands support GSM07.05 Phase 2+. <mt>,<mo>,<bm>: 0: Not support 1: Support	
Return Value	See the Example.	
Example	AT+CSMS=1 +CSMS: 1, 1, 1 OK	Set SMS AT commands to support GSM07.05 Phase 2+.
	AT+CSMS? +CSMS: 1, 1, 1, 1 OK	Display current values.
	AT+CSMS=? +CSMS: (0-1) OK	Query valid value range.
Remarks	N/A	

5.2 Setting Preferred SMS Storage: +CPMS

Description	To set preferred SMS storage
Format	- AT+CPMS=<mem1> <CR> - AT+CPMS? <CR> - AT+CPMS=?<CR>
Parameter	<mem1>: String type, for example, "SM", "ME", "MT" SM: Store the SMS messages in the SIM card ME: Store the SMS messages in the module <used>: Used quantity <total>: Total capacity of the storage

Return Value	<CR><LF>+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> <CR><LF> <CR><LF>OK<CR><LF> OR <CR><LF>+CPMS:<mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3><CR><LF> <CR><LF>OK<CR><LF> OR <CR><LF>+CPMS: (list of supported <mem1>s),(list of supported <mem2>s), (list of supported <mem3>s)<CR><LF> <CR><LF>OK<CR><LF>	
Example	AT+CPMS="SM" +CPMS: 18,50,3,23,3,23 OK	Set SM as the preferred SMS storage memory.
	AT+CPMS? +CPMS: "SM",18,50,"ME",3,23,"MT",3,23 OK	Query the detailed information of mem1, mem2, and mem3.
	AT+CPMS=? +CPMS: ("ME","MT","SM","SR"),("ME","MT","SM", "SR"),("ME","MT","SM","SR") OK	Query the value range of mem1, mem2, and mem3.
	AT+CPMS="SM","SM","SM" +CPMS: 18,50,18,50,18,50 OK	Select SIM as the SMS storage memory.
Remarks	N/A	

5.3 Setting SMS Inputting Mode: +CMGF

Description	To set the SMS inputting mode
Format	- AT+CMGF=<mode> <CR> - AT+CMGF? <CR> - AT+CMGF=?<CR>
Parameter	<mode>: 0: PDU mode (default) 1: Text mode
Return Value	See the Example.

Example	AT+CMGF=1 OK	Set SMS mode to text mode.
	AT+CMGF? +CMGF: 1 OK	Query current SMS mode.
	AT+CMGF=? +CMGF: (0-1) OK	Query the value range of SMS mode.
Remarks	The default value of the mode parameter is 0.	

5.4 Setting the TE Character Set: +CSCS

Description	To set the format of the TE character set	
Format	- AT+CSCS=<chset><CR> - AT+CSCS? <CR> - AT+CSCS=?<CR>	
Parameter	< chset >: "GSM": Default GSM alphabet (GSM03.38.6.2.1) "IRA": International reference alphabet (ITU-T T.50) (default) "UCS2": 16-bit universal multiple-octet coded character set (USO/IEC10646). The UCS2 character string is converted into a hexadecimal number (ranging from 0x0000 to 0xFFFF). UCS2 encoding is used only in some character string of the statement.	
Return Value	N/A	
Example	AT+CSCS="IRA" OK	Set TE character set to IRA.
	AT+CSCS? +CSCS: "IRA" OK	Query current character set.
	AT+CSCS=? +CSCS: ("IRA","GSM","UCS2") OK	Query the value range of the character set.
Remarks	The default value of the chset parameter is IRA .	

5.5 Setting the New Message SMS Indications Mode: +CNMI

Description	To set the mode how the module indicates new SMS messages received from the network to users
Format	- AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]<CR> - AT+CNMI?<CR> - AT+CNMI=?<CR>
Parameter	<mode>: Set the indication mode after receiving SMS messages. 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. 1: Discard indication and reject new received message unsolicited result codes when TA-TE connection is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2: Buffer unsolicited result codes in the TA when TA-TE connection is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. <mt>: Set the format of the new SMS indication codes. The default value is 0. 0: SMS indication codes will not be sent to the TE. 1: The format of the new SMS indication codes is +CMTI: "MT" ,<index>. The SMS message is stored rather than directly displayed. 2: The format of the new SMS indication codes is +CMT :<oa>,<scts>,<tooa>,<lang>,<encod>,<priority>[,<cbn>],<length><CR><LF><data> (text mode). SMS messages are directly displayed rather than stored. 3: Use the report codes defined by <mt>=2 to transmit SMS indication codes to the TE. The SMS indication codes in other modes are the same as that of <mt>=1. <bm>: Set the format of the new cell broadcast codes. The default value is 1. 0: Not send the indication information of new cell broadcast. The cell broadcast will not be stored. 2: The format of the new cell broadcast indication codes is <oa>,<alpha>,<scts>,<tooa>,<length> <CR><LF><data>(text mode). The cell broadcast will be directly displayed rather than stored. <ds>: Report status of SMS message sending. The default value is 1. 0: No status report of SMS message sending 1: The format of the SMS sending status report is +CDS :<fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st>(text mode). 2: +CDSI:men , index is returned if the new status report is stored to ME <bfr>: The default value is 0. 0: When <mode> is set to 1 or 2, codes defined by this command and stored in TA will be sent to TE. The module will return OK before transmitting the codes. 1: When <mode> is set to 1 or 2, the codes defined by this command and stored in TA will be cleared.

Return Value	See the Example.	
Example	AT+CNMI=2,1,0,0,0 OK	Set the SMS message indication mode.
	AT+CNMI=? +CNMI: (0,1,2),(0,1,2,3),(0,2),(0,1,2),(0,1) OK	Query the value ranges of the parameters.
	AT+CNMI? +CNMI: 2, 1, 0, 0, 0 OK	Query the current SMS indication mode.
Remarks	SMS messages are classified into four classes based on the storing: • Class0: displayed only • Class 1: Stored in the ME memory • Class 2: Stored in the SIM card • Class 3: Directly transmitted to TE AT+CNMI=2,1 or AT+CNMI=2,2 is recommended.	

5.6 Reading SMS Messages: +CMGR

Description	To read SMS messages stored in current memory (use the AT+CPMS command to specify the current memory)
Format	AT+CMGR=<index><CR>
Parameter	<index>: location value <index> from preferred message storage <mem1> to the TE
Return Value	If text mode (+CMGF=1), • command successful and SMS-DELIVER: +CMGR: <stat>,<oa>,[<alpha>],<scts>[,<toa>,<fo>,<pid>,<dc>,<sca>,<tosca>,<length>] <CR><LF><data> • command successful and SMS-SUBMIT: +CMGR: <stat>,<da>,[<alpha>],[<toda>,<fo>,<pid>,<dc>,<vp>],<sca>,<tosca>,<length>] <CR><LF><data> • command successful and SMS-STATUS-REPORT: +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> • command successful and SMS-COMMAND: +CMGR: <stat>,<fo>,<ct>[,<pid>,<mn>],[<da>],[<toda>],<length><CR><LF><cdata> if text mode (+CMGF=1), command successful and CBM storage: +CMGR: <stat>,<sn>,<mid>,<dc>,<page>,<pages><CR><LF><data> Stat:

	“REC UNREAD” Received but unread “REC READ” Received and read “STO UNSENT” Stored but unsent “STO SENT” Stored and sent if PDU mode (+CMGF=0) and command successful: +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> stat: 0 Received but unread 1 Received and read 2 Stored but unsent 3 Stored and sent alpha: digits in alpha format length: number of octets in specified TP data, excluding the octets in the service center address pdu: PDU data	
Example	AT+CMGR=1 +CMGR: "REC READ","66421",,"11/09/13,16:37:59+32" 050003140401E27778592EA7E7EBE9373C3C279BCF68 F59AAD78FED62779BA596D7EBAEB5B91EBD16A5 D46C35F98406A744E311A95C32594DA75688B50EAD ACA6D689150EADF1B2BC5E579AD575E5B5582D5EA BD5624C36A3D56C375C0E1693CD6835DB0D9783A15 C91D2E06BDAA558AC1F60C52B937CADCD2B747AA 9021BDEC627E8E9441BD42655DEF446 OK	Read the content of SMS message 1.
	AT+CMGF=0 OK AT+CSCS="UCS2" OK +CMTI: "SM",39 AT+CMGR=39 +CMGR: 0,,23 0891683110501905F0240BA18177377949F50000413062 312503230468341A0D OK	Set PDU mode. A messages is incoming. Read the message.
	AT+CMGF=1 OK AT+CSCS="GSM" OK +CMTI: "SM",40 AT+CMGR=40	Set text mode. A message is incoming. Read the message.

	+CMGR: "REC UNREAD","18777397945",,"14/03/26,13:57:58+32" hello world OK	
Remarks	If the status of the message is received unread, the status in the storage changes to received read.	

5.7 SMS Message List: +CMGL

Description	To read SMS messages of one type from the current memory specified by the +CPMS command
Format	- AT+CMGL=<stat><CR> - AT+CMGL=?<CR>
Parameter	<state>: String type or numeric type When you set AT+CMGF=1, "REC UNREAD": Unread SMS messages received "REC UNREAD": Read SMS messages received "STO UNSENT": Stored unsent SMS messages "STO SENT": Stored sent SMS messages "ALL": All SMS messages When you set AT+CMGF=0, 0: Unread SMS messages received 1: Read SMS messages received 2: Stored unsent SMS messages 3: Stored sent SMS messages 4: All SMS messages
Return Value	If text mode (+CMGF=1) - command successful and SMS-SUBMITs and/or SMS-DELIVERs: +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[<scts>],[<tooa/toda>,<length>]<CR><LF> <data>[<CR><LF> +CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>],[<tooa/toda>,<length>]<CR><LF> <data>[...]] - command successful and SMS-STATUS-REPORTs: +CMGL: <index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> [<CR><LF> +CMGL:<index>,<stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st>[...]] - command successful and SMS-COMMANDs: +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<ct>[...]] - command successful and CBM storage:

	+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages> <CR><LF><data>[<CR><LF> +CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages> <CR><LF><data> [...]] stat: “REC UNREAD” Received but unread “REC READ” Received and read “STO UNSENT” Stored but unsent “STO SENT” Stored and sent if PDU mode (+CMGF=0) and command successful: +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu> [<CR><LF> +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu>[...]] stat: 0 Received but unread 1 Received and read 2 Stored but unsent 3 Stored and sent alpha: digits in alpha format length: number of octets in specified TP data, excluding the octets in the service center address pdu: PDU data		
Example	<table border="1"> <tr> <td data-bbox="379 1153 1098 2016"> AT+CMGL="ALL" +CMGL: 1,"REC READ","66421",,"11/09/14,16:37:59+32" 050003140401E27778592EA7E7EBE9373C3C279BCF68F 59AADC78FED62779BA596D7EBAEB5B91EBD16A5D4 6C35F98406A744E311A95C32594DA75688B50EADACA 6D689150EADF1B2BC5E579AD575E5B5582D5EABD562 4C36A3D56C375C0E1693CD6835DB0D9783A15C91D2E 06BDAA558AC1F60C52B937CADCD2B747AA9021BDE C627E8E9441BD42655DEF446 +CMGL: 44,"REC UNREAD","8615719556937",,"11/09/30,03:00:55+32"5E7F 4E1C79FB52A863D0919260A8003A4E2D536B752862370 03100350037003100390035003500360039003300377ED96 0A86765753500326B21002C6700540E4E006B2157280032 0039002F00300039002000320030003A00340038002C60A 853EF6309901A8BDD952E621690099879952E76F463A55 6DE62E8 +CMGL: 14,"STO SENT","66045",,050003010401E27778592EA7E7EBE9373 C3C279BCF68F59AADC78FED62779BA596D7EBAEB5B 91EBD16A5D46C35F98406A744E311A95C32594DA7568 8B50EADACA6D689150EADF1B2BC5E579AD575E5B55 82D5EABD5624C36A3D56C375C0E1693CD6835DB0D97 83A15C91D2E06BDAA558AC1F60C52B937CADCD2B74 7AA9021BDEC627E8E9441BD42655DEF446 </td><td data-bbox="1098 1153 1420 2016"> Read all messages in text mode. </td></tr> </table>	AT+CMGL="ALL" +CMGL: 1,"REC READ","66421",,"11/09/14,16:37:59+32" 050003140401E27778592EA7E7EBE9373C3C279BCF68F 59AADC78FED62779BA596D7EBAEB5B91EBD16A5D4 6C35F98406A744E311A95C32594DA75688B50EADACA 6D689150EADF1B2BC5E579AD575E5B5582D5EABD562 4C36A3D56C375C0E1693CD6835DB0D9783A15C91D2E 06BDAA558AC1F60C52B937CADCD2B747AA9021BDE C627E8E9441BD42655DEF446 +CMGL: 44,"REC UNREAD","8615719556937",,"11/09/30,03:00:55+32"5E7F 4E1C79FB52A863D0919260A8003A4E2D536B752862370 03100350037003100390035003500360039003300377ED96 0A86765753500326B21002C6700540E4E006B2157280032 0039002F00300039002000320030003A00340038002C60A 853EF6309901A8BDD952E621690099879952E76F463A55 6DE62E8 +CMGL: 14,"STO SENT","66045",,050003010401E27778592EA7E7EBE9373 C3C279BCF68F59AADC78FED62779BA596D7EBAEB5B 91EBD16A5D46C35F98406A744E311A95C32594DA7568 8B50EADACA6D689150EADF1B2BC5E579AD575E5B55 82D5EABD5624C36A3D56C375C0E1693CD6835DB0D97 83A15C91D2E06BDAA558AC1F60C52B937CADCD2B74 7AA9021BDEC627E8E9441BD42655DEF446	Read all messages in text mode.
AT+CMGL="ALL" +CMGL: 1,"REC READ","66421",,"11/09/14,16:37:59+32" 050003140401E27778592EA7E7EBE9373C3C279BCF68F 59AADC78FED62779BA596D7EBAEB5B91EBD16A5D4 6C35F98406A744E311A95C32594DA75688B50EADACA 6D689150EADF1B2BC5E579AD575E5B5582D5EABD562 4C36A3D56C375C0E1693CD6835DB0D9783A15C91D2E 06BDAA558AC1F60C52B937CADCD2B747AA9021BDE C627E8E9441BD42655DEF446 +CMGL: 44,"REC UNREAD","8615719556937",,"11/09/30,03:00:55+32"5E7F 4E1C79FB52A863D0919260A8003A4E2D536B752862370 03100350037003100390035003500360039003300377ED96 0A86765753500326B21002C6700540E4E006B2157280032 0039002F00300039002000320030003A00340038002C60A 853EF6309901A8BDD952E621690099879952E76F463A55 6DE62E8 +CMGL: 14,"STO SENT","66045",,050003010401E27778592EA7E7EBE9373 C3C279BCF68F59AADC78FED62779BA596D7EBAEB5B 91EBD16A5D46C35F98406A744E311A95C32594DA7568 8B50EADACA6D689150EADF1B2BC5E579AD575E5B55 82D5EABD5624C36A3D56C375C0E1693CD6835DB0D97 83A15C91D2E06BDAA558AC1F60C52B937CADCD2B74 7AA9021BDEC627E8E9441BD42655DEF446	Read all messages in text mode.		

