



R800 Series_ AT Command Manual

GPRS Module

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Version History

Version	Date	Chapter	What is new
V1.00	2019.6.17		New version
V1.01.	2019.10.08	2.2.2 AT+ATA	Add command
		2.2.3 AT+ATD	Add command
		2.2.4 AT+ATD<n>	Add command
		2.2.5 AT+ATD<str>	Add command
		2.2.6 AT+ATDL	Add command
		2.2.32 AT+HVOIC	Add command
		3.2.1 AT+CCFC	Add command
		3.2.2 AT+CCWA	Add command
		3.2.9 AT+CHLD	Add command
		3.2.11 AT+CLCC	Add command
		3.2.13 AT+CLIP	Add command
		3.2.14 AT+CLIR	Add command
		3.2.16 AT+COLP	Add command
		3.2.18 AT+CPAS	Add command
		5.2.7 AT+MORING	Add command
		5.2.10 AT+GSMBUSY	Add command
		5.2.11 AT+CEMNL	Add command
		5.2.13 AT+CWHITELIST	Add command
		5.2.14 AT+CSDT	Add command
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		3.2.38 AT+CALS	Add command
		3.2.39 AT+CRSL	Add command
		3.2.40 AT+CMUT	Add command
		5.2.24 AT+CRFSYNC	Add command
		5.2.25 AT+CVDD	Add command
		5.2.26 AT+STTONE	Add command

		5.2.27 AT+SIMTONE	Add command
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		7.2.2 AT+CFSCREAT	Add command
		18 AT Commands for DDET Application	Add chapter
		19 AT Commands for TTS Application	Add chapter
V1.03	2020.08.07	17.2.7 AT+CAUD	Delete command
		5.2.17 AT+SIMEI	Delete command
		All	

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THIS DOCUMENT IS A REFERENCE GUIDE TO ALL THE AT COMMANDS.

1 Introduction

1.1 Scope of the document

This document presents the AT Command Set for SIMCom R800 Series, including R800C and R805C.

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 R800 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

Only enter AT Command through serial port after R800 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, or "at" prefix must be set at the beginning of each command line.

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	The execution command reads non-variable parameters affected

AT+<x>

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.

The Command line buffer can accept a maximum of 556 characters (counted from the first command without "AT" or "at" prefix) or 39 AT commands. If the characters entered exceeded this number then none of the Command will executed and TA will return "ERROR".

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 R800 Series AT Command interface defaults to the **IRA** character set. The R800 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 two approaches to achieve data flow control: software flow control and hardware flow control. R800 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:

- **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 take in effect immediately, 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".
- -: "-" means this AT command doesn't care the parameter saving mode.

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.

2 AT Commands According to V.25TER

2.1 Overview of AT Commands According to V.25TER

Command	Description
AT	Re-issues the last command given
ATA	Answer an incoming call
ATD	Mobile originated call to dial a number
ATD<n>	Originate call to phone number in current memory
ATD<str>	Originate call to phone number in memory <str>
ATDL	Redial last telephone number used
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
AT+HVOIC	Disconnect voice call only

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	Response
A/	Re-issues the previous Command
Parameter Saving Mode	NO_SAVE
Maximum Response Time	120000ms
Reference	

Example

A/

2.2.2 ATA Answer an Incoming call

ATA Answer an Incoming Call

Execution Command	Response
ATA	<p>TA sends off-hook to the remote station.</p> <p>Note1: Any additional commands on the same Command line are ignored.</p> <p>Note2: This command may be aborted generally by receiving a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>Response in case of data call, if successfully connected CONNECT<text> TA switches to data mode.</p> <p>Note: <text> output only if ATX<value> parameter setting with the</p>

	<p><value>>0</p> <p>When TA returns to Command mode after call release</p> <p>OK</p> <p>Response in case of voice call, if successfully connected</p> <p>OK</p> <p>Response if no connection</p> <p>NO CARRIER</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	20s(voice call)
Reference	

Example

ATA

OK

NOTE

- See also ATX

2.2.3 ATD Mobile Originated Call to Dial A Number

This command can be used to set up outgoing data calls. It also serves to control supplementary services.

ATD Mobile Originated Call to Dial A Number

Execution Command

ATD<n>[<mgs>]

Response

If error is related to ME functionality

+CME ERROR: <err>

If no dial tone and (parameter setting ATX2 or ATX4)

NO DIALTONE

If busy and (parameter setting ATX3 or ATX4)

BUSY

If a connection cannot be established

NO CARRIER

	<p>If the remote station does not answer NO ANSWER</p> <p>If connection successful and non-voice call. CONNECT<text>TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value>>0</p> <p>When TA returns to command mode after call release OK</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	Timeout set with AT57 (data call)
Reference	

Defined Values

<n>	<p>String of dialing digits and optionally V.25ter modifiers dialing digits: 0-9,*, #,+ ,A,B,C Following V.25ter modifiers are ignored: ,(comma),T,P,! ,W,@</p>
Emergency call:	
<n>	Standardized emergency number 112(no SIM needed)
<mgs>	<p>String of GSM modifiers:</p> <p>I Activates CLIR (Disables presentation of own number to called party) i Deactivates CLIR (Enable presentation of own number to called party) G Activates Closed User Group invocation for this call only g Deactivates Closed User Group invocation for this call only</p>

Example

ATD15679273073

OK

NOTE

- This command may be aborted generally by receiving an ATH Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.

