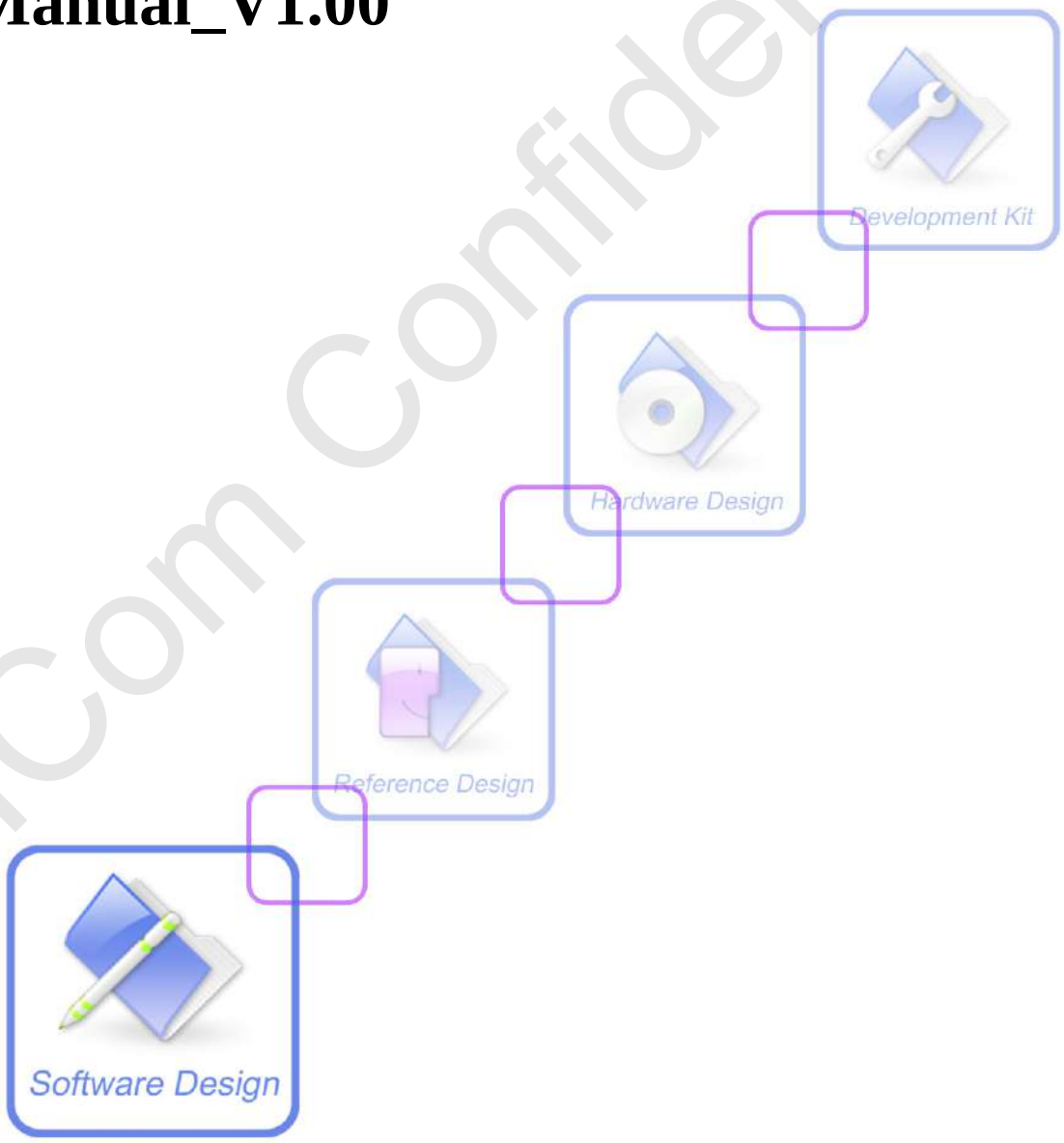
R800 Series_AT Command Manual_V1.00



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1 Introduction

1.1 Scope of the document

This document presents the AT Command Set for SIMCom R800C Series.

1.2 Related documents

You can visit the SIMCom Website using the following link:
http://www.simcom.com

1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:
ME (Mobile Equipment);
MS (Mobile Station);
TA (Terminal Adapter);
DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface. The controlling device at the other end of the serial line is referred to as following term:
TE (Terminal Equipment);
DTE (Data Terminal Equipment) or plainly "the application" which is running on an embedded system;

1.4 AT Command syntax

The "AT" or "at" or “aT” or “At”prefix must be set at the beginning of each Command line. To terminate a Command line enter **<CR>**.
Commands are usually followed by a response that includes.
"<CR><LF><response><CR><LF>"
Throughout this document, only the responses are presented, **<CR><LF>** are omitted intentionally.

The AT Command set implemented by R800C Series is a combination of 3GPP TS 27.005, 3GPP TS 27.007 and ITU-T recommendation V.25ter and the AT commands developed by SIMCom.
Note: The string shall be ignored since it is used for synchronization with PC tool. Only enter AT Command through serial port after R800C Series is powered on and Unsolicited Result Code "RDY" is received from serial port. If auto-bauding is enabled, the Unsolicited Result Codes "RDY" and so on are not indicated when you start up the ME, and the "AT" prefix must be set at the beginning of each command line.

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All these AT commands can be split into three categories syntactically: "**basic**", "**S parameter**", and "**extended**". These are as follows:

1.4.1 Basic syntax

These AT commands have the format of "**AT<*x*><*n*>**", or "**AT&<x><n>**", where "**<*x*>**"is the Command, and "**<*n*>**"is/are the argument(s) for that Command. An example of this is "**ATE<*n*>**", which tells the DCE whether received characters should be echoed back to the DTE according to the value of "**<*n*>**". "**<*n*>**" is optional and a default will be used if missing.

1.4.2 S Parameter syntax

These AT commands have the format of "**ATS<*n*>=<*m*>**", where "**<*n*>**" is the index of the **S** register to set, and "**<*m*>**"is the value to assign to it. "**<*m*>**" is optional; if it is missing, then a default value is assigned.

1.4.3 Extended Syntax

These commands can operate in several modes, as in the following table:

Table 1: Types of AT commands and responses

Test Command	AT+<*x*>=?	The mobile equipment returns the list of parameters and value ranges set with the corresponding Write Command or by internal processes.
Read Command	AT+<*x*>?	This command returns the currently set value of the parameter or parameters.
Write Command	AT+<x>=<…>	This command sets the user-definable parameter values.
Execution Command	AT+<x>	The execution command reads non-variable parameters affected by internal processes in the GSM engine.

1.4.4 Combining AT commands on the same Command line

You can enter several AT commands on the same line. In this case, you do not need to type the "**AT**" or "**at**" prefix before every command. Instead, you only need type "**AT**" or "**at**" the beginning of the command line. Please note to use a semicolon as the command delimiter after an extended command; in basic syntax or S parameter syntax, the semicolon need not enter, for example: ATE1Q0S0=1S3=13V1X4;+IFC=0,0;+IPR=115200;&W.

The Command line buffer can accept a maximum of 556 characters (counted from the first command without "AT" or "at" prefix). If the characters entered exceeded this number then none of the Command will executed and TA will return "**ERROR**".

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1.4.5 Entering successive AT commands on separate lines

When you need to enter a series of AT commands on separate lines, please Note that you need to wait the final response (for example OK, CME error, CMS error) of last AT Command you entered before you enter the next AT Command.

1.5 Supported character sets

The R800C Series AT Command interface defaults to the **IRA** character set. The R800C Series supports the following character sets:
GSM format
UCS2
HEX
IRA
PCCP936
The character set can be set and interrogated using the "**AT+CSCS**" Command (3GPP TS 27.007). The character set is defined in GSM specification 3GPP TS 27.005.

The character set affects transmission and reception of SMS and SMS Cell Broadcast messages, the entry and display of phone book entries text field and SIM Application Toolkit alpha strings.

1.6 Flow control

Flow control is very important for correct communication between the GSM engine and DTE. For in the case such as a data or fax call, the sending device is transferring data faster than the receiving side is ready to accept. When the receiving buffer reaches its capacity, the receiving device should be capable to cause the sending device to pause until it catches up.

There are basically one approaches to achieve data flow control: hardware flow control. R800C Series support hardware flow control.
In Multiplex mode, it is recommended to use the hardware flow control.

1.6.1 Hardware flow control (RTS/CTS flow control)

Hardware flow control achieves the data flow control by controlling the RTS/CTS line. When the data transfer should be suspended, the CTS line is set inactive until the transfer from the receiving buffer has completed. When the receiving buffer is ok to receive more data, CTS goes active once again.

To achieve hardware flow control, ensure that the RTS/CTS lines are present on your application platform.

1.7 Definitions

1.7.1 Parameter Saving Mode

For the purposes of the present document, the following syntactical definitions apply:

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- **NO_SAVE**: The parameter of the current AT command will be lost if module is rebooted or current AT command doesn't have parameter.
- **AUTO_SAVE:** The parameter of the current AT command will be kept in NVRAM automatically, and it won't be lost if module is rebooted.
- **AT&W_SAVE**: The parameter of the current AT command will be kept in NVRAM by sending the command of "AT&W".

1.7.2 Max Response Time

Max response time is estimated maximum time to get response, the unit is seconds.

"-" means this AT command doesn’t care the response time.

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2 AT Commands According to V.25TER

These AT Commands are designed according to the ITU-T (International Telecommunication Union, Telecommunication sector) V.25ter document.

2.1 Overview of AT Commands According to V.25TER

Command	Description
A/	Re-issues the last command given
ATE	Set command echo mode
ATH	Disconnect existing connection
ATI	Display product identification information
+++	Switch from data mode or ppp online mode to command mode
ATO	Switch from command mode to data mode
ATS0	Set number of rings before automatically answering the call
ATS3	Set command line termination character
ATS4	Set response formatting character
ATS5	Set command line editing character
ATS10	Set disconnect delay after indicating the absence of data carrier
ATV	TA response format
ATX	Set connect result code format and monitor call progress
ATZ	Reset default configuration
AT&C	Set DCD function mode
AT&D	Set DTR function mode
AT&F	Factory defined configuration
AT&W	Store active profile
AT+GMI	Request manufacturer identification
AT+GMM	Request TA model identification
AT+GMR	Request TA revision identification of software release
AT+GOI	Request global object identification
AT+GSN	Request TA serial number identification (IMEI)
AT+ICF	Set TE-TA control character framing
AT+IFC	Set TE-TA local data flow control
AT+IPR	Set TE-TA fixed local rate

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2.2 Detailed Description of AT Commands According to V.25TER

2.2.1 A/ Re-issues the Last Command Given

A/ Re-issues the Last Command Given	
Execution Command **A/**	Response Re-issues the previous Command
Reference V.25ter	Note

2.2.2 ATE Set Command Echo Mode

ATE Set Command Echo Mode	
Execution Command **ATE<value>**	Response This setting determines whether or not the TA echoes characters received from TE during Command state. **OK**
	Parameters **<value>** 0 Echo mode off 1 Echo mode on
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.3 ATH Disconnect Existing Connection

ATH Disconnect Existing Connection	
Execution Command **ATH**	Response Disconnect existing call by local TE from Command line and terminate call **OK** Note: OK is issued after circuit 109(DCD) is turned off, if it was previously on.
Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference V.25ter	Note

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2.2.4 ATI Display Product Identification Information

ATI Display Product Identification Information	
Execution Command **ATI**	Response TA issues product information text Example: R800C R1850 **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	

2.2.5 +++ Switch from Data Mode or PPP Online Mode to Command Mode

+++ Switch from Data Mode or PPP Online Mode to Command Mode	
Execution Command +++	Response The +++ character sequence causes the TA to cancel the data flow over the AT interface and switch to Command mode. This allows you to enter AT Command while maintaining the data connection to the remote server. **OK** To prevent the +++ escape sequence from being misinterpreted as data, it should comply to following sequence: No characters entered for T1 time (＞1 second) "+++" characters entered with no characters in between (＜0.5 second) No characters entered for T1 timer (＞0.5 second) Switch to Command mode, otherwise go to step 1.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	Note To return from Command mode back to data mode: Enter **ATO**.

2.2.6 ATO Switch from Command Mode to Data Mode

ATO Switch from Command Mode to Data Mode	
Execution Command	Response TA resumes the connection and switches back from command mode to data

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ATO[n]	mode. **CONNECT** If connection is not successfully resumed **connect ppp first** **OK** else TA returns to data mode from command mode **CONNECT <text>** Note: <**text**> only if parameter setting **ATX>0**
	Parameter **<n>** 0 Switch from command mode to data mode.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	V.25ter

2.2.7 ATS0 Set Number of Rings before Automatically Answering the Call

ATS0 Set Number of Rings before Automatically Answering the Call	
Read Command **ATS0?**	Response **<n>** **OK**
	Parameters See Write Command
Write Command **ATS0=<n>**	Response This parameter setting determines the number of rings before auto-answer. **OK** **ERROR**
	Parameters **<n>** 0 Automatic answering is disable. 1-255 Number of rings the modem will wait for before answering the phone if a ring is detected.
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	V.25ter

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2.2.8 ATS3 Set Command Line Termination Character

ATS3 Set Command Line Termination Character	
Read Command **ATS3?**	Response **<n>** **OK**
	Parameters See Write Command
Write Command **ATS3=<n>**	Response This parameter setting determines the character recognized by TA to terminate an incoming command line. The TA also returns this character in output. **OK** **ERROR**
	Parameters **<n>** 13 Command line termination character
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note Default 13 = CR. It only supports default value.

2.2.9 ATS4 Set Response Formatting Character

ATS4 Set Response Formatting Character	
Read Command **ATS4?**	Response **<n>** **OK**
	Parameters See Write Command
Write Command **ATS4=<n>**	Response This parameter setting determines the character generated by the TA for result code and information text. **OK** **ERROR**
	Parameters **<n>** 10 Response formatting character
Parameter Saving	AT&W_SAVE

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Mode	
Max Response Time	-
Reference V.25ter	Note Default 10 = LF. It only supports default value.

2.2.10 ATS5 Set Command Line Editing Character

ATS5 Set Command Line Editing Character	
Read Command **ATS5?**	Response **<n>** **OK**
	Parameters See Write Command
Write Command **ATS5=<n>**	Response This parameter setting determines the character recognized by TA as a request to delete from the command line the immediately preceding character. **OK** **ERROR**
	Parameters **<n>** 0-8-127 Response formatting character
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note Default 8 = Backspace.

2.2.11 ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier

ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier	
Read Command **ATS10?**	Response **<n>** **OK**
	Parameters See Write Command
Write Command **ATS10=<n>**	Response This parameter setting determines the amount of time that the TA will

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	remain connected in absence of data carrier. If the data carrier is once more detected before disconnecting, the TA remains connected. **OK** **ERROR**
	Parameters **<n>** 1-15-254 Number of tenths seconds of delay
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.12 ATV TA Response Format

ATV TA Response Format	
Execution Command **ATV<value>**	Response This parameter setting determines the contents of the header and trailer transmitted with result codes and information responses. When <**value**>=0 **0** When <**value**>=1 **OK**
	Parameters **<value>** 0 Information response: **<text><CR><LF>** Short result code format: **<numeric code><CR><LF>** 1 Information response: **<CR><LF><text><CR><LF>** Long result code format: **<CR><LF><verbose code><CR><LF>** The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

ATV1	**ATV0**	**Description**
OK	0	Acknowledges execution of a Command
CONNECT	1	A connection has been established; the DCE is moving from

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		Command state to online data state
NO CARRIER	3	The connection has been terminated or the attempt to establish a connection failed
ERROR	4	Command not recognized, Command line maximum length exceeded, parameter value invalid, or other problem with processing the Command line
CONNECT <text>	Manufacturer-specific	Same as CONNECT, but includes manufacturer-specific text that may specify DTE speed, line speed, error control, data compression, or other status

2.2.13 ATX Set CONNECT Result Code Format and Monitor Call Progress

ATX Set CONNECT Result Code Format and Monitor Call Progress	
Execution Command **ATX<value>**	Response This parameter setting determines whether or not the TA detected the presence of dial tone and busy signal and whether or not TA transmits particular result codes. **OK** **ERROR**
	Parameters **<value>** 0 **CONNECT** result code only returned, dial tone and busy detection are both disabled. 1 **CONNECT<text>** result code only returned, dial tone and busy detection are both disabled. 2 **CONNECT<text>** result code returned, dial tone detection is enabled, busy detection is disabled. 3 **CONNECT<text>** result code returned, dial tone detection is disabled, busy detection is enabled. 4 **CONNECT<text>** result code returned, dial tone and busy detection are both enabled.
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.14 ATZ Reset Default Configuration

ATZ Reset Default Configuration	
Execution Command **ATZ[<value>]**	Response TA sets all current parameters to the user defined profile. **OK**

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	ERROR
	Parameters **<value>** 0 Restore profile 0
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	a

2.2.15 AT&C Set DCD Function Mode

AT&C Set DCD Function Mode	
Execution Command **AT&C<value>**	Response This parameter determines how the state of circuit 109 **(DCD)** relates to the detection of received line signal from the distant end. **OK** **ERROR**
	Parameters **<value>** 0 **DCD** line is always ON 1 **DCD** line is ON only in the presence of data carrier
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.16 AT&D Set DTR Function Mode

AT&D Set DTR Function Mode	
Execution Command **AT&D[<value>]**	Response This parameter determines how the TA responds when circuit 108/2 (DTR) is changed from the ON to the OFF condition during data mode. **OK** **ERROR**
	Parameters **<value>** 0 TA ignores status on DTR. 1 ON->OFF on DTR: Change to Command mode with remaining the connected call.

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	2 ON->OFF on DTR: Disconnect call, change to Command mode. During state DTR = OFF is auto-answer off.
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.17 AT&F Factory Defined Configuration

AT&F Factory Defined Configuration	
Execution Command **AT&F[<value>]**	Response TA sets all current parameters to the manufacturer defined profile. **OK**
	Parameters **<value>** 0 Set all TA parameters to manufacturer defaults.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	

2.2.18 AT&W Store Active Profile

AT&W Store Active Profile	
Execution Command **AT&W[<n>]**	Response TA stores the current parameter setting in the user defined profile. **OK** **ERROR**
	Parameters **<n>** 0 Store the current configuration in profile 0
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	Note The user defined profile is stored in non volatile memory.

Parameter stored by &W

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Command	Parameter name
ATS0	<num>
ATS3	<char>
ATS4	<char>
ATS5	<char>
ATS10	<time>
ATV	<format>
ATX	<result>
AT&C	<behavior>
AT&D	<behavior>
AT+CLTS	<timestamp>
AT+CREG	<n>
AT+CGREG	<n>
AT+CMEE	<n>
AT+CSCLK	<n>
AT+CIURC	<mode>
AT+CFGRI	<mode>
AT+CMGF	<mode>
AT+CNMI	<mode>,<mt>,<bm>,<ds>,<bfr>
AT+CSCS	<chest>
AT+CSGS	<mode>
AT+CNETLIGHT	<mode>
AT+IPR	<n>
AT+IFC	<TA_by_TE>, <TE_by_TA>
AT+ICF	<format>,<parity>

2.2.19 AT+GMI Request Manufacturer Identification

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

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Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.20 AT+GMM Request TA Model Identification

AT+GMM Request TA Model Identification	
Test Command **AT+GMM=?**	Response **OK**
Execution Command **AT+GMM**	TA reports one or more lines of information text which permit the user to identify the specific model of device. **<model>** **OK**
	Parameters **<model>** Product model identification text
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	Note

2.2.21 AT+GMR Request TA Revision Identification of Software Release

AT+GMR Request TA Revision Identification of Software Release	
Test Command **AT+GMR=?**	Response **OK**
Execution Command **AT+GMR**	TA reports one or more lines of information text which permit the user to identify the revision of software release. **Revision: <revision>** **OK**
	Parameters **<revision>** Revision of software release
Parameter Saving Mode	NO_SAVE

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Max Response Time	-
Reference V.25ter	Note

2.2.22 AT+GOI Request Global Object Identification

AT+GOI Request Global Object Identification	
Test Command **AT+GOI=?**	Response **OK**
Execution Command **AT+GOI**	Response TA reports one or more lines of information text which permit the user to identify the device, based on the ISO system for registering unique object identifiers. **<Object Id>** **OK**
	Parameters **<Object Id>** Identifier of device type see X.208, 209 for the format of <Object Id>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference V.25ter	Note

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

AT+GSN Request TA Serial Number Identification(IMEI)	
Test Command **AT+GSN=?**	Response **OK**
Execution Command **AT+GSN**	Response TA reports the IMEI (international mobile equipment identifier) number in information text which permit the user to identify the individual ME device. **<sn>** **OK**
	Parameters **<sn>** IMEI of the telephone(International Mobile station Equipment Identity)

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Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference V.25ter	Note The serial number (IMEI) is varied by individual ME device.

2.2.24 AT+ICF Set TE-TA Control Character Framing

AT+ICF Set TE-TA Control Character Framing	
Test Command **AT+ICF=?**	Response **+ICF: (**list of supported **<format>**s**),(**list of supported **<parity>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+ICF?**	Response **+ICF: <format>,<parity>** **OK**
	Parameters See Write Command
Write Command **AT+ICF=[<format>][,<parity>]**	Response This parameter setting determines the serial interface character framing format and parity received by TA from TE. **OK**
	Parameters **<format>** 2 8 data 1 parity 1 stop 3 8 data 0 parity 1 stop 4 7 data 0 parity 2 stop 6 7 data 0 parity 1 stop **<parity>** 0 odd 1 even 3 space (0)
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note The Command is applied for Command state;

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	In **<format>** parameter, "0 parity" means no parity; When <**format**> is 2 , <**parity**> can not be 3; The **<parity>** field is ignored if the **<format>** field specifies no parity and string "**+ICF: <format>,255**" will be response to "**AT+ICF**? " Command.

2.2.25 AT+IFC Set TE-TA Local Data Flow Control

AT+IFC Set TE-TA Local Data Flow Control	
Test Command **AT+IFC=?**	Response **+IFC: (**list of supported **<dce_by_dte>**s**),(**list of supported **<dte_by_dce>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+IFC?**	Response **+IFC: <dce_by_dte>,<dte_by_dce>** **OK**
	Parameters See Write Command
Write Command **AT+IFC=<dce_by_dte>[,<dte_by_dce>]**	Response This parameter setting determines the data flow control on the serial interface for data mode. **OK**
	Parameters **<dce_by_dte>** Specifies the method will be used by TE at receive of data from TA 0 No flow control 2 Hardware flow control **<dte_by_dce>**Specifies the method will be used by TA at receive of data from TE 0 No flow control 2 Hardware flow control
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note

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2.2.26 AT+IPR Set TE-TA Fixed Local Rate

AT+IPR Set TE-TA Fixed Local Rate	
Test Command **AT+IPR=?**	Response **+IPR: (0,2400,4800,9600,14400,19200,28800,33600,38400,57600,115200)** **OK**
	Parameters See Write Command
Read Command **AT+IPR?**	Response **+IPR: <rate>** **OK**
	Parameters See Write Command
Write Command **AT+IPR=<rate>**	Response This parameter setting determines the data rate of the TA on the serial interface. The rate of Command takes effect following the issuance of any result code associated with the current Command line. **OK**
	Parameters **<rate>** Baud rate per second 0 (Auto-bauding) 2400 4800 9600 14400 19200 28800 33600 38400 57600 115200
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference V.25ter	Note Factory setting is "**AT+IPR=0**"(auto-bauding).

2.2.27 Auto-bauding

Synchronization between DTE and DCE ensure that DTE and DCE are correctly synchronized and the baud rate used by the DTE is detected by the DCE (= ME).To allow the baud rate to be

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synchronized, simply issue an "AT" string. This is necessary when you start up the module while auto-bauding is enabled. It is recommended to wait 3 to 5 seconds before sending the first AT character. Otherwise undefined characters might be returned.