	OK	
	AT+CMGL=? +CMGL: ("REC UNREAD", "REC READ", "STO UNSENT", "STO SENT", "ALL") OK AT+CMGL+CMGL: (0-4)=?	Query the SMS read options. Query the SMS read options in PDU mode.
	AT+CMGF=0 OK AT+CMGL=3 +CMGL: 0,3,,19 0891683110808805F0111E0B818177377949F50000A705E8329BFD06 +CMGL: 15,3,,16 0891683110808805F0112605810110F00000A705E8329BFD06 +CMGL: 28,3,,33 0891683110808805F001280B815118784271F20008146DF157335E025B9D5B89533A59276D6A80545EFA +CMGL: 29,3,,13 0891683110808805F0112A05810110F00000A7023119 OK	Read SMS lists in PDU mode. Read stored sent SMS messages.
	AT+CMGF=1 OK AT+CMGL="STO SENT" +CMGL: 0,"STO SENT","18777397945",, hello +CMGL: 15,"STO SENT","10010",, hello +CMGL: 28,"STO SENT","15818724172",, 6DF157335E025B9D5B89533A59276D6A80545EFA +CMGL: 29,"STO SENT","10010",, 12 OK	Read SMS lists in text mode. Read stored sent SMS messages.
Remarks	N/A	

5.8 Sending SMS Messages: +CMGS

Description	To send an SMS message from the module to the network The network will return reference value <mr> to the module after the SMS message is sent successfully.	
Format	- Text command syntax AT+CMGS=<da>[,<toda>]<CR>text is entered<ctrl-Z/ESC> - PDU command syntax AT+CMGS=<length><CR>PDU is given<ctrl-Z/ESC>	
Parameter	<da>: The destination number to which the SMS message is sent in text mode <text>: SMS message content in text mode <length>: The byte length of the SMS message content in PDU mode <mr>: The storage location <CR>: End character <Ctrl-Z>: Indicates the end of the input message <ESC>: Indicates giving up the input message	
Return Value	- if text mode (+CMGF=1) and sending successful: +CMGS: <mr>[,<scts>] - if PDU mode (+CMGF=0) and sending successful: +CMGS: <mr>[,<ackpdu>]	
Example	AT+CMGS="66358"<CR> > This is the text<Ctrl-Z> +CMGS: 171 OK	Send message in text mode. After writing the SMS content, press Ctrl+Z to sent the SMS.
	AT+CMGS=33<CR> >0891683108705505F001000B815118784271F20008146DF157335E025B9D5B89533A59276D6A80545EFA<Ctrl-Z> +CMGS: 119 OK	Send message in PDU mode.
Remarks	- If you use UART debugging tool to sent a PDU SMS message, enter \r after the AT+CMGS command manually or send <CR> in hexadecimal system. - For details about PDU, see the A.1 Content of PDU SMS Messages.	

5.9 Writing SMS Messages: +CMGW

Description	To write an SMS message into the memory The location information <index> will be returned after the message is saved correctly.
Format	Command syntax (text mode): AT+CMGW=<oa/da>[,<tooa/toda>[,<stat>]]<CR>text is entered<Ctrl-Z /ESC>

	Command syntax (PDU mode): AT+CMGW=<length>[,<stat>]<CR>PDU is given<Ctrl-Z /ESC>	
Parameter	<da>: The destination number to which the SMS message is sent in text mode <text>: SMS message content in text mode <length>: The byte length of the SMS message content in PDU mode <index>: Location information <CR>: End character <Ctrl-Z>: Indicates the end of the input message <ESC>: Indicates giving up the input message	
Return Value	+CMGW:<index> OK or +CMS ERROR:<err>	
Example	AT+CMGW="091137880"<CR> >"This is the text"<Ctrl-Z> +CMGW: 15 OK	Send message in text mode. After writing the SMS content, press Ctrl+Z to sent the SMS.
	AT+CMGW=31<CR> >0891683108705505F001000B813124248536F300081200400026002A535A53D153A653C1532052C7<Ctrl- Z> +CMGW: 1 OK	Write message in PDU mode (+CMGF=0)
Remarks	The message status is set to "stored unsent" by default. <stat> also supports other values such as "stored unsent" and "stored sent".	

5.10 Sending Stored SMS Messages: +CMSS

Description	To send an SMS message specified by <index> in the memory (SMS-SUBMIT) The network returns reference value <mr> to the end device after the SMS message is sent successfully.	
Format	AT+CMSS=<index>[,<da>[,<toda>]]<CR>	
Parameter	<index>: Message location <da>: the destination number of the SMS messages	
Return Value	- if text mode (+CMGF=1) and sending successful: +CMSS: <mr>[,<scts>] - if PDU mode (+CMGF=0) and sending successful: +CMSS: <mr>[,<ackpdu>]	
Example	AT+CMSS=2	Send the SMS messages stored in

	+CMSS: <mr>	memory 2.
	OK	
	AT+CMSS=2 CMS ERROR: <err>	Send the SMS messages stored in memory 2.
Remarks	N/A	

5.11 Deleting SMS Messages: +CMGD

Description	To delete SMS messages from the current memory	
Format	- AT+CMGD=<index> [,<delflag>] <CR> - AT+CMGD=? <CR>	
Parameter	<index>: The recording number of the stored SMS messages <delflag>: Integer 0: Delete the SMS messages with the specified recording numbers. 1: Delete all read SMS messages. 2: Delete all read and sent SMS messages. 3: Delete all read, sent, and unsent SMS messages. 4: Delete all messages.	
Return Value	See the Example.	
Example	AT+CMGD=3 OK	Delete successfully
	AT+CMGD=? +CMGD: (0-49), (0-4) OK	Query the value ranges of parameters.
	AT+CMGD=0,4 OK	Delete all messages.
Remarks	If you set <delflag>, ignor the parameter <index>.	

5.12 Setting the SMSC Number: +CSCA

Description	To set the SMSC number	
Format	- AT+CSCA=<sca>[,<tosca>]<CR> - AT+CSCA?<CR>	
Parameter	<sca>: SMS center number <tosca>: The format of the SMS center number. 129 indicates common number; 145 indicates international number (add + in front of the number automatically).	
Return Value	See the Example.	

Example	AT+CSCA="8613800755500",145 OK	Set an SMSC number.
	AT+CSCA? +CSCA: "+8613800755500", 145 OK	Query the SMSC number.
	Remarks	The setting will be saved after the module is powered off.

5.13 Setting the Parameters of the Text Mode: +CSMP

Description	To select required values for the additional parameters in the text mode, and set the validity period since the message is received from the SMSC, or the absolute time defining the end of the validity period											
Format	- AT+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]<CR> - AT+CSMP?<CR>											
Parameter	<fo>: Determined by the command or the first 8 bits of the result code GSM 03.40 SMS-DELIVER; SMS-SUBMIT (default value: 17); or adopt the integer-type SMS-COMMAND (default value: 2) <vp>: <table><tr><td>Value</td><td>Validity Period</td></tr><tr><td>0-143</td><td>(vp+1)*5mins</td></tr><tr><td>144-167</td><td>12hours +((vp-143)*30mins)</td></tr><tr><td>168-196</td><td>(vp-166)*1day</td></tr><tr><td>197-255</td><td>(vp-192)*1week</td></tr></table> <pid>: Integer-type TP-protocol-ID (default value: 0) <dcs>: Encoding plan for integer-type cell broadcast data (default value: 0)		Value	Validity Period	0-143	(vp+1)*5mins	144-167	12hours +((vp-143)*30mins)	168-196	(vp-166)*1day	197-255	(vp-192)*1week
Value	Validity Period											
0-143	(vp+1)*5mins											
144-167	12hours +((vp-143)*30mins)											
168-196	(vp-166)*1day											
197-255	(vp-192)*1week											
Return Value	See the Example.											
Example	AT+CSMP=17,167,0,0 OK	Set text mode parameters.										
	AT+CSMP? +CSMP: 17, 167, 0, 0 OK	Query the current settings of the text mode.										
Remarks	N/A											

5.14 Displaying the Parameters of the Text Mode: +CSDH

Description	To set whether the detailed header information is displayed in the result code in text mode	
Format	• AT+CSDH=<show><CR> • AT+CSDH?<CR> • AT+CSDH=?<CR>	
Parameter	<show>: 0: disable or not display 1: enable or display	
Return Value	See the Example.	
Example	AT+CSDH=0 OK AT+CMGR=14 +CMGR: "REC READ","+8613430981504",, "09/07/17,14:49:00+50"7B5675655FAE5C0F65F650 19 OK	Set the header information not to display
	AT+CSDH=1 OK AT+CMGR=14 +CMGR: "REC READ","+8613430981504",,"09/07/17, 14:49:00+50",145,4,0,8,"+8613800755500",145,12 7B5675655FAE5C0F65F65019 OK	Set the detailed header information to display.
	AT+CSDH? +CSDH: 1 OK	Query the current parameter setting of the command.
	AT+CSDH=? +CSDH: (0-1) OK	Query the value range of current parameter in the command.
Remarks	N/A	

6 Phonebook Commands

6.1 Selecting Phonebook Storage: +CPBS

Description	To select phonebook storage	
Format	- AT+CPBS=<storage> <CR> - AT+CPBS? <CR> - AT+CPBS=?<CR>	
Parameter	<storage>: "ME": MT phonebook "SM": SIM/UICC phonebook "EN": Emergency number "MC": MT missed calls list "RC": MT received calls list "DC": MT dialled calls list "FD": SIM/USIM fixdialling-phonebook "ON": SIM own numbers (MSISDNs) list	
Return Value	<CR><LF>+CPBS: <storage>[,<used>,<total>] <CR><LF> <CR><LF> OK<CR><LF> <used>: Used count <total>: Total count	
Example	AT+CPBS="SM" OK	Set the phonebook storage to SIM card.
	AT+CPBS? +CPBS: "SM", 1, 250 OK	Query the current storage of the phonebook.
	AT+CPBS=? +CPBS: ("SM", "DC", "FD", "MC", "ME", "RC", "EN", "ON") OK	Query the value range of phonebook storage.
Remarks	N/A	

6.2 Reading the Phonebook: +CPBR

Description	To read the phonebook information	
Format	- AT+CPBR=<index1>[,<index2>] <CR> - AT+CPBR=? <CR>	
Parameter	<index1>: Integer type, the sequence number of the phone number	

	<index2>: Integer type, the sequence number of the phone number	
Return Value	[+CPBR: <index1>,<number>,<type>,<text><CR> +CPBR: <index2>,<number>,<type>,<text>] [+CPBR: <index1>,<number>,<type>,<text>[,<hidden>]][...] <CR><LF>+CPBR: <index2>,<number>,<type>,<text>[,<hidden>]]] <index1>, <index2>, <index>: Integer type values in the range of location numbers of phonebook memory <number>: String type phone number of format <type> <type>: Type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7) <text>: The phonebook entry name, string type field of maximum length<tlength>; character set as specified by command Select TE Character Set +CSCS +CPBR: (list of supported <index>s),[<nlength>],[<tlength>] <nlength>: Integer type value, indicating the maximum length of field <number> <tlength>: Integer type value indicating the maximum length of field <text> <hidden>: Indicates if the entry is hidden or not 0: phonebook entry, not hidden 1: phonebook entry, hidden	
Example	AT+CPBR=1,3 +CPBR: 1, "091137880", 129, "Comneon" +CPBR: 2, "09113788223", 129, "MMI" +CPBR: 3, "09113788328", 129, "Test-ro" OK	Read the phone numbers from index 1 to index 3 in the phonebook.
	AT+CPBR=? +CPBR: (1-250), 18, 14 OK	Query the range of sequence number, number length, and text length.
Remarks	N/A	

6.3 Querying the Phonebook: +CPBF

Description	To query the phonebook information
Format	AT+CPBF=<findtext><CR>
Parameter	<findtext>: the phone book entry name
Return Value	+CPBF: <index1>,<number>,<type>,<text> <index>: Integer type values in the range of location numbers of phonebook memory <number>: String type phone number of format <type> <type>: Type of address

	<text>: The phone book entry name, string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS.UCS2", and "IRA" are supported.	
Example	AT+CPBF="Comneon" +CPBF: 1, "091137880", 129, "Comneon" OK	Query the phone number information of contact Comneon.
Remarks	N/A	

6.4 Writing Information to the Phonebook: +CPBW

Description	To write information to the phonebook	
Format	- AT+CPBW=<index>,<number>,<type>,<text> <CR> - AT+CPBW=?<CR>	
Parameter	<index>: integer type values in the range of location numbers of phonebook memory <number>: string type phone number of format <type> <type>: type of address <text>: the phone book entry name, string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS.UCS2", and "IRA" are supported.	
Return Value	See the Example.	
Example	AT+CPBW=1,"091137880",129,"0043006F006D006E0065006F006E" OK	Write a new contact at index 1 in the phonebook when character string is set to UCS2.
	AT+CPBW=2,"091137880",129,"Comneon" OK	Write a new contact at index 2 in the phonebook when character string is set to IRA.
	AT+CPBW=? +CPBW: (1-250), 18, (129,145), 14 OK	Query the value ranges of the parameters in this command.
	AT+CPBR=1 +CPBR: 1, "091137880", 129, "Comneon" OK AT+CPBW=1 OK AT+CPBR=1 +CME ERROR: not found	Read the contact information of index 1. Delete contact record of index 1. Read the contact of index 1.
Remarks	Preconfigure the TE character set. Otherwise names cannot be input successfully.	

7 Supplementary Service Commands

7.1 Call Forwarding: +CCFC

Description	To set the call forwarding conditions and number
Format	- AT+CCFC=<reason>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]<CR> - AT+CCFC=? <CR>
Parameter	<reason>: 0: Unconditional 1: Mobile number is busy 2: No reply 3: Unreachable 4: Forward all calls (refer to 3GPP TS 22.030 [19]) 5: Forward all conditional calls (refer to 3GPP TS 22.030 [19]) <mode>: 0: Disable 1: Enable 2: Query status 3: Registration 4: Erasure <number>: String type phone number of forwarding address in format specified by <type> <type>: type of address <subaddr>: string type subaddress of format specified by <satype> <satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128 <class> is a sum of integers each representing a class of information (default 7): 1: voice (telephony) 2: data (refers to all bearer services) 4: fax (facsimile services) 8: short message service 16: data circuit sync 32: data circuit async 64: dedicated packet access 128: dedicated PAD access <time>: 1...30 when "no reply" is enabled or queried, this parameter gives the time in seconds to wait before call is forwarded <status>: 0: not active 1: active
Return Value	when <mode>=2 and command successful: +CCFC: <status>,<class1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][

	<CR><LF>+CCFC: <status>,<class2>[,<number>,<type>,<subaddr>,<satype>[,<time>]]][...]	
Example	AT+CCFC=0,2 +CCFC: 0,255 OK	Query unconditional call forwarding when call forwarding is not set.
	AT+CCFC=0,3,"15688346754" +CME ERROR: network rejected request	The SIM card does not support call forwarding.
	AT+CCFC=0,3, "15688346754" OK	Set unconditional call forwarding when the SIM card supports this service.
	AT+CCFC=? +CCFC: (0,1,2,3,4,5) OK	Query the parameter value range of call forwarding settings.
	AT+CCFC=0,1 OK	Enable unconditional call forwarding.
	AT+CCFC=0,2 +CCFC: 1,1,"+8615688346754",145,, OK	Query unconditional call forwarding.
	AT+CCFC=0,0 OK	Disable unconditional call forwarding.
	AT+CCFC=0,4 OK	Cancel unconditional call forwarding.
Remarks	Call-related supplementary services are required.	

7.2 Call Waiting: +CCWA

Description	To set call waiting
Format	- AT+CCWA=<n>[,<mode>]<CR> - AT+CCWA? <CR> - AT+CCWA=?<CR>
Parameter	<n>: (sets/shows the result code presentation status to the TE) 0: disable 1: enable <mode>: Specify whether to enable call waiting 0: disable 1: enable
Return Value	N/A

Example	AT+CCWA=1,1 OK	Set call waiting and enable callee ID display.
	AT+CCWA=? +CCWA: (0-1) OK	Query the value range of the parameter <n>.
	AT+CCWA? +CCWA: 1 OK	Query the current call waiting setting.
Remarks	Call-related supplementary services are required.	

7.3 Call Holding and Multi-party Conversation: +CHLD

Description	To set call on hold and add it to a conversation	
Format	- AT+CHLD=<n> <CR> - AT+CHLD=? <CR>	
Parameter	<n>: (sets/shows the result code presentation status to the TE) 0: Releases all held calls, or sets User-Determined User Busy for a waiting call 1: Releases all active calls and accepts the other (waiting or held) call 1x: Releases the specific active call X 2: Places all active calls on hold and accepts the other (held or waiting) call 2x: Places all active calls, except call X, on hold 3: Adds a held call to the conversation 4: Connects two calls and disconnects the subscriber from both calls 5: Activates the Completion of Calls to Busy Subscriber Request. (CCBS)	
Return Value	See the Example.	
Example	AT+CHLD=0 OK	Release all held calls.
	ATD10010; OK SPEECH ON ALERTING CONNECT AT+CHLD=11 SPEECH OFF	Release first call.

	RELEASE	
	OK	
	AT+CHLD=? +CHLD: (0, 1, 1x, 2, 2x, 3, 4) OK	Query the value range of the parameter <n>.
Remarks	• Call-related supplementary services are required. • Refer to a service that allows a call to be temporarily disconnected from the ME but the connection to be retained by the network, and to a service that allows multiparty conversation. • Calls can be held on, recovered, released and added to a conversation.	