2.2.4 ATD<n> Originate Call to Phone Number in Current Memory

ATD<n> Originate Call to Phone Number in Current Memory

Execution Command	Response
ATD<n>[<clr>][<cug>][;]	<p>This command can be used to dial a phone number from current phonebook memory.</p> <p>Note: This command may be aborted generally by receiving an ATH command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>If error is related to ME functionality +CME ERROR: <err></p> <p>If no dial tone and (parameter setting ATX2 or ATX4) NO DIALTONE</p> <p>If busy and (parameter setting ATX3 or ATX4) BUSY</p> <p>If a connection cannot be established NO CARRIER</p> <p>If the remote station does not answer NO ANSWER</p> <p>If connection successful and non-voice call. CONNECT<text>TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value>>0</p> <p>When TA returns to command mode after call release OK</p> <p>If successfully connected and voice call OK</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	Integer type memory location should be in the range of locations available in the memory used
<mgsms>	String of GSM modifiers:

<clir>	<p>I Override the CLIR supplementary service subscription default value for this call Invocation (restrict CLI presentation)</p> <p>i Override the CLIR supplementary service subscription default value for this call Suppression (allow CLI presentation)</p>
<cug>	<p>G Control the CUG supplementary service information for this call CUG Not supported</p> <p>g Control the CUG supplementary service information for this call CUG Not supported</p>
<;>	Only required to set up voice call , return to command state

Example

```
ATD>1;  
OK
```

NOTE

- Parameter "I" and "i" only if no *# code is within the dial string
- *# codes sent with ATD are treated as voice calls. Therefore, the command must be terminated with a semicolon ";"
- See ATX Command for setting result code and call monitoring parameters.

2.2.5 ATD<str> Originate Call to Phone Number in Memory <str>

ATD<str> Originate Call to Phone Number in Memory <str>

Test Command	Response
<pre>ATD<str>[<clir>][<cug>][:]</pre>	<p>This command make the TA attempts to set up an outgoing call to stored number.</p> <p>All available memories are searched for the entry <str>.</p> <p>Note: This command may be aborted generally by receiving an ATH Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.</p> <p>If error is related to ME functionality +CME ERROR: <err></p> <p>If no dial tone and (parameter setting ATX2 or ATX4)</p>

	<p>NO DIALTONE</p> <p>If busy and (parameter setting ATX3 or ATX4)</p> <p>BUSY</p> <p>If a connection cannot be established</p> <p>NO CARRIER</p> <p>If the remote station does not answer</p> <p>NO ANSWER</p> <p>If connection successful and non-voice call. CONNECT<text>TA switches to data mode. Note: <text> output only if ATX<value> parameter setting with the <value>>0</p> <p>When TA returns to command mode after call release</p> <p>OK</p> <p>If successfully connected and voice call</p> <p>OK</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<str>	String type (string should be included in quotation marks) value ("x"), which should equal to an alphanumeric field in at least one phone book entry in the searched memories. <str> formatted as current TE character set specified by +CSCS.
<mgsm>	String of GSM modifiers: <ul style="list-style-type: none"> I Activates CLIR (Disables presentation of own number to called party) i Deactivates CLIR (Enable presentation of own number to called party) G Activates Closed User Group invocation for this call only g Deactivates Closed User Group invocation for this call only
<;>	Only required to set up voice call, return to Command state

Example

```
ATD>"LYM";
```

OK

NOTE

- Parameter "I" and "i" only if no "*"#" code is within the dial string
- *# codes sent with ATD are treated as voice calls. Therefore, the Command must be terminated with a semicolon ";"
- See ATX Command for setting result code and call monitoring parameters.

2.2.6 ATDL Redial Last Telephone Number Used

ATDL Redial Last Telephone Number Used

Execution Command
ATDL

Response

This command redials the last voice and data call number used.

Note: This command may be aborted generally by receiving an **ATH** Command or a character during execution. The aborting is not possible during some states of connection establishment such as handshaking.

If error is related to ME functionality

+CME ERROR: <err>

If no dial tone and (parameter setting **ATX2** or **ATX4**)

NO DIALTONE

If busy and (parameter setting **ATX3** or **ATX4**)

BUSY

If a connection cannot be established

NO CARRIER

If the remote station does not answer

NO ANSWER

If connection successful and non-voice call.

CONNECT<text>TA switches to data mode.

Note: **<text>** output only if **ATX<value>** parameter setting with the **<value>>0**

When **TA** returns to Command mode after call release

OK

	If successfully connected and voice call OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

ATDL

OK

NOTE

- See ATX Command for setting result code and call monitoring parameters.
- Return the numbers and symbols which ATD supports if there is no last dialing context.

2.2.7 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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	0 Echo mode off 1 Echo mode on
----------------------	-----------------------------------

Example

ATE

OK

2.2.8 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
Maximum Response Time	20s
Reference	

Example

```
ATH
OK
```

2.2.9 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
Maximum Response Time	
Reference	

Example

```
ATA
R800C R1850
```

OK

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

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

Execution Command +++	<p>Response</p> <p>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.</p> <p>OK</p> <p>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.</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	
Reference	

Example

+++
OK

NOTE

- To return from Command mode back to data mode: Enter ATO.

2.2.11 ATO Switch from Command Mode to Data Mode

ATO Switch from Command Mode to Data Mode

Execution Command ATO[<n>]	<p>Response</p> <p>TA resumes the connection and switches back from command mode</p>
-------------------------------	--

	to data 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 Saving Mode	NO_SAVE
Maximum Response Time	
Reference	

Defined Values

<n>	0 Switch from command mode to data mode.
-----	--

Example

```
ATO
connect ppp first

OK
```

2.2.12 ATSO Set Number of Rings before Automatically Answering the call

ATSO Set Number of Rings before Automatically Answering the Call

Read Command ATSO?	Response <n> OK
Write Command ATSO=<n>	Response This parameter setting determines the number of rings before auto-answer. OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-

Reference

Defined Values

<n>	<p><u>0</u> Automatic answering is disable. 1-255 Number of rings the modem will wait for before answering the phone if a ring is detected.</p>
-----	--

Example

ATS0?