If you want to use auto-bauding and auto-answer at the same time, you can easily enable the DTE-DCE synchronization, when you activate auto-bauding first and then configure the auto-answer mode.

Restrictions on auto-bauding operation

The serial interface has to be operated at 8 data bits, no parity and 1 stop bit (factory setting).
Only the strings "AT" can be detected when auto-bauding is enabled.
AT+IPR=0 setting to auto-bauding will take effect after module resets.
Unsolicited Result Codes that may be issued before the ME detects the new baud rate (by receiving the first AT Command string) will be sent at the previously detected baud rate.The Unsolicited Result Codes "RDY" and so on are not indicated when you start up the ME while auto-bauding is enabled.

It is not recommended to switch to auto-bauding from a baud rate that cannot be detected by the auto-bauding mechanism (e.g. 300 baud). Responses to +IPR=0 and any commands on the same line might be corrupted.

Auto-bauding and baud rate after restart

The most recently detected baud rate can not be stored when module is powered down.

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3 AT Commands According to 3GPP TS 27.007

3.1 Overview of AT Command According to 3GPP TS 27.007

Command	Description
AT+CEER	Extended error report
AT+CGMI	Request manufacturer identification
AT+CGMM	Request model identification
AT+CGMR	Request TA revision identification of software release
AT+CGSN	Request product serial number identification (identical with +GSN)
AT+CSCS	Select TE character set
AT+CIMI	Request international mobile subscriber identity
AT+CLCK	Facility lock
AT+CMEE	Report mobile equipment error
AT+COPS	Operator selection
AT+CPBF	Find phonebook entries
AT+CPBR	Read current phonebook entries
AT+CPBS	Select phonebook memory storage
AT+CPBW	Write phonebook entry
AT+CPIN	Enter PIN
AT+CPWD	Change password
AT+CREG	Network registration
AT+CRSM	Restricted SIM access
AT+CSQ	Signal quality report
AT+CMUX	Multiplexer control
AT+CNUM	Subscriber number
AT+CPOL	Preferred operator list
AT+COPN	Read operator names
AT+CFUN	Set phone functionality
AT+CCLK	Clock
AT+CBC	Battery charge
AT+CUSD	Unstructured supplementary service data
AT+CSSN	Supplementary services notification

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3.2 Detailed Descriptions of AT Command According to 3GPP TS 27.007

3.2.1 AT+CEER Extended Error Report

AT+CEER Extended Error Report	
Test Command **AT+CEER=?**	Response **+CEER: (**list of supported **<n>**s**)** **OK**
	Parameters **<n>** 1 The reason for last call release as number code
Read Command **AT+CEER?**	Response **+CEER: <n>** **OK**
	Parameters See Test Command
Execution Command **AT+CEER**	Response TA returns an extended report of the reason for the last call release. **+CEER: <report>** **OK**
	Parameters **<report>** If **AT+CEER=1**, return **+CEER: <c>** **<c>** number representing the Cause
	Parameters **<c>(number)** **<s>(string)** 0 (No cause) 1 (unassigned (unallocated) number) 3 (no route to destination) 6 (channel unacceptable) 8 (operator determined barring) 16 (normal call clearing) 17 (user busy) 18 (no user responding) 19 (user alerting, no answer) 21 (call rejected) 22 (number changed) 26 (non-selected user clearing)

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	27	(destination out of order)
	28	(invalid number format (incomplete number))
	29	(facility rejected)
	30	(response to STATUS ENQUIRY)
	31	(normal, unspecified)
	34	(emergency call not possible)
	38	(network out of order)
	41	(temporary failure)
	42	(switching equipment congestion)
	43	(access information discarded)
	44	(requested circuit/channel not available)
	47	(resource unavailable, unspecified)
	49	(quality of service unavailable)
	50	(Requested facility not subscribed)
	55	(Incoming calls barred within the CUG)
	57	(bearer capability not authorized)
	58	(bearer capability not presently available)
	63	(service or option not available, unspecified)
	68	(ACM equal to or greater than ACMmax)
	65	(bearer service not implemented)
	69	(Requested facility not implemented)
	70	(only restricted digital information bearer capability is available)
	79	(service or option not implemented,unspecified)
	81	(invalid transaction identifier value)
	87	(user not member of CUG)
	88	(incompatible destination)
	91	(invalid transit network selection)
	95	(semantically incorrect message)
	96	(invalid mandatory information)
	97	(message type non-existent or not implemented)
	98	(message type not compatible with protocol state)
	99	(information element non-existent or not implemented)
	100	(conditional IE error)

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	101 (message not compatible with protocol state) 102 (recovery on timer expiry) 111 (protocol error, unspecified) 127 (interworking, unspecified) 255 (unknown)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.2 AT+CGMI Request Manufacturer Identification

AT+CGMI Request Manufacturer Identification	
Test Command **AT+CGMI=?**	Response **OK**
Execution Command **AT+CGMI**	Response TA returns manufacturer identification text. **<manufacturer>** **OK**
	Parameters **<manufacturer>** The ID of manufacturer
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.3 AT+CGMM Request Model Identification

AT+CGMM Request Model Identification	
Test Command **AT+CGMM=?**	Response **OK**
Execution Command **AT+CGMM**	Response TA returns product model identification text. **<model>**

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	OK
	Parameters **<model>** Product model identification text
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.4 AT+CGMR Request TA Revision Identification of Software Release

AT+CGMR Request TA Revision Identification of Software Release	
Test Command **AT+CGMR=?**	Response **OK**
Execution Command **AT+CGMR**	Response TA returns product software version identification text. **Revision: <revision>** **OK**
	Parameters **<revision>** Product software version identification text
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.5 AT+CGSN Request Product Serial Number Identification (Identical with +GSN)

AT+CGSN Request Product Serial Number Identification (Identical with +GSN)	
Test Command **AT+CGSN=?**	Response **OK**
Execution Command **AT+CGSN**	Response see +GSN **<sn>** **OK**
	Parameters **<sn>** International mobile equipment identity (IMEI)

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Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.6 AT+CSCS Select TE Character Set

AT+CSCS Select TE Character Set	
Test Command **AT+CSCS=?**	Response **+CSCS: (**list of supported **<chset>**s**)** **OK**
	Parameters **<chset>** "GSM" GSM 7 bit default alphabet (3GPP TS 23.038); "UCS2" 16-bit universal multiple-octet coded character set (ISO/IEC10646); UCS2 character strings are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99 "IRA" International reference alphabet (ITU-T T.50) "HEX" Character strings consist only of hexadecimal numbers from 00 to FF; "PCCP936" PC character set Code
Read Command **AT+CSCS?**	Response **+CSCS: <chset>** **OK**
	Parameters See Test Command
Write Command **AT+CSCS=<chset>**	Response Sets which character set **<chset>** are used by the TE. The TA can then convert character strings correctly between the TE and ME character sets. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Test Command
Parameter Saving Mode	AT&W_SAVE
Max Response	-

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Time	
Reference 3GPP TS 27.007 [13]	Note

3.2.7 AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI Request International Mobile Subscriber Identity	
Test Command **AT+CIMI=?**	Response **OK**
Execution Command **AT+CIMI**	Response TA returns <**IMSI**>for identifying the individual SIM which is attached to ME. **<IMSI>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<IMSI>** International Mobile Subscriber Identity (string without double quotes)
Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference 3GPP TS 27.007 [13]	Note

3.2.8 AT+CLCK Facility Lock

AT+CLCK Facility Lock	
Test Command **AT+CLCK=?**	Response **+CLCK: (**list of supported **<fac>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]**	Response This Command is used to lock, unlock or interrogate a ME or a network facility <**fac**>. Password is normally needed to do such actions. When querying the status of a network service (<**mode**>=2) the response line for 'not active' case (<**status**>=0) should be returned only if service is not

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	active for any <**class**>. If <**mode**>≠2 and Command is successful **OK** If <**mode**>=2 and Command is successful **+CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<fac>** "AO" BAOC (Barr All Outgoing Calls) "OI" BOIC (Barr Outgoing International Calls) "OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" BAIC (Barr All Incoming Calls) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "FD" SIM card or active application in the UICC (GSM or USIM) fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code. "PN" Network Personalization, Correspond to NCK code "PU" Network subset Personalization Correspond to NSCK code "PP" Service Provider Personalization Correspond to SPCK code **<mode>** 0 unlock 1 lock 2 query status **<passwd>** String type (Shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD) **<class>** 1 Voice (telephony) 2 Data refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128) 4 Fax (facsimile services) 7 All classes

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	<status> 0 Not active 1 Active
Parameter Saving Mode	NO_SAVE
Max Response Time	15s
Reference 3GPP TS 27.007 [14]	Note ● CME errors if SIM not inserted or PIN is not entered. ● Part of the projects supported by this AT command, please refer to chapter 21 for details.

3.2.9 AT+CMEE Report Mobile Equipment Error

AT+CMEE Report Mobile Equipment Error	
Test Command **AT+CMEE=?**	Response **+CMEE: (**list of supported **<n>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CMEE?**	Response **+CMEE: <n>** **OK**
	Parameters See Write Command
Write Command **AT+CMEE=[<n>]**	Response TA disables or enables the use of result code **+CME ERROR: <err>** as an indication of an error relating to the functionality of the ME. **OK** If error is related to ME functionality: **+CME ERROR:<err>**
	Parameters **<n>** 0 Disable **+CME ERROR: <err>** result code and use ERROR instead. 1 Enable **+CME ERROR: <err>** result code and use numeric <**err**> 2 Enable **+CME ERROR: <err>** result code and use verbose <**err**> values
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-

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Reference	Note
3GPP TS 27.007 [13]	

3.2.10 AT+COPS Operator Selection

AT+COPS Operator Selection	
Test Command **AT+COPS=?**	Response TA returns a list of quadruplets, each representing an operator present in the network. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM, and other networks. **+COPS: (**list of supported**<stat>,**long alphanumeric**<oper>,**long alphanumeric**<oper>,**numeric **<oper>)**s**[,,(**list of supported **<mode>**s**),** **(**list of supported **<format>**s**)]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Read Command **AT+COPS?**	Response TA returns the current mode and the currently selected operator. If no operator is selected, <**format**> and <**oper**> are omitted. **+COPS: <mode>[,<format>, <oper>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+COPS=<mode>,[<format>[,<oper>]]**	Response TA forces an attempt to select and register the GSM network operator. If the selected operator is not available, no other operator shall be selected (except <**mode**>=4). The selected operator name format shall apply to further read commands (**AT+COPS?**). **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<stat>** 0 Unknown 1 Operator available

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	2 Operator current 3 Operator forbidden **<oper>** Refer to [27.007] operator in format as per <**format**> **<mode>** 0 Automatic mode; <**oper**> field is ignored 1 Manual (<**oper**> field shall be present, and <**AcT**> optionally) 2 manual deregister from network 3 set only <**format**> (for read Command **+COPS?**) - not shown in Read Command response 4 Manual/automatic (<**oper**> field shall be present); if manual selection fails, automatic mode (<**mode**>=0) is entered **<format>** 0 Long format alphanumeric <**oper**> 2 Numeric <**oper**>; GSM Location Area Identification number
Parameter Saving Mode	
Max Response Time	Test command: 45 seconds Write command: 120 seconds
Reference 3GPP TS 27.007 [14]	Note

3.2.11 AT+CPBF Find Phonebook Entries

AT+CPBF Find Phonebook Entries	
Test Command **AT+CPBF=?**	Response **+CPBF:** maximum length of field **<nlength>,**maximum length of field **<tlength>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CPBF=[<find text>]**	Response TA returns phone book entries(from the current phone book memory storage selected with +CPBS) which contains alphanumeric string <findtext>. **[+CPBF:<index1>,<number>,<type>,<text>]** **[[…]<CR><LF>+CBPF:<index2>,<number>,<type>,<text>]**

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	OK
	Parameters **<findtext>** String type(string should be included in quotation marks) field of maximum length <**tlength**> in current TE character set specified by +CSCS. **<index1>** Integer type values in the range of location numbers of phone book memory **<index2>**Integer type values in the range of location numbers of phone book memory **<number>** String type (string should be included in quotation marks) phone number of format <**type**> **<type>** Type of address octet in integer format ; 129 Unknown type 145 International number type **<text>** String type (string should be included in quotation marks) field of maximum length <**tlength**> in current TE character set specified by **+CSCS**. **<nlength>** Integer type value indicating the maximum length of field <**number**> **<tlength>** Integer type value indicating the maximum length of field <**text**>
Parameter Saving Mode	NO_SAVE
Max Response Time	30 seconds (complete reading of a 250 records full phonebook) 3 seconds(string present in a 250 records full phonebook) 1 second(string not present) We use the China Mobile sim cards for testing, which produced by Axalto at 2010 for Shanghai. Use other sim cards may have different results.
Reference 3GPP TS 27.007 [13]	Note

3.2.12 AT+CPBR Read Current Phonebook Entries

AT+CPBR Read Current Phonebook Entries	
Test Command **AT+CPBR=?**	Response TA returns location range supported by the current storage as a compound value and the maximum lengths of <**number**> and <**text**> fields. **+CPBR: (**list of supported **<index>**s**), <nlength>, <tlength>** **OK**
	Parameters **<index>** Location number

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	<nlength> Max. length of phone number **<tlength>** Max. length of text for number
Write Command **AT+CPBR=<index1>[,<index2>]**	Response TA returns phone book entries in location number range <**index1**>... <**index2**> from the current phone book memory storage selected with **+CPBS**. If <**index2**> is left out, only location <**index1**> is returned. **+CPBR:<index1>,<number>,<type>,<text>** **[[…]<CR><LF>+CPBR: <index2>, <number>, <type>, <text>]** **OK**
	Parameters **<index1>** Read as of this location number **<index2>** Read to this location number **<number>** Phone number **<type>** Type of number **<text>** Text for phone number in current TE character set specified by **+CSCS**.
Parameter Saving Mode	NO_SAVE
Max Response Time	3 seconds (single reading) 30 seconds (complete reading of a 250 records full phonebook. We use the China Mobile sim cards for testing. Use other sim cards may have different results.
Reference 3GPP TS 27.007 [13]	Note

3.2.13 AT+CPBS Select Phonebook Memory Storage

AT+CPBS Select Phonebook Memory Storage	
Test Command **AT+CPBS=?**	Response **+CPBS: (**list of supported **<storage>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CPBS?**	Response **+CPBS: <storage>,<used>,<total>** **OK**
	Parameters See Write Command

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Write Command **AT+CPBS=<storage>**	Response TA selects current phone book memory storage, which is used by other phone book commands. **+CPBS: <storage>,<used>,<total>** **OK**
	Parameters **<storage>** "ON" SIM (or MT) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM also). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active GSM application is present, the information in EFMSISDN under DFTelecom is selected. "SM" SIM/UICC phonebook. If a SIM card is present or if a UICC with an active GSM application is present, the EFADN under DFTelecom is selected. "ME" ME phonebook "FD" SIM fix dialing-phone book. If a SIM card is present or if a UICC with an active GSM application is present, the information in EFFDN under DFTelecom is selected "LD" active application in the UICC (GSM or USIM) or SIM card last dialling phonebook. **<used>** Integer type value indicating the total number of used locations in selected memory **<total>** Integer type value indicating the total number of locations in selected memory
Parameter Saving Mode	NO_SAVE
Max Response Time	3 seconds
Reference 3GPP TS 27.007 [13]	Note

3.2.14 AT+CPBW Write Phonebook Entry

AT+CPBW Write Phonebook Entry	
Test Command **AT+CPBW=?**	Response TA returns location range supported by the current storage, the maximum length of <**number**> field, supported number formats of the storage, and the maximum length of <**text**> field.

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	+CPBW: (list of supported **<index>**s**),<nlength>,(**list of supported **<type>**s**),<tlength>** **OK**
	Parameters See Write Command
Write Command **AT+CPBW=<index>[,<number>,[<type>,[<text>]]]**	Response TA writes phone book entry in location number <**index**> in the current phone book memory storage selected with **+CPBS**. Entry fields written are phone number <**number**> (in the format <**type**>) and text <**text**> associated with the number. If those fields are omitted, phone book entry is deleted. **OK**
	Parameters **<nlength>** Max length of phone number **<tlength>** Max length of text for number **<index>** Location number **<number>** Phone number **<type>** Type of number; 129 National number type 145 International number type 161 National number type(IDSN format) **<text>** String type (string should be included in quotation marks): text for phone number in current TE character set specified by **+CSCS**. Note: The following characters in <**text**> must be entered via the escape sequence: GSM char. Seq. Seq.(hex) Note \ \5C 5C 35 43 (backslash) " \22 5C 32 32 (string delimiter) BSP \08 5C 30 38 (backspace) NULL \00 5C 30 30 (GSM null) '0' (GSM null) may cause problems for application layer software when reading string lengths.
Parameter Saving Mode	NO_SAVE
Max Response Time	3 seconds
Reference 3GPP TS 27.007 [13]	Note

3.2.15 AT+CPIN Enter PIN

AT+CPIN Enter PIN

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Test Command **AT+CPIN=?**	Response **OK**
Read Command **AT+CPIN?**	Response TA returns an alphanumeric string indicating whether some password is required or not. **+CPIN: <code>** **OK**
	Parameters **<code>** READY MT is not pending for any password SIM PIN MT is waiting SIM PIN to be given SIM PUK MT is waiting for SIM PUK to be given PH_SIM PIN ME is waiting for phone to SIM card (antitheft) PH_SIM PUK ME is waiting for SIM PUK (antitheft) SIM PIN2 PIN2, e.g. for editing the FDN book possible only if preceding Command was acknowledged with +CME ERROR:17 SIM PUK2 Possible only if preceding Command was acknowledged with error +CME ERROR: 18.
Write Command **AT+CPIN=<pin>[,<new pin>]**	Response TA stores a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <**new pin**>, is used to replace the old pin in the SIM. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<pin>** String type; password **<new pin>** String type; If the PIN required is SIM PUK or SIMPUK2: new password
Parameter Saving Mode	NO_SAVE
Max Response Time	5s
Reference 3GPP TS 27.007 [13]	Note

3.2.16 AT+CPWD Change Password

AT+CPWD Change Password

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Test Command **AT+CPWD=?**	Response TA returns a list of pairs which present the available facilities and the maximum length of their password. **+CPWD: (**list of supported **<fac>**s), (list of supported **<pwdlength>**s**)** **OK**
	Parameters **<fac>** See Write Command **<pwdlength>** Integer max. length of password
Write Command **AT+CPWD=<fac>,<oldpwd>,<newpwd>**	Response TA sets a new password for the facility lock function. **OK**
	Parameters **<fac>** "AO" BAOC (Barr All Outgoing Calls) "OI" BOIC (Barr Outgoing International Calls) "OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) "AI" BAIC (Barr All Incoming Calls) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) "AB" All Barring services "P2" SIM PIN2 "SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code. **<oldpwd>** String type (string should be included in quotation marks): password specified for the facility from the user interface or with command. If an old password has not yet been set, <oldpwd> is not to enter. **<newpwd>** String type (string should be included in quotation marks): new password
Parameter Saving Mode	NO_SAVE
Max Response Time	15s
Reference 3GPP TS 27.007 [13]	Note

3.2.17 AT+CREG Network Registration

AT+CREG Network Registration

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Test Command **AT+CREG=?**	Response **+CREG: (**list of supported **<n>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CREG?**	Response TA returns the status of result code presentation and an integer <**stat**> which shows whether the network has currently indicated the registration of the ME. Location information elements <**lac**> and <**ci**> are returned only when <**n**>=2 and ME is registered in the network. **+CREG: <n>,<stat>[,<lac>,<ci>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CREG=<n>**	Response TA controls the presentation of an unsolicited result code **+CREG: <stat>** when <**n**>=1 and there is a change in the ME network registration status. **OK**
	Parameters **<n>** 0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code +CREG: <**stat**> 2 Enable network registration unsolicited result code with location information **+CREG: <stat>[,<lac>,<ci>]** **<stat>** 0 Not registered, MT is not currently searching a new operator to register to 1 Registered, home network 2 Not registered, but MT is currently searching a new operator to register to 3 Registration denied 4 Unknown 5 Registered, roaming **<lac>** String type (string should be included in quotation marks); two byte location area code in hexadecimal format **<ci>** String type (string should be included in quotation marks); two byte cell ID in hexadecimal format
	Unsolicited Result Code If <**n**>=1 and there is a change in the MT network registration status **+CREG: <stat>** If <**n**>=2 and there is a change in the MT network registration status or a change of the network cell:

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	+CREG: <stat>[,<lac>,<ci>]
	Parameters See Write Command
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.18 AT+CRSM Restricted SIM Access

AT+CRSM Restricted SIM Access	
Test Command **AT+CRSM=?**	Response **OK**
Write Command **AT+CRSM=<Command>[,<fileId>[,<P1>,<P2>,<P3>[,<data>]]]**	Response **+CRSM: <sw1>, <sw2>[,<response>]** **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<Command>** 176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS All other values are reserved; refer GSM 11.11. **<fileId>** Integer type; this is the identifier for an elementary data file on SIM. Mandatory for every Command except STATUS **<P1>,<P2>,<P3>** Integer type, range 0 – 255 Parameters to be passed on by the ME to the SIM; refer GSM 11.11. **<data>** Information which shall be written to the SIM (hex-decimal character format) **<sw1>, <sw2>** Integer type, range 0 - 255 Status information from the SIM about the execution of the actual Command. These parameters are delivered to the TE in both cases, on successful or failed execution of the Command;

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	refer GSM 11.11. **<response>** Response of a successful completion of the Command previously issued (hexadecimal character format)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 GSM 11.11	Note

3.2.19 AT+CSQ Signal Quality Report

AT+CSQ Signal Quality Report	
Test Command **AT+CSQ=?**	Response **+CSQ: (**list of supported **<rssi>**s**),(**list of supported **<ber>**s**)** **OK**
Execution Command **AT+CSQ**	Response **+CSQ: <rssi>,<ber>** **OK** If error is related to ME functionality: **+CME ERROR: <err>** Execution Command returns received signal strength indication **<rssi>** and channel bit error rate **<ber>** from the ME. Test Command returns values supported by the TA.
	Parameters **<rssi>** 0 -115 dBm or less 1 -111 dBm 2...30 -110... -54 dBm 31 -52 dBm or greater 99 not known or not detectable **<ber>** (in percent): 0...7 As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4 99 Not known or not detectable
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

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3.2.20 AT+CMUX Multiplexer Control

AT+CMUX Multiplexer Control	
Test Command **AT+CMUX=?**	Response **+CMUX: (0,1),(0),(1-6),(1-2048),(1-255),(0-100),(2-255),(1-255),(1-7)** **OK**
	Parameters See Write Command
Read Command **AT+CMUX?**	Response: **+CMUX:[<mode>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]]]** **OK** **ERROR**
	Parameters **<mode>** Multiplexer transparency mechanism 0 Basic option 1 Adv option **<subset>** The way in which the multiplexer control channel is set up 0 UIH frames used only **<port_speed>** Transmission rate 1 9600 bits/t 2 19200 bits/t 3 38400 bits/t 4 57600 bits/t 5 115200 bit/s 6 230400 bits/t Proprietary values, available if MUX NEW PORT SPEED FTR is activated **<N1>** Maximum frame size 1-255 Default: 127 **<T1>** Acknowledgement timer in units of ten milliseconds 1-255 Default:10 (100 ms) **<N2>** Maximum number of re-transmissions 0-100 Default:3 **<T2>** Max Response Timer for the multiplexer control channel in units of ten milliseconds 2-255 Default:30 **<T3>** Wake up Max Response Timers in seconds 1-255 Default:10

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	<k> Window size, for Advanced operation with Error Recovery options 1-7 Default:2
Write Command **AT+CMUX=<mode>**	Response If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** Multiplexer transparency mechanism 0 Basic option 1 Adv option
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note The multiplexing transmission rate is according to the current serial baud rate. It is recommended to enable multiplexing protocol under 115200 bit/s baud rate Multiplexer control channels are listed as follows: **Channel Number Type DLCI** None Multiplexer Control 0 1 3GPP TS 27.007 and 005 1 2 3GPP TS 27.007 and 005 2 3 3GPP TS 27.007 and 005 3 4 3GPP TS 27.007 and 005 4

3.2.21 AT+CNUM Subscriber Number

AT+CNUM Subscriber Number	
Test Command **AT+CNUM=?**	Response **OK**
Execution Command **AT+CNUM**	Response **+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>]** **[<CR><LF>+CNUM:[<alpha2>],<number2>,<type2>[,<speed>,<service>]** **[...]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**alphax**> Optional alphanumeric string associated with <**numberx**>; used character set should be the one selected with Command Select TE

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	Character Set **+CSCS** <**number***x*> String type (string should be included in quotation marks) phone number of format specified by <**type***x*> <**type***x*> Type of address octet in integer format (refer GSM04.08[8] subclause 10.5.4.7) <**speed**> As defined by the **+CBST** Command **<service>** (service related to the phone number:) 0 Asynchronous modem 1 Synchronous modem 2 PAD Access (asynchronous) 3 Packet Access (synchronous) 4 Voice 5 Fax
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.22 AT+CPOL Preferred Operator List

AT+CPOL Preferred Operator List	
Test Command **AT+CPOL=?**	Response **+CPOL: (**list of supported **<index>**s**),<format>** **OK**
	Parameters See Write Command
Read Command **AT+CPOL?**	Response **+CPOL: <index1>,<format>,<oper1>** **[<CR><LF>+CPOL: <index2>,<format>,<oper2>[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CPOL=<index>[,<format>,<oper>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

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	Parameters **<index>** Integer type: order number of operator in SIM preferred operator list **<format>** Indicates whether alphanumeric or numeric 2 Numeric <**oper**> **<oper>** String type(string should be included in quotation marks),if string is empty, delete operation.
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.23 AT+COPN Read Operator Names

AT+COPN Read Operator Names	
Test Command **AT+COPN=?**	Response **OK**
Execution Command **AT+COPN**	Response **+COPN: <numeric1>,<alpha1>** **[<CR><LF>+COPN: <numeric2>,<alpha2>** **[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<numericn>** String type (string should be included in quotation marks): operator in numeric format (see **+COPS**) **<alphan>** String type (string should be included in quotation marks): operator in long alphanumeric format (see **+COPS**)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.24 AT+CFUN Set Phone Functionality

AT+CFUN Set Phone Functionality

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Test Command **AT+CFUN=?**	Response **+CFUN: (**list of supported **<fun>**s**),(**list of supported **<rst>**s**)** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Read Command **AT+CFUN?**	Response **+CFUN: <fun>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CFUN=<fun>[,<rst>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<fun>** 1 Full functionality (Default) 4 Minimum functionality **<rst>** 1 Reset the MT before setting it to <**fun**> power level.
Parameter Saving Mode	AUTO_SAVE
Max Response Time	10s
Reference 3GPP TS 27.007 [13]	Note **AT+CFUN=1,1** can be used to reset module purposely at minimum/full functionality mode. Response string "**OK**" will be returned after module resets if baud rate is set to fixed baud rate.