8 GPRS/3G Commands

8.1 Setting PDP Format: CGDCONT

Description	To set the PDP format of the GPRS/3G	
Format	- AT+CGDCONT=<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp> [,<pd1> [,...[,pdN]]]]]]]]<CR> - AT+CGDCONT?<CR> - AT+CGDCONT=?<CR>	
Parameter	<cid>: (PDP Context Identifier) a numeric parameter that specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command. <PDP_type>: (Packet Data Protocol type) a string parameter. IP Internet Protocol (IETF STD 5) <APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network. If the value is N/A or omitted, then the subscription value will be requested. <PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP. If the value is N/A or omitted, then a value maybe provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the N/A string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command. <d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDTCP only) 0: off (default if value is omitted) <h_comp>: a numeric parameter that controls PDP header compression 0: off (default if value is omitted) <pd1>, ... <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>	
Return Value	See the Example.	
Example	AT+CGDCONT=1,"IP", "CMNET" OK	Set PDP format.
	AT+CGDCONT? +CGDCONT: 1,"IP","internet","",0,0 OK	Query current PDP format.
	AT+CGDCONT=? +CGDCONT: (1-16),"IP",,,(0-2),(0-3) +CGDCONT: (1-16),"PPP",,,(0-2),(0-3) OK	Query the value range of the PDP format.
Remarks	N/A	

9 TCP/UDP Data Service

9.1 Setting PDP Authentication: \$QCPDPP

Description	To set GPRS/3G PDP authentication	
Format	- AT\$QCPDPP=<cid>[,<auth_type>[,<pwd>,<user>]]<CR> - AT\$QCPDPP?<CR> - AT\$QCPDPP=?<CR>	
Parameter	<cid>: 1~16, PDP Context Identifier, which defines the PDP context. This is the local TE-MT interface and used to other PDP context commands. You can use the query command to get the minimum value (1). <auth_type>: Authentication type. 0: NONE 1: PAP 2: CHAP <pwd>: password <user>: user name	
Return Value	See the Example	
Example	AT\$QCPDPP=3,0 OK	Set the authentication to NONE.
	AT\$QCPDPP=2,2,"1234" OK	Set the authentication type to CHAP and password to 1234.
	AT\$QCPDPP=1,1,"1234","GSM" OK	Set the authentication type to PAP, user name to GSM, and password to 1234.
	AT\$QCPDPP? \$QCPDPP: 1,1,"GSM" \$QCPDPP: 2,2 \$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	Query the PAP authentication settings. For CID1, PAP is set and the user name is GSM. For CID2, CHAP is set. For other CIDs, no authentication is set.

	OK	
	AT\$QCPDPP=? \$QCPDPP: (1-16),(0-2),,	Query the value range of the PDP authentication parameters.
	OK	
Remarks	- The password is not displayed during query. - When you set the authentication type to NONE, you cannot set user name and password. - When you set the authentication type to CHAP, you cannot set user name.	

9.2 Setting Up a PPP Connection: +XIIC

Description	To set up a PPP connection	
Format	- AT+XIIC=<act><CR> - AT+XIIC?<CR>	
Parameter	<act>: 1: Activate the PPP connection 0: Deactivate the PPP connection	
Return Value	See the Example.	
Example	AT+XIIC=1 OK +NEWIP:10.90.208.163 +PPPSTATUS:OPENED	Set up a PPP connection
	AT+XIIC? +XIIC:1,10.90.208.163 OK	The PPP connection is activated and the local IP address is 10.90.208.163.
	AT+XIIC=0 OK +PPPSTATUS:CLOSED	Deactivate the PPP connection.
	AT+XIIC? +XIIC:0,0.0.0.0 OK	The PPP connection is deactivated and the local IP address is blank.
Remarks	N/A	

9.3 Querying the PPP Connection Status: +PPPSTATUS

Description	To query the PPP connection status	
Format	AT+PPPSTATUS	
Parameter	N/A	
Return Value	+PPPSTATUS:<status> <status> CLOSED: No PPP connection, the dialing connection is closed. OPENED: The PPP connection is activated, the dialing connection is opened. *: Opening or closing	
Example	AT+PPPSTATUS +PPPSTATUS:CLOSED OK	The dialing connection is closed.
	AT+PPPSTATUS +PPPSTATUS:OPENED OK	The dialing connection is opened.
	AT+PPPSTATUS * OK	The dialing connection is opening or closing.
Remarks	All TCP/UDP sockets are unavailable after the connection is closed. You need to reconnect them.	

9.4 Setting Heartbeat Packet: + TCPKEEPALIVE

Description	To set heartbeat packet to keep TCP alive
Format	- AT+TCPKEEPALIVE=<mode>[,<time>[,< interval>]]<CR> - AT+TCPKEEPALIVE? <CR> - AT+TCPKEEPALIVE=?<CR>
Parameter	<mode>: Enable/Disable 0: Disable (default) 1: Enable < time>: Interval for which the TCP is idle before the module sends the KEEPALIVE packet to the remote server. The value ranges from 30s to 7200s, and the default value is 120. < interval>: Interval for the module to resend the KEEPALIVE packet since it sends last time and does not receive response. The value ranges from 1s to 1800s, and the default value is 75s.

Return Value	<CR><LF>OK<CR><LF> or <CR><LF>ERROR<CR><LF> or <CR><LF>+TCPKEEPALIVE: <mode>,<time>,< interval><CR><LF> <CR><LF>OK<CR><LF>	
Example	AT+TCPKEEPALIVE=1 OK	Enable the KEEPALIVE function.
	AT+TCPKEEPALIVE=1,120,75 OK	Enable the KEEPALIVE function and set its parameters.
	AT+TCPKEEPALIVE=0 OK	Disable the KEEPALIVE function.
	AT+TCPKEEPALIVE? +TCPKEEPALIVE: 1,120,75 OK	Obtain the current KEEPALIVE parameters.
	AT+TCPKEEPALIVE=? +TCPKEEPALIVE: (0-1),(30-7200),(1-1800) OK	
Remarks	- The parameters of this command will not be saved after the module is powered off - This command should be executed before setting a TCP link. It will be valid for all links. DO NOT run this command after establishing a TCP link. - This function will consume some data. - The recommended value for < time> ranges from 120 to 300, and for < interval> from 40 to 100. - Set the parameters based on your network work environment. If <time> is set to a great value, the terminal might set up a connection that does not work. If <interval> is greater than <time>, the module will not resend the KEEPALIVE packet. If <time> and <interval> are set to small values, the terminal might disconnect to the remote server. Because of the sleep mechanism of WCDMA, multiple heartbeat packets might be sent during the sleep of the module, and they are sent out together after the module is woke up. Then the receiver will consider them as one packet and will not send the ACK message. The terminal will disconnect from the remote server after failing to receive the ACK messages for several times.	

9.5 Setting Up TCP Connection: +TCPSETUP

Description	To set up a TCP connection	
Format	AT+TCPSETUP=[n],<ip>,<port>[,<recv_mode>]<CR>	
Parameter	[n]: Connection number, ranging from 0 to 5 The TE will allocate an idle ID to set up the connection if you do not set the value of [n]. <ip>: Destination IP address, in xx.xx.xx.xx <port>: Destination port ID in decimal ASCII code, ranging from 0 to 65535 <recv_mode>: Data receiving mode. The default value is 0. 0: Indicates that the data is output directly after the socket receives it. 1: Indicates that the data received is saved in the buffer and you can run +IPNETREAD to read it when necessary.	
Return Value	See the Example.	
Example	AT+TCPSETUP=0,10.92.189.131,5500 OK	The connection to 10.92.189.131,5500 is successfully set up on socket 0.
	+TCPSETUP:0,OK	
	+TCPRECV:0,10,1234567890	The received data is displayed directly.
	AT+TCPSETUP=1,neowayjsr.oicp.net,60002 OK	Set up a connection to neowayjsr.oicp.net on socket 1.
	+TCPSETUP:1,OK	
	AT+TCPSETUP=0,58.60.184.213,10405,1 OK	Set up a connection to 58.60.184.213,10405 on socket 0.
	+TCPSETUP:0,OK	
	+IPURCREAD:0 AT+IPNETREAD=0,1024 +IPREAD:0,10 1234567890 OK	Socket 0 receives data. Read data buffered in socket 0.
	AT+TCPSETUP=2,192.168.20.6,7000 OK	Failed to set up the connection to 192.168.20.6,7000 on socket 2. The server is probably not started, the IP address is incorrect, or the SIM card is out of credit.
	+TCPSETUP:2,FAIL	
	AT+TCPSETUP=66,192.168.20.6,7000 +TCPSETUP: ERROR	The format or the AT command is incorrect or the socket number is incorrect.
	AT+TCPSETUP=0,113.87.11.200,65536	The format or the AT command is

	+TCPSETUP:ERROR	incorrect or the port number is incorrect.
	AT+TCPSETUP=1,58.60.184.213,10405,2 +TCPSETUP:ERROR	The AT command format is incorrect.
	AT+TCPSETUP=,113.87.11.200,4983 OK	Set up a TCP connection without specifying a socket number. The TE selects socket 1.
	+TCPSETUP:1,OK	
Remarks	- Use the AT+XIIC=1 command to set up a PPP connection before running this command. - The TE has 6 sockets (TCP/UDP/Server). - The buffer size is 10K for each socket when you set data receiving mode to manual reading.	

9.6 Sending TCP Data: +TCPSEND

Description	To send TCP data The module will returns > after this command is sent. Send TCP data 50 ms to 100 ms later.	
Format	AT+TCPSEND=<n>,<length> <CR>	
Parameter	<n>: Socket number, ranging from 0 to 5. A TCP connection is established on the socket. <length>: The length of the data to be sent, ranging from 1 to 4096 , unit: byte.	
Return Value	See the Example.	
Example	AT+TCPSEND=0,1 >1 OK +TCPSEND:0,1	1-byte data is successfully sent through socket 0.
	AT+TCPSEND=0,10 >665A4E0A597D554AFF01 OK +TCPSEND:0,10	Hexadecimal ASCII data is successfully sent through socket 0. Select HEX when sending data.
	AT+TCPSEND=0,1 +TCPSEND: SOCKET ID OPEN FAILED	1-byte data fails to be sent via socket 0 because the connection is not established.
	AT+TCPSEND=0,4097 +TCPSEND: DATA LENGTH ERROR	4097-byte data fails to be sent via socket 0 because data length exceeds the limit.
	AT+TCPSEND=0,10 > +TCPSEND:Error!TimeOut	10 seconds timed out. No data is input. The module returns ERROR.
	AT+TCPSEND=0,1 +TCPSEND:ERROR	No TCP connection is set up on socket 0, but some connection of other type might have been set up.

Remarks	- Ensure that the TCP connection has been set up before sending TCP data. - If the command format is incorrect, the module will also returns +TCPSEND:ERROR.
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9.7 Receiving TCP Data: +TCPRECV

Description	To receive TCP data	
Format	+TCPRECV:<n>,<length>,<data><CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 <length>: The length of the data received <data>: The data received Add 0x0d 0x0a to the end of the data. You can identify the end based on <length> .	
Return Value	See the Example.	
Example	+TCPRECV: 0,10,1234567890	10-byte data is successfully received on socket 0. The data is 1234567890 .
Remarks	N/A	

9.8 Closing TCP Connection: +TCPCLOSE

Description	To close a TCP connection	
Format	- AT+TCPCLOSE=<n> <CR> - AT+TCPCLOSE=?<CR>	
Parameter	<n>: Socket number, ranging from 0 to 5	
Return Value	See the Example.	
Example	AT+TCPCLOSE=1 OK	The TCP connection on socket 1 is closed successfully.
	+TCPCLOSE: 1,OK	
	AT+TCPCLOSE=? +TCPCLOSE: (0-5) OK	Query the value range of socket numbers that TCP connection is closed.
	AT+TCPCLOSE=99 +TCPCLOSE: ERROR	Socket number error
	+TCPCLOSE:0,Link Closed	The TCP connection is disconnected.
Remarks	N/A	

9.9 Setting Up UDP Connection: +UDPSETUP

Description	To set up a UDP connection	
Format	AT+UDPSETUP=[n],<ip>,<port>[,<recv_mode>]<CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 The TE will allocate an idle ID to set up the connection if you do not set the value of [n]. <ip>: Destination IP address, in xx.xx.xx.xx format <port>: Destination port ID in decimal ASCII code <recv_mode>: Data receiving mode. The default value is 0. 0: Indicates that the data is output directly after the socket receives it. 1: Indicates that the data received is saved in the buffer and you can run +IPNETREAD to read it when necessary.	
Return Value	- After you input correct AT command, the module will return OK immediately. - If the input command is not correct or the socket is occupied, the module will return +UDPSETUP: ERROR. - If the AT command is input correctly (the module returns OK), the module returns +UDPSETUP:<n>,OK after UDP connection is set up successfully. <n> indicates the socket number.	
Example	AT+UDPSETUP=1,220.199.66.56,7000 OK	The connection to 220.199.66.56.7000 is successfully set up on socket 1.
	+UDPSETUP:1,OK	
	AT+UDPSETUP=0,58.60.184.213,10405,1 OK	Set up a connection to 58.60.184.213,10405 on socket 0.
	+UDPSETUP:0,OK	
	+IPURCREAD:0 AT+IPNETREAD=0,1024 +IPREAD:0,10 1234567890 OK	Socket 0 receives data. Read data buffered in socket 0.
	AT+UDPSETUP=1,220.199.66.56,6000 +UDPSETUP:ERROR	Socket 1 is in use.
	AT+UDPSETUP=55,192.168.20.6,6800 +UDPSETUP:ERROR	The format or the AT command is incorrect or the socket number is incorrect.
Remarks	The buffer size is 10K for each socket when you set data receiving mode to manual reading.	

9.10 Sending UDP Data: +UDPSEND

Description	To send UDP data The module will returns > after this command is sent. Send UDP data 50 ms to 100 ms later.	
Format	AT+UDPSEND=<n>,<length><CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 . A UDP connection is established on the socket. <length>: The length of the data to be sent, ranging from 1 to 1024, unit: byte.	
Return Value	- If the AT command is input in correct format, the module returns >. - If the command is input in incorrect format, the module returns ERROR. - If the connection has not been set up, the module returns +UDPSEND:ERROR. - After entering the command, input the data to be sent until the module returns >. - If the UDP data is sent successfully, the module returns +UDPSEND:<n>,<length>. <length> indicates the length of data already sent.	
Example	AT+UDPSEND=0,2 >12 OK +UDPSEND:0,2	Send 2-byte data on socket 0. Then send the characters to be sent 50 ms to 100 ms after the module returns >. The UDP data is sent successfully.
	AT+UDPSEND=1,10 > +UDPSEND:Error!TimeOut	10 seconds timed out. No data is input. The module returns ERROR.
Remarks	Ensure that the UDP connection has been set up before sending UDP data.	

9.11 Receiving UDP Data: +UDPRECV

Description	To receive UDP data	
Format	+UDPRECV:<n>,<length>,<data><CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 <length>: The length of the data received <data>: The data received Add 0x0d 0x0a to the end of the data. You can identify the end based on <length>.	
Return Value	N/A	
Example	+UDPRECV: 0,10,1234567890	10-byte data is successfully received on socket 0. The data is 1234567890.
Remarks	N/A	

9.12 Closing UDP Connection: +UDPCLOSE

Description	To close the UDP connection
Format	AT+UDPCLOSE=<n><CR>

	AT+UDPCLOSE=?<CR>	
Parameter	<n>: Socket number, ranging from 0 to 5	
Return Value	If <n> is illegal, the module returns: +UDPCLOSE: ERROR. Otherwise, the module returns +UDPCLOSE:<n>,OK.	
Example	AT+UDPCLOSE=1 OK +UDPCLOSE:1,OK	The TCP connection on socket 1 is closed successfully.
	AT+UDPCLOSE=? +UDPCLOSE: (0-5) OK	Query the value range of socket numbers that UDP connection is closed.
	AT+UDPCLOSE=2 +UDPCLOSE:ERROR	No UDP connection is set up on socket 2.
	AT+UDPCLOSE=55 +UDPCLOSE: ERROR	Socket number error
Remarks	N/A	

9.13 Querying TCP/UDP Connection Status: +IPSTATUS

Description	To query the TCP/UDP connection status	
Format	AT+IPSTATUS=<n><CR>	
Parameter	<n>: Socket number, ranging from 0 to 5	
Return Value	+IPSTATUS:<n>,< status>,<type>: <n>: Socket number, ranging from 0 to 5 <status>: Connection status, value: CONNECT, DISCONNECT, or LISTENING <type>: Connection type, TCP, UDP, SVR, UDPSVR	
Example	AT+IPSTATUS=0 +IPSTATUS:0,CONNECT,TCP OK	A TCP connection has been set up on socket 0.
	AT+IPSTATUS=2 +IPSTATUS:2,DISCONNECT OK	Socket 2 has been closed and no connection has been set up on it.
	AT+IPSTATUS=1 +IPSTATUS:1,CONNECT,UDP OK	A UDP connection has been set up on socket 1.
	AT+IPSTATUS=2 +IPSTATUS:2,LISTENING,SVR OK	TCP service listening has been enabled on socket 2.