0

OK

ATS0=0

OK

NOTE

- If <n> is set too high, the calling party may hang up before the call can be answered automatically.
- If using CMUX port, ATH and AT+CHUP can hang up the call (automatically answering) only in the CMUX channel 0.
- If using dual-physical serial port, ATH and AT+CHUP can hang up the call (automatically answering) only in UART1.

2.2.13 ATS3 Set Command Line Termination Character

ATS3 Set Command Line Termination Character

Read Command
ATS3?

Response
<n>

OK

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

or

ERROR

Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	13 Command line termination character
-----	---------------------------------------

Example

ATS3?

13

OK

ATS3=13

OK

NOTE

- Default 13 = CR. It only supports default value.

2.2.14 ATS4 Set Response Formatting Character

ATS4 Set Response Formatting Character

Read Command ATS4?	Response <n> OK
Write Command ATS4=<n>	Response This parameter setting determines the character generated by the TA for result code and information text. OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	10 Response formatting character
-----	----------------------------------

Example

```

ATS4?
10

OK
ATS4=10
OK
    
```

NOTE

- Default 10 = LF. It only supports default value.

2.2.15 ATS5 Set Command Line Editing Character

ATS5 Set Command Line Editing Character

Read Command ATS5?	Response <n> OK
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 or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0-8-127	Response formatting character
-----	---------	-------------------------------

Example

ATS5?

8

OK

ATS5=0

OK

NOTE

- Default 8 = Backspace.

2.2.16 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

Write Command

ATS10=<n>

Response

This parameter setting determines the amount of time that the TA will remain connected in absence of data carrier. If the data carrier is once more detected before disconnecting, the TA remains connected.

OK

or

ERROR

Parameter Saving Mode

AT&W_SAVE

Maximum Response Time

-

Reference

Defined Values

<n>	0-15-254	Response formatting character
-----	----------	-------------------------------

Example

```

ATS10?
15

OK
ATS10=13
OK
    
```

2.2.17 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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	
Reference	

Defined Values

<value>	<p>0 Information response: <text><CR><LF> Short result code format: <numeric code><CR><LF></p> <p>1 Information response: <CR><LF><text><CR><LF> Long result code format: <CR><LF><verbose code><CR><LF></p> <p>The result codes, their numeric equivalents and brief descriptions of the use of each are listed in the following table.</p>
---------	--

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

Example

```
ATV1
OK
```

2.2.18 ATX Set CONNEXT 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 or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	
Reference	

Defined Values

<value>	<p>0 CONNECT result code only returned, dial tone and busy detection are both disabled.</p> <p>1 CONNECT<text> result code only returned, dial tone and busy detection are both disabled.</p> <p>2 CONNECT<text> result code returned, dial tone detection is enabled, busy detection is disabled.</p> <p>3 CONNECT<text> result code returned, dial tone detection is disabled, busy detection is enabled.</p> <p>4 CONNECT<text> result code returned, dial tone and busy detection are both enabled.</p>
----------------------	--

Example

ATX1

OK

2.2.19 ATZ Reset Default Configuration

ATZ Reset Default Configuration

Execution Command ATZ[<value>]	Response TA sets all current parameters to the user defined profile. OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	
Reference	

Defined Values

<value> 0 Restore profile 0

Example

ATZ0

OK

2.2.20 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 or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	
Reference	

Defined Values

<value>	0	DCD line is always ON
	1	DCD line is ON only in the presence of data carrier

Example

AT&C0

OK

2.2.21 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 or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	
Reference	

Defined Values

<value>	0	TA ignores status on DTR.
	1	ON->OFF on DTR: Change to Command mode with remaining the connected call.
	2	ON->OFF on DTR: Disconnect call, change to Command mode. During state DTR = OFF is auto-answer off.

Example

AT&D0

OK

2.2.22 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
Parameter Saving Mode	NO_SAVE
Maximum Response Time	
Reference	

Defined Values

<value>	0 Set all TA parameters to manufacturer defaults.
---------	---

Example

```
AT&F0
OK
```

2.2.23 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 or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	
Reference	

Defined Values

<n>	0 Store the current configuration in profile 0
-----	--

Example

AT&W0

OK

NOTE

- The user defined profile is stored in non volatile memory.

Parameter stored by &W

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>
AT+CSDH	<show>

2.2.24 AT+GMI Request Manufacturer Identification

AT+GMI Request Manufacturer Identification

Test Command AT+GMI=?	Response OK
Execution Command AT+GMI	TA reports one or more lines of information text which permit the user to identify the manufacturer. SIMCOM_Ltd OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

```
AT+GMI=?
OK
AT+GMI
SIMCOM_Ltd

OK
```

2.2.25 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
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<model>	Product model identification text
----------------------	-----------------------------------

Example

```
AT+GMM=?
OK
AT+GMM
SIMCOM_R800C
OK
```

2.2.26 AT+GMR Request TA Revision Identification of Software Release

AT+GMR Request TA Revision Identification of Software Release

Test Command	Response
AT+GMR=?	OK
Execution Command	TA reports one or more lines of information text which permit the user to identify the revision of software release.
AT+GMR	Revision:<revision>
	OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<revision>	Revision of software release
------------	------------------------------

Example

```
AT+GMR=?
OK
AT+GMR
Revision: 1850B08R800C
OK
```

2.2.27 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
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Object Id>	Identifier of device type see X.208, 209 for the format of <Object Id>
--------------------------	---

Example

```
AT+GOI=?
OK
AT+GOI
R800C
OK
```

2.2.28 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

Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<sn>	IMEI of the telephone(International Mobile station Equipment Identity)
------	--

Example

```
AT+GSN=?
OK
AT+GSN
357713009999993
OK
```

NOTE

- The serial number (IMEI) is varied by individual ME device.