3.2.25 AT+CCLK Clock

AT+CCLK Clock	
Test Command **AT+CCLK=?**	Response **OK**
Read Command **AT+CCLK?**	Response **+CCLK: <time>**

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	OK If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CCLK=<time>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<time>** String type(string should be included in quotation marks) value; format is "yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits),month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -47...+48). E.g. 6th of May 2010, 00:01:52 GMT+2 hours equals to "10/05/06,00:01:52+08".
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note Only time zone is auto saved.

3.2.26 AT+CBC Battery Charge

AT+CBC Battery Charge	
Test Command **AT+CBC=?**	Response **+CBC: (**list of supported **<bcs>**s**),(**list of supported **<bcl>**s**),(<voltage>)** **OK**
	Parameters See Execution Command
Execution Command **AT+CBC**	Response **+CBC: <bcs>, <bcl>,<voltage>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<bcs>** Charge status 0 ME is not charging

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	1 ME is charging 2 Charging has finished **<bcl>** Battery connection level 1...100 battery has 1-100 percent of capacity remaining vent **<voltage>** Battery voltage(mV)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.007 [13]	Note

3.2.27 AT+CUSD Unstructured Supplementary Service Data

AT+CUSD Unstructured Supplementary Service Data	
Test Command **AT+CUSD=?**	Response **+CUSD: (**list of supported **<n>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CUSD?**	Response **+CUSD: <n>** **OK**
	Parameters See Write Command
Write Command **AT+CUSD=<n>[,<str>[,<dcs>]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<n>** A numeric parameter which indicates control of the unstructured supplementary service data 0 disable the result code presentation in the TE 1 enable the result code presentation in the TE 2 cancel session (not applicable to read Command response) **<str>** String type (string should be included in quotation marks) USSD-string **<dcs>** Cell Broadcast Data Coding Scheme in integer format (default 0)

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Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference GSM 03.38 [25]	Note When ussd is not suport or return error,TE will print +CUSD:4.

3.2.28 AT+CSSN Supplementary Services Notification

AT+CSSN Supplementary Services Notification	
Test Command **AT+CSSN=?**	Response **+CSSN: (**list of supported **<n>**s**),(**list of supported **<m>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CSSN?**	Response **+CSSN: <n>,<m>** **OK**
	Parameters See Write Command
Write Command **AT+CSSN=<n>[,<m>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<n>** A numeric parameter which indicates whether to show the **+CSSI:<code1>[,<index>]** result code presentation status after a mobile originated call setup 0 disable 1 enable **<m>** A numeric parameter which indicates whether to show the **+CSSU: <code2>** result code presentation status during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received. 0 disable 1 enable **<code1>** 0 Unconditional call forwarding is active 1 Some of the conditional call forwarding are active 2 Call has been forwarded 3 Call is waiting 4 This is a CUG call (also <**index**> present)

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	5 Outgoing calls are barred 6 Incoming calls are barred 7 CLIR suppression rejected **<index>** Closed user group index **<code2>** 0 This is a forwarded call 1 This is a CUG call (also <**index**> present) (MT call setup) 2 Call has been put on hold (during a voice call) 3 Call has been retrieved (during a voice call) 4 Multiparty call entered (during a voice call) 5 Call on hold has been released (this is not a SS notification) (during a voice call) 6 Forward check SS message received (can be received whenever) 7 Call is being connected (alerting) with the remote party in alerting state in explicit call transfer operation (during a voice call) 8 Call has been connected with the other remote party in explicit call transfer operation (also number and subaddress parameters may be present) (during a voice call or MT call setup) 9 This is a deflected call (MT call setup)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

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4 AT Commands According to 3GPP TS 27.005

The 3GPP TS 27.005 commands are for performing SMS and CBS related operations. R800C Series supports both Text and PDU modes.

4.1 Overview of AT Commands According to 3GPP TS 27.005

Command	Description
AT+CMGD	Delete SMS message
AT+CMGF	Select SMS message format
AT+CMGL	List SMS messages from preferred store
AT+CMGR	Read SMS message
AT+CMGS	Send SMS message
AT+CMGW	Write SMS message to memory
AT+CMSS	Send SMS message from storage
AT+CNMI	New SMS message indications
AT+CPMS	Preferred SMS message storage
AT+CSCA	SMS service center address
AT+CSCB	Select cell broadcast SMS messages
AT+CSDH	Show SMS text mode parameters
AT+CSMP	Set SMS text mode parameters

4.2 Detailed Descriptions of AT Commands According to 3GPP TS 27.005

4.2.1 AT+CMGD Delete SMS Message

AT+CMGD Delete SMS Message	
Test Command **AT+CMGD=?**	Response **+CMGD: (**list of supported **<index>**s**),(**list of supported **<delflag>**s**)** **OK**
	Parameters

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	See Write Command
Write Command **AT+CMGD=<index>[,<delflag>]**	Response TA deletes message from preferred message storage <**mem1**> location <**index**>. **OK** **ERROR** If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory **<delflag>** 0 Delete the message specified in <**index**> 1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched 4 Delete all messages from preferred message storage including unread messages
Parameter Saving Mode	NO_SAVE
Max Response Time	5s（delete 1 message） 25s（delete 50 messages） 25s（delete 150 messages）
Reference 3GPP TS 27.005	Note

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format	
Test Command **AT+CMGF=?**	Response **+CMGF: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CMGF?**	Response **+CMGF: <mode>**

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	OK
	Parameter See Write Command
Write Command **AT+CMGF=[<mode>]**	Response TA sets parameter to denote which input and output format of messages to use. **OK**
	Parameter **<mode>** 0 PDU mode 1 Text mode
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note

4.2.3 AT+CMGL List SMS Messages from Preferred Store

AT+CMGL List SMS Messages from Preferred Store	
Test Command **AT+CMGL=?**	Response **+CMGL: (**list of supported **<stat>**s**)** **OK**
	Parameter See Write Command
Write Command **AT+CMGL=<stat>**	Parameters 1) If text mode: **<stat>** "REC UNREAD" Received unread messages "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages 2) If PDU mode: **<stat>** 0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages
	Response TA returns messages with status value <**stat**> from message storage

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	<**mem1**> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (**+CMGF=1**) and Command successful: for 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>[...]]** for 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>[...]]** for SMS-COMMANDs: **+CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF>** **+CMGL: <index>,<stat>,<fo>,<ct>[...]]** for CBM storage: **+CMGL:<index>,<stat>,<sn>,<mid>,<page>,<pages>** **<CR><LF><data>** **<CR><LF>+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages>** **<CR><LF><data>[...]]** **OK** 2) 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>[...]]** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<alpha>** String type (string should be included in quotation marks) alphanumeric representation of <**da**> or <**oa**> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific.The field is empty in the current version. **<da>** GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are

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converted to characters of the currently selected TE character set (refer Command **+CSCS** in 3GPP TS 27.007); type of address given by <**toda**>

<data> In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:

- if <**dcs**> indicates that GSM 03.38 default alphabet is used and <**fo**> indicates that GSM 03.40 TPUser-Data-Header-Indication is not set:
- if TE character set other than "HEX" (refer Command Select TE Character Set +CSCS in 3GPP TS 27.007):ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))
- if <**dcs**> indicates that 8-bit or UCS2 data coding scheme is used, or <**fo**> indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format:
- if <**dcs**> indicates that GSM 03.38 default alphabet is used:
- if TE character set other than "HEX" (refer Command +CSCS in 3GPP TS 27.007): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number
- if <**dcs**> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number

<length> Integer type value indicating in the text mode (**+CMGF=1**) the length of the message body <**data**> (or <**cdata**>) in characters; or in PDU mode (**+CMGF=0**), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<index> Integer type; value in the range of location numbers supported by the associated memory

<oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer Command **+CSCS** in 3GPP TS 27.007); type of address given by <tooa>

<pdu> In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of

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	TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format. **<scts>** GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer <**dt**>) **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <**da**> is + (IRA 43) default is 145, otherwise default is 129) **<tooa>** GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<**toda**>)
Execution Command **AT+CMGL**	1) If text mode: the same as **AT+CMGL="REC UNREAD"**,received unread messages 2) If PDU mode: the same as **AT+CMGL=0**, received unread messages See more messages please refer to Write Command.
	Parameters See Write Command
Parameter Saving Mode	NO_SAVE
Max Response Time	20s(list 50 messages) 20s(list 150 messages)
Reference 3GPP TS 27.005	Note

4.2.4 AT+CMGR Read SMS Message

AT+CMGR Read SMS Message	
Test Command **AT+CMGR=?**	Response **OK**
Write Command **AT+CMGR=<index>**	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory
	Response TA returns SMS message with location value <**index**> from message storage <**mem1**> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'. 1) If text mode (**+CMGF=1**) and Command successful: for SMS-DELIVER: **+CMGR: <stat>,<oa>[,<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>**

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for SMS-SUBMIT:
+CMGR: <stat>,<da>[,<alpha>][,<toda>,<fo>,<pid>,<dcs>[,<vp>]
,<sca>,<tosca>,<length>]<CR><LF><data>

for SMS-STATUS-REPORTs:
+CMGR: <stat>,<fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>

for SMS-COMMANDs:
+CMGR: <stat>,<fo>,<ct>[,<pid>[,<mn>][,<da>][,<toda>]
,<length><CR><LF><cdata>]

for CBM storage:
+CMGR: <stat>,<sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>
2) If PDU mode (+CMGF=0) and Command successful:
+CMGR: <stat>[,<alpha>],<length><CR><LF><pdu>

OK
3) If error is related to ME functionality:
+CMS ERROR: <err>

Parameters
<alpha> String type (string should be included in quotation marks) alphanumeric representation of <**da**> or <**oa**> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific.The field is empty in the current version.
<da> GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by **+CSCS** in 3GPP TS 27.007); type of address given by <**toda**>
<data> In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:
- if <**dcs**> indicates that GSM 03.38 default alphabet is used and <**fo**> indicates that GSM 03.40 TPUser-Data-Header-Indication is not set:
- if TE character set other than "HEX" (refer Command Select TE Character Set +CSCS in 3GPP TS 27.007):ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))
- if <**dcs**> indicates that 8-bit or UCS2 data coding scheme is used, or <**fo**> indicates that GSM 03.40

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TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format:
- if <**dcs**> indicates that GSM 03.38 default alphabet is used:
- if TE character set other than "HEX" (refer Command +CSCS in 3GPP TS 27.007): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A
- if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number
- if <**dcs**> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number

<dcs> Depending on the Command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format

<fo> Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format

<length> integer type value indicating in the text mode (**+CMGF=1**) the length of the message body <**data**> (or <**cdata**>) in characters; or in PDU mode (**+CMGF=0**), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<mid> GSM 03.41 CBM Message Identifier in integer format

<oa> GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <**tooa**>

<pdu> In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.

<pid> GSM 03.40 TP-Protocol-Identifier in integer format (default 0)

<sca> GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <**tosca**>

<scts> GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer <**dt**>)

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	<stat> 0 "REC UNREAD" Received unread messages 1 "REC READ" Received read messages 2 "STO UNSENT" Stored unsent messages 3 "STO SENT" Stored sent messages 4 "ALL" All messages **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <**da**> is + (IRA 43) default is 145, otherwise default is 129) **<tooa>** GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<**toda**>) **<tosca>** GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <**toda**>) **<vp>** Depending on SMS-SUBMIT <**fo**> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <**dt**>)
Parameter Saving Mode	NO_SAVE
Max Response Time	5s
Reference 3GPP TS 27.005	Note

4.2.5 AT+CMGS Send SMS Message

AT+CMGS Send SMS Message	
Test Command **AT+CMGS=?**	Response **OK**
Write Command 1) If text mode (+CMGF=1): **+CMGS=<da>[,<toda>]<CR>text is entered<ctrl-Z/ESC>** ESC quits without sending 2) If PDU mode (+CMGF=0): **+CMGS=<length><CR>PDU is given**	Parameters **<da>** GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by **+CSCS** in 3GPP TS 27.007); type of address given by <**toda**> **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <**da**> is + (IRA 43) default is 145, otherwise default is 129) **<length>** Integer type value (not exceed 160 bytes) indicating in the text mode (**+CMGF=1**) the length of the message body <**data**> (or <**cdata**>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length) Response TA sends message from a TE to the network (SMS-SUBMIT). Message reference value <**mr**> is returned to the TE on successful message delivery.

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<ctrl-Z/ESC>	Optionally (when **+CSMS <service>** value is 1 and network supports) <**scts**> is returned. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(**+CMGF=1**) and sending successful: **+CMGS: <mr>** **OK** 2) If PDU mode(**+CMGF=0**) and sending successful: **+CMGS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameter **<mr>** GSM 03.40 TP-Message-Reference in integer format
Parameter Saving Mode	NO_SAVE
Max Response Time	60s
Reference 3GPP TS 27.005	Note ● In text mode, the maximum length of an SMS depends on the used coding scheme: It is 1024 characters if the 7 bit GSM coding scheme is used. ● Reject incoming call when sending messages.

4.2.6 AT+CMGW Write SMS Message to Memory

AT+CMGW Write SMS Message to Memory	
Test Command **AT+CMGW=?**	Response **OK**
Write Command 1) If text mode (+CMGF=1): **AT+CMGW=<oa/da>[,<tooa/toda>][,<stat>]** <CR> **text is entered** **<ctrl-Z/ESC>** <ESC> quits without sending	Response TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage <**mem2**>. Memory location <**index**> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <**stat**> allows also other status values to be given. If writing is successful: **+CMGW: <index>** **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
2) If PDU mode (+CMGF=0):	Parameters

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AT+CMGW=<length>[,<stat>]<CR>PDU is given<ctrl-Z/ESC>	**<oa>** GSM 03.40 TP-Originating-Address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007);type of address given by <**tooa**> **<da>** GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by **+CSCS** in 3GPP TS 27.007); type of address given by <**toda**> **<tooa>** GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <**toda**>) **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <**da**> is + (IRA 43) default is 145, otherwise default is 129) 129 Unknown type(IDSN format number) 161 National number type(IDSN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format) **<length>** Integer type value (not exceed 160 bytes) indicating in the text mode (**+CMGF=1**) the length of the message body <**data**> (or <**cdata**>) in characters; or in PDU mode (**+CMGF=0**), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length) **<stat>** in the text mode (**+CMGF=1**): "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "STO UNREAD" Stored unread messages "STO READ" Stored read messages in PDU mode (**+CMGF=0**): 2 Stored unsent messages 3 Stored sent messages **<pdu>** In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format. **<index>** Index of message in selected storage <**mem2**>
Execution Command (only text mode allow)	Response TA transmits SMS message (either SMS-DELIVER or SMS-SUBMIT) from TE to memory storage <**mem2**>. Memory location <**index**> of the stored message is returned. By default message status will be set to 'stored

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AT+CMGW	unsent', but parameter <**stat**> allows also other status values to be given. If writing is successful: **+CMGW: <index>** **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	5s
Reference 3GPP TS 27.005	Note

4.2.7 AT+CMSS Send SMS Message from Storage

AT+CMSS Send SMS Message from Storage	
Test Command **AT+CMSS=?**	Response **OK**
Write Command **AT+CMSS=<index>[,<da>,<toda>]**	Response TA sends message with location value <**index**> from message storage <**mem2**> to the network (SMS-SUBMIT). If new recipient address <**da**> is given, it shall be used instead of the one stored with the message. Reference value <**mr**> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(**+CMGF=1**) and sending successful: **+CMSS: <mr>** **OK** 2) If PDU mode(**+CMGF=0**) and sending successful: **+CMSS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<index>** Integer type; value in the range of location numbers supported by the associated memory **<da>** GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by **+CSCS** in 3GPP TS

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	27.007); type of address given by <**toda**> **<toda>** GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <**da**> is + (IRA 43) default is 145, otherwise default is 129) **<mr>** GSM 03.40 TP-Message-Reference in integer format
Parameter Saving Mode	NO_SAVE
Max Response Time	60s
Reference 3GPP TS 27.005	Note

4.2.8 AT+CNMI New SMS Message Indications

AT+CNMI New SMS Message Indications	
Test Command **AT+CNMI=?**	Response **+CNMI: (**list of supported **<mode>**s**),(**list of supported **<mt>**s**),(**list of supported **<bm>**s**),(**list of supported **<ds>**s**),(**list of supported **<bfr>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CNMI?**	Response **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>** **OK**
	Parameters See Write Command
Write Command **AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]**	Response TA selects the procedure for how the receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF), message receiving should be done as specified in GSM 03.38. **OK** **ERROR**
	Parameters **<mode>** 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 link is reserved (e.g. in on-line data

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mode). Otherwise forward them directly to the TE.

2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.

3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode.

<mt> (the rules for storing received SMs depend on its data coding scheme (refer GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value):

0 No SMS-DELIVER indications are routed to the TE.

1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index>

2 SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code:

+CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or

+CMT: <oa>,[<alpha>],<scts>

[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> (text mode enabled; about parameters in italics, refer Command Show Text Mode Parameters +CSDH). Class 2 messages result in indication as defined in <**mt**>=1.

3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <**mt**>=2. Messages of other classes result in indication as defined in <**mt**>=1.

<bm> (the rules for storing received CBMs depend on its data coding scheme (refer GSM 03.38 [2]), the setting of Select CBM Types (+CSCB) and this value):

0 No CBM indications are routed to the TE.

2 New CBMs are routed directly to the TE using unsolicited result code: **+CBM: <length><CR><LF><pdu>** (PDU mode enabled) or

+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled).

<ds> 0 No SMS-STATUS-REPORTs are routed to the TE.

1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: **+CDS:<length><CR><LF><pdu>** (PDU mode enabled) or **+CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>** (text mode enabled)

<bfr> 0 TA buffer of unsolicited result codes defined within this Command is flushed to the TE when <**mode**> 1...3 is entered (OK response shall be given before flushing the codes).

1 TA buffer of unsolicited result codes defined within this command is cleared when <**mode**> 1…3 is entered

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	Unsolicited result code 1. Indicates that new message has been received If <**mt**>=1: **+CMTI: <mem3>, <index>** If <**mt**>=2 (PDU mode enabled): **+CMT: [<alpha>],<length><CR><LF><pdu>** If <**mt**>=2 (text mode enabled): **+CMT: <oa>, <scts>[, <tooa>, <fo>, <pid>, <dcs>, <sca>, <tosca>, <length>]<CR><LF><data>** 2. Indicates that new cell broadcast message has been received If <**bm**>=2 (PDU mode enabled): **+CBM: <length><CR><LF><pdu>** If <**bm**>=2 (text mode enabled): **+CBM: <sn>, <mid>, <dcs>, <page>, <pages><CR><LF><data>** 3. Indicates that new SMS status report has been received If <**ds**>=1 (PDU mode enabled): **+CDS: <length><CR><LF><pdu>** If <**ds**>=1 (text mode enabled): **+CDS: <fo>, <mr>[, <ra>][, <tora>], <scts>, <dt>, <st>**
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note

4.2.9 AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage	
Test Command **AT+CPMS=?**	Response **+CPMS: (**list of supported <**mem1**>s**),(**list of supported <**mem2**>s**),(**list of supported <**mem3**>s**)** **OK**
	Parameters See Write Command
Read Command **AT+CPMS?**	Response **+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>, <mem3>,<used3>,<total3>** **OK** **ERROR**

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	Parameters See Write Command
Write Command **AT+CPMS=<mem1>[,<mem2>[,<mem3>]]**	Response TA selects memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc. **+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3>** **OK** **ERROR**
	Parameters **<mem1>** Messages to be read and deleted from this memory storage "SM" SIM message storage "ME" Phone message storage "MT" SM or ME message storage (SM preferred) **<mem2>** Messages will be written and sent to this memory storage "SM" SIM message storage "ME" Phone message storage "MT" SM or ME message storage (SM preferred) **<mem3>** Received messages will be placed in this memory storage if routing to PC is not set ("+CNMI") "SM" SIM message storage "ME" Phone message storage "MT" SM or ME message storage (SM preferred) **<usedx>** Integer type; Number of messages currently in <memx> **<totalx>** Integer type; Number of messages storable in <memx>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note

4.2.10 AT+CSCA SMS Service Center Address

AT+CSCA SMS Service Center Address	
Test Command **AT+CSCA=?**	Response **OK**
Read Command **AT+CSCA?**	Response **+CSCA: <sca>,<tosca>[,<scaAlpha>]** **OK**
	Parameters See Write Command

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Write Command **AT+CSCA=<sca>[,<tosca>]**	Response TA updates the SMSC address, through which mobile originated SMS are transmitted. In text mode, setting is used by send and writes commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <pdu> parameter equals zero. Note: The Command writes the parameters in NON-VOLATILE memory. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<sca>** GSM 04.11 RP SC address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <tosca> **<tosca>** Service center address format GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>) **<scaAlpha>** String type(string should be included in quotation marks) Service center address alpha data
Parameter Saving Mode	NO_SAVE
Max Response Time	5s
Reference 3GPP TS 27.005	Note

4.2.11 AT+CSCB Select Cell Broadcast SMS Messages

AT+CSCB Select Cell Broadcast SMS Messages	
Test Command **AT+CSCB=?**	Response **+CSCB: (**list of supported **<mode>**s**), (**list of supported **<mids>**s**), (**list of supported **<dcss>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSCB?**	Response **+CSCB: <mode>,<mids>,<dcss>** **OK**
	Parameters

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	See Write Command
Write Command **AT+CSCB=<mode>[,<mids>[,<dcss>]]**	Response TA selects which types of CBMs are to be received by the ME. Note: The Command writes the parameters in NON-VOLATILE memory. **OK** If error is related to ME functionality: **+CMS ERROR: <err>**
	Parameters **<mode>** 0 Message types specified in <**mids**> and <**dcss**> are accepted 1 Message types specified in <**mids**> and <**dcss**> are not accepted. **<mids>** String type (string should be included in quotation marks); all different possible combinations of CBM message identifiers (refer <**mid**>) e.g. "0,1,5,320,922". Total 15 different <**mids**> values can be supported. <**mids**> values cannot be written consecutively, such as "100-200" **<dcss>** String type(string should be included in quotation marks); all different possible combinations of CBM data coding schemes (refer <**dcs**>) (default is empty string); e.g. "0,5". Total 5 different **<dcss>** values can be supported. <**dcss**> values cannot be written consecutively, such as "0-5".
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note AT+CSCB=0 will reset <**mids**> and <**dcss**> and select no <**mids**> and no <**dcss**>. AT+CSCB=1 means all <**dcss**> are accepted but this command has no effect on the list of the <mids> accepted. "0-255" means all <**dcss**> are accepted. AT+CSCB=0, <**mids**> will add the <**mids**> values in the <**mids**> current list handled by module. AT+CSCB=0, <**dcss**> will add the <**dcss**> values in the <**dcss**> current list handled by module. If AT+CSCB=0, <**mids**> is received while the list of <**mids**> is full, OK is returned and new value is not added.