Remarks	N/A
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9.14 Reading Buffered TCP/UDP Data: +IPNETREAD

Description	To read buffered data received through TCP/UDP connection	
Format	AT+IPNETREAD=<n>[,<len>]<CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 <len>: Length of data to be read, ranging from 1 to 1024.	
Return Value	+IPNETREAD:<n>,<len> <n>: Socket number, ranging from 0 to 5 <len>: The length of data that are read actually, ranging from 0 to 1024	
Example	AT+TCPSETUP=0,58.60.184.213,10405,1 OK +TCPSETUP:0,OK +IPURCREAD:0 AT+IPNETREAD=0,1024 +IPNETREAD:0,10 1234567890 OK	Connection is set up on socket 0 and the receiving mode is manual reading. Socket 0 receives data. Read data received and buffered by socket 0. Read 10-byte data. Data content
	+IPURCREAD:0 AT+IPNETREAD=0,5 +IPNETREAD:0,5 12345 OK AT+IPNETREAD=0,5 +IPNETREAD:0,5 67890 OK	Socket 0 receives data. The socket receives a 10-byte data packet, which is read twice (5-byte each time). Read 5-byte data for the first time. Read 5-byte data for the second time.
	+IPURCREAD:0 AT+IPNETREAD=0 +IPNETREAD:0,10 1234567890 OK	Socket 0 receives data. The default length is 1024. Read 10-byte data. Data content
	AT+IPNETREAD=0,1024 +IPNETREAD:0,0 OK	No data in the buffer of socket 0.
	AT+IPNETREAD=0,1025 ERROR	The command is incorrect because the length is invalid.
	AT+IPNETREAD=1,10	The command is executed incorrectly.

	ERROR	The connection is not set up or the receiving mode is not manual reading.
	AT+IPNETREAD=,10 ERROR	Command is incorrect. Socket number cannot be omitted.
Remarks	- This command is not applicable to sockets that are set to automatic receiving mode. - This command is applicable to both TCP and UDP. - If the length is set greater than the actual data packet, this command reads data according to the actual data packet size. - The buffer size is 10K for each socket.	

9.15 Data Incoming Report: +IPURCREAD

Description	Unsolicited data incoming report	
Format	<CR><LF>+IPURCREAD:<n><CR><LF>	
Parameter	<n>: Socket number, ranging from 0 to 5	
Return Value	N/A	
Example	AT+TCPSETUP=0,58.60.184.213,10405,1 OK	Set up a TCP connection to 58.60.184.213,10405 on socket 0.
	+TCPSETUP:0,OK	Unsolicited data incoming report on socket 0.
	+IPURCREAD:0	
	AT+UDPSETUP=1,58.60.184.213,10405,1 OK	Set up a UDP connection to 58.60.184.213,10405 on socket 1.
	+UDPSETUP:1,OK	Unsolicited data incoming report on socket 1.
	+IPURCREAD:1	
	AT+TCPLISTEN=6000,1 +TCPLISTEN:0,OK Connect AcceptSocket=1,ClientAddr=10.65.164.98	Set up TCP connection with the remote on socket 1. Unsolicited data incoming report on socket 1.
	+IPURCREAD:1	
	+IPURCREAD:ERROR 0	The receiving buffer of socket 0 is full.
	+IPURCREAD:ERROR 1	The receiving buffer of socket 1 is full.
	+IPURCREAD:FATAL	Abnormality during data receiving.
Remarks	The buffer size is 10K for each socket.	

- **+IPURCREAD:FATAL** indicates abnormality occurred inside the module during buffer allocating. The module will restart when this abnormality occurs.

9.16 Querying the Status of Data Sent by the TCP Socket: +TCPACK

Description	To query the size of data successfully sent by the TCP server and the size of the data successfully received	
Format	AT+TCPACK=<n> <CR>	
Parameter	<n>: Socket number, ranging from 0 to 5	
Return Value	+TCPACK:<n>,<data_sent>,<acked_rcv> < data_sent >: Data successfully sent through this socket <acked_rcv>: Data acknowledged by the receiver +TCPACK:<n>,< DISCONNECT > No connection is set up on this socket. +TCPACK: <n>,NO TCP LINK A UDP connection has been set up on this socket.	
Example	AT+TCPACK=0 + TCPACK:0,20,20 OK	20-byte data has been transmitted through socket 0 and the receiver acknowledged 20-byte data.
	AT+TCPACK=0 + TCPACK:0,128,120 OK	128-byte data has been transmitted through socket 0 and the receiver acknowledged 120-byte data.
	AT+TCPACK=1 + TCPACK:1,DISCONNECT OK	No connection is set up on socket 1.
	AT+TCPACK=2 +TCPACK:2,NO TCP LINK OK	A UDP connection is set up on socket 2.
Remarks	The values of <data_sent> and <acked_rcv> are unsigned 64-bit integers in decimal ASCII. The unit is byte.	

9.17 Setting Local TCP Port: +TCPPORT

Description	To set the local TCP port
Format	AT+TCPPORT=<n>,<port> <CR>

Parameter	<n>: Socket ID on the client, ranging from 0 to 5 <port>: Port ID, ranging from 1024 to 65535	
Return Value	N/A	
Example	AT+TCPPOINT=0,5500 OK	Set the locate TCP port of socket 0 to 5500.
	AT+TCPPOINT=1,1023 +CME ERROR: 3	The port number is incorrect.
	AT+TCPPOINT=1,1026 +TCPPOINT:ERROR,USED	The port has been occupied by other sockets and the socket is opened.
	AT+TCPPOINT=0,1066 +TCPPOINT:ERROR,OPENED	The socket has been opened and does not allow new port number.
Remarks	- This command should have been executed before the AT+TCPSETUP command is executed. - If you do not use this command, the local port ID will be allocated dynamically every time the UDP connection is set up.	

9.18 Setting Local UDP Port: +UDPPORT

Description	To set the local UDP port	
Format	AT+UDPPORT=<n>,<port><CR>	
Parameter	<n>: Socket number, ranging from 0 to 5 <port>: Port ID, ranging from 1024 to 65535	
Return Value	N/A	
Example	AT+UDPPORT=2,5500 OK	Set the locate UDP port of socket 2 to 5500.
	AT+UDPPORT=1,1023 +CME ERROR: 3	The port number is incorrect.
	AT+UDPPORT=1,1026 +UDPPORT:ERROR, USED	The port has been occupied by other sockets and the socket is opened.
	AT+UDPPORT=0,1026 +UDPPORT:ERROR, OPENED	The socket has been opened and does not allow new port number.
Remarks	- This command should have been executed before the AT+UDPSETUP command is executed. - If you do not use this command, the local port ID will be allocated dynamically every time the UDP connection is set up.	

9.19 Setting Socket Timeout Parameter: +SSTP

Description	To obtain the port ID of the socket on the module	
Format	AT+GETPORT=<socket>	
Parameter	<socket>: socket ID	
Return Value	+GETPORT:<n>,<typet> <port> <n>: socket ID <typet>: Connection type <port>: Port ID	
Example	AT+GETPORT=0 +GETPORT:0,TCP,42299 OK	Return the port ID of socket 0.
	AT+GETPORT=2 +GETPORT:2,UDP,23353 OK	Return the port ID of socket 2.
	AT+GETPORT=0 +GETPORT:0,NUL,0 OK	No connection has been set up using socket 0.
Remarks	N/A	

10 PPP Heartbeat Commands

10.1 Enabling PPP Heartbeat Function: + PKEEPALIVE

Description	To enable or disable the PPP alive function.	
Format	- AT+PKEEPALIVE=<mode><CR> - AT+PKEEPALIVE? <CR> - AT+PKEEPALIVE=?<CR>	
Parameter	<mode>: Enable/disable. 0: disable (default) 1: enable	
Return Value	<CR><LF>OK<CR><LF> or <CR><LF>+PKEEPALIVE: <mode><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+PKEEPALIVE: (list of supported <mode>)<CR><LF> <CR><LF>OK<CR><LF>	
Example	AT+PKEEPALIVE=1 OK	Enable the PPP KEEPALIVE function.
	AT+PKEEPALIVE=0 OK	Disable the PPP KEEPALIVE function.
	AT+PKEEPALIVE? +PKEEPALIVE: 1 OK	Read the current parameter setting.
	AT+PKEEPALIVE=? +PKEEPALIVE: (0-1) OK	
Remarks	- The setting will not be saved after the module is powered off. - PPP alive will consume some extra data. - This function can be enabled before or after PPP dialing. The module sends heartbeat packet to the network periodically after this function is enabled.	

10.2 Setting PPP Heartbeat Timer: + IPTIMER

Description	To set PPP heartbeat timer, which can keep TCP alive
Format	- AT+IPTIMER=<time><CR> - AT+ IPTIMER? <CR>

	AT+ IPTIMER =?<CR>	
Parameter	< time >: The heartbeat sending period	
Return Value	<CR><LF>OK<CR><LF> or <CR><LF>+ IPTIMER: < time ><CR><LF> <CR><LF>OK<CR><LF> or <CR><LF>+ IPTIMER: (list of supported < time >)<CR><LF> <CR><LF>OK<CR><LF>	
Example	AT+ IPTIMER =30 OK	Set the heartbeat period.
	AT+ IPTIMER? + IPTIMER: 30 OK	Read the current heartbeat period.
	AT+ IPTIMER =? + IPTIMER: (1-180) OK	Query the available parameter setting range.
Remarks	The setting will not be saved after the module is powered off.	

11 DNS Command

11.1 Querying the IP Address: +DNS

Description	To query the IP address	
Format	AT+DNS=<string> <CR>	
Parameter	<string>: The website URL to be queried, in form of " www.xxx.com " or www.xxx.com	
Return Value	N/A	
Example	AT+DNS= www.baidu.com OK	Query the IP address of www.baidu.com .
	+DNS: 61.135.169.105	The module returns the IP address: 61.135.169.105.
	AT+DNS="www.baidu.com" OK	Query the IP address of " www.baidu.com ". The module returns the IP address: 61.135.169.105.
	+DNS:61.135.169.105	
Remarks	The URL length should not exceed 35 bytes.	

12 ICMP Protocol Command

12.1 PING Function: +PING

Description	PING function	
Format	AT+PING=<ip><CR>	
Parameter	<ip>: Destination address. It must be input in format of xx.xx.xx.xx or domain name like www.china.com.	
Return Value	See the Example.	
Example	AT+PING=www.baidu.com OK Pinging www.baidu.com with 32 bytes of data: Reply from 112.80.248.74: bytes=32 time<1ms TTL=51 Reply from 112.80.248.74: bytes=32 time<1ms TTL=51 Reply from 112.80.248.74: bytes=32 time<1ms TTL=51 Reply from 112.80.248.74: bytes=32 time<1ms TTL=51 Ping statistics for 112.80.248.74: Packets: Sent = 4, Received = 4, Lose = 0 <0% loss>	PING www.baidu.com Sends 4 request packets (32 bytes) continuously. Receive 4 response packets (32 bytes).
	AT+PING=www.neoway.com OK Pinging www.neoway.com.cn with 32 bytes of data: Reply from 112.127.8.18: bytes=32 time<1ms TTL=113 Reply from 112.127.8.18: bytes=32 time<1ms TTL=113 Reply from 112.127.8.18: bytes=32 time<1ms TTL=113 Request timed out. Ping statistics for 112.127.8.18: Packets: Sent = 4, Received = 3, Lose = 0 <75% loss>	PING www.neoway.com Sends 4 request packets (32 bytes) continuously. Receive 3 response packets (32 bytes).
	AT+PING=192.168.2.61 OK Pinging 192.168.2.61 with 32 bytes of data: Request timed out. Request timed out. Request timed out. Request timed out. Ping statistics for 192.168.2.61: Packets: Sent = 4, Received = 0, Lose = 4 <100% loss>	PING 192.168.2.61 Sends 4 request packets (32 bytes) continuously. Receive 0 response packet.
	AT+PING=192.168.2 ERROR	Incorrect parameter input. ERROR is returned.

Remarks	A PPP connection must be set up before using this command.
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13 FTP AT Commands

13.1 Logging In to the FTP Server: +FTPLOGIN

Description	To log in to the FTP server	
Format	AT+FTPLOGIN=<ip>,<port>,<user>,<pwd> <CR>	
Parameter	<ip>: FTP server address <port>: Port ID of the FTP server, 21 <user>: The user name to log in to the FTP server. The length of the user name cannot exceed 100 bytes in ASCII code and the user name cannot contain comma (,). <pwd>: The password for the user account to log in to the FTP server. The length of the password cannot exceed 100 bytes in ASCII code and the password cannot contain comma (,).	
Return Value	• +FTPLOGIN: Error: The format of the AT command is incorrect. • +FTPLOGIN:Have Logged In: The user has logged in to the FTP server. • +FTPLOGIN:AT Busy: Last FTP AT command has not been executed completely. • +FTPLOGIN:User logged in: The user logged in to the FTP server successfully. • +FTPLOGIN: 530 Not logged in: The user failed to log in to the FTP server because the user account or password is incorrect. • FTPLOGIN:Error Connect Server Fail: The user failed to log in to the FTP server for other reasons.	
Example	AT+FTPLOGIN=58.60.184.213,21,neowayftp,neowayftp OK +FTPLOGIN:User logged in	Use the user name neowayftp and password neowayftp to log in to the server 58.60.184.213 through port 21. Log in to the server successfully.
	AT+FTPLOGIN=11.60.184.213,21,neowayftp,neowayftp OK +FTPLOGIN:Error TimeOut	The IP address of the FTP server is incorrect. Fail to log in to the server.
	AT+FTPLOGIN=58.60.184.213,23,neowayftp,neowayftp OK +FTPLOGIN:Error TimeOut	Log in to the FTP server. Fail to log in to the server because the port is incorrect.
	AT+FTPLOGIN=58.60.184.213,neowayftp,neowayftp +FTPLOGIN:Error	The AT command format is incorrect.
	AT+FTPLOGIN=58.60.184.213,21,neowayftp,neowayftp OK	Fail to log in to the server because the user name or password is incorrect.

	+FTPLOGIN:530 Not logged in	
	AT+FTPLOGIN=neowayjsr.oicp.net,21,neoway,neoway OK +FTPLOGIN:User logged in	Log in to the FTP server through its domain name.
Remarks	- You can read or write data on the FTP server only after you logged in to the FTP server. - You must execute AT+XIIC=1 before logging in to the FTP server.	

13.2 Logging Out from the FTP Server: +FTPLOGOUT

Description	To log out from the FTP server	
Format	AT+FTPLOGOUT<CR>	
Parameter	N/A	
Return Value	See the Example.	
Example	AT+FTPLOGOUT +FTPLOGOUT:User logged out OK	Log out from the FTP server
Remarks	N/A	

13.3 Downloading Data from the FTP Server: +FTPGET

Description	To download data from the FTP server	
Format	AT+FTPGET=<dir&filename>,<type>,<Content or Info> [,<offset>,<len>]<CR>	
Parameter	<Dir&filename>: Path and name of the file to be read (Note: The file directory under the FTP root directory) <Type>: File transfer mode 1: ASCII 2: Binary <Content or Info>: File content or file (or specified directory) information 1: Obtain the file content 2: Obtain the information of the file or the specified path <offset>: The download offset <len>: The length of the download data If the value is 0, it indicates the size of the download file minus the offset.	
Return Value	+FTPGET: Error: The format of the AT command is incorrect +FTPGET:Error Not Login: The user has not logged in to the FTP server. +FTPGET:AT Busy: Last FTP AT command has not been executed completely.	