2.2.29 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
Read Command AT+ICF?	Response +ICF: <format>,<parity> OK
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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-

Reference

Defined Values

<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)

Example

```
AT+ICF=?
+ICF: (2,3,4,6),(0,1,3)
```

OK

```
AT+ICF?
+ICF: 3,3
```

OK

```
AT+ICF=3,0
OK
```

NOTE

- The Command is applied for Command state;
- In <format> parameter, "0 parity" means no parity;
- When <format> is 2 , <parity> cannot 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.

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

AT+IFC Set TE-TA Local Data Flow Control

Test Command	Response
AT+IFC=?	+IFC: (list of supported <dce_by_dte>s),(list of supported <dte_by_dce>s)

	OK
Read Command AT+IFC?	Response +IFC: <dce_by_dte>,<dte_by_dce>
	OK
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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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

Example

```
AT+IFC=?
+IFC: (0,2),(0,2)
```

```
OK
AT+IFC?
+IFC: 0,0
```

```
OK
AT+IFC=0,0
OK
```

2.2.31 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
Read Command AT+IPR?	Response +IPR: <rate>
	OK
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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<rate>	Baud rate per second 0 (Auto-bauding) 2400 4800 9600 14400 19200 28800 33600 38400 57600 115200
---------------------	--

Example

```

AT+IPR=?
+IPR:
(0,2400,4800,9600,14400,19200,28800,33600,38400,57600,115200)

OK
AT+IPR?
+IPR: 0

OK
AT+IPR=0
OK

```

NOTE

- Factory setting is "AT+IPR=0"(auto-bauding).

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 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 cannot be stored when module is powered down.

2.2.32 AT+HVOIC Disconnect Voice Call Only

AT+HVOIC Disconnect Voice Call Only

Execution Command
AT+HVOIC

Response

Disconnect existing voice call by local TE from Command line and terminate call with existing PPP or CSD connection on.

OK

Parameter Saving Mode	NO_SAVE
Maximum Response Time	20s
Reference	

Example

```
AT+HVOIC  
OK
```

SIMCom
Confidential

3 AT Commands According to 3GPP TS 27.007

3.1 Overview of AT Commands According to 3GPP TS 27.007

Command	Description
AT+CCFC	Call forwarding number and conditions control
AT+CCWA	Call waiting control
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+CHLD	Call hold and multiparty
AT+CIMI	Request international mobile subscriber identity
AT+CLCC	List current calls of ME
AT+CLCK	Facility lock
AT+CLIP	Calling line identification presentation
AT+CLIR	Calling line identification restriction
AT+CMEE	Report mobile equipment error
AT+COLP	Connected line identification presentation
AT+COPS	Operator selection
AT+CPAS	Phone activity status
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+CUUSD	Unstructured supplementary service data
AT+CSSN	Supplementary services notification
AT+CALM	Alert Sound Mode
AT+CALS	Alert Sound Select
AT+CRSL	Ringer Sound Level
AT+CMUT	Mute Control

3.2 Detailed Description of AT Commands According to 3GPP TS 27.007

3.2.1 AT+CCFC Call Forwarding Number and Conditions Control

AT+CCFC Call Forwarding Number and Conditions Control

Test Command AT+CCFC=?	Response +CCFC: (list of supported <reason> s) OK
Write Command AT+CCFC=<reason>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]]	Response TA controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported. Only <reads> and <mode> should be entered with mode (0-2,4) If <mode> ≠2 and Command successful OK If <mode> =2 and Command successful (only in connection with <reason> 0-3) For registered call forwarding numbers: when <mode> =2 and command successful: +CCFC: <status>,<class1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][<CR><LF>+CCFC: <status>,<class2>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]][...] OK

	<p>If no call forwarding numbers are registered (and therefore all classes are inactive):</p> <p>+CCFC: <status>, <class></p> <p>OK</p> <p>where <status>=0 and <class>=7</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<reason>	<ul style="list-style-type: none"> 0 Unconditional 1 Mobile busy 2 No reply 3 Not reachable 4 All call forwarding 5 All conditional call forwarding
<mode>	<ul style="list-style-type: none"> 0 Disable 1 Enable 2 Query status 3 Registration 4 Erasure
<number>	String type (Phone number of forwarding address in format specified by <type>)
<type>	Type of address
<subaddr>	String type (sub-address of format specified by <satype>)
<satype>	Type of sub-address in integer
<class>	<ul style="list-style-type: none"> 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
<time>	1-30 When "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded, default value is 20. Supported only if it is multiples of 5.
<status>	<ul style="list-style-type: none"> 0 Not active 1 Active

Example

AT+CCFC=?

+CCFC: (0,1,2,3,4,5)

OK

AT+CCFC=2,2

+CCFC: 0,1

OK

3.2.2 AT+CCWA Call Waiting Control

AT+CCWA Call Waiting Control

Test Command

AT+CCWA=?

Response

+CCWA: (list of supported <n>s)

OK

Read Command

AT+CCWA?