4.2.12 AT+CSDH Show SMS Text Mode Parameters

AT+CSDH Show SMS Text Mode Parameters	
Test Command **AT+CSDH=?**	Response **+CSDH: (**list of supported **<show>**s**)** **OK**

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	Parameter See Write Command
Read Command **AT+CSDH?**	Response **+CSDH: <show>** **OK**
	Parameter See Write Command
Write Command **AT+CSDH=[<show>]**	Response TA determines whether detailed header information is shown in text mode result codes. **OK**
	Parameter **<show>** 0 Do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode 1 Show the values in result codes
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note

4.2.13 AT+CSMP Set SMS Text Mode Parameters

AT+CSMP Set SMS Text Mode Parameters	
Test Command **AT+CSMP=?**	Response **+CSMP: (**list of supported **<fo>**s**),(**list of supported **<vp>**s**),(**list of supported **<pid>**s**),(**list of supported **<dcs>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CSMP?**	Response **+CSMP: <fo>,<vp>,<pid>,<dcs>** **OK**
	Parameters See Write Command
Write Command **AT+CSMP=[<fo**	Response TA selects values for additional parameters needed when SM is sent to the

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>[,<vp>,<pid>,<dcs>]]	network or placed in a storage when text mode is selected (+CMGF=1). It is possible to set the validity period starting from when the SM is received by the SMSC (<**vp**> is in range 0... 255) or define the absolute time of the validity period termination (<**vp**> is a string). Note: The Command writes the parameter <fo> in NON-VOLATILE memory. **OK**
	Parameters **<fo>** Depending on the command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49. **<vp>** Depending on SMS-SUBMIT <**fo**> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <**dt**>) **<pid>** GSM 03.40 TP-Protocol-Identifier in integer format (default 0). **<dcs>** GSM 03.38 SMS Data Coding Scheme in Integer format. Support value (0-255) , For example, 0,4,8,24,25,240,241.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference 3GPP TS 27.005	Note

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5 AT Commands Special for SIMCom

5.1 Overview

Command	Description
AT+CPOWD	Power off
AT+CADC	Read ADC
AT+CSCLK	Configure slow clock
AT+CENG	Switch on or off engineering mode
AT+SCLASS0	Store class 0 SMS to SIM When Received Class 0 SMS
AT+CCID	Show ICCID
AT+CCALR	Call ready query
AT+GSV	Display product identification information
AT+CNETLIGHT	Close the net light or open it to shining
AT+CSGS	Netlight indication of GPRS status
AT+CLTS	Control network time zone by network
AT+SIMEI	Read and Set TA Serial Number Identification (IMEI)
AT+SSN	Read and Set TA Serial Number
AT+CIURC	Enable or Disable Initial URC Presentation
AT+CELLLOCK	Set the List of ARFCN Which Needs to Be Locked
AT+CBAND	Get and Set Mobile Operation Band
AT+CMGDA	Delete All SMS
AT+CFGRI	Indicate RI When Using URC

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5.2 Detailed Descriptions of Commands

5.2.1 AT+CPOWD Power off

AT+CPOWD Power Off	
Write Command **AT+CPOWD=<n>**	Response **[NORMAL POWER DOWN]**
	Parameter **<n>** 0 Power off urgently (Will not send out NORMAL POWER DOWN) 1 Normal power off (Will send out NORMAL POWER DOWN)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

5.2.2 AT+CADC Read ADC

AT+CADC Read ADC	
Test Command **AT+CADC=?**	Response **+CADC: (**list of supported **<status>**s**),(**list of supported **<value>**s**)** **OK**
	Parameters **<status>** 1 Success 0 Fail **<value>** Integer 100-1800
Read Command **AT+CADC?**	Response **+CADC: <status>,<value>** **OK**
	Parameters See Test Command
Parameter Saving Mode	NO_SAVE
Max Response Time	2s
Reference	Note

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5.2.3 AT+CSCLK Configure Slow Clock

AT+CSCLK Configure Slow Clock	
Test Command **AT+CSCLK=?**	Response **+CSCLK: (**list of supported **<n>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CSCLK?**	Response **+CSCLK: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CSCLK=<n>**	Response **OK** **ERROR**
	Parameter **<n>** 0 Disable slow clock, module will not enter sleep mode. 1 Enable slow clock, it is controlled by DTR. When DTR is high, module can enter sleep mode. When DTR changes to low level, module can quit sleep mode. 2 Enable slow clock automatically. When there is no interrupt (on air and hardware such as GPIO interrupt or data in serial port), module can enter sleep mode. Otherwise, it will quit sleep mode.
Parameter Saving Mode	
Max Response Time	-
Reference	Note ● There are two caveats when you want to quit sleep mode in mode 2: 1, You should input some characters (at least one) to awake module 2, An interval time of 100ms more is necessary between waking characters and following AT commands,otherwise the waking characters will not be discarded completely,and messy codes will be produced which may leads to UART baudrate re-adaptation.

5.2.4 AT+CENG Switch on or off Engineering Mode

AT+CENG Switch on or off Engineering Mode	
Test Command **AT+CENG=?**	Response TA returns the list of supported modes.

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	+CENG: (list of supported **<mode>**s**),(**list of supported **<Ncell>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CENG?**	Response Engineering Mode is designed to allow a field engineer to view and test the network information received by a handset, when the handset is either in idle mode or dedicated mode (that is: with a call active). In each mode, the engineer is able to view network interaction for the "serving cell" (the cell the handset is currently registered with) or for the neighboring cells. TA returns the current engineering mode. The network information including serving cell and neighboring cells are returned. <**cell**> carry with them corresponding network interaction. **+CENG: <mode>,<Ncell>** **[+CENG:** **<cell>,"<bcch>,<rxl>,<rxq>,<mcc>,<mnc>,<bsic>,<cellid>,<rla>,** **<txp>,<lac>,<TA>[<dbm>,<c1>,<c2>,<tch>,<ts>,<maio>,<hsn>,<rxq_sub>,<rxq_full>,<ch_mod>]"<CR><LF>+CENG:** **<cell>,"<bcch>,<rxl>,<bsic>[,<cellid>,]<mcc>,<mnc>,<lac>"…]** **OK** if <**mode**>=3 **+CENG: <mode>,<Ncell>** **[+CENG:** **<cell>,<mcc>,<mnc>,<lac>,<cellid>,<bsic>,<rxl><CR><LF>+CENG:** **<cell>,<mcc>,<mnc>,<lac>,<cellid>,<bsic>,<rxl>…]** **OK** if <**mode**>=4 **+CENG: <mode>,<Ncell>** **[+CENG:** **<cell>,"<bcch>,<rxl>,<rxq>,<mcc>,<mnc>,<bsic>,[<cellid>,]<rla>,** **<txp>,<lac>,<TA>,<dbm>,<c1>,<c2>,<tch>,<ts>,<maio>,<hsn>,<rxq_sub>,<rxq_full>,<ch_mod>"<CR><LF>+CENG:** **<cell>,"<bcch>,<rxl>,<bsic>,<cellid>,<mcc>,<mnc>,<lac>,<c1>,<c2>"**

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	…] **OK**
	Parameters See Write Command
Write Command **AT+CENG=<mode>[,<Ncell>]**	Response Switch on or off engineering mode. It will report +CENG: (network information) automatically if <**mode**>=2. **OK** **ERROR**
	Parameters **<mode>** 0 Switch off engineering mode 1 Switch on engineering mode 2 Switch on engineering mode, and activate the URC report of network information 3 Switch on engineering mode, with limited network information 4 Switch on engineering mode, with extern information **<Ncell>** 0 Un-display neighbor cell ID 1 Display neighbor cell ID If <**mode**> = 3, ignore this parameter. **<cell>** 0 The serving cell 1-6 The index of the neighboring cell **<arfcn>** Absolute radio frequency channel number, in decimal format **<bcch>** ARFCN(Absolute radio frequency channel number) of BCCH carrier, in decimal format **<rxl>** Receive level, in decimal format **<rxq>** Receive quality, in decimal format **<mcc>** Mobile country code, in decimal format **<mnc>** Mobile network code, in decimal format **<bsic>** Base station identity code, in decimal format **<cellid>** Cell id, in hexadecimal format **<lac>** Location area code, in hexadecimal format **<rla>** Receive level access minimum, in decimal format **<txp>** Transmit power maximum CCCH, in decimal format **<TA>** Timing Advance, in decimal format <**dbm**> Receiving level in dBm **<c1>** C1 value **<c2>** C2 value <**tch**> ARFCN of the TCH carrier, in decimal format **<ts>** Timeslot number **<maio>** MAIO value **<hsn>** HSN value

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	<rxq_sub> Receiving quality (sub), range is 0 - 7 **<rxq_full>** Receiving quality (full), range is 0 – 7 <**ch_mod**> Speech channel type, in string format
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● Engineering mode can been switch on and taken effect after excuting "**AT+CFUN=1**". ● Engineering mode only query one SIM card information. ● <**lac**> and <**cellid**> are in hex, <**ch_mod**> is string, and others are in DEC. ● If network supports frequency hopping, then <**tch**> is invalid, value is 0. ● Under non-dedicated mode: **<tch>,<ts>,<maio>,<hsn>,<rxq_sub>,<rxq_full>,<ch_mod>** parameters are invalid, shown in "x". ● Under dedicated mode, <**c1**> and<**c2**> in service cell are invalid, either all neighbor cell parameters. ● Parameter <**rssi**> value of "**AT+CSQ**" is half of <**rxl**>. The sum of <**dbm**> and <**rxl**> is 113. That is to say, <**rssi**> = <**rxl**>/2 and <**dbm**>=113-<**rxl**>.

5.2.5 AT+SCLASS0 Store Class 0 SMS to SIM When Modeule Received Class 0 SMS

AT+SCLASS0 Store Class 0 SMS to SIM When Module Received Class 0 SMS	
Test Command **AT+SCLASS0=?**	Response **+SCLASS0: (0,1)** **OK**
	Parameters See Write Command
Read Command **AT+SCLASS0?**	Response **+SCLASS0: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+SCLASS0=<mode>**	Response **OK** **ERROR**
	Parameters

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	<mode> 0 Disable to store Class 0 SMS to SIM when module receives Class 0 SMS 1 Enable to store Class 0 SMS to SIM when module receives Class 0 SMS
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

5.2.6 AT+CCID Show ICCID

AT+CCID Show ICCID	
Test Command **AT+CCID=?**	Response **OK**
Execution Command **AT+CCID**	Response **Ccid data** [ex. 898600810906F8048812] **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	2s
Reference	Note

5.2.7 AT+CCALR Call Ready Query

AT+CCALR Call Ready Query	
Test Command **AT+CCALR=?**	Response **+CCALR: (**list of supported **<mode>**s**)** **OK**
	Parameter **<mode>** A numeric parameter which indicates whether the module is ready for phone call. 0 Module is not ready for phone call 1 Module is ready for phone call
Read Command **AT+CCALR?**	Response ME returns the status of result code presentation and an integer <n> which shows whether the module is currently ready for phone call.

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	+CCALR: <mode> **OK**
	Parameter See Test Command
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

5.2.8 AT+GSV Display Product Identification Information

AT+GSV Display Product Identification Information	
Execution Command **AT+GSV**	Response TA returns product information text Example: **SIMCOM_Ltd** **SIMCOM_R800C** **Revision: V1.01** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

5.2.9 AT+CNETLIGHT Close the Net Light or Open It to Shining

AT+CNETLIGHT Close the Net Light or Open It to Shining	
Test Command **AT+CNETLIGHT=?**	Response **+CNETLIGHT: (0,1)** **OK**
	Parameters See Write Command
Read Command **AT+CNETLIGHT?**	Response **+CNETLIGHT: <mode>** **OK**

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	Parameters See Write Command
Write Command **AT+CNETLIGHT=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Close the net light 1 Open the net light to shining
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	Note

5.2.10 AT+CSGS Netlight Indication of GPRS Status

AT+CSGS Netlight Indication of GPRS Status	
Test Command **AT+CSGS=?**	Response **+CSGS: (0-1)** **OK**
	Parameters See Write Command
Read Command **AT+CSGS?**	Response **+CSGS: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CSGS=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Disable 1 Enable, the netlight will be forced to enter into 64ms on/300ms off blinking state in GPRS data transmission service. Otherwise, the netlight state is not restricted.
Parameter Saving Mode	AT&W_SAVE
Max Response	-

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Time	
Reference	Note

5.2.11 AT+CLTS Control network time zone by network

AT+CLTS Control network time zone by network	
Read Command **AT+CLTS?**	Response **+CLTS: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CLTS=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Disable 1 Enable, display network time zone, when open machine.
	Unsolicited Result Code When "get local timestamp" function is enabled, the following URC may be reported if network sends the message to the MS to provide the MS with subscriber specific information. 1. Refresh network time zone by network: **+CTZV: "<time zone>"** 2. Refresh Network Daylight Saving Time by network: **DST: <dst>**
	Parameters **<time zone>** String type; network time zone. If the network time zone has been adjusted for Daylight Saving Time, the network shall indicate this by including the <dst> (Network Daylight Saving Time) **<dst>** Network Daylight Saving Time; the content of this indicates the value that used to adjust the network time zone 0 No adjustment for Daylight Saving Time 1 +1 hour adjustment for Daylight Saving 2 +2 hours adjustment for Daylight Saving Time others Reserved
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-

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Reference	Note

5.2.12 AT+SIMEI Read and Set TA Serial Number Identification (IMEI)

AT+SIMEI Read and Set TA Serial Number Identification(IMEI)	
Read Command **AT+SIMEI?**	Response **+IMEI: <imei>** **OK**
Write Command **AT+SIMEI=<imei>**	Response **OK**
	Parameters **<imei>** IMEI of the telephone(International Mobile station Equipment Identity,length is only 15)
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference V.25ter	Note The serial number (IMEI) is varied by individual ME device.

5.2.13 AT+SSN Read and Set TA Serial Number

AT+SSN Read and Set TA Serial Number	
Read Command **AT+SSN?**	Response **+SN: <sn>** **OK**
Write Command **AT+SSN=<sn>**	Response **OK**
	Parameters **<sn>** Series number (length is 10 or 15, include number and capital)
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference V.25ter	Note The serial number (IMEI) is varied by individual ME device.

5.2.14 AT+CIURC Enable or Disable Initial URC Presentation

AT+CIURC Enable or Disable Initial URC Presentation	
Test Command	Response

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AT+CIURC=?	**+CIURC: (0,1)** **OK**
	Parameters See Write Command
Read Command **AT+CIURC?**	Response **+CIURC:<mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIURC=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 0 Disable URC presentation. 1 Enable URC presentation
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	Note When module is powered on and initialization procedure is over. URC "Call Ready" will be presented if <**mode**> is 1.

5.2.15 AT+CELLLOCK Set the List of ARFCN Which Needs to Be Locked

AT+CELLLOCK Set the List of ARFCN Which Needs to Be Locked	
Test Command **AT+CELLLOCK=?**	Response **+CELLLOCK: (**list of supported **<mode>**s**)[,(**list of supported **<amount>**s**),(**list of supported **<locked arfcn list>**s**)[, (**list of supported **<locked arfcn list>**s**)[, (**list of supported **<locked arfcn list>**s**)]]]** **OK**
	Parameter See Write Command
Read Command **AT+CELLLOCK?**	Response **+CELLLOCK: <mode>[,<amount>,<locked arfcn list>[,<locked arfcn list>…]]** **OK**
	Parameter

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	See Write Command
Write Command **AT+CELLLOCK=<mode>[,<amount>,<locked arfcn list>[,<locked arfcn list>…]]**	Response **OK** **ERROR**
	Parameter **<mode>** 0 Disable 1 Enable **<amout>** Amount of arfcn to be set. Up to 3 arfcn supported. **<locked arfcn list>** Arfcn needs to be locked by user. Scope: (0-124), (128-251), (512-885) or (975-1023).
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note

5.2.16 AT+CBAND Get and Set Mobile Operation Band

AT+CBAND Get and Set Mobile Operation Band	
Test Command **AT+CBAND=?**	Response **+CBAND: (**list of supported **<op_band>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CBAND?**	Response **+CBAND: <op_band>** **OK**
	Parameter See Write Command
Write Command **AT+CBAND=<op_band>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<op_band>** A string parameter which indicate the operation band. And the following strings should be included in quotation

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	marks EGSM_MODE PGSM_MODE DCS_MODE ALL_BAND
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note ● Radio settings are stored in non-volatile memory.

5.2.17 AT+CMGDA Delete All SMS

AT+CMGDA Delete All SMS	
Test Command **AT+CMGDA=?**	Response **+CMGDA: (**list of supported **<type>**s**)** **OK** **+CMS ERROR: <err>**
	Parameter See Write Command
Write Command **AT+CMGDA=<type>**	Response **OK** **ERROR** **+CMS ERROR: <err>**
	Parameter **<type>** 1) If text mode: "DEL READ" Delete all read messages "DEL UNREAD" Delete all unread messages "DEL SENT" Delete all sent SMS "DEL UNSENT" Delete all unsent SMS "DEL INBOX" Delete all received SMS "DEL ALL" Delete all SMS 2) If PDU mode: 1 Delete all read messages 2 Delete all unread messages 3 Delete all sent SMS 4 Delete all unsent SMS 5 Delete all received SMS 6 Delete all SMS
Parameter Saving	NO_SAVE

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Mode	
Max Response Time	5s（delete 1 message） 25s（delete 50 messages） 25s（delete 150 messages）
Reference	Note

5.2.18 AT+CFGRI Indicate RI When Using URC

AT+CFGRI Indicate RI When Using URC	
Test Command **AT+CFGRI=?**	Response **+CFGRI: (0-2)** **OK**
	Parameters See Write Command
Read Command **AT+CFGRI?**	Response **+CFGRI: <status>** **OK**
	Parameters See Write Command
Write Command **AT+CFGRI=<status>**	Response **OK** **ERROR**
	Parameters **<status>** 0 Off 1 On(TCPIP, FTP and URC control RI pin) 2 On(only TCPIP control RI pin)
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	Note ● RI pin can not controll by "**AT+CFGRI**" command when module has call service or receiving SMS. ● Default value of parameter **<status>** is different among SIM800 series project, please refer to chapter 21 for details.