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	+FTPGET:OK,total length is 10	
	+FTP:Server Data Link Disconnect	
Remarks	N/A	

13.4 Uploading Data from the FTP Server: +FTPPUT

Description	To upload data to the FTP server	
Format	AT+FTPPUT=<filename>,<type>,<mode>,<size><CR>	
Parameter	<filename>: The name of the file to be uploaded <type>: File transfer mode 1: ASCII 2: Binary <mode>: Operation mode 1: STOR mode. Create a file on the FTP server and write the data to the file. If the file exists, the original file will be overwritten. 2: APPE mode. Create a file on the FTP server and write the data to the file. If the file exists, the data is attached to the end of the file. 3: DELE mode. Delete a file. <size>: Data length. The data length cannot exceed 1024.	
Return Value	• +FTPPUT: Error: The format of the AT command is incorrect. • +FTPPUT:Error Not Login: The user has not logged in to the FTP server. • +FTPPUT:AT Busy: Last FTP AT command has not been executed completely. • +FTPPUT:SIZE Error: The value of <length> is greater than 1024 or less than 1. • +FTPPUT:OK,<n>: The file is sent successfully and the file length is n. • +FTPPUT:Delete File OK: The file is deleted successfully. • +FTPPUT:Error!TimeOut: You did not input file content for too long time.	
Example	AT+FTPPUT=test.txt,1,1,10 >1234567890 +FTPPUT:OK,10	Upload the test.txt file, which is 10 in length. The transfer mode is ASCII mode and the operation mode is STOR.
	AT+FTPPUT=test.txt,1,2,10 >1234567890 +FTPPUT:OK,10	Upload the test.txt file, which is 10 in length. The transfer mode is ASCII mode and the operation mode is APPE.
	AT+FTPPUT=test.txt,1,3,0 +FTPPUT:Delete File OK	Delete the test.txt file.
Remarks	N/A	

13.5 Querying FTP Connection Status: +FTPSTATUS

Description	To query the FTP connection status	
Format	AT+FTPSTATUS<CR>	
Parameter	No parameter.	
Return Value	+FTPSTATUS:<status>,<ip>, <port> <status>: 0: The FTP connection has not been set up. 1: The FTP connection has been set up. <ip>: The IP address of the FTP server <port>: The port of the FTP server	
Example	AT+FTPSTATUS +FTPSTATUS:1,119.139.221.66,21	Query the FTP connection status. The FTP connection has been set up. The IP address of the server and the port are respectively 119.139.221.66 and 21.
	AT+FTPSTATUS +FTPSTATUS:0	Query the FTP connection status. The FTP connection has not been set up.
Remarks	N/A	

14 TCP Server AT Commands

14.1 Obtaining the Local IP Address: +GETIP

Description	To query the local IP address	
Format	AT+GETIP<CR>	
Parameter	N/A	
Return Value	+LOCALIP:<ip_addr>	
Example	AT+GETIP +LOCALIP: 119.139.220.13 OK	Query the local IP address.
	AT+GETIP +CME ERROR: 3	ERROR is returned because you query the local IP address before PPP dialup.
Remarks	N/A	

14.2 Setting TCP Listening for the Server: +TCPLISTEN

Description	To set the TCP listening function of the server, supporting three client connections	
Format	- AT+TCPLISTEN=<port>[,<recv_mode>]<CR> - AT+TCPLISTEN=?<CR> - AT+TCPLISTEN=?<CR>	
Parameter	<Port>: Port ID, ranging from 1 to 65535 <recv_mode>: Data receiving mode. The default value is 0. 0: Indicates that the data is output directly after the socket receives it. 1: Indicates that the data received is saved in the buffer and you can run +IPNETREAD to read it when necessary.	
Return Value	<CR><LF>+TCPLISTEN:<socket>,OK<CR><LF>	
Example	AT+TCPLISTEN=6800 +TCPLISTEN:0,OK or +TCPLISTEN:bind error	Listening port ID: 6800 The listening function of the server is started. Failed to bind
	AT+TCPLISTEN=6800 +CME ERROR: 3	Set server listening before setting up PPP connections.
	AT+TCPLISTEN=6800 Listening...	Transparent listening has been set.
	AT+TCPLISTEN=? +TCPLISTEN: (1-65535),(0-1) OK	Query the value range of the listening port.

	AT+TCPLISTEN? +TCPLISTEN:listening status	Query the listening status. Here the server is in the listening status.
	AT+TCPLISTEN? +TCPLISTEN:not listening	Query the listening status. Here the server is not in the listening status.
	Connect AcceptSocket=1,ClientAddr=119.123.77.133 Receive the connection request from the client. AcceptSocket indicates the socket ID on the module, and 119.123.77.133 is the IP address of the client. +CLOSECLIENT:accept socket over is returned if more than three clients are connected.	
Remarks	- This command is valid only after a PPP connection is set up successfully. - Only the SIM cards with fixed IP addresses can be used as servers. <recv_mode> specified in this command controls the data receiving mode of the connection set up by Connect AcceptSocket.	

14.3 Closing the Listening Socket: +CLOSELISTEN

Description	To close the listening socket and the listened sockets on the client	
Format	AT+CLOSELISTEN<CR>	
Parameter	<Socket>: Socket number	
Return Value	<CR><LF>+CLOSECLIENT:<socket>,remote link closed<CR><LF> <CR><LF>+CLOSECLIENT:<socket>,local link closed<CR><LF>	
Example	AT+CLOSELISTEN +CLOSELISTEN:0,local link closed +CLOSECLIENT:1,remote link closed	Abnormalities might occur on the network. The local socket will be closed if there is any socket on the client.
Remarks	N/A	

14.4 Closing Client Socket: +CLOSECLIENT

Description	To close all socket connecting to the client	
Format	AT+CLOSECLIENT[=<socket>]<CR>	
Parameter	N/A	
Return Value	<CR><LF>+CLOSECLIENT:<socket>,remote link closed<CR><LF>	
Example	AT+CLOSECLIENT +CLOSECLIENT:1,remote link closed	No parameter, closed multiple sockets.

	+CLOSECLIENT:2,remote link closed	
	AT+CLOSECLIENT=1	With parameter: closed one socket.
	+CLOSECLIENT:1,remote link closed	
	AT+CLOSECLIENT=1 ERROR	No remote client connecting to socket 1.
	AT+CLOSECLIENT +CLOSECLIENT:All remote link closed	Sockets connecting to all remote clients have been closed.
Remarks	N/A	

14.5 Receiving Data from the Client: +TCPRECV(S)

Description	To receive data from the client	
Format	+TCPRECV(S):<socket>,<length>,<data>	
Parameter	N/A	
Return Value	See the Example.	
Example	+TCPRECV(S):1,10,1234567899	Socket 1 receives data from the client.
Remarks	Additional (s) makes this command different from the receive mode of the client mode in format.	

14.6 Sending Data to the Client: +TCPSENDS

Description	To send data to the client	
Format	AT+TCPSENDS=<socket>,<length>	
Parameter	<socket>: The value of AcceptSocket , that is, the socket of the module. See the description of the AT+TCPLISTEN command. <length>: The length of the data to be sent, value ranges from 1 to 1024 , unit: byte.	
Return Value	See the Example.	
Example	AT+TCPSENDS=0,10 >1234567890 OK +TCPSENDS:0,10	10-byte data is successfully sent through socket 0.
	AT+TCPSENDS=0,10 +TCPSENDS:SOCKET ID NOT ACTIVE	No socket has been set up using socket 0.
	AT+TCPSENDS=0,10	No TCP connection is set up on socket 0 through listening, but some connection of

	+TCPSENDS:ERROR	other type might have been set up.
	AT+TCPSENDS=0,10 > +TCPSENDS:Error!TimeOut	10 seconds timed out. No data is input. The module returns ERROR.
	AT+TCPSENDS=0,4000 +TCPSENDS:DATA LENGTH ERROR	The sending length is incorrect.
Remarks	Ensure that the TCP connection has been set up before sending TCP data. If the format is incorrect, the module returns +TCPSENDS:ERROR .	

14.7 Querying the Socket Status on the Client: +CLIENTSTATUS

Description	To query the status of the socket on the client	
Format	AT+CLIENTSTATUS=<socket><CR>	
Parameter	<socket>: The value of AcceptSocket , that is, the socket of the module. See the description of the AT+TCPLISTEN command.	
Return Value	+CLIENTSTATUS:<socket>,<CONNECT or DISCONNECT>,<TCP or INVALID>,<send-buffer-size> <CONNECT or DISCONNECT>: Socket status, value: CONNECT or DISCONNECT <TCP or INVALID>: Connection type, TCP or INVALID <send-buffer-size>: The size of the available sending buffer on the module, in decimal ASCII mode, unit: byte	
Example	AT+CLIENTSTATUS=0 +CLIENTSTATUS:0,CONNECT,TCP,61440	A TCP connection has been set up with the socket 0 of client and the buffer size is 61440 bytes.
	AT+CLIENTSTATUS=4 +CLIENTSTATUS:4,DISCONNECT	No connection is set up on socket 4.
	AT+CLIENTSTATUS=1 +CLIENTSTATUS:1,CONNECT,INVALID	Socket 1 works for server listening. The module returns INVALID for the connection type.
Remarks	- If the connection type is INVALID, the link might be TCP/UDP client or server listening connection instead of a TCP connection listened. - You can use the +IPSTATUS to query the specific type.	

15 UDP Server AT Commands

15.1 Setting UDP Listening for the Server: +UDPLISTEN

Description	To set the UDP listening for the server Supporting 3 client connections	
Format	- AT+UDPLISTEN=<port>[,<recv_mode>]<CR> - AT+UDPLISTEN?<CR> - AT+UDPLISTEN=?<CR>	
Parameter	<port>: Port number, ranging from 1 to 65535 <recv_mode>: Data receiving mode. The default value is 0. 0: Indicates that the data is output directly after the socket receives it. 1: Indicates that the data received is saved in the buffer and you can run +IPNETREAD to read it when necessary.	
Return Value	<CR><LF>+UDPLISTEN:<socket>,OK<CR><LF>	
Example	AT+UDPLISTEN=6000 +UDPLISTEN:0,OK or +UDPLISTEN:bind error	Listening port ID: 6000 The listening function of the server is started. Failed to bind
	AT+UDPLISTEN=6000 +CME ERROR: 3	Set server listening before setting up PPP connections.
	AT+UDPLISTEN=6000 Listening...	Transparent listening has been set.
	AT+UDPLISTEN=? +UDPLISTEN: (1-65535),(0-1) OK	Query the value range of the listening port.
	AT+UDPLISTEN? +UDPLISTEN:listening status	Query the listening status. Here the server is in the listening status.
	AT+UDPLISTEN? +UDPLISTEN:not listening	Query the listening status. Here the server is not in the listening status.
	+CLOSECLIENT:accept socket over is returned if more than three clients are connected.	
Remarks	- This command is valid only after a PPP connection is set up successfully. - Only the SIM cards with fixed IP addresses can be used as servers. <recv_mode> specified in this command controls the data receiving mode of the connection set up by Connect AcceptSocket.	

15.2 Closing the Listening Socket: +CLOSEUDPLISTEN

Description	To close the listening socket and the listened sockets on the client	
Format	AT+CLOSEUDPLISTEN<CR>	
Parameter	N/A	
Return Value	<CR><LF>+CLOSEUDPCLIENT:<socket>,remote link closed<CR><LF> <CR><LF>+CLOSEUDPCLIENT:<socket>,local link closed<CR><LF>	
Example	AT+CLOSEUDPLISTEN +CLOSEUDPLISTEN:0,local link closed +CLOSEUDPCLIENT:1,remote link closed	The local socket will be closed if there is any socket on the client.
Remarks	N/A	

15.3 Closing Client Socket: +CLOSEUDPCLIENT

Description	To close sockets connecting to clients	
Format	AT+CLOSEUDPCLIENT[=<socket>]<CR>	
Parameter	Socket: SOCKET number	
Return Value	<CR><LF>+CLOSEUDPCLIENT:<socket>,remote link closed<CR><LF>	
Example	AT+CLOSEUDPCLIENT +CLOSEUDPCLIENT:1,remote link closed +CLOSEUDPCLIENT:2,remote link closed	No parameter, closed multiple sockets.
	AT+CLOSEUDPCLIENT=1 +CLOSEUDPCLIENT:1,remote link closed	With parameter: closed one socket.
	AT+CLOSEUDPCLIENT=1 ERROR	No remote client connecting to socket 1.
	AT+CLOSEUDPCLIENT +CLOSEUDPCLIENT:All remote link closed	Sockets connecting to all remote clients have been closed.
Remarks	After being closed by this command, the socket can be used for other connections.	

15.4 Receiving Data from the Client: +UDPRECV(S)

Description	To receive data from the client
Format	+UDPRECV(S):<socket>,<length>,<data>

Parameter	N/A	
Return Value	See the Example.	
Example	+UDPRECV(S):1,10,1234567899	Socket 1 receives data from the client.
Remarks	Additional (s) makes this command different from the receive mode of the client mode in format.	

15.5 Sending Data to the Client: +UDPSENDS

Description	To send data to the client	
Format	AT+UDPSENDS=<socket>,<length><CR>	
Parameter	<socket>: The value of AcceptSocket , that is, the socket of the module. <length>: The length of the data to be sent, value ranges from 1 to 1024 , unit: byte.	
Return Value	See the Example.	
Example	AT+UDPSENDS=0,10 >1234567890 OK +UDPSENDS:0,10	10-byte data is successfully sent through socket 0.
	AT+UDPSENDS=0,10 +UDPSENDS:SOCKET ID NOT ACTIVE	No socket has been set up using socket 0.
	AT+UDPSENDS=0,10 +UDPSENDS:ERROR	No UDP connection is set up on socket 0 through listening, but some connection of other type might have been set up.
	AT+UDPSENDS=0,10 > +UDPSENDS:Error!TimeOut	10 seconds timed out. No data is input. The module returns ERROR.
	AT+UDPSENDS=0,4000 +UDPSENDS:DATA LENGTH ERROR	The sending length is incorrect.
Remarks	- If the format is incorrect, the module returns +UDPSENDS:ERROR. - The client must send data to the server so that the sever can send back data through the socket that receives data.	

15.6 Querying the Socket Status on the Client: +UDPCLIENTSTATUS

Description	To query the status of the socket on the client
Format	AT+UDPCLIENTSTATUS=<socket><CR>
Parameter	<socket>: The value of AcceptSocket , that is, the socket of the module. See the description of the AT+UDPLISTEN command.
Return Value	+UDPCLIENTSTATUS:<socket>,<CONNECT or DISCONNECT>,<UDP or

	INVALID> <CONNECT or DISCONNECT>: Socket status, value: CONNECT or DISCONNECT <UDP or INVALID>: Connection type, UDP or INVALID	
Example	AT+UDPCIENTSTATUS=0 +UDPCIENTSTATUS:0,CONNECT,UDP	A UDP connection has been set up with the socket 0 of client.
	AT+UDPCIENTSTATUS=4 +UDPCIENTSTATUS:4,DISCONNECT	No connection is set up on socket 4.
	AT+CLIENTSTATUS=1 +UDPCIENTSTATUS:1,CONNECT,INVALID	Socket 1 works for server listening. The module returns INVALID for the connection type.
Remarks	- If the connection type is INVALID, the link might be TCP/UDP client or server listening connection instead of a UDP connection listened. - You can use the +IPSTATUS to query the specific type.	

16 Unlimited UDP Server AT Commands

16.1 Setting UDP Listening for Server: +FUDPLISTEN

Description	To set UDP listening for the server	
Format	- AT+FUDPLISTEN=<port><CR> - AT+FUDPLISTEN?<CR> - AT+FUDPLISTEN=?<CR>	
Parameter	<port>: Port number, ranging from 1 to 65535 <socket>: SOCKET number	
Return Value	<CR><LF>+FUDPLISTEN:<socket>,OK<CR><LF>	
Example	AT+FUDPLISTEN=6000 +FUDPLISTEN:0,OK or +FUDPLISTEN:bind error	Listening port ID: 6000 The listening function of the server is started. Failed to bind
	AT+FUDPLISTEN=6000 +CME ERROR: 3	Set server listening before setting up PPP connections.
	AT+FUDPLISTEN=6000 Listening...	Transparent listening has been set.
	AT+FUDPLISTEN=? +FUDPLISTEN: (1-65535) OK	Query the value range of the listening port.
	AT+FUDPLISTEN? +FUDPLISTEN:listening status	Query the listening status. Here the server is in the listening status.
	AT+FUDPLISTEN? +FUDPLISTEN:not listening	Query the listening status. Here the server is not in the listening status.
Remarks	- This command is valid only after a PPP connection is set up successfully. - Only the SIM cards with fixed IP addresses can be used as servers.	