Response

+CCWA: <n>

OK

Write Command

AT+CCWA=<n>[,<mode>[,<class>]]

Response

TA controls the Call Waiting supplementary service. Activation, deactivation and status query are supported.

If **<mode>**≠2 and Command successful

OK

If **<mode>**≥2 and Command successful

+CCWA:

<status>,<class1>[<CR><LF>+CCWA:<status>,<class2>[...]]

OK

or

ERROR

If error is related to ME functionality:

+CME ERROR: <err>

Note: **<status>**=0 should be returned only if service is not active for **<class>**.

When mode=2, all active call waiting classes will be reported. In this mode the Command is aborted by pressing any key.

Unsolicited result code

RING

+CCWA: <number>,<type>,<class>[,<alpha>]

Parameter Saving Mode	NO_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<n>	<p>0 Disable presentation of an unsolicited result code</p> <p>1 Enable presentation of an unsolicited result code</p>
<mode>	<p>When <mode> parameter not given, network is not interrogated</p> <p>0 Disable</p> <p>1 Enable</p> <p>2 Query status</p>
<class>	<p>Is a sum of integers each representing a class of information</p> <p>1 Voice (telephony)</p>
<status>	<p>0 Not active</p> <p>1 Active</p>
<number>	<p>String type (string should be included in quotation marks) phone number of calling address in format specified by <type></p>
<type>	<p>Type of address octet in integer format;</p> <p>129 Unknown type</p> <p>161 National number type</p> <p>145 International number type</p> <p>177 Network specific number</p>
<alpha>	<p>Optional string type(string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.</p>

Example

```

AT+CCWA=?
+CCWA: (0,1)

OK
AT+CCWA?
+CCWA: 0

OK
AT+CCWA=1,2
+CCWA: 1,1

OK

```

3.2.3 AT+CEER Extended Error Report

AT+CGMM Request Model Identification	
Test Command AT+CEER=?	Response +CEER: (<n>) OK
Read Command AT+CEER?	Response +CEER: <n> OK
Execution Command AT+CEER	Response TA returns an extended report of the reason for the last call release. +CEER: <report> OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	1 The reason for last call release as number code
<report>	If AT+CEER=1, return +CEER: <c>
<c><s>	number representing the Cause 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) 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)
101	(message not compatible with protocol state)
102	(recovery on timer expiry)
111	(protocol error, unspecified)
127	(interworking, unspecified)
255	(unknown)

Example

AT+CEER=?

+CEER: (1)

OK

AT+CEER?

+CEER: 1

OK

AT+CEER

+CEER: 255

OK

3.2.4 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>
Parameter Saving Mode	OK
Maximum Response Time	NO_SAVE
Reference	-

Defined Values

<manufacturer>	The ID of manufacturer
-----------------------------	------------------------

Example

```
AT+CGMI=?
OK
AT+CGMI
SIMCOM_Ltd
OK
```

3.2.5 AT+CGMM Request Model Identification

AT+CGMM Request Model Identification

Test Command AT+CGMM=?	Response OK
Execution Command AT+CGMM	Response TA returns manufacturer identification text.

	<model>
	OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<model>	Product model identification text
---------	-----------------------------------

Example

```
AT+CGMM=?
OK
AT+CGMM
SIMCOM_R800C
OK
```

3.2.6 AT+CGMR Request TA Revision Identification of Software Release

AT+CGMR Request TA Revision Identification of Software Release

Test Command	Response
AT+CGMR=?	OK
Execution Command	Response
AT+CGMR	TA returns product software version identification text. Revision:<revision>
	OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<revision>	Product software version identification text
------------	--

Example

```
AT+CGMR=?
OK
AT+CGMR
Revision: 1850B08R800C
OK
```

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

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

Test Command	Response
AT+CGSN=?	OK
Execution Command	Response
AT+CGSN	see +GSN <sn>
Parameter Saving Mode	OK
Maximum Response Time	NO_SAVE
Reference	-

Defined Values

<sn>	International mobile equipment identity (IMEI)
------	--

Example

```
AT+CGSN=?
OK
AT+CGSN
357713009999993
OK
```

3.2.8 AT+CSCS Select TE Character Set

AT+CSCS Select TE Character Set	
Test Command AT+CSCS=?	Response +CSCS: (list of supported<chset>s) OK
Read Command AT+CSCS?	Response +CSCS: <chset> OK
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>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<chest>	"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
---------	--

Example

```

AT+CSCS=?
+CSCS:
("GSM","HEX","PCCP936","UCS2","IRA")

OK
AT+CSCS?
+CSCS: "IRA"

```

```
OK
AT+CSCS="GSM"
OK
```

3.2.9 AT+CHLD Call Hold and Multiparty

AT+CHLD Call Hold and Multiparty

Test Command AT+CHLD=?	Response +CHLD: (list of supported <n>s) OK
Write Command AT+CHLD=<n>	Response TA controls the supplementary services Call Hold, Multiparty and Explicit Call Transfer. Calls can be put on hold, recovered, released, added to conversation, and transferred. Note These supplementary services are only applicable to tele service 11 (Speech: Telephony). OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	<p>0 Releases all held calls or sets User Determined User Busy (UDUB) for a waiting call</p> <p>1 Releases all active calls (if any exist) and accepts the other (held or waiting) call.</p> <p>1x Releases a specific call x</p> <p>2 Place all active calls on hold (if any) and accept the other (held or waiting) call.</p> <p>2x Places all active calls on hold except call X with which communication shall be supported.</p> <p>3 Adds a held call to the conversation.</p>
-----	---

Example

```
AT+CHLD=?
```

+CHLD: (0,1,1x,2,2x,3)

OK

AT+CCWA=1,1

OK

ATD10086

OK

AT+CHLD=1

OK

3.2.10 AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI Request International Mobile Subscriber Identity

Test Command	Response
AT+CIMI=?	OK
Execution Command	Response
AT+CIMI	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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	20s
Reference	

Defined Values

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

Example

AT+CIMI=?