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6 AT Commands for GPRS Support

6.1 Overview of AT Commands for GPRS Support

Command	Description
AT+CGATT	Attach or detach from GPRS service
AT+CGDCONT	Define PDP context
AT+CGQMIN	Quality of service profile (minimum acceptable)
AT+CGQREQ	Quality of service profile (requested)
AT+CGACT	PDP context activate or deactivate
AT+CGDATA	Enter data state
AT+CGPADDR	Show PDP address
AT+CGCLASS	GPRS mobile station class
AT+CGEREP	Control unsolicited GPRS event reporting
AT+CGREG	Network registration status
AT+CGSMS	Select service for MO SMS messages

6.2 Detailed Descriptions of AT Commands for GPRS Support

6.2.1 AT+CGATT Attach or Detach from GPRS Service

AT+CGATT Attach or Detach from GPRS Service	
Test Command **AT+CGATT=?**	Response **+CGATT: (**list of supported **<state>**s**)**

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	OK
	Parameters See Write Command
Read Command **AT+CGATT?**	Response **+CGATT: <state>** **OK**
	Parameters See Write Command
Write Command **AT+CGATT=<state>**	Response **+CGATT: <state>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<state>** Indicates the state of GPRS attachment 0 Detached 1 Attached Other values are reserved and will result in an ERROR response to the Write Command.
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds
Reference	Note

6.2.2 AT+CGDCONT Define PDP Context

AT+CGDCONT	**Define PDP Context**
Test Command **AT+CGDCONT=?**	Response **+CGDCONT: (**range of supported <**cid**>s**),<PDP_type>s,,,(**list of supported<**d_comp**>s**),(**list of supported< **h_comp** >s**)** **[<CR><LF>+CGDCONT:** **(**range of supported <**cid**>s**), <PDP_type>s,,,(**list of supported < **d_comp** >s**),(**list of supported < **h_comp** >s**)[...]]** **OK**
	Parameters See Write Command
Read Command **AT+CGDCONT**	Response **+CGDCONT:**

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?	**<cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>** **[<CR><LF>+CGDCONT:** **<cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>** **[…]]** **OK**
	Parameters See Write Command
Write Command **AT+CGDCONT=<cid>[,<PDP_type>[,APN>[,<PDP_addr>[,<d_comp>[,<h_comp>]]]]**	Response **OK** **ERROR**
	Parameters **<cid>** (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value=1) is returned by the test form of the command. **<PDP_type>** (Packet Data Protocol type) IP Internet Protocol (IETF STD 5) IPV6 Internet Protocol Version 6 IPV4V6 Internet Protocol Version 4 or Version 6 **<APN>** (Access Point Name) A string parameter (string should be included in quotation marks) which is a logical name that is used to select the GGSN or the external packet data network. If the value is null or omitted, then the subscription value will be requested.The default value is NULL. **<PDP_addr>** A string parameter (IP address). Format: "**<n>.<n>.<n>.<n>**" where <**n**>=0..255 If the value is null or equals 0.0.0.0 a dynamic address will be requested. The allocated address may be read using the +CGPADDR command **<d_comp>** A numeric parameter that controls PDP data compression 0 –PDP data compression off (default if value is omitted) 1 –on (manufacturer preferred compression) 2 –V.42bis 3 –V.44bis Other values are reserved. **<h_comp>** A numeric parameter that controls PDP data compression 0 –PDP header compression off (default if value is omitted) 1 –on (manufacturer preferred compression) 2 –RFC1144

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	3 –RFC2507 4 –RFC3095 Other values are reserved.
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note

6.2.3 AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

AT+CGQMIN Quality of Service Profile (Minimum Acceptable)	
Test Command **AT+CGQMIN=?**	Response **+CGQMIN: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[<CR><LF>+CGQMIN: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[…]]** **OK**
	Parameters See Write Command
Read Command **AT+CGQMIN?**	Response **+CGQMIN: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **[<CR><LF>+CGQMIN:** **<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>** **[…]]** **OK**
	Parameters See Write Command
Write Command **AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	Response **+CGQMIN: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<cid>**

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	1..7 A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command) **<precedence>** 0 QOS precedence class subscribed value 1..3 QOS precedence class **<delay>** 0 QOS delay class subscribed value 1..4 QOS delay class subscribed **<reliability>** 0 QOS reliability class subscribed value 1..5 QOS reliability class. **<peak>** 0 QOS peak throughput class subscribed value 1..9 QOS peak throughput class **<mean>** 0 QOS mean throughput class subscribed value 1..18 QOS mean throughput class 31 QOS mean throughput class best effort
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note

6.2.4 AT+CGQREQ Quality of Service Profile (Requested)

AT+CGQREQ Quality of Service Profile (Requested)	
Test Command **AT+CGQREQ=?**	Response **+CGQREQ: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),**<list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[<CR><LF>+CGQREQ: <PDP_type>,(**list of supported **<precedence>**s**),(**list of supported **<delay>**s**),(**list of supported **<reliability>**s**),(**list of supported **<peak>**s**),(**list of supported **<mean>**s**)** **[…]]** **OK**
	Parameters See Write Command
Read Command **AT+CGQREQ?**	Response **+CGQREQ: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>** **[<CR><LF>+CGQREQ:** **<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>**

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	[…]] **OK**
	Parameters See Write Command
Write Command **AT+CGQREQ=cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<cid>** A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) The following parameter are defined in GSM 03.60 **<precedence>** A numeric parameter which specifies the precedence class 0 QOS precedence class subscribed value 1..3 QOS precedence class **<delay>** A numeric parameter which specifies the delay class 0 QOS delay class subscribed value 1..4 QOS delay class **<reliability>** A numeric parameter which specifies the reliability class 0 QOS reliability class subscribed value 1..5 QOS reliability class; default value: 3 **<peak>** A numeric parameter which specifies the peak throughput class 0 QOS peak throughput class subscribed value 1..9 QOS peak throughput class **<mean>** A numeric parameter which specifies the mean throughput class 0 QOS mean throughput class subscribed value 1..18 QOS mean throughput class 31 QOS mean throughput class best effort **<PDP_type>** Packet Data Protocol type (see +CGDCONT Command)
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note

6.2.5 AT+CGACT PDP Context Activate or Deactivate

AT+CGACT PDP Context Activate or Deactivate

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Test Command **AT+CGACT=?**	Response **+CGACT: (**list of supported **<state>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CGACT?**	Response **+CGACT: <cid>,<state>[<CR><LF>+CGACT:<cid>,<state>…]** **OK**
	Parameters See Write Command
Write Command **AT+CGACT=<state>[,<cid>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<state>** Indicates the state of PDP context activation 0 Deactivated 1 Activated Other values are reserved and will result in an ERROR response to the Write Command. **<cid>** A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command). If the <cid> is omitted, it only affects the first cid.
Parameter Saving Mode	NO_SAVE
Max Response Time	150 seconds
Reference	Note ● This command is used to test PDPs with network simulators. Successful activation of PDP on real network is not guaranteed. ● Refer to **AT+CGDATA** clarification for more information.

6.2.6 AT+CGDATA Enter Data State

AT+CGDATA Enter Data State	
Test Command **AT+CGDATA=?**	Response **+CGDATA:** (“PPP”),(1-7) **OK** Parameter See Write Command

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Write Command **AT+CGDATA=<L2P>,<cid>**	Response **CONNECT** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<PPP>** "PPP" Point to Point protocol for a PDP such as IP Other values are not supported and will result in an ERROR response to the execution Command. **<cid>** A numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** Command)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

6.2.7 AT+CGPADDR Show PDP Address

AT+CGPADDR	**Show PDP Address**
Test Command **AT+CGPADDR=?**	Response **+CGPADDR: (**list of defined **<cid>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+CGPADDR=<cid>**	Response **+CGPADDR: <cid>,<PDP_addr>** **[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[…]]** **OK** **ERROR**
	Parameters **<cid>** A numeric parameter which specifies a particular PDP context definition (see **+CGDCONT** Command) **<PDP_addr>** String type, IP address Format: "**<n>.<n>.<n>.<n>**" where <**n**>=0..255
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note Write command returns address provided by the network if a connection has

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	been established.

6.2.8 AT+CGCLASS GPRS Mobile Station Class

AT+CGCLASS	**GPRS Mobile Station Class**
Test Command **AT+CGCLASS=?**	Response **+CGCLASS: (**list of supported **<class>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CGCLASS?**	Response **+CGCLASS: <class>** **OK**
	Parameter See Write Command
Write Command **AT+CGCLASS=<class>**	Response **OK** **ERROR** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<class>** A string parameter(string should be included in quotation marks) which indicates the GPRS mobile class (in descending order of functionality) B Class-B mode of operation (A/Gb mode), (not applicable in Iu mode) MT would operate PS and CS services but not simultaneously CC Class C in circuit switched only mode (lowest)
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note It only supports Class B and CC.

6.2.9 AT+CGEREP Control Unsolicited GPRS Event Reporting

AT+CGEREP	**Control Unsolicited GPRS Event Reporting**
Test Command **AT+CGEREP=?**	Response **+CGEREP: (**list of supported **<mode>**s**)**

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	OK
	Parameters See Write Command
Read Command **AT+CGEREP?**	Response **+CGEREP: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CGEREP=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Disable event reporting. 1 Enable event reporting. Unsolicited Result Codes supported: **+CGEV: NW DEACT <PDP_type>,<PDP_addr>[,<cid>]** **+CGEV: ME DEACT <PDP_type>,<PDP_addr>[,<cid>]** **+CGEV: NW DETACH** **+CGEV: ME DETACH** Parameters **<PDP_type>** Packet Data Protocol type (see **+CGDCONT** Command) **<PDP_addr>** Packet Data Protocol address (see **+CGDCONT** Command) **<cid>** Context Id (see **+CGDCONT** Command)
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

6.2.10 AT+CGREG Network Registration Status

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

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	Parameters See Write Command
Read Command **AT+CGREG?**	Response **+CGREG: <n>,<stat>[,<lac>,<ci>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters See Write Command
Write Command **AT+CGREG=<n>**	Response **OK** **ERROR**
	Parameters **<n>** 0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code **+CGREG:<stat>** 2 Enable network registration and location information unsolicited result code **+CGREG: <stat>[,<lac>,<ci>]** **<stat>** 0 Not registered, MT is not currently searching an operator to register to.The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user. 1 Registered, home network. 2 Not registered, but MT is currently trying to attach or searching an operator to register to. The GPRS service is enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available. 3 Registration denied, The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user. 4 Unknown 5 Registered, roaming **<lac>** String type (string should be included in quotation marks); two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>** String type (string should be included in quotation marks); two bytes cell ID in hexadecimal format
Parameter Saving Mode	AT&W_SAVE
Max Response Time	-
Reference	Note

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6.2.11 AT+CGSMS Select Service for MO SMS Messages

AT+CGSMS Select Service for MO SMS Messages	
Test Command **AT+CGSMS=?**	Response **+CGSMS: (**list of currently available **<service>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CGSMS?**	Response **+CGSMS: <service>** **OK**
	Parameters See Write Command
Write Command **AT+CGSMS=<service>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<service>** A numeric parameter which indicates the service or service preference to be used 0 Packet Domain 1 Circuit switched 2 Packet Domain preferred (use circuit switched if GPRS not available) 3 Circuit switched preferred (use Packet Domain if circuit switched not available)
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	Note

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7 AT Commands for File System

7.1 Overview

Command	Description
AT+CFSINIT	Get Flash Data Buffer
AT+CFSWFILE	Write File to the Flash Buffer Allocated by CFSINIT
AT+CFSRFILE	Read File from Flash
AT+CFSDFILE	Delete the File from the Flash
AT+CFSGFIS	Get File Size
AT+CFSREN	Rename a file
AT+CFSGFRS	Get the size of file system
AT+CFSTERM	Free the Flash Buffer Allocated by CFSINIT

7.2 Detailed Descriptions of Commands

7.2.1 AT+CFSINIT Get Flash Data Buffer

AT+CFSINIT Get Flash Data Buffer	
Execution Command **AT+CFSINIT**	Response **OK** or **ERROR** or **+CME ERROR: <err>**

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	Parameters
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

7.2.2 AT+CFSWFILE Write File to the Flash Buffer Allocated by CFSINIT

AT+CFSWFILE Write File to the Flash Buffer Allocated by CFSINIT	
Test Command **AT+CFSWFILE=?**	Response **+CFSWFILE: (0),"fileName",(0-1),(1-10240),(100-10000)** **OK**
	Parameters See Write Command
Write Command **AT+CFSWFILE=<index>,<file name>,<mode>,<file size>,<input time>**	Response **DOWNLOAD** **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<index>** Directory of AP filesystem: 0 "/customer/" **<file name>** File name length should less or equal 50 characters **<mode>** 0 If the file already existed, write the data at the beginning of the file. 1 If the file already existed, add the data at the end of the file. **<file size>** File size should be less than 10240 bytes. **<input time>** Millisecond, should send file during this period or you can't send file when timeout. The value should be less than 10000 ms.
Parameter Saving Mode	-

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Max Response Time	-
Reference	Note

7.2.3 AT+CFSRFILE Read File from Flash

AT+CFSRFILE Read File from Flash	
Test Command **AT+CFSRFILE=?**	Response **+CFSRFILE: (0),"fileName",(0-1),(1-10240),(0-filesize)** **OK**
	Parameters See Write Command
Write Command **AT+CFSRFILE=<index>,<file name>,<mode>,<file size>,<position>**	Response **+CFSRFILE: <size>** **<data>** **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<index>** Directory of AP filesystem: 0 "/customer/" **<file name>** File name length should be less than or equal to 50 characters, **<mode>** 0 Read data at the beginning of the file . 1 Read data at the <position> of the file . **<file size>** The size of the file that you want to read should be less than 10240. **<position>** The starting position that will be read in the file. When <write mode>=0, <position> is invalid. Read data from the beginning to the end of the file. When <write mode>=1, <position> is valid. Read data from the <position> to the end of the file. <**data**> File data
Parameter Saving Mode	-

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Max Response Time	-
Reference	Note

7.2.4 AT+CFSDFILE Delete the File from the Flash

AT+CFSDFILE	**Delete the File from the Flash**
Test Command **AT+CFSDFILE=?**	Response **+CFSDFILE: (0),"fileName"** **OK**
	Parameters See Write Command
Write Command **AT+CFSDFILE=<index>,<file name>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<index>** Directory of AP filesystem: 0 "/customer/" **<file name>** File name length should be less than or equal to 50 characters.
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

7.2.5 AT+CFSGFIS Get File Size

AT+CFSGFIS	**Get File Size**
Test Command **AT+CFSGFIS=?**	Response **+CFSGFIS: (0),"fileName"** **OK**
	Parameters See Write Command

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Write Command **AT+CFSGFIS=<index>,<file name>**	Response **ERROR** or **+CME ERROR: <err>** or **+CFSGFIS: <n>** **OK**
	Parameters **<file name>** File name length should be less than or equal to 50 characters. **<n>** File size **<index>** Directory of AP filesystem: 0 "/customer/"
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

7.2.6 AT+CFSREN Rename File

AT+CFSREN Rename File	
Test Command **AT+CFSREN=?**	Response **+CFSREN: (0),"old_name","new_name"** **OK**
	Parameters See Write Command
Write Command **AT+CFSREN=<index>,<old file name>,<new file name>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<index>** Directory of AP filesystem: 0 "/customer/" **<old file name>**

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	File name length should be less than or equal to 50 characters. **<new file name>** File name length should be less than or equal to 50 characters.
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

7.2.7 AT+CFSGFRS Get the Size of File System

AT+CFSGFRS Get the Size of File system	
Read Command **AT+CFSGFRS?**	Response **ERROR** or **+CME ERROR: <err>** or **+CFSGFRS: <n>** **OK**
	Parameters **<n>** the size of file system
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

7.2.8 AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT

AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT	
Execution Command **AT+CFSTERM**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters

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Parameter Saving Mode	-
Max Response Time	-
Reference	Note

8 AT Commands for STK Application

8.1 Overview

Command	Description
AT^STR	Remote-SAT Response
AT^STGI	Remote-SAT Get Information
AT+STKAR	AutoRespon&URC set
^STNN	End of message Indicate
^STN	Message Indicate

8.2 Detailed Descriptions of Commands

8.2.1 AT^STR Remote-SAT Response

AT^STR Remote-SAT Response	
Test Command **AT^STR=?**	Response **^STR: (list of supported <cmdType>)** **OK**

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	Parameter See Write Command
Read Command **AT^STR?**	Response ^STR: <**cmdType**> **OK**
Write Command **AT^STR=<cmdType>,<result>[,<inputNumber>][,<inputString>,[<nScn>]**	Response **OK** **ERROR**
	Parameter <**cmdType**>: Proactive command (Decimal type) 16 Setup call 19 Send short messgage 33 Display_text; 34 Get_inkey; 35 Get_input; 36 Select_item; 37 Set up menu; 38 Provid_local_info_com; 211 Menu selection(D3); ... <**result**> Decimal type 00 Command performed successfully; 16 Proactive SIM session terminated by user ; 17 Backward move in the proactive SIM session requested by the user ; … <**inputNumber**>number of the item <**inputString**> **<nScn>** If response to **GET INPUT** or **GET INKEY** --specified in GSM11.14[12.15] -text string, the first 2 char is Data coding scheme If response to **SELECT ITEM** --specified in GSM11.134[12.10] -Identifier of item chosen
Parameter Saving Mode	NO_SAVE

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Max Response Time	-
Reference	Note For more detail used, can refer GSM11..14

8.2.2 AT^STGI Remote-SAT Get Information

AT^STGI Remote-SAT Get Information	
Test Command AT^STGI **=?**	Response **^STGI: (list of supported <Command type>)** **OK**
	Parameter See Write Command
Read Command AT^STGI**?**	Response ^STGI: <**Command type**> **OK**
	Parameter See Write Command

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Write Command **AT^STGI=<Command type>**	Response Command type=16: ^STGI:command type,"text string",type of address, address, subadress,text in calling",scheme of the text, time unit when autodial, interval of,nComQualifier Command type=19: ^STGI: command type, "text for display", Type of address, "address of SMS,"contents of SMS" Command type=33: ^STGI: command type,"text", scheme of text,nComQualifier Command type=35: ^STGI: command type,"text",scheme of text,"Default text", scheme of text, max length of text, min length of text,nComQualifier Command type =37 or 36: ^STGI: command type, 0, Then umber of the item,"Alphaidentifier" ,nComQualifier command type, ID of menu item,"contents of menu",nComQualifier Command type=38: ^STGI: command type, nComQualifier ..... **OK** **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note For more detail used, can refer GSM11.14

8.2.3 AT+STKAR AutoResponse&URC set

AT+STKAR AutoResponse&URC set	
Test Command AT+STKAR=?	Response **+STKAR: (0-15)** **OK**
	Parameter

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	See Write Command
Write Command AT+STKAR=<**Value**>	Response **OK** **ERROR** Parameter **<Value>** 0-(0000) CLOSE STK URC 1-(0001) OPEN STK URC 2-(0010) SET Display_text And Set up menu AutoResponse 4-(0100) SET Select_item AutoResponse
Read Command AT+STKAR?	Response +STKAR: **Value** **OK**
Parameter Saving Mode	AT&W_SAVE
Max Response Time Reference	- Note When value >=1,it will open STK URC,Combining bits to implement functionality.

8.2.4 ^STNN End of Proactive Command

^STNN end of proactive command
Description: ^STNN mean end of proactive command

8.2.5 ^STN URC Indication

^STN URC Indication
Description: Every time the SIM Application issues a Proactive Command, via the ME, the TA will receive a notification. This indicates the type of Proactive Command issued. AT^STGI must then be used by the TA to request the parameters of the Proactive Command from the ME. Upon receiving the^STGI response from the ME, the TA must send AT^STR to confirm the execution of the Proactive Command and provide any required user response, e.g. a selected menu item.

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9 AT Commands for TCPIP Application Toolkit

9.1 Overview

Command	Description
AT+CIPMUX	Start up multi-IP connection
AT+CIPSTART	Start up TCP or UDP connection
AT+CIPSEND	Send data through TCP or UDP connection

AT+CIPQSEND	Select data transmitting mode
AT+CIPACK	Query previous connection data transmitting state
AT+CIPCLOSE	Close TCP or UDP connection
AT+CIPSHUT	Deactivate GPRS PDP context
AT+CLPORT	Set local port
AT+CSTT	Start task and set APN, user name, password
AT+CIICR	Bring up wireless connection with GPRS or CSD
AT+CIFSR	Get local IP address
AT+CIPSTATUS	Query current connection status
AT+CDNSCFG	Configure domain name server
AT+CDNSGIP	Query the IP address of given domain name
AT+CIPHEAD	Add an IP head at the beginning of a package received
AT+CIPATS	Set auto sending timer
AT+CIPSPRT	Set prompt of '>' when module sends data
AT+CIPSERVER	Configure module as server
AT+CIPCSGP	Set CSD or GPRS for connection mode
AT+CIPSRIP	Show remote IP address and port when received data
AT+CIPDPDP	Set whether to check state of GPRS network timing
AT+CIPMODE	Select TCPIP application mode
AT+CIPCCFG	Configure transparent transfer mode
AT+CIPSHOWTP	Display transfer protocol in IP head when received data
AT+CIPUDPMODE	UDP extended mode
AT+CIPRXGET	Get data from network manually
AT+CIPRDTIMER	Set remote delay timer
AT+CIPSGTXT	Select GPRS PDP context
AT+CIPTKA	Set TCP keepalive parameters

9.2 Detailed Descriptions of Commands

9.2.1 AT+CIPMUX Start Up Multi-IP Connection

AT+CIPMUX Start Up Multi-IP Connection	
Test Command **AT+CIPMUX=?**	Response **+CIPMUX: (0,1)** **OK**
	Parameters

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	See Write Command
Read Command **AT+CIPMUX?**	Response **+CIPMUX: <n>** **OK**
	Parameters See Write Command
Write Command **AT+CIPMUX=<n>**	Response **OK**
	Parameters **<n>** 0 Single IP connection 1 Multi IP connection
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● Only in IP initial state, **AT+CIPMUX=1** is effective; ● Only when multi IP connection and GPRS application are both shut down, **AT+CIPMUX=0** is effective.

9.2.2 AT+CIPSTART Start Up TCP or UDP Connection

AT+CIPSTART	**Start Up TCP or UDP Connection**
Test Command **AT+CIPSTART=?**	Response 1) If AT+CIPMUX=0 **+CIPSTART: (**list of supported **<mode>),(<IP address>),(<port>)** **+CIPSTART: (**list of supported **<mode>),(<domain name>),(<port>)** **OK** 2) If AT+CIPMUX=1 **+CIPSTART: (**list of supported **<n>),(**list of supported **<mode>),(<IP address>),(<port>)** **+CIPSTART: (**list of supported **<n>),(**list of supported **<mode>),(<domain name>),(<port>)** **OK**
	Parameters See Write Command
Write Command 1)If single IP connection (+CIPMUX=0)	Response 1)If single IP connection (**+CIPMUX=0**) If format is right response **OK**

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AT+CIPSTART=<mode>,<IP address>,<port> Or **AT+CIPSTART=<mode>,<domain name>,<port>** 2)If multi-IP connection (+CIPMUX=1) **AT+CIPSTART=<n>,<mode>,<address>,<port>** **AT+CIPSTART=<n>,<mode>,<domain name>,<port>**	otherwise response If error is related to ME functionality: **+CME ERROR <err>** Response when connection exists **ALREADY CONNECT** Response when connection is successful **CONNECT OK** Otherwise **STATE: <state>** **CONNECT FAIL** 2)If multi-IP connection (+CIPMUX=1) If format is right **OK** otherwise response If error is related to ME functionality: **+CME ERROR <err>** Response when connection exists **<n>,ALREADY CONNECT** If connection is successful **<n>,CONNECT OK** Otherwise **<n>,CONNECT FAIL**
	Parameters **<n>** 0..7 A numeric parameter which indicates the connection number **<mode>** A string parameter which indicates the connection type "TCP" Establish a TCP connection "UDP" Establish a UDP connection **<IP address>** A string parameter which indicates remote server IP address **<port>** Remote server port **<domain name>** A string parameter which indicates remote server domain name **<state>** A string parameter which indicates the progress of connecting 0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 TCP CONNECTING/UDP CONNECTING/ SERVER LISTENING 6 CONNECT OK

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	7 TCP CLOSING/UDP CLOSING 8 TCP CLOSED/UDP CLOSED 9 PDP DEACT In Multi-IP state: 0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 IP PROCESSING 9 PDP DEACT
Parameter Saving Mode	NO_SAVE
Max Response Time	When mode is multi-IP state, the max response time75 seconds. When mode is single state, and the state is IP INITIAL, the max response time is 160 seconds.
Reference	Note ● This command allows establishment of a TCP/UDP connection only when the state is IP INITIAL or IP STATUS when it is in single state. In multi-IP state, the state is in IP STATUS only. So it is necessary to process "**AT+CIPSHUT**" before user establishes a TCP/UDP connection with this command when the state is not IP INITIAL or IP STATUS. ● When module is in multi-IP state, before this command is executed, it is necessary to process "**AT+CSTT**, **AT+CIICR**, **AT+CIFSR**".