16.2 Receiving Data from the Client: +FUDPREC(S)

Description	To receive and output data from the client
Format	+FUDPREC(S):<ip>,<port>,<length><data><CR><LF>
Parameter	<ip>: IP address of the client <port>: ID of the port for the client to communicate <length>: Length of data received, byte <data>: Data received
Return Value	See the Example.

Example	+FUDPRECV(S):010.072.170.156,38061,00010,1234567890	FUDP receives 10-byte data (1234567890) from the client (IP: 10.72.170.156, 38061)
Remarks	N/A	

16.3 Sending Data to the Client: +FUDPSENDS

Description	To send data to the client	
Format	AT+FUDPSENDS=<ip>,<port>,<length><CR>	
Parameter	<ip>: IP address of the client <port>: ID of the port for the client to communicate <length>: The length of the data to be sent, value ranges from 1 to 1024 , unit: byte.	
Return Value	See the Example.	
Example	AT+FUDPSENDS=10.230.214.106,44416,10>0123456789 OK +FUDPSENDS:0,10	Send 10-byte data to the client (IP: 10.230.214.106, 44416).
	AT+FUDPSENDS=10.230.214.106,44416,10 +FUDPSENDS:ERROR	The listening is not enabled.
	AT+FUDPSENDS=10.230.214.106,44416,10> +FUDPSENDS:Error!TimeOut	10 seconds timed out. No data is input. The module returns ERROR.
	AT+FUDPSENDS=10.74.2222.173,41287,10 +FUDPSENDS:IP OR PORT ERROR	The IP address is incorrect.
	AT+UDPSENDS=0,4000 +UDPSENDS:DATA LENGTH ERROR	The sending length is incorrect.
Remarks	N/A	

16.4 Closing Listening for UDP Server: +CLOSEFUDPLISTEN

Description	To close listening for UDP server	
Format	AT+CLOSEFUDPLISTEN<CR>	
Parameter	N/A	
Return Value	<CR><LF>+CLOSEFUDPCLIENT:<socket>,remote link closed<CR><LF> <CR><LF>+CLOSEFUDPCLIENT:<socket>,local link closed<CR><LF>	
Example	AT+CLOSEFUDPLISTEN	Close listening for UDP server
	+CLOSEFUDPLISTEN:0,closed	
Remarks	N/A	

17 HTTP Commands

17.1 Setting HTTP Parameters: +HTTTPARA

Description	To set HTTP parameters	
Format	AT+HTTTPARA=<para>,<para_value><CR>	
Parameter	<para>: HTTP parameters, supporting the following two parameters: url: Destination path port: Destination port ID <para_value>: The value of <para>. The value of url contains at most 128 bytes and url supports domain name translation. The default port is 80.	
Return Value	See the Example.	
Example	AT+HTTTPARA =url,www.neoway.com.cn/en/index.aspx OK	Set the Neoway homepage as the URL. The URL supports domain name translation.
	AT+HTTTPARA=url,121.15.200.97/Service1.asmx/GetNote OK	Set URL.
	AT+HTTTPARA=url, ERROR	The AT command is not complete.
	AT+HTTTPARA=port,80 OK	Set the destination port ID to 80.
	AT+HTTTPARA=port,8080 OK	Set the destination port ID to 8080.
Remarks	N/A	

17.2 Setting Up HTTP Connection: +HTTPSETUP

Description	To set up an HTTP connection	
Format	AT+HTTPSETUP<CR>	
Parameter	N/A	
Return Value	See the Example.	
Example	AT+HTTPSETUP OK	Set up an HTTP connection Successful
	HTTP SETUP OK	
	AT+HTTPSETUP OK	Set up an HTTP connection

	+DNS:FAILED	Failed to translate DNS.
	AT+HTTPSETUP OK	Set up an HTTP connection
	+HTTPSETUP:FAIL	Failed because port is not set before setting up the HTTP connection.
	AT+HTTPSETUP ERROR	Set up an HTTP connection failed
	AT+HTTPSETUP +HTTPCLOSE:Link Closed	HTTP parameter is set incorrectly.
Remarks	- The connection is set up successfully only after you set the destination address and port ID correctly. - Ensure that the PPP connection has been set up successfully (AT+XIIC=1) before setting an HTTP connection.	

17.3 Executing HTTP Request: +HTTPACTION

Description	To execute an HTTP request	
Format	AT+HTTPACTION=<mode>[,<length>]<CR>	
Parameter	<mode>: HTTP request mode, available value can be 0, 1, 2, 99 0: GET 1: HEAD 2: POST 99: OPEN_MODE, user-defined packet mode <length>: The length of the POST content or user-defined packet length, maximum value 2048 This parameter must be set when you set <mode> to POST or OPEN_MODE .	
Return Value	See the Example.	
Example	AT+HTTTPARA=url,www.neoway.com.cn/en/index.aspx OK AT+HTTTPARA=port,80 OK AT+HTTPSETUP OK HTTP SETUP OK AT+HTTPACTION=0 OK +HTTPRECV: HTTP/1.1 200 OK	Set the destination path. The port is 80. Set up an HTTP connection. GET request Receive the response from the HTTP server.

	Cache-Control: private Content-Type: text/html; charset=utf-8 Server: Microsoft-IIS/7.5 Set-Cookie: ASP.NET_SessionId=rh3fjg554ufzb145aevgzz45; path=/; HttpOnly X-AspNet-Version: 2.0.50727 X-Powered-By: ASP.NET X-UA-Compatible: IE=EmulateIE7 Date: Thu, 28 Nov 2013 03:06:57 GMT Connection: close Content-Length: 13842 /*neoway homepage, html format, 13842 bits*/ /* neoway homepage*/ +HTTPCLOSE:Link Closed	The server finished the response and disconnected the connection.
	AT+HTTTPARA =url,www.neoway.com.cn/en/index.aspx OK AT+HTTTPARA=port,80 OK AT+HTTPSETUP OK HTTP SETUP OK AT+HTTPACTION=1 OK +HTTPRECV: HTTP/1.1 200 OK Cache-Control: private Content-Length: 13842 Content-Type: text/html; charset=utf-8 Server: Microsoft-IIS/7.5 Set-Cookie: ASP.NET_SessionId=znt4fqabqsuclz55pvfufn55; path=/; HttpOnly X-AspNet-Version: 2.0.50727 X-Powered-By: ASP.NET X-UA-Compatible: IE=EmulateIE7 Date: Thu, 28 Nov 2013 03:32:35 GMT Connection: close	Set the destination path. The port is 80. Set up an HTTP connection HEAD request The HTTP server responds.

	+HTTPCLOSE:Link Closed	
	AT+HTTTPARA=url,121.15.200.97/Service1.aspx/GetNote OK AT+HTTTPARA=port,8080 OK AT+HTTPSETUP OK HTTP SETUP OK AT+HTTPACTION=2,23 >MAC=NEOWAY&DATA=0123456 OK +HTTPRECV: HTTP/1.1 200 OK Cache-Control: private, max-age=0 Content-Type: text/xml; charset=utf-8 Server: Microsoft-IIS/7.5 X-AspNet-Version: 4.0.30319 X-Powered-By: ASP.NET Date: Thu, 28 Nov 2013 03:41:52 GMT Connection: close Content-Length: 98 <?xml version="1.0" encoding="utf-8"?> <string xmlns="http://wsliu.cn/">NEOWAY+0123456 </string> +HTTPCLOSE:Connection Closed	Set URL Set the destination port ID as 8080. Set up an HTTP connection POST request. Send 25 bytes; enter the contents to be uploaded after > is displayed. Receive the response from the HTTP server. The server replies an XML file containing the uploaded content NEOWAY and 0123456. The server disconnected with the module after it finished responding.
	AT+HTTTPARA=url,www.neoway.com.cn/en/index.aspx OK AT+HTTTPARA=port,80 OK AT+HTTPSETUP OK HTTP SETUP OK AT+HTTPACTION=99,76 >HEAD /en/index.aspx HTTP/1.1 connection: close HOST: www.neoway.com.cn OK	Set URL The HTTP connection is set up through port 80. Send 76-byte user-defined packets

[illegible]

17.4 Closing HTTP Connection: +HTTPCLOSE

Description	To close an HTTP connection	
Format	AT+HTTPCLOSE<CR>	
Parameter	N/A	
Return Value	See the Example.	
Example	AT+HTTPCLOSE OK	Close the HTTP connection.
	+HTTPCLOSE:Link Closed	Unsolicited report after connection is closed successfully.
	AT+HTTPCLOSE OK	OK is returned

Remarks	- After you run the +HTTPCLOSE command, the HTTP connection is closed and the setting of +HTTTPARA is cleared. - Only OK is returned after running this command if the HTTP connection is connecting.
----------------	--

17.5 Receiving HTTP Data: +HTTPRECV

Description	To report the data received from the HTTP connection	
Format	<CR><LF>HTTPRECV:<CR><LF><data>	
Parameter	<data>: Data received through the HTTP connection	
Return Value	See the Example.	
Example	+HTTPRECV: HTTP/1.1 200 OK Cache-Control:private Content-Length: 13842 Content-Type:text/html; charset=utf-8 Server:Microsoft-IIS/7.5 Set-Cookie:ASP.NET_SessionId=pvlaai3fizxg44eyvyqsyenk; path=/; HttpOnly X-AspNet-Version: 2.0.50727 X-Powered-By:ASP.NET X-UA-Compatible:IE=EmulateIE7 Date:Thu, 28 Nov 2013 05:40:24 GMT Connection:close +HTTPCLOSED: HTTP Link Closed	Report the data received from the HTTP connection.
Remarks	N/A	

17.6 HTTP Connection Closing: +HTTPCLOSED

Description	Unsolicited report of the HTTP connection closing	
Format	<CR><LF>+HTTPCLOSED:HTTP Link Closed<CR><LF>	
Parameter	N/A	
Return Value	See the Example.	
Example	+HTTPCLOSED:HTTP Link Closed	Unsolicited report of the HTTP connection closing
Remarks	N/A	

18 HTTPS Command

18.1 Setting HTTPS Parameters: +HTTPSPARA

Description	To set HTTPS parameters	
Format	AT+HTTPSPARA=<para>,<para_value><CR>	
Parameter	<para>: HTTP parameters, supporting the following two parameters: url: Destination path port: Destination port ID <para_value>: The value of <para>. The value of url contains at most 128 bytes and url supports domain name translation. Slash (/) in the domain name is the ending flag.	
Return Value	See the Example.	
Example	AT+HTTPSPARA=url,mybank.icbc.com.cn/icbc/perbank/index.jsp OK	Set the ICBC login page as the URL. The URL supports domain name translation.
	AT+HTTPSPARA=url,132.188.73.13/prodreg/beginRegistration.action OK	Set 132.188.73.13 as the destination path.
	AT+HTTPSPARA=port,443 OK	Set the destination port ID to 443.
Remarks	- You need to set new HTTP parameters for new HTTPS requests. - After you run the +HTTPCLOSE command, the connection is closed and the HTTPS parameters are cleared.	

18.2 Setting up HTTPS Connection: +HTTPSSETUP

Description	To set up an HTTP connection	
Format	AT+HTTPSSETUP<CR>	
Parameter	N/A	
Return Value	See the Example.	
Example	AT+HTTPSSETUP OK	Set up an HTTPS connection Successful
	HTTPS SETUP OK	
	AT+HTTPSSETUP OK	Set up an HTTPS connection Failed to translate the domain name.

	+DNS:FAILED	
	AT+HTTPSSETUP OK Https linking	Set up an HTTP connection Failed because an HTTPS connection has been set up.
	AT+HTTPSSETUP ERROR	Set up an HTTP connection Failed because PPP connection has not been set up.
	AT+HTTPSSETUP OK +HTTPSSETUP:FAIL	Set up an HTTP connection Failed. The port has not been set before setting up an HTTPS connection.
	Remarks - The connection is set up successfully only after you set the destination address and port ID correctly. - Ensure PPP connection has been set up successfully before an HTTPS connection is set up.	

18.3 Executing HTTPS Request: +HTTPSACTION

Description	To execute an HTTPS request	
Format	AT+HTTPSACTION=<mode>[,<length>]<CR>	
Parameter	<mode>: HTTPS request mode, available value can be 0, 1, 2, 99 0: GET 1: HEAD 2: POST 99: OPEN_MODE, user-defined packet mode <length>: ranging from 1 to 2018 when <mode> is set to POST ; <length> = header length + data length when <mode> is set to OPEN_MODE , the header is to be defined by users.	
Return Value	See the Example.	
Example	AT+HTTPSPARA=url,support.cdmatech.com/login/ OK AT+HTTPSPARA=port,443 OK AT+HTTPSSETUP OK HTTPS SETUP OK AT+HTTPSACTION=0 OK +HTTPSRECV: HTTP/1.1 200 OK	Set the destination path. Set the destination port to 443. Set up an HTTPS connection. GET request. Receive the request from the HTTPS server.

	Server: QUALCOMM X-Powered-By: Servlet/2.5 JSP/2.1 Content-Type: text/html; charset=ISO-8859-1 Date: Sat, 15 Feb 2014 05:58:54 GMT Content-Length: 7630 Connection: close Set-Cookie: JSESSIONID=8V1dS1CpzlPcyNl2LzJZLQgDxWclpMJzP3F HZhVhpGb83GVM02sn!1955538012; path=/; HttpOnly /*homepage content, html format*/ /*homepage content*/ +HTTPCLOSE:Link Closed	The server responded and then disconnected the connection.
	AT+HTTPSPARA=url,support.cdmatech.com/login/ OK AT+HTTPSPARA=port,443 OK AT+HTTPSSETUP OK HTTPS SETUP OK AT+HTTPSACTION=1 OK +HTTPSRECV: HTTP/1.1 200 OK Server: QUALCOMM X-Powered-By: Servlet/2.5 JSP/2.1 Content-Type: text/html; charset=ISO-8859-1 Date: Sat, 15 Feb 2014 06:05:39 GMT Content-Length: 0 Connection: close Set-Cookie: JSESSIONID=qyNVS1DSmnjS9cvh72yW1xz1jtjBBRj0yv0z TmMy2LVyBG7HK02b!1955538012; path=/; HttpOnly +HTTPCLOSE:Link Closed	Set the destination path. Set the destination port to 443. Set up an HTTPS connection. HEAD request The HTTPS server responded.
	AT+HTTPSPARA=url,mybank.icbc.com.cn/icbc/perbank/index.jsp OK AT+HTTPSPARA =port,443 OK AT+HTTPSPARA OK	OPEN_MODE Custom packet mode

	<pre> HTTPS SETUP OK AT+HTTPSACTION=99,500 >POST /icbc/perbank/index.jsp HTTP/1.1<CRLF> /*custom header information*/ Connection: close<CRLF> /*custom header information */ Host: mybank.icbc.com.cn<CRLF> /* custom header information */ Content-Length: 10<CRLF> /* custom header information */ Content-Type: application/x-www-form-urlencoded<CRLF> /* custom header information */ <CRLF><CRLF> /*Information to be sent */ +HTTPSRECV: /*homepage content, html format*/ /* homepage content */ +HTTPSCLOSE:Link Closed Note that the length includes custom header information. </pre>	
Remarks	- You need to comply with the HTTP protocol when defining packets. - Check if the tool you use will add a carriage return and a line feed automatically when you customize packets.	

18.4 Closing HTTPS Connection: +HTTPSCLOSE

Description	To close and HTTPS connection	
Format	AT+HTTPSCLOSE<CR>	
Parameter	N/A	
Return Value	See the example.	
Example	<pre> AT+HTTPSCLOSE OK +HTTPSCLOSE:Link Closed </pre>	Close the HTTPS connection.
Remarks	After you run the +HTTPSCLOSE command, the HTTPS connection is closed and the setting of +HTTTPARA is cleared.	