OK

AT+CIMI

460023023556765

OK

3.2.11 AT+CLCC List Current Calls of ME

AT+CLCC List Current Calls of ME	
Test Command AT+CLCC=?	Response +CLCC: (0,1) OK
Read Command AT+CLCC?	Response +CLCC: <n> OK
Write Command AT+CLCC=<n>	Response OK
Execution command AT+CLCC	Response TA returns a list of current calls of ME. Note: If Command succeeds but no calls are available, no information response is sent to TE. [+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>] <CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>,<alphaID>][...]] OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0 Don't report a list of current calls of ME automatically when the current call status changes. 1 Report a list of current calls of ME automatically when the current call status changes.
<idx>	1..7 Call identification number This number can be used in +CHLD command operations
<dir>	0 Mobile originated (MO) call 1 Mobile terminated (MT) call
<stat>	State of the call: 0 Active 1 Held 2 Dialing (MO call)

	<ul style="list-style-type: none"> 3 Alerting (MO call) 4 Incoming (MT call) 5 Waiting (MT call) 6 release(network release this call)
<mode>	Bearer/tele service: <ul style="list-style-type: none"> 0 Voice 1 Data 2 Fax
<mpty>	<ul style="list-style-type: none"> 0 Call is not one of multiparty (conference) call parties 1 Call is one of multiparty (conference) call parties
<number>	Optional string type(string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.
<alphald>	String type (string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.

Example

```
AT+CLCC=?
+CLCC: (0,1)
```

OK

```
AT+CLCC?
+CLCC: 1
```

OK

```
AT+CLCC=0
```

OK

```
AT+CLCC
```

OK

3.2.12 AT+CLCK Facility Lock

AT+CLCK Facility Lock

Test Command

```
AT+CLCK=?
```

Response

```
+CLCK: (list of supported <fac>s)
```

OK

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

	<p>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 active for any <class>.</p> <p>If <mode>≠2 and Command is successful OK</p> <p>If <mode>=2 and Command is successful +CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[...]]</p> <p>OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<fac>	<p>"AO" BAOC (Barr All Outgoing Calls)</p> <p>"OI" BOIC (Barr Outgoing International Calls)</p> <p>"OX" BOIC- exHC (Barr Outgoing International Calls except to Home Country)</p> <p>"AI" BAIC (Barr All Incoming Calls)</p> <p>"IR" BIC- Roam (Barr Incoming Calls when Roaming outside the home country)</p> <p>"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>)</p> <p>"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code.</p> <p>"PN" Network Personalization, Correspond to NCK code</p> <p>"PU" Network subset Personalization, Correspond to NSCK code</p> <p>"PP" Service Provider Personalization, Correspond to SPCK code</p>
<mode>	<p>0 unlock</p> <p>1 lock</p> <p>2 query status</p>
<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>	<p>1 Voice (telephony)</p> <p>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)</p> <p>4 Fax (facsimile services)</p>

	7 All classes
<status>	0 Not active
	1 Active

Example

```

AT+CLCK=?
+CLCK:
("SC","FD","AO","OX","OI","AI","IR","PN","PU","PP")

OK
AT+CLCK="SC",2
+CLCK: 0

OK

```

NOTE

- CME errors if SIM not inserted or PIN is not entered.

3.2.13 AT+CLIP Calling Line Identification Presentation

AT+CLIP Calling Line Identification Presentation

Test Command AT+CLIP=?	Response +CLIP: (list of supported <n>s) OK
Read Command AT+CLIP?	Response +CLIP: <n>, <m> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CLIP=<n>	Response TA enables or disables the presentation of the CLI at the TE. It has no effect on the execution of the supplementary service CLIP in the network. OK If error is related to ME functionality: +CME ERROR: <err>

Unsolicited Result Code	When the presentation of the CLI at the TE is enabled (and calling subscriber allows), an unsolicited result code is returned after every RING (or +CRING: <type>) at a mobile terminating call. +CLIP: <number>,<type>[,<subaddr>,<satype>,<alphald>,<CLI validity>]
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<n>	0 Disable +CLIP notification. 1 Enable +CLIP notification.
<m>	0 CLIP not provisioned 1 CLIP provisioned 2 Unknown (e.g. no network, etc.)
<number>	String type (string should be included in quotation marks) phone number of calling address in format specified by <type>
<type>	Type of address octet in integer format; 129 Unknown type 161 National number type 145 International number type 177 Network specific number
<subaddr>	String type(sub-address of format specified by <satype>)
<satype>	Integer type(type of sub-address)
<alphald>	String type(string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.
<CLI validity>	0 CLI valid 1 CLI has been withheld by the originator. 2 CLI is not available due to interworking problems or limitations of originating network.