9.2.3 AT+CIPSEND Send Data Through TCP or UDP Connection

AT+CIPSEND Send Data Through TCP or UDP Connection	
Test Command **AT+CIPSEND=?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPSEND: <length>** **OK** 2) For multi IP connection (+CIPMUX=1) **+CIPSEND: (0-7),<length>** **OK**
	Parameters See Write Command
Read Command **AT+CIPSEND?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPSEND: <size>**

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	OK 2) For multi IP connection (+CIPMUX=1) **+CIPSEND: <n>,<size>** **OK**
	Parameters **<n>** A numeric parameter which indicates the connection number **<size>** A numeric parameter which indicates the data length sent at a time
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPSEND=<length>** 2) If multi IP connection (+CIPMUX=1) **AT+CIPSEND=<n>[,<length>]**	Response This Command is used to send changeable length data If single IP is connected (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **SEND OK** When +CIPQSEND=1 **DATA ACCEPT:<length>** If sending fails: **SEND FAIL** If multi IP connection is established (+CIPMUX=1) If connection is not established or module is disconnected: If error is related to ME functionality: **+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **<n>,SEND OK** When +CIPQSEND=1 **DATA ACCEPT:<n>,<length>** If sending fails: **<n>,SEND FAIL**
	Parameters **<n>** A numeric parameter which indicates the connection number **<length>** A numeric parameter which indicates the length of sending data, it must be less than <size>
Execution Command **AT+CIPSEND** response">", then type data for send,	Response This Command is used to send changeable length data. If single IP connection is established (+CIPMUX=0) If connection is not established or module is disconnected: If error is related to ME functionality:

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tap CTRL+Z to send, tap ESC to cancel the operation	**+CME ERROR <err>** If sending is successful: When +CIPQSEND=0 **SEND OK** When +CIPQSEND=1 **DATA ACCEPT:<length>** If sending fails: **SEND FAIL** Note This Command can only be used in single IP connection mode (+CIPMUX=0) and to send data on the TCP or UDP connection that has been established already. Ctrl-Z is used as a termination symbol. ESC is used to cancel sending data. There are at most **<size>** bytes which can be sent at a time.
Parameter Saving Mode	NO_SAVE
Max Response Time	When +CIPQSEND=0 and the remote server no response, after 645 seconds, "**CLOSE"** will be reported.
Reference	Note ● The data length which can be sent depends on network status. ● Set the time that send data automatically with the Command of AT+CIPATS. ● Only send data at the status of established connection**.**

9.2.4 AT+CIPQSEND Select Data Transmitting Mode

AT+CIPQSEND	**Select Data Transmitting Mode**
Test Command **AT+CIPQSEND=?**	Response **+CIPQSEND: (0,1)** **OK**
	Parameters See Write Command
Read Command **AT+CIPQSEND?**	Response **+CIPQSEND: <n>** **OK**
	Parameter See Write Command
Write Command **AT+CIPQSEND=<n>**	Response **OK**
	Parameters

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	<n> 0 Normal mode – when the server receives TCP data, it will responsd **SEND OK**. 1 Quick send mode – when the data is sent to module, it will responsd **DATA ACCEPT:<n>,<length>**, while not responding **SEND OK**.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.5 AT+CIPACK Query Previous Connection Data Transmitting State

AT+CIPACK Query Previous Connection Data Transmitting State	
Test Command **AT+CIPACK=?**	Response **OK**
Write Command If in multi IP connection (+CIPMUX=1) **AT+CIPACK=<n>**	Response **+CIPACK: <txlen>, <acklen>, <nacklen>** **OK**
	Parameters **<n>** A numeric parameter which indicates the connection number **<txlen>** The data amount which has been sent **<acklen>** The data amount confirmed successfully by the server **<nacklen>** The data amount without confirmation by the server
Execution Command If in single IP connection (+CIPMUX=0) **AT+CIPACK**	Response **+CIPACK: <txlen>, <acklen>, <nacklen>** **OK**
	Parameters See Write Command
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.6 AT+CIPCLOSE Close TCP or UDP Connection

AT+CIPCLOSE Close TCP or UDP Connection	
Test Command	Response

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AT+CIPCLOSE=?	**OK**
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPCLOSE=<n>** 2) If multi IP connection (+CIPMUX=1) **AT+CIPCLOSE=<id>,[<n>]**	Response: 1) For single IP connection (+CIPMUX=0) **CLOSE OK** 2) For multi IP connection (+CIPMUX=1) **<id>, CLOSE OK** Parameters **<n>** 0 Slow close 1 Quick close **<id>** A numeric parameter which indicates the connection number
Execution Command **AT+CIPCLOSE**	Response If close is successfully: **CLOSE OK** If close fails: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note AT+CIPCLOSE only closes connection at corresponding status of TCP/UDP stack. To see the status use AT+CIPSTATUS command. Status should be: TCP CONNECTING, UDP CONNECTING, SERVER LISTENING or CONNECT OK in single-connection mode (see <state> parameter); CONNECTING or CONNECTED in multi-connection mode (see <client state>); OPENING or LISTENING in multi-connection mode (see <server state>). Otherwise it will return ERROR".

9.2.7 AT+CIPSHUT Deactivate GPRS PDP Context

AT+CIPSHUT Deactivate GPRS PDP Context	
Test Command **AT+CIPSHUT=?**	Response **OK**
Execution Command **AT+CIPSHUT**	Response If close is successful: **SHUT OK** If close fails:

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	ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	65 seconds
Reference	Note ● If this command is executed in multi-connection mode, all of the IP connection will be shut. ● User can close gprs pdp context by AT+CIPSHUT. After it is closed, the status is IP INITIAL. ● If "+PDP: DEACT" urc is reported which means the gprs is released by the network, then user still needs to execute "AT+CIPSHUT" command to make PDP context come back to original state.

9.2.8 AT+CLPORT Set Local Port

AT+CLPORT Set Local Port	
Test Command **AT+CLPORT=?**	Response 1) For single IP connection (+CIPMUX=0) **+CLPORT: ("TCP","UDP"),(0-65535)** **OK** 2) For multi IP connection (+CIPMUX=1) **+CLPORT: (0-7),("TCP","UDP"),(0-65535)** **OK**
	Parameters See Write Command
Read Command **AT+CLPORT?**	Response 1) For single IP connection (+CIPMUX=0) **+CLPORT: <TCP port>,<UDP port>** **OK** 2) For multi IP connection (+CIPMUX=1) **+CLPORT: 0,<TCP port>,<UDP port>** **+CLPORT: 1,<TCP port>,<UDP port>** **+CLPORT: 2,<TCP port>,<UDP port>** **+CLPORT: 3,<TCP port>,<UDP port>** **+CLPORT: 4,<TCP port>,<UDP port>** **+CLPORT: 5,<TCP port>,<UDP port>** **+CLPORT: 6,<TCP port>,<UDP port>** **+CLPORT: 7,<TCP port>,<UDP port>** **OK**

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	Parameters See Write Command
Write Command 1) For single IP connection (+CIPMUX=0) **AT+CLPORT=<mode>,<port>** 2) For multi IP connection (+CIPMUX=1) **AT+CLPORT=<n>,<mode>,<port>**	Response **OK** **ERROR**
	Parameters **<n>** 0..7 A numeric parameter which indicates the connection number this used in multi IP connection **<mode>** A string parameter which indicates the connection type "TCP" TCP local port "UDP" UDP local port **<port>** 0-65535 A numeric parameter which indicates the local port. Default value is 0, a port can be dynamically allocated a port.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note This command will be effective when module is set as a Client.

9.2.9 AT+CSTT Start Task and Set APN, USER NAME, PASSWORD

AT+CSTT Start Task and Set APN, USER NAME, PASSWORD	
Test Command **AT+CSTT=?**	Response **+CSTT: "APN","USER","PWD"** **OK**
	Parameters See Write Command
Read Command **AT+CSTT?**	Response **+CSTT: <apn>,<user name>,<password>** **OK**
	Parameters See Write Command
Write Command **AT+CSTT=<apn>,<user name>,<password>**	Response **OK** **ERROR**
	Parameters **<apn>** A string parameter which indicates the GPRS access point name. The max length is 63 bytes.Defautl value is "CMNET". **<user name>** A string parameter which indicates the GPRS user name.

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	The max length is 31 bytes. **<password>** A string parameter which indicates the GPRS password. The max length is 31 bytes.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Execution Command **AT+CSTT**	Response **OK** **ERROR**
Reference	Note The write command and execution command of this command is valid only at the state of IP INITIAL. After this command is executed, the state will be changed to IP START.

9.2.10 AT+CIICR Bring Up Wireless Connection with GPRS or CSD

AT+CIICR Bring Up Wireless Connection with GPRS or CSD	
Test Command **AT+CIICR=?**	Response **OK**
Execution Command **AT+CIICR**	Response **OK** **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	85 seconds
Reference	Note ● AT+CIICR only activates moving scene at the status of IP START, after operating this Command is executed, the state will be changed to IP CONFIG. ● After module accepts the activated operation, if it is activated successfully, module state will be changed to IP GPRSACT, and it responds OK, otherwise it will respond ERROR.

9.2.11 AT+CIFSR Get Local IP Address

AT+CIFSR Get Local IP Address	
Test Command **AT+CIFSR=?**	Response **OK**
Execution Command **AT+CIFSR**	Response **<IP address>** **ERROR**

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	Parameter **<IP address>** A string parameter which indicates the IP address assigned from GPRS or CSD.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note Only after PDP context is activated, local IP address can be obtained by AT+CIFSR, otherwise it will respond ERROR. To see the status use AT+CIPSTATUS command. Status should be: IP GPRSACT, TCP CONNECTING, UDP CONNECTING, SERVER LISTENING, IP STATUS, CONNECT OK, TCP CLOSING, UDP CLOSING, TCP CLOSED, UDP CLOSED in single-connection mode (see <state> parameter); IP STATUS, IP PROCESSING in multi-connection mode (see <state> parameter).

9.2.12 AT+CIPSTATUS Query Current Connection Status

AT+CIPSTATUS	**Query Current Connection Status**
Test Command **AT+CIPSTATUS=?**	Response **OK**
Write Command If multi IP connection mode (+CIPMUX=1) **AT+CIPSTATUS=<n>**	Response **+CIPSTATUS: <n>,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state>** **OK**
	Parameters See Execution Command
Execution Command **AT+CIPSTATUS**	Response 1）If in single connection mode (+CIPMUX=0) **OK** **STATE: <state>** 2) If in multi-connection mode (+CIPMUX=1) **OK** **STATE: <state>** If the module is set as server **S: 0, <bearer>, <port>, <server state>** **C: <n>,<bearer>, <TCP/UDP>, <IP address>, <port>, <client state>**

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	Parameters **<n>** 0-7 A numeric parameter which indicates the connection number **<bearer>** 0-1 GPRS bearer, default is 0 **<server state>** OPENING LISTENING CLOSING **<client state>** INITIAL CONNECTING CONNECTED REMOTE CLOSING CLOSING CLOSED **<state>** A string parameter which indicates the progress of connecting 0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 TCP CONNECTING/UDP CONNECTING /SERVER LISTENING 6 CONNECT OK 7 TCP CLOSING/UDP CLOSING 8 TCP CLOSED/UDP CLOSED 9 PDP DEACT In Multi-IP state: 0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 IP PROCESSING 9 PDP DEACT
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.13 AT+CDNSCFG Configure Domain Name Server

AT+CDNSCFG Configure Domain Name Server

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Test Command **AT+CDNSCFG=?**	Response **+CDNSCFG: ("Primary DNS"),("Secondary DNS")** **OK**
	Parameters See Write Command
Read Command **AT+CDNSCFG?**	Response **PrimaryDns: <pri_dns>** **SecondaryDns: <sec_dns>** **OK**
	Parameter See Write Command
Write Command **AT+CDNSCFG=<pri_dns>[,<sec_dns>]**	Response **OK** **ERROR**
	Parameters **<pri_dns>** A string parameter which indicates the IP address of the primary domain name server. Default value is 0.0.0.0. **<sec_dns>** A string parameter which indicates the IP address of the secondary domain name server. Default value is 0.0.0.0.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.14 AT+CDNSGIP Query the IP Address of Given Domain Name

AT+CDNSGIP Query the IP Address of Given Domain Name	
Test Command **AT+CDNSGIP=?**	Response **OK**
Write Command **AT+CDNSGIP=<domain name>**	Response **OK** **ERROR** If successful, return: **+CDNSGIP: 1, <domain name>,<IP1>[,<IP2>]** If fail, return: **+CDNSGIP: 0,<dns error code>**
	Parameters **<domain name>** A string parameter which indicates the domain name

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	<IP1> A string parameter which indicates the first IP address corresponding to the domain name **<IP2>** A string parameter which indicates the second IP address corresponding to the domain name **<dns error code>** A numeric parameter which indicates the error code 8 DNS COMMON ERROR 3 NETWORK ERROR There are some other error codes as well.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.15 AT+CIPHEAD Add an IP Head at the Beginning of a Package Received

AT+CIPHEAD Add an IP Head at the Beginning of a Package Received	
Test Command **AT+CIPHEAD=?**	Response **+CIPHEAD: (**list of supported **<mode>**s**)** **OK**
	Parameter See Write Command
Read Command **AT+CIPHEAD?**	Response **+CIPHEAD: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIPHEAD=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which indicates whether an IP header is added to the received data or not. 0 Not add IP header 1 Add IP header, the format is: 1) For single IP connection (+CIPMUX=0) **+IPD,<data length>:** 2) For multi IP connection (+CIPMUX=1) **+RECEIVE,<n>,<data length>:**
Parameter Saving	NO_SAVE

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Mode	
Max Response Time	-
Reference	Note

9.2.16 AT+CIPATS Set Auto Sending Timer

AT+CIPATS Set Auto Sending Timer	
Test Command **AT+CIPATS=?**	Response **+CIPATS: (**list of supported **<mode>**s**),(**list of supported **<time**>) **OK**
	Parameters See Write Command
Read Command **AT+CIPATS?**	Response **+CIPATS: <mode>,<time>** **OK**
	Parameters See Write Command
Write Command **AT+CIPATS=<mode>[,<time>]**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which indicates whether set timer when module is sending data 0 Not set timer when module is sending data 1 Set timer when module is sending data **<time>** 1..100 A numeric parameter which indicates the seconds after which the data will be sent
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.17 AT+CIPSPRT Set Prompt of '>' When Module Sends Data

AT+CIPSPRT Set Prompt of '>' When Module Sends Data	
Test Command **AT+CIPSPRT=?**	Response **+CIPSPRT: (**list of supported **<send prompt**>s**)**

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	OK
	Parameters See Write Command
Read Command **AT+CIPSPRT?**	Response **+CIPSPRT: <send prompt>** **OK**
	Parameters See Write Command
Write Command **AT+CIPSPRT=<send prompt>**	Response **OK** **ERROR**
	Parameters **<send prompt>** A numeric parameter which indicates whether to echo prompt '>' after module issues AT+CIPSEND command. 0 It shows "send ok" but does not prompt echo '>' when sending is successful. 1 It prompts echo '>' and shows "send ok" when sending is successful. 2 It neither prompts echo '>' nor shows "send ok" when sending is successful.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.18 AT+CIPSERVER Configure Module as Server

AT+CIPSERVER Configure Module as Server	
Test Command **AT+CIPSERVER=?**	Response **+CIPSERVER: (0-CLOSE SERVER, 1-OPEN SERVER),(1-65535)** **OK**
	Parameters See Write Command
Read Command **AT+CIPSERVER?**	Response **+CIPSERVER: <mode>[,<port>,<channel id>,<bearer>]** **OK**
	Parameters

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	See Write Command
Write Command **AT+CIPSERVER=<mode>[,<port>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Close server 1 Open server **<port>** 1..65535 Listening port **<channel id>** Channel id **<bearer>** GPRS bearer
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note This command is allowed to establish a TCP server only when the state is IP INITIAL or IP STATUS when it is in single state. In multi-IP state, the state is in IP STATUS only.

9.2.19 AT+CIPCSGP Set CSD or GPRS for Connection Mode

AT+CIPCSGP Set CSD or GPRS for Connection Mode	
Test Command **AT+CIPCSGP=?**	Response **+CIPCSGP: 1-GPRS,APN,USER NAME,PASSWORD** **OK**
	Parameters See Write Command
Read Command **AT+CIPCSGP?**	Response **+CIPCSGP: <mode>, <apn>, <user name>, <password>[,<rate>]** **OK**
	Parameters See Write Command
Write Command **AT+CIPCSGP=<mode>[,(<apn>,<user name>,<password>),(<dial number>,<user name>,<passwor**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which indicates the wireless connection mode 1 set GPRS as wireless connection mode GPRS parameters: **<apn>** A string parameter which indicates the access point name

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d>,<rate>)]	**<user name>** A string parameter which indicates the user name **<password>** A string parameter which indicates the password CSD parameters: **<dial number>** A string parameter which indicates the CSD dial numbers **<user name>** A string parameter which indicates the CSD user name **<password>** A string parameter which indicates the CSD password **<rate>** A numeric parameter which indicates the CSD connection rate 0 2400 1 4800 2 9600 3 14400
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

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

AT+CIPSRIP Show Remote IP Address and Port When Received Data	
Test Command **AT+CIPSRIP=?**	Response **+CIPSRIP: (**list of supported **<mode>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CIPSRIP?**	Response **+CIPSRIP**: **<mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIPSRIP=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** A numeric parameter which shows remote IP address and port. 0 Do not show the prompt 1 Show the prompt, the format is as follows: 1) For single IP connection (+CIPMUX=0)

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	+RECV FROM:<IP ADDRESS>:<PORT> 1) For multi IP connection (+CIPMUX=1) **+RECEIVE,<n>,<data length>,<IP ADDRESS>:<PORT>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

9.2.21 AT+CIPDPDP Set Whether to Check State of GPRS Network Timing

AT+CIPDPDP Set Whether to Check State of GPRS Network Timing	
Test Command **AT+CIPDPDP=?**	Response **+CIPDPDP: (**list of supported**<mode>**s**,** list of supported **<interval>,** list of supported **<timer>)** **OK**
	Parameters See Write Command
Read Command **AT+CIPDPDP?**	Response **+CIPDPDP: <mode>, <interval>, <timer>** **OK**
	Parameters See Write Command
Write Command **AT+CIPDPDP=<mode>[,<interval>,<timer>]**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Not set detect PDP 1 Set detect PDP **<interval>** 1<=interval<=180(s), default value is 10. **<timer>** 1<=timer<=10, default value is 3.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note If "+PDP: DEACT" urc is reported because of module not attaching to gprs

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	for a certain time or other reasons, user still needs to execute "AT+CIPSHUT" command makes PDP context come back to original state.

9.2.22 AT+CIPMODE Select TCPIP Application Mode

AT+CIPMODE	**Select TCPIP Application Mode**
Test Command **AT+CIPMODE=?**	Response **+CIPMODE: (0-NORMAL MODE,1-TRANSPARENT MODE)** **OK**
	Parameters See Write Command
Read Command **AT+CIPMODE?**	Response **+CIPMODE: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIPMODE=<mode>**	Response **OK** **ERROR**
	Parameters **<mode>** 0 Normal mode 1 Transparent mode
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.23 AT+CIPCCFG Configure Transparent Transfer Mode

AT+CIPCCFG	**Configure Transparent Transfer Mode**
Test Command **AT+CIPCCFG=?**	Response **+CIPCCFG: (NmRetry:3-8),(WaitTm:1-10),(SendSz:1-1460),(esc:0,1),(Rxmode:0,1),(RxSize:50-1460),(Rxtimer:20-1000)** **OK**
	Parameters See Write Command
Read Command	Response

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AT+CIPCCFG?	**+CIPCCFG: <NmRetry>,<WaitTm>,<SendSz>,<esc>,<Rxmode>,<RxSize>,<Rxtimer>** **OK**
	Parameters See Write Command
Write Command **AT+CIPCCFG=<NmRetry>,<WaitTm>,<SendSz>,<esc>[,<Rxmode>,<RxSize>,<Rxtimer>]**	Response **OK** **ERROR**
	Parameters **<NmRetry>** Number of retries to be made for an IP packet.Default value is 5. **<WaitTm>** Number of 100ms intervals to wait for serial input before sending the packet. Default value is 1. **<SendSz>** Size in bytes of data block to be received from serial port before sending. Default value is 1024. **<esc>** Whether turn on the escape sequence, default is TRUE. 0 Turn off the escape sequence 1 Turn on the escape sequence **<Rxmode>** Whether to set time interval during output data from serial port. 0 output data to serial port without interval 1 output data to serial port within <Rxtimer> interval. **<RxSize>** Output data length for each time. Default value is 1460. **<Rxtimer>** Time interval (ms) to wait for serial port to output data again. Default value: 50ms
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note This command will be effective only in single connection mode (+CIPMUX=0)

9.2.24 AT+CIPSHOWTP Display Transfer Protocol in IP Head When Received Data

AT+CIPSHOWTP	**Display Transfer Protocol in IP Head When Received Data**
Test Command **AT+CIPSHOWTP=?**	Response **+CIPSHOWTP: (**list of supported **<mode>**s**)** **OK**
	Parameters

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	See Write Command
Read Command **AT+CIPSHOWTP?**	Response **+CIPSHOWTP: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIPSHOWTP=<mode>**	Response **OK** **ERROR** Parameters **<mode>** A numeric parameter which indicates whether to display transfer protocol in IP header to received data or not 0 Not display transfer protocol 1 Display transfer protocol, the format is "**+IPD,<data size>,<TCP/UDP>:<data>**"
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● This command will be effective only in single connection mode (+CIPMUX=0). • Only when +CIPHEAD is set to 1, the setting of this command will work.

9.2.25 AT+CIPUDPMODE UDP Extended Mode

AT+CIPUDPMODE UDP Extended Mode	
Test Command **AT+CIPUDPMODE=?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPUDPMODE: (0-2),("(0-255).(0-255).(0-255).(0-255)"),(1-65535)** **OK** 2) For multi IP connection (+CIPMUX=1) **+CIPUDPMODE:** **(0-7),(0-2),("(0-255).(0-255).(0-255).(0-255)"),(1-65535)** **OK**
	Parameters See Write Command
Read Command **AT+CIPUDPMODE?**	Response 1) For single IP connection (+CIPMUX=0) **+CIPUDPMODE: <mode>[,<IP address>,<Port>]**

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	OK 2) For multi IP connection (+CIPMUX=1) **+CIPUDPMODE: 0, <mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 1,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 2,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 3,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 4,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 5,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 6,<mode>[,<IP address>,<Port>]** **+CIPUDPMODE: 7,<mode>[,<IP address>,<Port>]** **OK**
	Parameter See Write Command
Write Command 1) For single IP connection (+CIPMUX=0) **AT+CIPUDPMODE=<mode>[,<IP address>,<Port>]** 2) For multi IP connection (+CIPMUX=1) **AT+CIPUDPMODE=<n>,<mode>[,<IP address>,<Port>]**	Response **OK** **ERROR**
	<n> 0-7 A numeric parameter which indicates the connection number **<mode>** 0 UDP Normal Mode 1 UDP Extended Mode 2 Set UDP address to be sent **<IP address>** A string parameter which indicates remote IP address **<port>** Remote port
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

9.2.26 AT+CIPRXGET Get Data from Network Manually

AT+CIPRXGET	**Get Data from Network Manually**
Test Command **AT+CIPRXGET=?**	Response If single IP connection (+CIPMUX=0) **+CIPRXGET: (**list of supported **<mode>**s**),(**list of supported **<reqlength>**s**)** **OK**

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	If multi IP connection (+CIPMUX=1) **+CIPRXGET: (**list of supported **<mode>**s**), (**list of supported **<id>**s**), (**list of supported **<reqlength>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CIPRXGET?**	Response **+CIPRXGET: <mode>** **OK**
	Parameters See Write Command
Write Command 1) If single IP connection (+CIPMUX=0) **AT+CIPRXGET=<mode>[,<reqlength>]** 2) If multi IP connection (+CIPMUX=1) **AT+CIPRXGET=<mode>[,<id>,<reqlength>]**	Response **OK** **ERROR** 1)For single IP connection If "AT+CIPSRIP=1" is set, IP address and port are contained. if <mode>=1 **+CIPRXGET: 1[,<IP ADDRESS>:<PORT>]** if <mode>=2 **+CIPRXGET: 2,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **1234567890…** **OK** if <mode>=3 **+CIPRXGET: 3,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **5151…** **OK** if <mode>=4 **+CIPRXGET: 4, <cnflength>** **OK** 2)For multi IP connection If "AT+CIPSRIP=1" is set, IP address and port is contained. if <mode>=1 **+CIPRXGET: 1[,<id>,<IP ADDRESS>:<PORT>]** if <mode>=2 **+CIPRXGET: 2,<id>,<reqlength>,<cnflength>[,<IP ADDRESS>:<PORT>]** **1234567890…** **OK** if <mode>=3 **+CIPRXGET: 3,<id>,<reqlength>,<cnflength>[,<IP**

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	ADDRESS>:<PORT>] **5151…** **OK** if <mode>=4 **+CIPRXGET: 4, <id>,<cnflength>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly. 1 Enable getting data from network manually. 2 The module can get data, but the length of output data can not exceed 1460 bytes at a time. 3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time. 4 Query how many data are not read with a given ID. **<id>** A numeric parameter which indicates the connection number **<reqlength>** Requested number of data bytes (1-1460 bytes)to be read **<cnflength>** Confirmed number of data bytes to be read, which may be less than <length>. 0 indicates that no data can be read.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note To enable this function, parameter <mode> must be set to 1 before connection.