18.5 Receiving HTTPS Data: +HTTPSRECV

Description	To report the data received from the HTTPS connection	
Format	<CR><LF>+HTTPSRECV: <CR><LF><data>	
Parameter	<data>: Data received through the HTTPS connection	
Return Value	See the Example.	
Example	+HTTPSRECV: HTTP/1.1 200 OK Cache-Control: private Content-Length: 13842 Content-Type: text/html; charset=utf-8 Server: Microsoft-IIS/7.5 Set-Cookie: ASP.NET_SessionId=pvlaai3fizxg44eyvyqsyenk; path=/; HttpOnly X-AspNet-Version: 2.0.50727 X-Powered-By: ASP.NET X-UA-Compatible: IE=EmulateIE7 Date: Thu, 28 Nov 2013 05:40:24 GMT Connection: close	Report the data received from the HTTPS connection.
Remarks	N/A	

18.6 HTTPS Closing: +HTTPSCLOSE

Description	Unsolicited report of the HTTPS connection closing	
Format	<CR><LF>+HTTPSCLOSE: Link Closed <CR><LF>	
Parameter	N/A	
Return Value	See the Example.	
Example	+HTTPSCLOSE: Link Closed	Unsolicited report of the HTTP connection closing
Remarks	N/A	

A Reference Process of AT Command Programming

A.1 Content of PDU SMS Messages

<PDU> SMS message sending format:

1>: 0891

08: indicates the length of the SMSC address information 91: indicates the format of the SMSC address

2>: Inversion of every two bits (add F if the bits are not sufficient) in SMSC number, fixed. For example, China Unicom 8613010888500 should be 683108705505F0 here.

3>: 0100

01: Indicates basic parameters 00: indicates message baseline value

4>: Convert the receive

ing number into hexadecimal. For example, the number length is 11 bits and then the hexadecimal length should be 0B.

5>: 81 (Receiving mode) there are multiple receiving modes. 81 indicates that the receiving mode is unknown.

6>: Inversion of every two bits (add F if the bits are not sufficient) in the recipient number. For example, 13421839693 should be 3124819396F3 after conversion.

7>: 0008

8>: The hexadecimal length of the SMS message content. For example, the UCS2 code of hello is 00080A00680065006C006C006F, that is 10 bits and the hexadecimal length is 0A.

9>: Message content, for example, the USC2 code of hello is 00080A00680065006C006C006F.

One PDU message contains the above 9 parts and the parameter values are determined by the actual situation.



NOTE

If the SMSC address length is 0, replace 08 with 00 and the SMSC type and address fields must be omitted.

The following is an example of the PDU message whose SMSC address length is not 0:

0891683110808805F001000B813124819396F300080A00680065006C006C006F

Wherein,

0891

683108705505F0: SMSC number of China Unicom

0100

0B: the length of the recipient number

81: Receiving mode

3124819396F3: The number of recipient

0008

0A: The length of the content

00680065006C006C006F: SMS message content

Message content: hello

The SMS message content starts from 0100, so the value of LENGTH in **AT+CMGS=LENGTH** is 23.

The following is an example of the PDU message whose SMSC address length is 0:

0001000B813124819396F300080A00680065006C006C006F

Wherein,

00: SMSC address information length

0100

0B: the length of the recipient number

81: Receiving mode

3124819396F3: The number of recipient

0008

0A: The length of the content

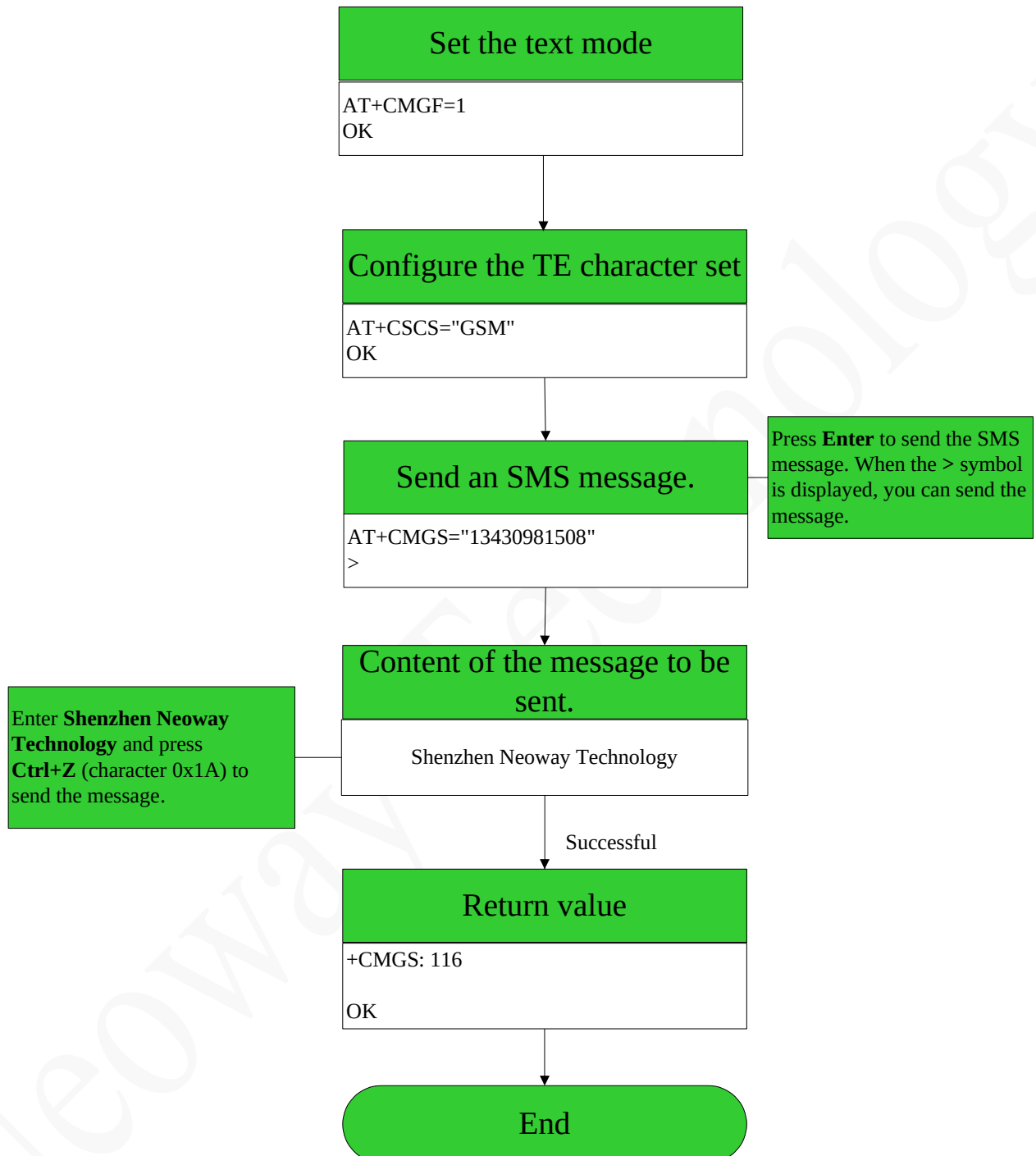
00680065006C006C006F: SMS message content

SMS message content: hello

The SMS message content starts from 0100, so the value of LENGTH in **AT+CMGS=LENGTH** is 23.

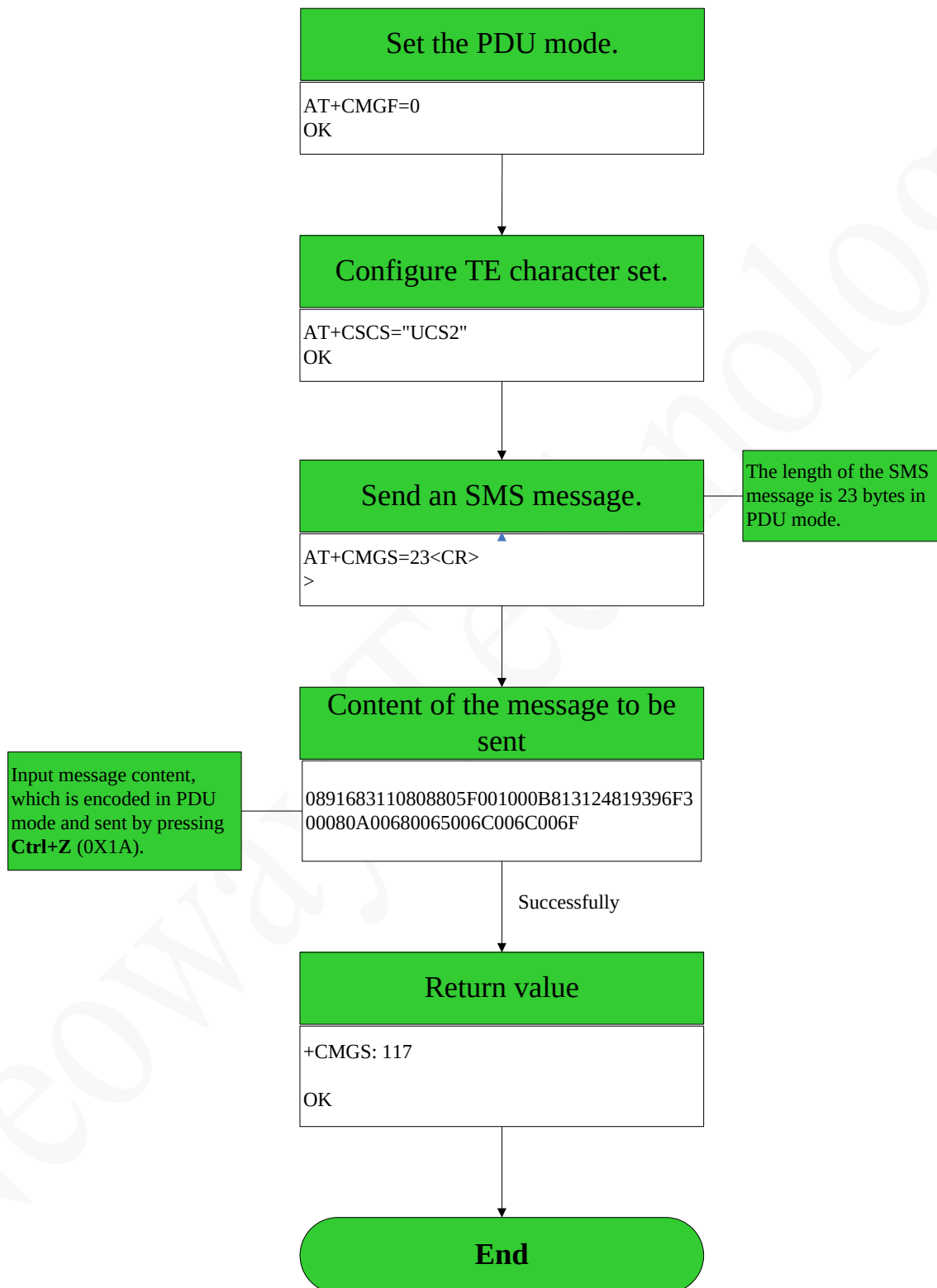
A.2 Flowchart of Sending Text SMS Messages

Figure A-1 Flowchart of sending text format SMS messages



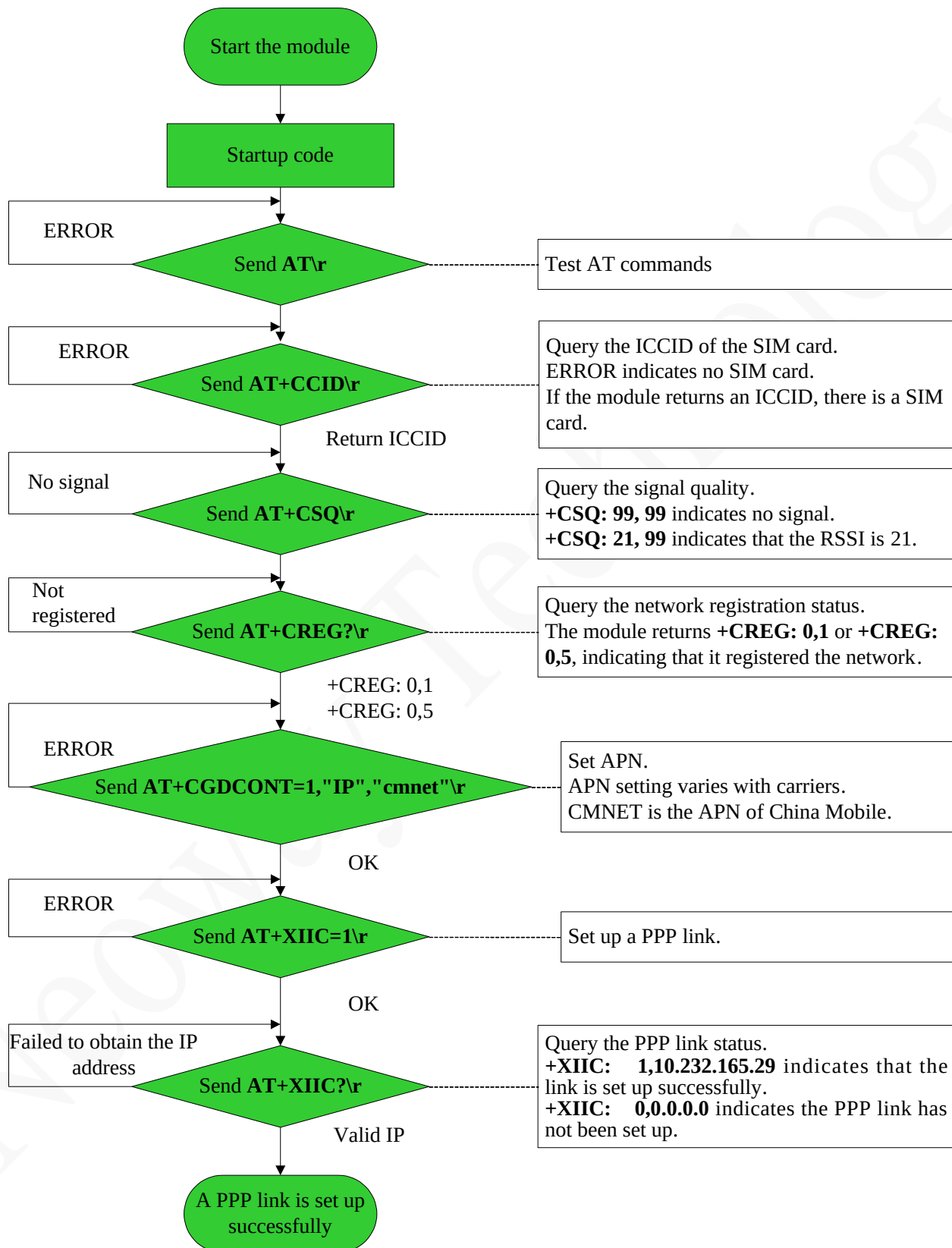
A.3 Flowchart of Sending PDU SMS Messages