Example

```

AT+CLIP=?
+CLIP: (0,1)

OK
AT+CLIP?
+CLIP: 0,1

OK
AT+CLIP=0

```

OK

3.2.14 AT+CLIR Calling Line Identification Restriction

AT+CLIR Calling Line Identification Restriction

Test Command AT+CLIR=?	Response +CLIR: (range of supported <n>s) OK
Read Command AT+CLIR?	Response +CLIR: <n>, <m> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CLIR=<n>	Response TA restricts or enables the presentation of the CLI to the called party when originating a call. The Command overrides the CLIR subscription (default is restricted or allowed) when temporary mode is provisioned as a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite Command. OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<n>	(parameter sets the adjustment for outgoing calls): 0 Presentation indicator is used according to the subscription of the CLIR service. 1 CLIR invocation 2 CLIR suppression
<m>	(parameter shows the subscriber CLIR service status in the network): 0 CLIR not provisioned 1 CLIR provisioned in permanent mode 2 Unknown (e.g. no network, etc.) 3 CLIR temporary mode presentation restricted

4 CLIR temporary mode presentation allowed

Example

AT+CLIR=?

+CLIR: (0-2)

OK

AT+CLIR?

+CLIR: 0,0

OK

AT+CLIR=1

OK

3.2.15 AT+CMEE Report Mobile Equipment Error

AT+CMEE Report Mobile Equipment Error

Test Command AT+CMEE=?	Response +CMEE: (range of supported <n>s) OK
Read Command AT+CMEE?	Response +CMEE: <n> OK
Write Command AT+CMEE=<n>	Response TA disables or enables the use of result code +CMEERROR: <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>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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

Example

```

AT+CMEE=?
+CMEE: (0-2)

OK
AT+CMEE?
+CMEE: 0

OK
AT+CMEE=0
OK

```

3.2.16 AT+COLP Connected Line Identification Presentation

AT+COLP Connected Line Identification Presentation

Test Command AT+COLP=?	Response +COLP: (list of supported <n> s) OK
Read Command AT+COLP?	Response +COLP: <n> , <m> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+COLP=<n>	Response TA enables or disables the presentation of the COL (Connected Line) at the TE for a mobile originated call. It has no effect on the execution of the supplementary service COLR in the network. Intermediate result code is returned from TA to TE before any +CR or V.25ter responses. OK If error is related to ME functionality: +CME ERROR: <err>
Intermediate result code	When enabled (and called subscriber allows), an intermediate result code is returned before any +CR or V.25ter responses:

	+COLP: <number>,<type>[,<subaddr>,<satype> ,<alphald>]
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	(parameter sets/shows the result code presentation status in the TA): 0 Disable +COLP notification 1 Enable +COLP notification
<m>	(parameter shows the subscriber COLP service status in the network): 0 COLP not provisioned 1 COLP provisioned 2 Unknown (e.g. no network, etc.)
<number>	String type (string should be included in quotation marks) phone number of format specified by <type>
<type>	Type of address octet in integer format; 129 Unknown type 161 National number type 145 International number type 177 Network specific number
<subaddr>	String type(string should be included in quotation marks) sub address of format specified by <satype>
<satype>	Type of sub address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.8)
<alphald>	String type(string should be included in quotation marks) alphanumeric representation of <number> corresponding to the entry found in phone book.

Example

AT+COLP=?

+COLP: (0,1)

OK

AT+COLP?

+COLP: 0,0

OK

AT+COLP=0

OK

3.2.17 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 OK If error is related to ME functionality: +CME ERROR: <err>
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>
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>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	Test command: 45 seconds Write command: 120 seconds
Reference	

Defined Values

<stat>	0 Unknown 1 Operator available 2 Operator current 3 Operator forbidden
<oper>	Refer to [27.007]

	operator in format as per <format>
<mode>	<p>0 Automatic mode; <oper> field is ignored</p> <p>1 Manual (<oper> field shall be present, and <AcT> optionally)</p> <p>2 Manual deregister from network</p> <p>3 Set only <format> (for read Command +COPS?) - not shown in Read Command response</p> <p>4 Manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered</p>
<format>	<p>0 Long format alphanumeric <oper></p> <p>2 Numeric <oper>; GSM Location Area Identification number</p>

Example

AT+COPS=?

+COPS:

(2,"ChinaMobile","ChinaMobile","46000"),(3,"ChinaUnicom","ChinaUnicom","46001")

OK

AT+COPS?

+COPS: 0,2,"46000"

OK

AT+COPS=1

OK

3.2.18 AT+CPAS Rhone Activity Status

AT+CPAS Phone Activity Status

Test Command AT+CPAS=?	<p>Response</p> <p>+CPAS: (list of supported <pas>s)</p> <p>OK</p>
Execution Command AT+CPAS	<p>Response</p> <p>TA returns the activity status of ME.</p> <p>+CPAS: <pas></p> <p>OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-

Reference

Defined Values

<pas>	<ul style="list-style-type: none"> 0 Ready (MT allows commands from TA/TE) 2 Unknown (MT is not guaranteed to respond to instructions) 3 Ringing (MT is ready for commands from TA/TE, but the ringer is active) 4 Call in progress (MT is ready for commands from TA/TE, but a call is in progress)
--------------------	--

Example

```
AT+CPAS=?
+CPAS: (0,2,3,4)
```

OK

```
AT+CPAS
+CPAS: 0
```

OK

3.2.19 AT+CPBF Find Phonebook Entries

AT+CPBF Find Phonebook Entries

<p>Test Command</p> <pre>AT+CPBF=?</pre>	<p>Response</p> <pre>+CPBF: maximum length of field<nlength>,maximum length of field<tlength></pre> <p>OK</p> <p>If error is related to ME functionality:</p> <pre>+CME ERROR: <err></pre>
--	---

<p>Write Command</p> <pre>AT+CPBF=[<findtext>]</pre>	<p>Response</p> <p>TA returns phone book entries(from the current phone book memory storage selected with +CPBS) which contains alphanumeric string <findtext>.</p> <pre>[+CPBF: <index1>,<number>,<type>,<text>] [[...]<CR><LF>+CPBF:<index2>,<number>,<type>,<text>]</pre> <p>OK</p>
--	---