9.2.27 AT+CIPRDTIMER Set Remote Delay Timer

AT+CIPRDTIMER Set Remote Delay Timer	
Test Command **AT+CIPRDTIMER=?**	Response **+CIPRDTIMER: (100-4000),(100-7000)** **OK**
	Parameters See Write Command
Read Command **AT+CIPRDTIM**	Response **+CIPRDTIMER: <rdsigtimer>,<rdmuxtimer>**

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ER?	**OK**
	Parameters See Write Command
Write Command **AT+CIPRDTIMER=<rdsigtimer>,<rdmuxtimer>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<rdsigtimer>** Remote delay timer of single connection. Default value is 2000. **<rdmuxtimer>** Remote delay timer of multi-connections. Default value is 3500.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note This command is used to shorten the disconnect time locally when the remote server has been disconnected.

9.2.28 AT+CIPSGTXT Select GPRS PDP context

AT+CIPSGTXT	**Select GPRS PDP context**
Test Command **AT+CIPSGTXT=?**	Response **+CIPSGTXT: (0,1)** **OK**
	Parameters See Write Command
Read Command **AT+CIPSGTXT?**	Response 1) If AT+CIPMUX=0 **+CIPSGTXT:** **<sgtxt>,(<bearerid>,<state>[,<ip>][)][,<(type,otcpid,channelid>))]** **OK** 2) If AT+CIPMUX=1 **+CIPSGTXT:** **<sgtxt>,(<bearerid>,<state>[,<ip>]),(<bearerid>,<state>[,<ip>][),(<(type,otcpid,channelid>),(<(type,otcpid,channelid>)])** **OK**
Write Command	Response

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AT+CIPSGTXT=<mode>,<sgtxt>,<bearerid>,<state>,<ip>,<type>	**OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 0 Select first PDP context 1 Select second PDP context <**sgtxt**>0 first PDP context 1 second PDP context <**bearerid**>0 bearerid 0 1 bearerid 1 <**state**>active IP_CONFIG < atcpContext_p->bearer[bearerid].state < IP_IF_DOWN Deactive other atcpContext_p->bearer[bearerid].state <**ip**> ip address <**type**> S server T TCP client U UDP client <**tcpid**> tcp id <**channelid**> channel id
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note This command is used to select pdp context, only for multi IP connection (+CIPMUX=1).

9.2.29 AT+CIPTKA Set TCP Keepalive Parameters

AT+CIPTKA Set TCP Keepalive Parameters	
Test Command **AT+CIPTKA=?**	Response **+CIPTKA:** (list of supported **<mode>**s),(list of supported **<keepIdle>**s),(list of supported **<keepInterval>**s),(list of supported **<keepCount>**s) **OK**
	Parameters See Write Command
Read Command **AT+CIPTKA?**	Response **+CIPTKA: <mode>,<keepIdle>,<keepInterval>,<keepCount>** **OK**

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	Parameters See Write Command
Write Command **AT+CIPTKA=<mode>[,<keepIdle>[,<keepInterval>[,<keepCount>]]]**	Response **OK** If error is related to ME functionality: **ERROR**
	Parameters **<mode>** Set TCP keepalive option. 0 Disable TCP keep alive mechanism 1 Enable TCP keep alive mechanism **<keepIdle>** Integer type; Idle time (in second) before TCP send the initial keepalive probe. 30-7200 Default: 7200 **<keepInterval>** Interval time (in second) between keepalive probes retransmission. 30-600 Default: 75 **<keepCount>** Integer type; Maximum number of keepalive probes to be sent. 1-9 Default: 9
Reference	Note

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10 AT Commands for IP Application

10.1 Overview

Command	Description
AT+SAPBR	Bearer settings for applications based on IP

10.2 Detailed Descriptions of Commands

10.2.1 AT+SAPBR Bearer Settings for Applications Based on IP

AT+SAPBR Bearer Settings for Applications Based on IP	
Test Command **AT+SAPBR=?**	Response **+SAPBR: (0-4),(1-3), "ConParamTag","ConParamValue"** **OK**
	Parameters See Write Command
Write Command **AT+SAPBR=<cmd_type>,<cid>[,<ConParamTag>,<ConParamValue>]**	Response **OK** If **<cmd_type> = 2** **+SAPBR: <cid>,<Status>,<IP_Addr>** **OK** If **<cmd_type>=4** **+SAPBR:** **<ConParamTag>,<ConParamValue>** **OK** Unsolicited Result Code **+SAPBR <cid>: DEACT**
	Parameters **<cmd_type>** 0 Close bearer 1 Open bearer 2 Query bearer 3 Set bearer parameters 4 Get bearer parameters **<cid>** Bearer profile identifier **<Status>** 0 Bearer is connecting

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	1 Bearer is connected 2 Bearer is closing 3 Bearer is closed **<ConParamTag>** Bearer parameter "CONTYPE" Type of Internet connection. Value refer to <ConParamValue_ConType> "APN" Access point name string: maximum 64 characters "USER" User name string: maximum 32 characters "PWD" Password string: maximum 32 characters **<ConParamValue>** Bearer paramer value **<ConParamValue_ConType>** "CSD" Circuit-switched data call. "GPRS" GPRS connection. **<IP_Addr>** The IP address of bearer
Parameter Saving Mode	NO_SAVE
Max Response Time	When **<cmd_type>** is 1, 85 seconds When **<cmd_type>** is 0, 65 seconds
Reference	Note This command is applied to activate some applications such as HTTP, FTP.

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11 AT Commands for HTTP Application

SIM800 series has an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet HTTP service. This chapter is a reference guide to all the AT commands and responses defined to use with the TCP/IP stack in HTTP Service.

11.1 Overview

Command	Description
AT+HTTPINIT	Initialize HTTP service
AT+HTTPTERM	Terminate HTTP service
AT+HTTPPARA	Set HTTP parameters value
AT+HTTPDATA	Input HTTP data
AT+HTTPACTION	HTTP method action
AT+HTTPREAD	Read the HTTP server response
AT+HTTPSCONT	Save HTTP application context
AT+HTTPSTATUS	Read HTTP status
AT+HTTPHEAD	Read the HTTP header information of server response

11.2 Detailed Descriptions of Commands

11.2.1 AT+HTTPINIT Initialize HTTP Service

AT+HTTPINIT	Initialize HTTP Service
Test Command **AT+HTTPINIT=?**	Response **OK**
Execution Command **AT+HTTPINIT**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note HTTPINIT should first be executed to initialize the HTTP service.

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11.2.2 AT+HTTPTERM Terminate HTTP Service

AT+HTTPTERM Terminate HTTP Service	
Test Command **AT+HTTPTERM=?**	Response **OK**
Execution command **AT+HTTPTERM**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

11.2.3 AT+HTTPPARA Set HTTP Parameters Value

AT+HTTPPARA Set HTTP Parameters Value	
Test Command **AT+HTTPPARA=?**	Response **+HTTPPARA: "HTTPParamTag","HTTPParmValue"** **OK**
	Parameters See Write Command
Read Command **AT+HTTPPARA?**	Response **+HTTPPARA: <HTTPParamTag>,<HTTPParamValue>** **OK**
	Parameters See Write Command
Write Command **AT+HTTPPARA=<HTTPParamTag>,<HTTPParamValue>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<HTTPParamTag>** HTTP Parameter "CID" (Mandatory Parameter) Bearer profile identifier

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"URL"	(Mandatory Parameter) HTTP client URL "http://'server'/'path':'tcpPort' " "server": FQDN or IP-address "path": path of file or directory "tcpPort": default value is 80. Refer to "IETF-RFC 2616".
"UA"	The user agent string which is set by the application to identify the mobile. Usually this parameter is set as operation system and software version information. Default value is "SIMCom_MODULE".
"PROIP"	The IP address of HTTP proxy server
"PROPORT"	The port of HTTP proxy server
"REDIR"	This flag controls the redirection mechanism of the SIM800 when it is acting as HTTP client (numeric). If the server sends a redirect code (range 30x), the client will automatically send a new HTTP request when the flag is set to (1). Default value is 0 (no redirection).
"BREAK"	Parameter for HTTP method "GET", used for resuming broken transfer.
"BREAKEND"	Parameter for HTTP method "GET", used for resuming broken transfer. which is used together with "BREAK", If the value of "BREAKEND" is bigger than "BREAK", the transfer scope is from "BREAK" to "BREAKEND". If the value of "BREAKEND" is smaller than "BREAK", the transfer scope is from "BREAK" to the end of the file.
"TIMEOUT"	If both "BREAKEND" and "BREAK" are 0, the resume broken transfer function is disabled. HTTP session timeout value, scope: 30-1000 second. Default value is 120 seconds.
	HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.
"CONTENT"	Used to set the “Content-Type” field in HTTP header.
"USERDATA"	User data
<HTTPParamValue>	HTTP Parameter value.Type and supported content depend on related <HTTPParamTag>.

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Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note Not all the HTTP Server supports "BREAK" and "BREAKEND" parameters

11.2.4 AT+HTTPDATA Input HTTP Data

AT+HTTPDATA Input HTTP Data	
Test Command **AT+HTTPDATA=?**	Response **+HTTPDATA: (**list of supported **<size>**s**),(**list of supported **<time>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+HTTPDATA=<size>,<time>**	Response **DOWNLOAD** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<size>** Size in bytes of the data to POST. 1-319488 (bytes) 0 means delete all the content. **<time>** 1000-120000 (millisecond) Maximum time in milliseconds to input data.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note It is strongly recommended to set enough time to input all data with the length of <size>.

11.2.5 AT+HTTPACTION HTTP Method Action

AT+HTTPACTION HTTP Method Action	
Test Command **AT+HTTPACTION=?**	Response **+HTTPACTION: (0-3)**

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	OK
	Parameters See Write Command
Write Command **AT+HTTPACTION=<Method>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>** Unsolicited Result Code **+HTTPACTION: <Method>,<StatusCode>,<DataLen>**
	Parameters **<Method>** HTTP method specification: 0 GET 1 POST 2 HEAD 3 DELETE **<StatusCode>** HTTP Status Code responded by remote server, it identifier refer to HTTP1.1(RFC2616) 100 Continue 101 Switching Protocols 200 OK 201 Created 202 Accepted 203 Non-Authoritative Information 204 No Content 205 Reset Content 206 Partial Content 300 Multiple Choices 301 Moved Permanently 302 Found 303 See Other 304 Not Modified 305 Use Proxy 307 Temporary Redirect 400 Bad Request 401 Unauthorized 402 Payment Required 403 Forbidden 404 Not Found 405 Method Not Allowed 406 Not Acceptable

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	407 Proxy Authentication Required 408 Request Time-out 409 Conflict 410 Gone 411 Length Required 412 Precondition Failed 413 Request Entity Too Large 414 Request-URI Too Large 415 Unsupported Media Type 416 Requested range not satisfiable 417 Expectation Failed 500 Internal Server Error 501 Not Implemented 502 Bad Gateway 503 Service Unavailable 504 Gateway Time-out 505 HTTP Version not supported 600 Not HTTP PDU 601 Network Error 602 No memory 603 DNS Error 604 Stack Busy **<DataLen>** The length of data got
Parameter Saving Mode	NO_SAVE
Max Response Time	About 5 seconds in test, dependence on network status and the size of request website
Reference	Note

11.2.6 AT+HTTPREAD Read the HTTP Server Response

AT+HTTPREAD Read the HTTP Server Response	
Test Command **AT+HTTPREAD=?**	Response **+HTTPREAD: (**list of supported **<start_address>**s**),(**list of supported **<byte_size>**s**)** **OK**
	Parameters See Write Command
Write Command **AT+HTTPREAD=<start_addres**	Response **+HTTPREAD: <date_len>** **<data>**

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s>,<byte_size>	**OK** Read data when AT+HTTPACTION=0 or AT+HTTPDATA is executed. If<byte_size> is bigger than the data size received, module will only return actual data size. If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<data>** Data from HTTP server or user input. **<start_address>** The starting point for data output. 0-319488 (bytes) **<byte_size>** The length for data output. 1-319488 (bytes) **<data_len>** The actual length for data output.
Execution Command **AT+HTTPREAD**	Response **+HTTPREAD:<date_len>** **<data>** **OK** Read all data when AT+HTTPACTION=0 or AT+HTTPDATA is executed. If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

11.2.7 AT+HTTPSTATUS Read HTTP Status

AT+HTTPSTATUS Read HTTP Status	
Test Command **AT+HTTPSTATUS=?**	Response **OK**

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Read Command **AT+HTTPSTATUS?**	Response **+HTTPSTATUS: <mode>,<status>,<finish>,<remain>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters: **<mode>** GET POST HEAD **<status>** 0 idle 1 receiving 2 sending **<finish>** The amount of data which have been transmitted **<remain>** The amount of data remaining to be sent or received
Parameter Saving Mode	NO_SAVE
Max Response Time	-

11.2.8 AT+HTTPHEAD Read the HTTP Header Information of Server Response

AT+HTTPHEAD	**Read the HTTP Header Information of Server Response**
Test Command **AT+HTTPHEAD=?**	Response **OK**
Execution Command **AT+HTTPHEAD**	Response **+ HTTPHEAD: <date_len>** **<data>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<data_len>** The actual length for http header data output **<data>** Data from HTTP server
Parameter Saving Mode	NO_SAVE

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Max Response Time	-
Reference	Note Read header data when AT+HTTPACTION=0 executed.

12 AT Commands for FTP Application

R800 series has an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet FTP service. This chapter is a reference guide to all the AT commands and responses defined for using with the TCP/IP stack in FTP Service.

12.1 Overview

Command	Description
AT+FTPPORT	Set FTP control port
AT+FTPMODE	Set active or passive FTP mode
AT+FTPTYPE	Set the type of data to be transferred
AT+FTPPUTOPT	Set FTP put type
AT+FTPCID	Set FTP bearer profile identifier
AT+FTPREST	Set resume broken download
AT+FTPSERV	Set FTP server address
AT+FTPUN	Set FTP user name
AT+FTPPW	Set FTP password
AT+FTPGETNAME	Set download file name
AT+FTPGETPATH	Set download file path
AT+FTPPUTNAME	Set upload file name
AT+FTPPUTPATH	Set upload file path
AT+FTPGET	Download file
AT+FTPPUT	Set upload file
AT+FTPSCONT	Save FTP application context
AT+FTPDELE	Delete specified file in FTP server
AT+FTPSIZE	Get the size of specified file in FTP server
AT+FTPSTATE	Get the FTP state
AT+FTPEXTPUT	Extend upload file
AT+FTPMKD	Make directory on the remote machine
AT+FTPRMD	Remove directory on the remote machine
AT+FTPLIST	List contents of directory on the remote machine
AT+FTPGETTOFS	Download file and save in file system

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AT+FTPPUTFRMFS	Upload file from file system
AT+FTPEXTGET	Extend download file
AT+FTPFILEPUT	Load file in RAM from file system then upload with FTPPUT
AT+FTPQUIT	Quit current FTP session

12.2 Detailed Descriptions of Commands

12.2.1 AT+FTPPORT Set FTP Control Port

AT+FTPPORT Set FTP Control Port	
Test Command **AT+FTPPORT=?**	Response **OK**
Read Command **AT+FTPPORT?**	Response **+FTPPORT: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPPORT=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** The value of FTP Control port, from 1 to 65535. Default value is 21
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note Numbers above 65535 are illegal as the port identification fields are 16 bits long in the TCP header.

12.2.2 AT+FTPMODE Set Active or Passive FTP Mode

AT+FTPMODE Set Active or Passive FTP Mode	
Test Command **AT+FTPMODE=?**	Response **OK**

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Read Command **AT+FTPMODE?**	Response **+FTPMODE: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPMODE** **=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** 0 Active FTP mode 1 Passive FTP mode
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.3 AT+FTPTYPE Set the Type of Data to Be Transferred

AT+FTPTYPE Set the Type of Data to Be Transferred	
Test Command **AT+FTPTYPE=** **?**	Response **OK**
Read Command **AT+FTPTYPE?**	Response **+FTPTYPE: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPTYPE=** **<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** "A" For FTP ASCII sessions "I" For FTP Binary sessions
Parameter Saving Mode	NO_SAVE

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Max Response Time	-
Reference	Note When this value is set to A, all the data sent by the stack to the FTP server is made of 7 bits characters (NVT-ASCII: the MSB is set to 0). As a consequence binary data containing 8 bits characters will be corrupted during the transfer if the FTPTYPE is set to A.

12.2.4 AT+FTPPUTOPT Set FTP Put Type

AT+FTPPUTOPT Set FTP Put Type	
Test Command **AT+FTPPUTOPT=?**	Response **OK**
Read Command **AT+FTPPUTOPT?**	Response **+FTPPUTOPT: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPPUTOPT=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** "APPE" For appending file "STOU" For storing unique file "STOR" For storing file
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.5 AT+FTPCID Set FTP Bearer Profile Identifier

AT+FTPCID Set FTP Bearer Profile Identifier	
Test Command **AT+FTPCID=?**	Response **OK**
	Parameters See Write Command

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Read Command **AT+FTPCID?**	Response **+FTPCID: <value>** **OK**
	Parameter See Write Command
Write Command **AT+FTPCID=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Bearer profile identifier refer to AT+SAPBR
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.6 AT+FTPREST Set Resume Broken Download

AT+FTPREST Set Resume Broken Download	
Test Command **AT+FTPREST=?**	Response **OK**
Read Command **AT+FTPREST?**	Response **+FTPREST: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPREST=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Broken point to be resumed
Parameter Saving Mode	NO_SAVE
Max Response	-

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Time	
Reference	Note

12.2.7 AT+FTPSERV Set FTP Server Address

AT+FTPSERV Set FTP Server Address	
Test Command **AT+FTPSERV=?**	Response **OK**
Read Command **AT+FTPSERV?**	Response **+FTPSERV: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPSERV=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** 32-bit number in dotted-decimal notation (i.e. xxx.xxx.xxx.xxx) or alphanumeric ASCII text string up to 49 characters if DNS is available
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.8 AT+FTPUN Set FTP User Name

AT+FTPUN Set FTP User Name	
Test Command **AT+FTPUN=?**	Response **OK**
	Parameters See Write Command
Read Command **AT+FTPUN?**	Response **+FTPUN: <value>**

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	OK
	Parameters See Write Command
Write Command **AT+FTPUN=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Alphanumeric ASCII text string up to 49 characters.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.9 AT+FTPPW Set FTP Password

AT+FTPPW Set FTP Password	
Test Command **AT+FTPPW=?**	Response **OK**
	Parameters See Write Command
Read Command **AT+FTPPW?**	Response **+FTPPW: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPPW=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameter **<value>** Alphanumeric ASCII text string up to 49 characters.

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Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.10 AT+FTPGETNAME Set Download File Name

AT+FTPGETNAME Set Download File Name	
Test Command **AT+FTPGETNAME=?**	Response **OK**
Read Command **AT+FTPGETNAME?**	Response **+FTPGETNAME: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPGETNAME=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Alphanumeric ASCII text string up to 99 characters
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.11 AT+FTPGETPATH Set Download File Path

AT+FTPGETPATH Set Download File Path	
Test Command **AT+FTPGETPATH=?**	Response **OK**
Read Command **AT+FTPGETPATH?**	Response **+FTPGETPATH: <value>**

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	OK
	Parameters See Write Command
Write Command **AT+FTPGETPATH=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Alphanumeric ASCII text string up to 255 characters
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.12 AT+FTPPUTNAME Set Upload File Name

AT+FTPPUTNAME Set Upload File Name	
Test Command **AT+FTPPUTNAME=?**	Response **OK**
Read Command **AT+FTPPUTNAME?**	Response **+FTPPUTNAME: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPPUTNAME=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Alphanumeric ASCII text string up to 99 characters
Parameter Saving Mode	NO_SAVE
Max Response	-

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Time	
Reference	Note

12.2.13 AT+FTPPUTPATH Set Upload File Path

AT+FTPPUTPATH Set Upload File Path	
Test Command **AT+FTPPUTPATH=?**	Response **OK**
Read Command **AT+FTPPUTPATH?**	Response **+FTPPUTPATH: <value>** **OK**
	Parameters See Write Command
Write Command **AT+FTPPUTPATH=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<value>** Alphanumeric ASCII text string up to 255 characters
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.14 AT+FTPGET Download File

AT+FTPGET Download File	
Test Command **AT+FTPGET=?**	Response **OK**
Write Command **AT+FTPGET=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTP get session: **OK** **+FTPGET: 1,1**

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	If data transfer finished: **+FTPGET: 1,0** If mode is 1 and it is a failed FTP get session: **OK** **+FTPGET: 1,<error>** If mode is 2: **+FTPGET: 2,<cnflength>** **012345678…** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 1 For opening FTP get session 2 For reading FTP download data. **<reqlength>** Requested number of data bytes (1-1460)to be read **<cnflength>** Confirmed number of data bytes to be read, which may be less than <**length**>. 0 indicates that no data can be read. <**maxlength**>It is 1360 when net status normal, otherwise **<error>** 61 Net error 62 DNS error 63 Connect error 64 Timeout 65 Server error 66 Operation not allow 70 Replay error 71 User error 72 Password error 73 Type error 74 Rest error 75 Passive error 76 Active error 77 Operate error 78 Upload error 79 Download error 80 SSLConnect error 81 SSLAlert error 82 Auther error 83 Pbsz error 84 Port error 85 Fs error

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	86 Manual quit
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note When "**+FTPGET: 1,1**" is shown, then use "**AT+FTPGET=2,<reqlength>**" to read data. If the module still has unread data, "**+FTPGET: 1,1**" will be shown again in a certain time.

12.2.15 AT+FTPPUT Set Upload File

AT+FTPPUT Set Upload File	
Test Command **AT+FTPPUT=?**	Response **OK**
Write Command **AT+FTPPUT=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTP get session: **OK** **+FTPPUT: 1,1,<maxlength>** If mode is 1 and it is a failed FTP get session: **OK** **+FTPPUT: 1,<error>** If mode is 2 and <**reqlength**> is not 0 **+FTPPUT: 2,<cnflength>** **……** //Input data **OK** **+FTPPUT: 1,1,<maxlength>** If mode is 2 and <**reqlength**> is 0, it will respond OK, and FTP session will be closed **OK** If data transfer finished. **+FTPPUT: 1,0** If error is related to ME functionality: **+CME ERROR: <err>**

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	Parameters **<mode>** 1 For opening FTP put session 2 For writing FTP upload data. **<reqlength>** Requested number of data bytes(0-<**maxlength**>) to be transmitted **<cnflength>** Confirmed number of data bytes to be transmitted **<maxlength>** The max length of data can be sent at a time. It depends on the network status. **<error>** See "**AT+FTPGET**"
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note When "**+FTPPUT: 1,1,<maxlength>**" is shown, then use "**AT+FTPPUT=2, <reqlength>**" to write data.

12.2.16 AT+FTPDELE Delete Specified File in FTP Server

AT+FTPDELE Delete Specified File in FTP Server	
Test Command **AT+FTPDELE=?**	Response **OK**
	Parameters
Execution Command **AT+FTPDELE**	Response If successed: **OK** **+FTPDELE: 1,0** If failed: **OK** **+FTPDELE: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<error>** See "**AT+FTPGET**"
Parameter Saving Mode	NO_SAVE

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Max Response Time	75 seconds(In case no response is received from server)
Reference	Note The file to be deleted is specified by the "**AT+FTPGETNAME**" and "**AT+FTPGETPATH**" commands.

12.2.17 AT+FTPSIZE Get the Size of Specified File in FTP Server

AT+FTPSIZE Get the Size of Specified File in FTP Server	
Test Command **AT+FTPSIZE=?**	Response **OK**
	Parameters
Execution Command **AT+FTPSIZE**	Response If successed: **OK** **+FTPSIZE: 1,0,<size>** If failed: **OK** **+FTPSIZE: 1,<error>[,<size>]** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<error>** See "**AT+FTPGET**" **<size>** The file size. Unit: byte
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note The file is specified by the "**AT+FTPGETNAME**" and "**AT+FTPGETPATH**" commands.