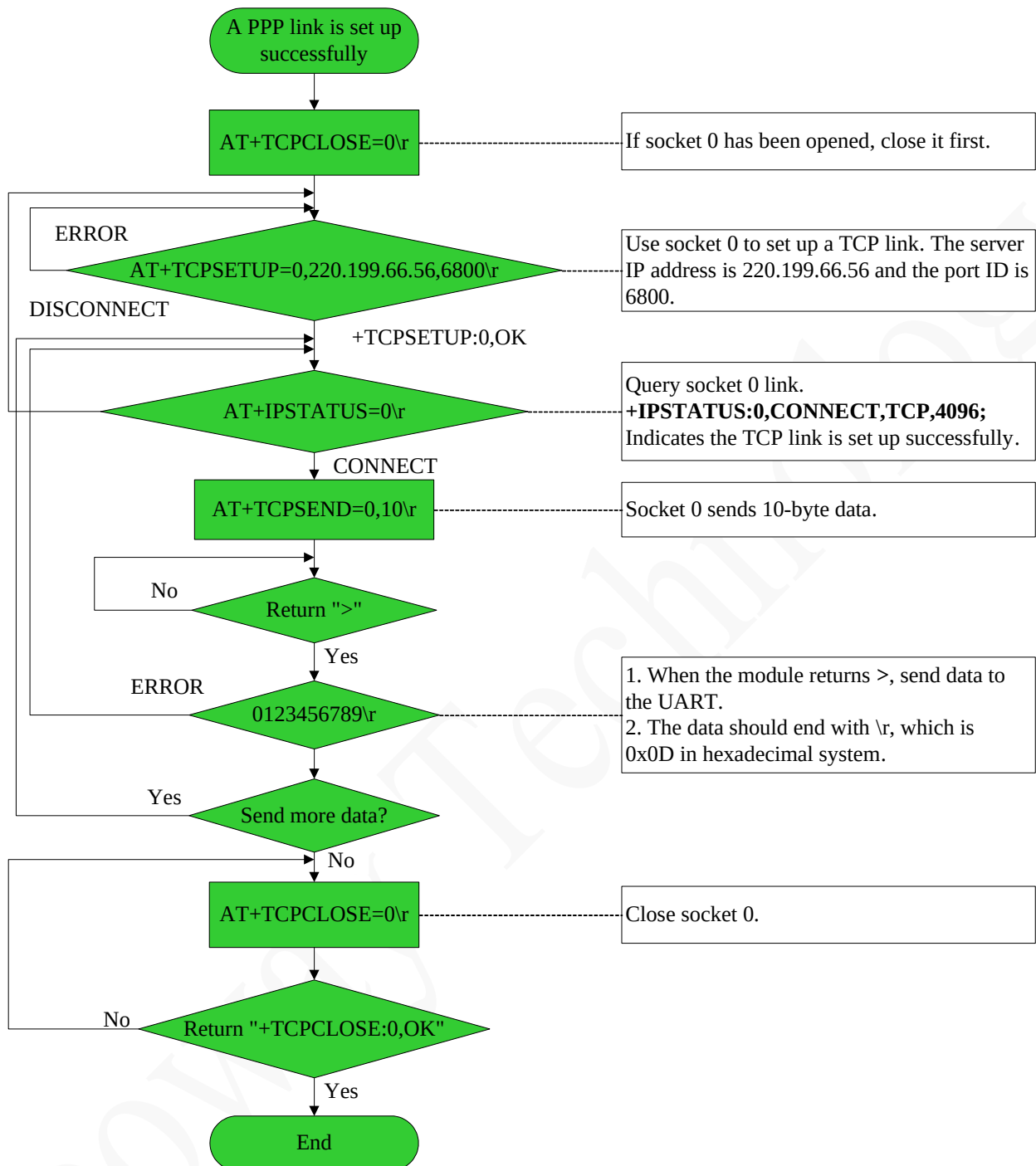
Figure A-2 Flowchart of Sending PDU SMS messages



A.4 Flowchart of AT Commands to Establish TCP Connection

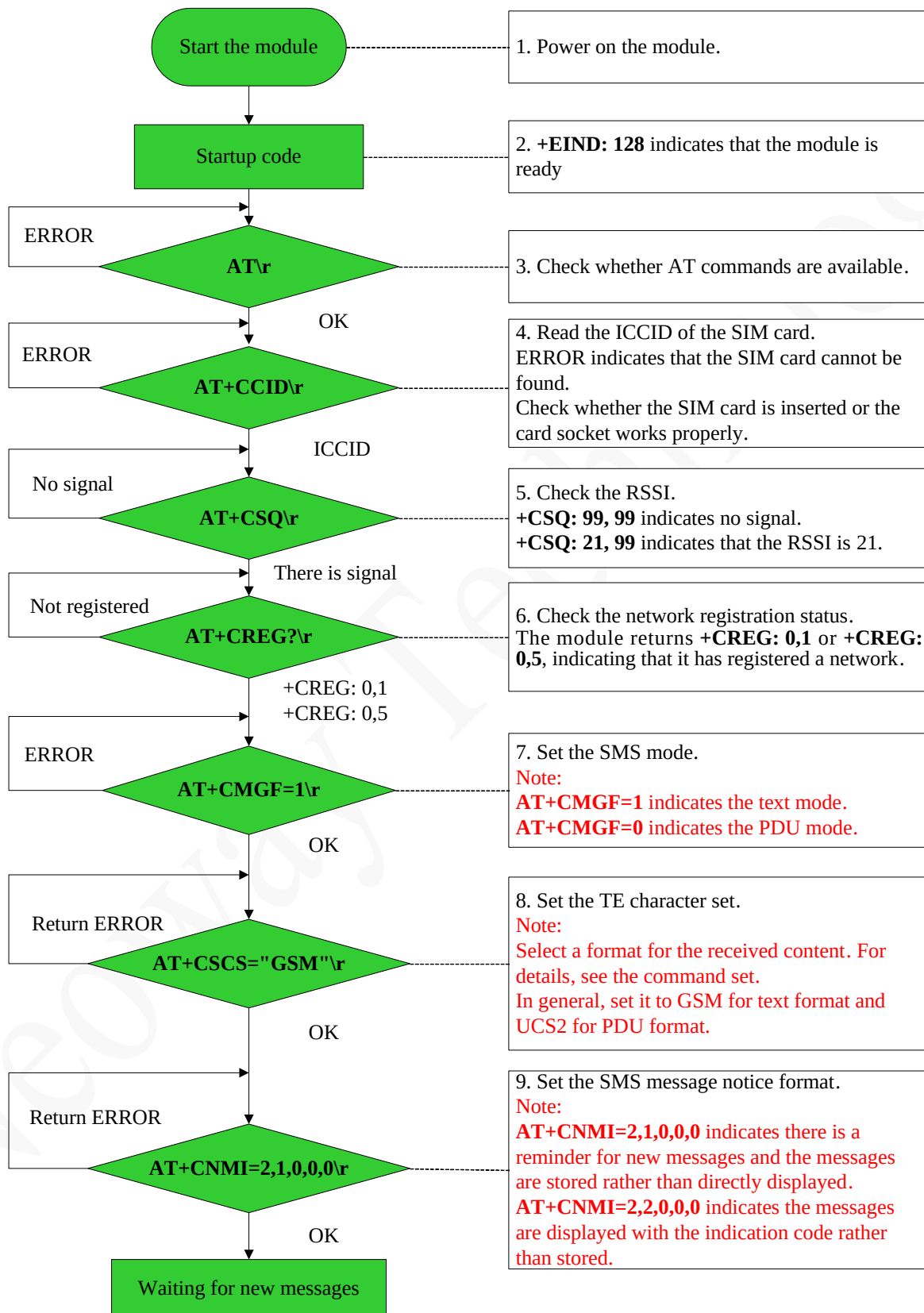
Figure A-3 Flowchart of using AT commands to establish TCP connection

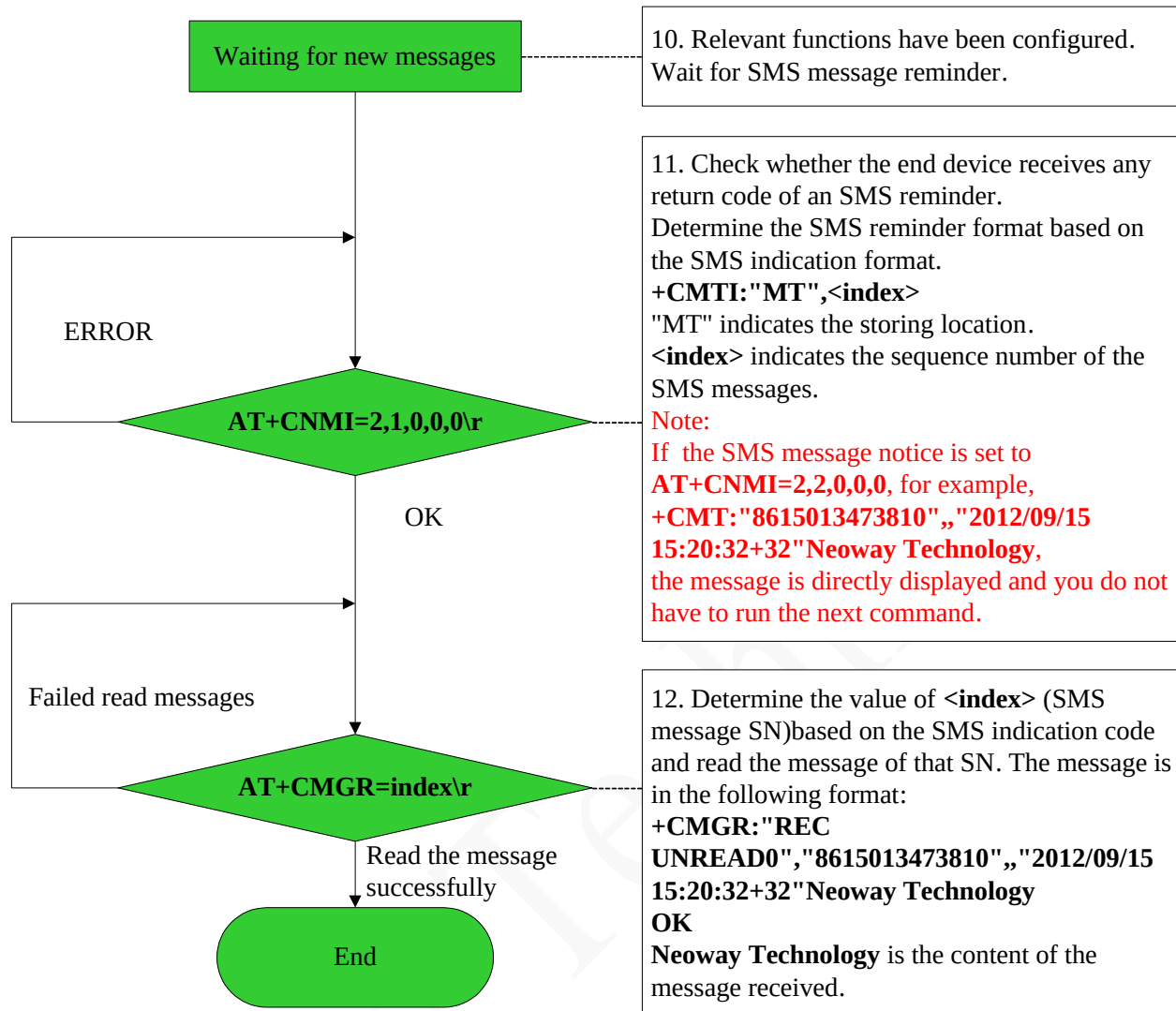




A.5 Flowchart of Receiving SMS Messages

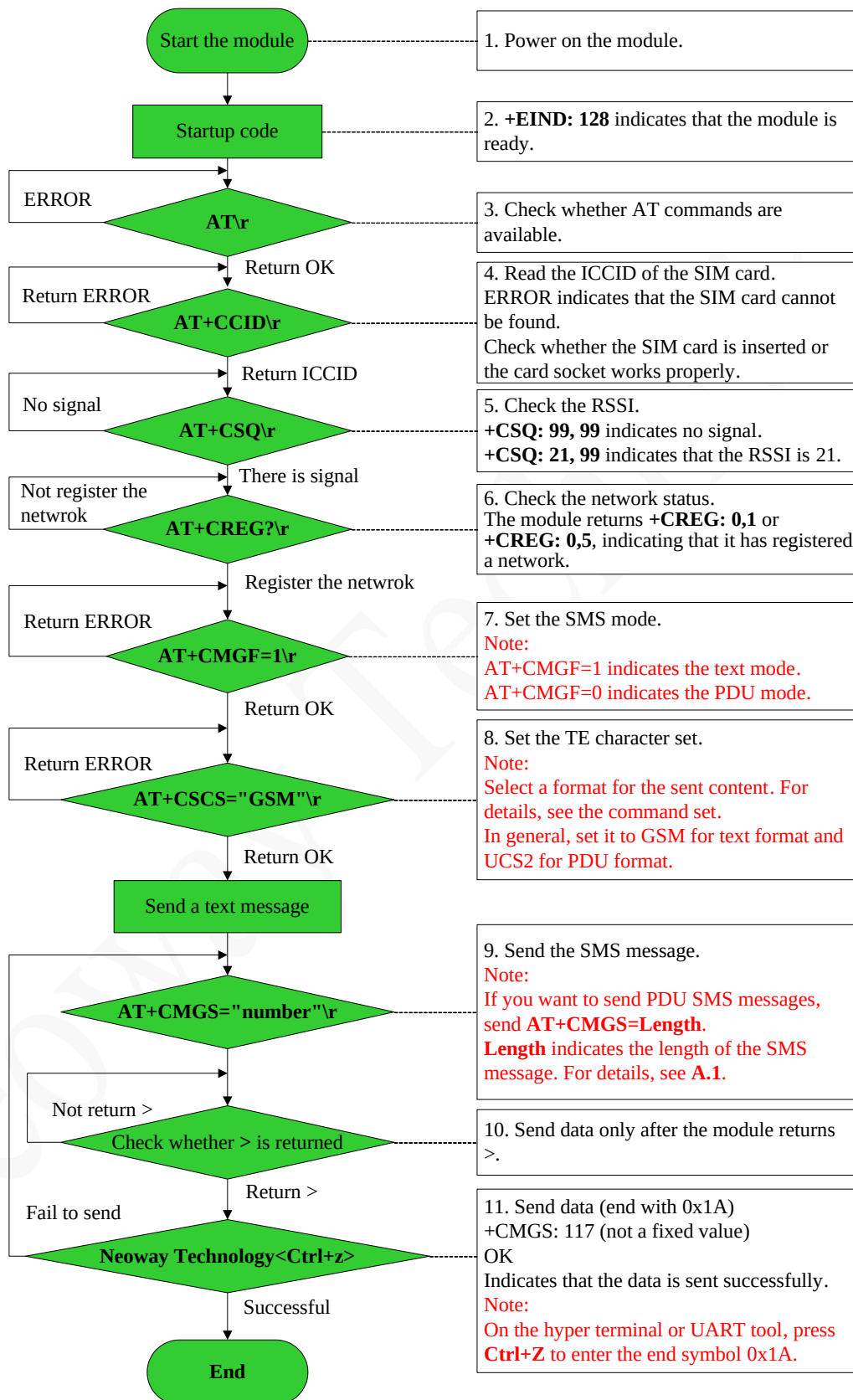
Figure A-4 Flowchart of receiving SMS messages





A.6 Flowchart of Sending SMS Messages

Figure A-5 Flowchart of sending SMS messages



A.7 Common AT Commands for SMS TX/RX

Function	Format	Example	Description
Set text mode	AT+CMGF=1	AT+CMGF=1 OK	AT commands to be set when sending SMS messages in text mode
To set the TE character set	AT+CSCS="GSM"	AT+CSCS="GSM" OK	
Set PDU mode	AT+CMGF=0	AT+CMGF=0 OK	AT commands to be set when sending SMS messages in PDU mode
Display TE in hexadecimal	AT+CSCS="UCS2"	AT+CSCS="UCS2" OK	
Send SMS messages.	AT+CMGS="Number"	AT+CMGS"13430981508" >Shenzhen +CMGS: 232 OK	Enter the AT+CMGS"13430981508" command and press Enter (r). When > is displayed, enter the message content (Shenzhen) and press Ctrl+Z (character 0x1A) to sent the message.
Notice mode of new messages	AT+CNMI=2,1,0,0,0	AT+CNMI=2,1,0,0,0 (Received SMS message and message SN) +CMTI: "SM", 1	The CNMI can be set to 2,2,0,0,0.
Read SMS messages	AT+CMGR=1	AT+CMGR=1 +CMGR:"REC UNREAD", "13430981508",, 2012/09/08 16:30:08+32" Shenzhen Neoway Technology OK	
Read all SMS messages	AT+CMGL="ALL"	AT+CMGL ="ALL" List all messages	- If AT+CMGF=0, the command to read all SMS messages is AT+CMGL =4. - The unread SMS messages change to read messages after all messages are listed.
Delete SMS messages	AT+CMGD=n	AT+CMGD=1 OK	Delete SMS messages based on the sequence number.
Delete all messages.	AT+CMGD=0,4	AT+CMGD=0,4 OK	Delete SMS messages as required. For details, see the AT commands.

Query the number of SMS messages	AT+CPMS?	AT+CPMS? +CPMS: "SM", 1, 50, "SM", 1, 50, "MT", 1, 50 OK	1: Indicates the number of the messages. 50: indicates the number of messages that can be stored.
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A.8 Flowchart of AT Commands To Log In to the FTP Server

Figure A-6 Flowchart of AT commands to log in to the FTP server