12.2.18 AT+FTPSTATE Get the FTP State

AT+FTPSTATE Get the FTP State	
Test Command **AT+FTPSTATE=?**	Response **OK**

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	Parameters
Execution Command **AT+FTPSTATE**	Response **+FTPSTATE: <state>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<state>** 0 Idle 1 In the FTP session, including FTPGET, FTPPUT, FTPDELE and FTPSIZE operation.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

12.2.19 AT+FTPEXTPUT Extend Upload File

AT+FTPEXTPUT Extend Upload File	
Test Command **AT+FTPEXTPUT =?**	Response **OK**
Write Command **AT+FTPEXTPUT =<mode>[,<pos>,<len>,<timeout>]**	Response If mode is 0 or 1 **OK** If mode is 2 **+FTPEXTPUT: <pos>,<len>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 0 use default FTPPUT method 1 use extend FTPPUT method 2 download data which need to PUT to RAM <**pos**> data offset address 0-300k <**len**> data length 0-300k <**timeout**> timeout value of serial port 1000ms-1000000ms

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Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note When extend FTPPUT mode is activated, input data then execute "**AT+FTPPUT=1**" to transmit, after session is complete, if successful, it returns "**+FTPPUT: 1,0**", otherwise it returns "**+FTPPUT: 1,<error>**", <**error**> see "**AT+FTPGET**".

12.2.20 AT+FTPMKD Make Directory on the Remote Machine

AT+FTPMKD Make Directory on the Remote Machine	
Test Command **AT+FTPMKD=?**	Response **OK**
Execution Command **AT+FTPMKD**	Response If success: **OK** **+FTPMKD: 1,0** If failed: **OK** **+FTPMKD: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<error>** See "**AT+FTPGET**"
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note The created folder is specified by the "**AT+FTPGETPATH**" command.

12.2.21 AT+FTPRMD Remove Directory on the Remote Machine

AT+FTPRMD Remove Directory on the Remote Machine	
Test Command **AT+FTPRMD=?**	Response **OK**

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Execution Command **AT+FTPRMD**	Response If success: **OK** **+FTPRMD: 1,0** If failed: **OK** **+FTPRMD: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<error>** See "**AT+FTPGET**"
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note The removed folder is specified by the "**AT+FTPGETPATH**" command.

12.2.22 AT+FTPLIST List Contents of Directory on the Remote Machine

AT+FTPLIST List Contents of Directory on the Remote Machine	
Test Command **AT+FTPLIST=?**	Response **OK**
Write Command **AT+FTPLIST=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTP get session: **OK** **+FTPLIST: 1,1** If data transfer is finished: **+FTPLIST: 1,0** If mode is 1 and it is a failed FTP get session: **OK** **+FTPLIST: 1,<error>** If mode is 2: **+FTPLIST: 2,<cnflength>**

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	012345678… **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<mode>** 1 For opening FTP get file list session 2 For reading FTP file list <**reqlength**> Requested number of data bytes (1-1460) to be read <**cnflength**> Confirmed number of data bytes to be read, which may be less than <reqlength>. 0 indicates that no data can be read. <**error**> See "**AT+FTPGET**"
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note When "**+FTPLIST: 1,1**" is shown, "**AT+FTPLIST=2,<reqlength>**" can be used to read data. If the module still has unread data, "**+FTPLIST: 1,1**" will be shown again in a certain time.

12.2.23 AT+FTPGETTOFS Download File and Save in File System

AT+FTPGETTOFS Download File and Save in File System	
Test Command **AT+FTPGETTOFS=?**	Response **OK**
Read Command **AT+FTPGETTOFS?**	Response **+FTPGETTOFS: <status>[,<receivedLength>,<writeLength>]** **OK**
	Parameters <**status**> The process status of downloading and saving File to File System through FTP 0 Not in the process 1 During the process <**receivedLength**> The data length received from FTP <**writeLength**> The data length saved in File System
Write Command **AT+FTPGETTOFS=<loc>,<filena**	Response If it is a successful FTP get session: **OK**

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me>[,<num>,<time>]	If data transfer finished. **+FTPGETTOFS: 0,<totalLength>** If it is a failed FTP get session: **OK** **+FTPGETTOFS: <error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters **<loc>** file saved in ROM. 0 Saved in ROM, file will be saved in "Disk1:\user\ftp" <**filename**> File name. Alphanumeric ASCII text string up to 64 characters <**num**> Number of automatic reconnect times, from 0 to 255.Default value is 3. **<time>** Wait time before module start automatic reconnect, from 0 to 60 seconds.Default value is 5 seconds. **<totalLength>** The total length of data bytes have been saved **<error>** 85 An error related with file system. Other errors please see FTPGET.
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note ● Automatic reconnection will start at break point. ● File will be overwritten if you start this function twice with a same file name.

12.2.24 AT+FTPPUTFRMFS Upload File from File System.

AT+FTPPUTFRMFS Upload File from File System	
Test Command **AT+FTPPUTFRMFS=?**	Response **OK**
Read Command **AT+FTPPUTFRMFS?**	Response **+FTPPUTFRMFS: <status>[,<putLength>]** **OK**
	Parameters <**status**> The process status of uploading File from File System through

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	FTP 0 Not in the process 1 During the process <**putLength**> The data length uploaded from File System
Write Command **AT+FTPPUTFRMFS=<filepath>[,<num>,<time>]**	Response If it is a successful FTP put session: **OK** If data transfer finished. **+FTPPUTFRMFS: 0,<totalLength>** If it is a failed FTP put session: **OK** **+FTPPUTFRMFS: <error>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**filepath**> File path. Alphanumeric ASCII text string up to 128 characters <**num**> Number of automatic reconnect times, from 0 to 255. Default value is 3. **<time>** Wait time before module start automatic reconnect, from 0 to 60 seconds. Default value is 5 seconds. **<totalLength>** The data length uploaded from File System **<error>** 85 An error related with file system. Other errors please see FTPGET.
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note Automatic reconnect will start at break point.

12.2.25 AT+FTPEXTGET Extend Download File

AT+FTPEXTGET	**Extend Download File**
Test Command **AT+FTPEXTGET=?**	Response **OK**
Read Command **AT+FTPEXTGET?**	Response **+FTPEXTGET: <status>[,<receivedLength>]** **OK**

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	Parameters <**status**> Whether run FTPEXTGET or not 0 Not run FTPEXTGET 1 Run FTPEXTGET <**receivedLength**> Length module has received from FTP server
Write Command 1)if mode is 0 or 1 **AT+FTPEXTGET=<mode>** 2)if mode is 2 **AT+FTPEXTGET=<mode>,<filename>** 3)if mode is 3 **AT+FTPEXTGET=<mode>,<readPosition>,<readLength>**	Response If mode is 0 **OK** If it is a successful FTP get session in mode 1: **OK** If data transfer finished in mode 1 **+FTPEXTGET: 1,0** If it is a failed FTP get session in mode 1: **OK** **+FTPEXTGET: 1,<error>** If mode is 2: **+FTPEXTGET: 2,<totalLength>** OK If mode is 3: **+FTPEXTGET: 3,<outputLength>** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**mode**> 0 Use default FTPGET method 1 Start extend FTPGET method 2 Save download data to filesystem 3 Output download data <**filename**> File name to write data in mode 2. Alphanumeric ASCII text string up to 64 characters. <**readPosition**> Position start read data in mode 3. <**readLength**> Read length in mode 3 <**totalLength**> The total length of data bytes have been download <**outputLength**> Total length will be output from serial port <**error**> 85 An error related with file system. Other errors please see FTPGET.
Parameter Saving	NO_SAVE

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Mode	
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note ● Can not use this function when set FTPEXTPUT mode 1. ● If file size (<receivedLength>) <300Kbytes, customer can use this command. If file size (<receivedLength>) >=300Kbytes, please use default FTPGET method (AT+FTPEXTGET=0).

12.2.26 AT+FTPFILEPUT Load File in RAM from File System then Upolad with FTPPUT

AT+FTPFILEPUT Load File in RAM from File System then Upload with FTPPUT	
Test Command **AT+FTPFILEPUT=?**	Response **OK**
Write Command **AT+FTPFILEPUT=<mode>[,filename]**	Response If success: **OK** If error is related to ME functionality: **+CME ERROR: <err>**
	Parameters <**mode**> 0 Not use FTPFILEPUT method 1 Use FTPFILEPUT method <**filename**> File name to write data in mode 1. Alphanumeric ASCII text string up to 64 characters. **<error>** 85 An error related with file system. Other errors please see FTPGET.
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	Note This function can not be used when FTPEXTPUT mode has been set as 1.

12.2.27 AT+FTPQUIT Quit Current FTP Session

AT+FTPQUIT Quit Current FTP Session	
Test Command **AT+FTPQUIT=?**	Response **OK**

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Execution Command **AT+FTPQUIT**	Response If success: **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

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13 AT Commands for MQTT Application

13.1 Overview

Command	Description
AT+SMCONN	MQTT connect
AT+SMSUB	MQTT subcribe message
AT+SMUNSUB	MQTT unsubcribe message
AT+SMPUB	MQTT publish message
AT+SMSTATE	MQTT state query
AT+SMDISC	MQTT disconnect
AT+SMSSL	MQTT ssl

13.2 Detailed Descriptions of Commands

13.2.1 AT+ SMCONN MQTT Connect

AT+SMCONN MQTT Connect	
Test Command **AT+SMCONN=?**	Response **OK**
Write Command **AT+SMCONN=<host>,<port>,<clientid>,<keepalive>,<cleansession>,[username],[password]**	Response **OK** or **ERROR**
	Parameters **<host>** MQTT broker address **<port>** MQTT broker port **<clientid>** client id **<keepalive>** keepAlive set time(s), range of 60~180 **<cleansession>** Clean session range is (0-1) **[username]** username,default NULL **[password]** password,default NULL
Parameter Saving Mode	-
Max Response Time	-

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Reference	Note

13.2.2 AT+ SMSUB MQTT Subscribe Message

AT+SMSUB MQTT Subscribe Message	
Test Command **AT+SMSUB=?**	Response **+ SMSUB: "topic",<qos>** **OK**
Write Command **AT+SMSUB=<topic>,<qos>**	Response **OK** or **ERROR** Unsolicited Result Code **+SMSUB: <packet_id>,<status>**
	Parameters <**topic**> publish topic <**qos**> subscribe Qos level，rang of 0~1 <**packet_id** > message id **<status>** message status 0: success 1: timeout 2:other error
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

13.2.3 AT+ SMPUB MQTT Publish Message

AT+SMPUB MQTT Publish Message	
Test Command **AT+SMPUB=?**	Response **+ SMPUB: "topic",<qos>,"message"** **OK**
Write Command **AT+SMPUB=<topic>,<qos>,<retain>,<message>**	Response **OK** or **ERROR**

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	If qos is 1 Unsolicited Result Code **+SMPUB: <packet_id>,<status>**
	Parameters <**topic**> publish topic <**qos**> publish Qos level，rang of 0~1 <**retain**> Retain flag defaule is 0，rang of (0-1) <**message**> publish message content max is 1024 <**packet_id** > message id **<status>** message status 0: success 1: timeout 2: other error
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

13.2.4 AT+ SMUNSUB MQTT Unsubscribe Message

AT+SMUNSUB MQTT Unsubscribe Message	
Test Command **AT+SMUNSUB=?**	Response **+ SMUNSUB: "topic"** **OK**
Write Command **AT+SMUNSUB=<topic>**	Response **OK** or **ERROR** Unsolicited Result Code **+SMUNSUB: <packet_id>,<status>**
	Parameters <**topic**> unsubscribe topic <**packet_id** > message id **<status>** message status 0: success 1: timeout 2: other error
Parameter Saving Mode	-
Max Response Time	-

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Reference	Note

13.2.5 AT+ SMSTATE MQTT State Query

AT+ SMSTATE MQTT State Query	
Read Command **AT+SMSTATE?**	Response **+SMSTATE: <status>** **OK**
	Parameters **<status>** 0 mqtt disconnect status 1 mqtt connected status
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

13.2.6 AT+ SMDISC MQTT Disconnect

AT+ SMDISC MQTT Disconnect	
Test Command **AT+SMDISC=?**	Response **OK**
Execution Command **AT+SMDISC**	Response **OK** or **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

13.2.7 AT+ SMSSL MQTT SSL

AT+ SMSSL MQTT SSL	
Test Command **AT+SMSSL=?**	Response **OK**

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Read Command **AT+SMSSL?**	Response **+SMSSL: < Enable >** **OK**
Execution Command **AT+SMSSL=<** **Enable >**	Response **OK** or **ERROR**
	Parameters < **Enable**> 0 diable SSL 1 enable SSL
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

13.2.8 SMPUBLISH MQTT Receive Publish Data

SMPUBLISH MQTT Receive Publish Data	
	Unsolicited Result Code **+SMPUBLISH: <packet_id>,"topic",<msgLen>,"message"**
	Parameters < **packet_id** > message id <**topic**> message topic < **messageLen** > messsage length < **message** > receiveed message
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

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14 AT Commands for SSL Support

14.1 Overview

Command	Description
AT+SSLSETCERT	Import SSL Certificate File
AT+SSLCLICERT	Import SSL Client Certificate File
AT+SSLGETKEY	Import SSL Private Key File
AT+SSLOPT	Set Client Authentication Mode
AT+CIPSSL	Set TCP/IP SSL Function
AT+HTTPSSL	Set HTTP SSL Function
AT+FTPSSL	Set FTP SSL Function

14.2 Detailed Descriptions of Commands

14.2.1 AT+SSLSETCERT Import SSL Certificate File

AT+SSLSETCERT	**Import SSLCertificate File**
Write Command **AT+SSLSETCERT** =</customer/**filenam** **e**>	Response **OK** or **ERROR**
	Parameters <**filename**> the name of Certificate file
Parameter Saving Mode	NO_SAVE
Max Response Time	-

14.2.2 AT+SSLCLICERT Import SSL Client Certificate File

AT+SSLCLICERT	**Import SSL Client Certificate File**
Write Command **AT+SSLCLICERT=** </customer/**filename** >	Response **OK** or **ERROR**
	Parameters <**filename**> the name of Client Certificate file
Parameter Saving Mode	NO_SAVE
Max Response Time	-

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14.2.3 AT+SSLGETKEY Import SSL Private Key File

AT+SSLGETKEY	Import SSL Private Key File
Write Command **AT+SSLCLICERT=**</customer/**filename**>	Response **OK** or **ERROR**
	Parameters <**filename**> the name of Private Key file
Parameter Saving Mode	NO_SAVE
Max Response Time	-

14.2.4 AT+SSLOPT Set Client Authentication Mode

AT+SSLOPT	Set Client Authentication Mode
Read Command **AT+SSLOPT?**	Response **+SSLOPT=**<Mode> OK
Write Command **AT+SSLOPT=**<Mode>	Response **OK** or **ERROR**
	Parameters <Mode> 0 - Enable client authentication mode 1 - Disable client authentication mode
Parameter Saving Mode	NO_SAVE
Max Response Time	-

14.2.5 AT+CIPSSL Set TCP/IP SSL Function

AT+CIPSSL	Set TCP/IP SSL Function
Read Command **AT+CIPSSL?**	Response **+CIPSSL** =<Mode> OK
Write Command **AT+CIPSSL=**<Mode>	Response **OK** or **ERROR**
	Parameters <Mode> 0 - Enable TCP/IP SSL Function

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	1 - Disable TCP/IP SSL Function
Parameter Saving Mode	NO_SAVE
Max Response Time	-

14.2.6 AT+HTTPSSL Set HTTP SSL Function

AT+HTTPSSL Set HTTP SSL Function	
Read Command **AT+HTTPSSL?**	Response **+HTTPSSL** =<Mode> OK
Write Command **AT+HTTPSSL**=<Mode>	Response **OK** or **ERROR**
	Parameters <Mode> 0 - Enable HTTP SSL Function 1 - Disable HTTP SSL Function
Parameter Saving Mode	NO_SAVE
Max Response Time	-

14.2.7 AT+FTPSSL Set FTP SSL Function

AT+FTPSSL Set FTPSSL SSL Function	
Read Command **AT+FTPSSL?**	Response **+FTPSSL** =<Mode> OK
Write Command **AT+FTPSSL**=<Mode>	Response **OK** or **ERROR**
	Parameters <Mode> 0 - Enable FTP SSL Function 1 - Disable FTP SSL Function
Parameter Saving Mode	NO_SAVE
Max Response Time	-

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15 AT Commands for NTP Application

15.1 Overview

Command	Description
AT+CNTPCID	Set GPRS bearer profile's ID
AT+CNTP	Synchronize network time

15.2 Detailed Descriptions of Commands

15.2.1 AT+CNTPCID Set GPRS Bearer Profile's ID

AT+CNTPCID Set GPRS Bearer Profile's ID	
Test Command **AT+CNTPCID=?**	Response **+ CNTPCID**: (range of supported <**cid**>) **OK**
	Parameters See Write Command
Read Command **AT+CNTPCID?**	Response **+ CNTPCID: <cid>** **OK**
	Parameters See Write Command
Write Command **AT+CNTPCID=<cid>**	Response **OK** If error is related to ME functionality: **ERROR**
	Parameters **<cid>** Bearer profile identifier, refer to AT+SAPBR

15.2.2 AT+CNTP Synchronize Network Time

AT+CNTP Synchronize Network Time	
Test Command **AT+CNTP=?**	Response **+CNTP:** (length of <**ntp server**>， range of <t**ime zone**>) **OK**
	Parameter See Write Command

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Read Command **AT+CNTP?**	Response **+ CNTP: <ntp sever>,<time zone>** **OK**
	Parameter See Write Command
Write Command **AT+CNTP=<ntp server>[,<time zone>]**	Response **OK**
	Parameter **<ntp server>** NTP server's URL or IP address **<time zone>** local time zone, the range is (-47~48).Time zone range from -12 to 12 actually, but some countries or regions use quarter-hour deviations.So we use the range of (-47~48), then we can use integer to indicate all.
Execution command **AT+CNTP**	Response **OK** **+CNTP: <code>**
	Parameter **<code>** 1 Network time synchronization is successful 61 Network error 62 DNS resolution error 63 Connection error 64 Service response error 65 Service Response Timeout
Reference	Note ● After successful synchronizing time, you can use AT + CCLK to query local time.

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16 AT Commands for PING Support

16.1 Overview

Command	Description
AT+CIPPING	Ping request
AT+CIPCTL	Set the mode when receiving an IP packet
AT+CIPFLT	Set the rules of IP filter
AT+CIPBEIPING	Set the module to be PING or not

16.2 Detailed Descriptions of Commands

16.2.1 AT+CIPPING PING Request

AT+CIPPING PING Request	
Test Command **AT+CIPPING=?**	Response **+CIPPING: (**list of supported **<retryNum>**s**),(**list of supported <**dataLen**>s**),(**list of supported <**timeout**>s**),(**list of supported **<ttl>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CIPPING?**	Response **+CIPPING: <retryNum>,<dataLen>,<timeout>,<ttl>** **OK**
	Parameters See Write Command
Write Command **AT+CIPPING=<IP addr>[,<retryNum>[,<dataLen>[,<timeout>[,<ttl>]]]]**	Response **+CIPPING: <replyId>,<Ip Address>,<replyTime>,<ttl>[<CR><LF>** **+CIPPING: <replyId>,<Ip Address>,<replyTime>,<ttl>** **[...]]** **OK** or **ERROR** or **+CME ERROR: <err>**

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	Parameters <**IPaddr**> Address of the remote host,string type.This parameter can be either: - IP address in the format:"xxx.xxx.xxx.xxx" - Host name solved by a DNS query <**retryNum**> The number of Ping Echo Requset to send 1-100 Default: 4 <**dataLen**> The length of Ping Echo Request data 0-1024 Default: 32 <**timeout**> The timeout,in units of 100 ms,waiting for a single Echo Reply 1-600 Default: 100(10 seconds) <**ttl**> Time to live 1-255 Default: 64 <**replyId**> Echo Reply number <**IP Address**> IP Address of the remote host <**replyTime**> Time,in units of 100 ms, required to receive the response
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● Before sending PING Request the GPRS context must be activated. ● When the Echo Request timeout expires (no reply received on time), the response will contains **<replyTime>** setting to 600 and **<ttl>** setting to 255. ● When executing this command, if PDP context is deactivated for some reasons, such as out of service, etc., the "**+PDP: DEACT**" URC is reported and the command will end immediately.

16.2.2 AT+CIPCTL Set the Mode When Receiving an IP Packet

AT+CIPCTL Set the Mode When Receiving an IP Packet	
Test Command **AT+CIPCTL=?**	Response **+CIPCTL: (**list of supported **<mode>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CIPCTL?**	Response **+CIPCTL: <mode>** **OK**

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	Parameters See Write Command
Write Command **AT+CIPCTL=<mode>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters <**mode**> 0 Disable to send Echo Reply 1 Enable to send Echo Reply to every IP address pinging it 2 Enable to send Echo Reply only to a subset of IP Addresses pinging it. This subset of IP Addresses can be set by "AT+CIPFLT" command.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note The value of **<mode>** is stored in non volatile memory.

16.2.3 AT+CIPFLT Set the Rules of IP Filter

AT+CIPFLT Set the Rules of IP Filter	
Test Command **AT+CIPFLT=?**	Response **+CIPFLT: (**list of supported **<action>**s**),(**list of supported **<item>**s**)** **OK**
	Parameters See Write Command
Read Command **AT+CIPFLT?**	Response **+CIPFLT: <item>**,<**ipAddr**>,<**mask**> **[<CR><LF>+CIPFLT: <item>**,<**ipAddr**>,<**mask**> **[…]]** **OK**
	Parameter See Write Command

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Write Command **AT+CIPFLT=<action>[,<item>][,<ipAddr>,<mask>]**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<action>** 0 Remove the rule specified by <item>. <item> must be given. 1 Add the rule specified by <item>. If <item> is not given, it can find an empty item automatically. <ipAddr> and <mask> must be given. 2 Delete all of rules <**item**> The item of IP filter rule 1-20 <**ipAddr**> Remote IP address,string type. It can be any valid IP address in the format of "xxx.xxx.xxx.xxx" <**mask**> Mask to be applied to the**<ipAddr>**,string type. It can be any valid IP address mask in the format of "xxx.xxx.xxx.xxx"
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● When a packet comes from the IP address <**coming_IP>**, All rules will be scanned to match the following criterion: **<coming_IP> & <mask> = <ipAddr> & <mask>** If the criterion is matched, the IP packet will be accepted and the rule scan is finished. If the criterion is not matched, the IP packet will be ignored. ● The rule is stored in non volatile memory.

16.2.4 AT+CIPBEIPING Set the Module to be PING or Not

AT+CIPBEIPING Set the Module to be PING or Not	
Test Command **AT+CIPBEIPING=?**	Response **+CIPBEIPING: (0,1)** **OK**
	Parameters See Write Command

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Read Command **AT+CIPBEIPING?**	Response **+CIPBEIPING: <mode>** **OK**
	Parameters See Write Command
Write Command **AT+CIPBEIPING=<mode>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
	Parameters **<mode>** 0 Disable the module to be PING. 1 Enable the module to be PING.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note ● If the user want the module can be PING by other device, the user must excute the AT+CIPBEIPING=1 before the module is PING. ● Part of the projects supported by this AT command, please refer to chapter 21 for details.

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Contact us:

Shanghai SIMCom Wireless Solutions Ltd.

Add: SIM Technology Building, No.633, Jin zhong Road, Chang ning District, Shanghai P.R. China 200335

Tel：+86-21-3157 5100, +86-21-3157 5200

URL：www.simcom.com

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