Parameter Saving Mode	NO_SAVE
Maximum 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	

Defined Values

<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>

Example

```
AT+CPBF=?
+CPBF: 20,14

OK
AT+CPBF="073"
OK
```

3.2.20 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
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
Parameter Saving Mode	NO_SAVE
Maximum 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	

Defined Values

<index>	Location number
<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.
<nlength>	Max. length of phone number
<tlength>	Max. length of text for number

Example

```
AT+CPBR=?
+CPBR: (1-500),20,14
```

OK
AT+CPBR=1,2
 OK

3.2.21 AT+CPBS Select Phonebook Memory Storage

AT+CPBS Select Phonebook Memory Storage

Test Command AT+CPBS=?	Response +CPBS: (list of supported <storage>s) OK
Read Command AT+CPBS?	Response +CPBS: <storage>,<used>,<total> OK
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
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	3s
Reference	

Defined Values

<storage>	<p>"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.</p> <p>"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.</p> <p>"ME" ME phonebook</p> <p>"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</p> <p>"LD" Active application in the UICC (GSM or USIM) or SIM card last dialling phonebook.</p>
-----------	--

<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

Example

```
AT+CPBS=?
+CPBS: ("SM","ON","FD","LD","ME")
```

```
OK
AT+CPBS?
+CPBS: "SM",0,500
```

```
OK
AT+CPBS="ME"
+CPBS: "ME",0,100
```

```
OK
```

3.2.22 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. +CPBW: (list of supported <index>s),<nlength>,(list of supported <type>s),<tlength> OK
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
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	3s

Reference

Defined Values

<index>	Location number
<number>	Phone number
<type>	Type of number; 129 National number type 145 International number type 161 National number type(ISDN 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\005C 30 30(GSM null) '0' (GSM null) may cause problems for application layer software when reading string lengths.
<nlength>	Max length of phone number
<tlength>	Max length of text for number

Example

```
AT+CPBW=?
+CPBW: (1-10),20,(129,145,161),14

OK
AT+CPBW=2,"15679273073"
OK
```

3.2.23 AT+CPIN Enter PIN

AT+CPIN Enter PIN

Test Command	Response
AT+CPIN=?	OK
Read Command	Response
AT+CPIN?	TA returns an alphanumeric string indicating whether some password

	is required or not. +CPIN: <code>
Write Command AT+CPIN=<pin>[,<new pin>]	OK 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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	5s
Reference	

Defined Values

<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.
<pin>	String type; password
<new pin>	String type; If the PIN required is SIM PUK or SIMPUK2: new password

Example

```
AT+CPIN=?
OK
AT+CPIN?
+CPIN: READY

OK
AT+CPIN="1234","123"
OK
```

3.2.24 AT+CPWD Change Password

AT+CPWD Change Password

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
Write Command AT+CPWD=<fac>,<oldpwd>,<newpwd>	Response TA sets a new password for the facility lock function. OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	15s
Reference	

Defined Values

<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
<pwdlength>	Integer max. length of password

Example

AT+CPWD=?

+CPWD:

```
("SC",8),("P2",8),("AO",4),("OI",4),("OX",4),("AI",4),("IR",4),("AB",4)
```

OK

```
AT+CPWD="SC","1234","1234"
```

OK

3.2.25 AT+CREG Network Registration

AT+CREG Network Registration

Test Command AT+CREG=?	Response +CREG: (range of supported <n>s) OK
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
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: +CREG:<stat>[,<lac>,<ci>]
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0	Disable network registration unsolicited result code	
	1	Enable network registration unsolicited result code	+CREG:

	<p><stat></p> <p>2 Enable network registration unsolicited result code with location information +CREG: <stat>[,<lac>,<ci>]</p>
<stat>	<p>0 Not registered, MT is not currently searching a new operator to register to</p> <p>1 Registered, home network</p> <p>2 Not registered, but MT is currently searching a new operator to register to</p> <p>3 Registration denied</p> <p>4 Unknown</p> <p>5 Registered, roaming</p>
<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

Example

AT+CREG=?

+CREG: (0-2)

OK

AT+CREG?

+CREG: 0,1

OK

AT+CREG=1

OK

3.2.26 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

or

ERROR

If error is related to ME functionality:

	+CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Command>	<p>176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS</p> <p>All other values are reserved; refer GSM 11.11.</p>
<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; refer GSM 11.11.
<response>	Response of a successful completion of the Command previously issued (hexadecimal character format)

Example

```
AT+CRSM=?
OK
AT+CRSM=242
+CREG: 0,1
OK
```

3.2.27 AT+CSQ Signal Quality Report

AT+CSQ Signal Quality Report

Test Command	Response
--------------	----------

AT+CSQ=?	+CSQ: (list of supported <rssis>),(list of supported <bers>)
	OK
Execution Command AT+CSQ	Response +CSQ: <rssis>,<bers>
	OK If error is related to ME functionality: +CME ERROR: <err> Execution Command returns received signal strength indication <rssis> and channel bit error rate <bers> from the ME. Test Command returns values supported by the TA.
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<rssis>	0	-115 dBm or less
	1	-111 dBm
	2...30	-110... -54 dBm
	31	-52 dBm or greater
	99	not known or not detectable
<bers>	(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

Example

```
AT+CSQ=?
+CSQ: (0-31,99),(0-7,99)
```

OK

```
AT+CSQ
```

```
+CSQ: 12,99
```

OK

	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
<k>	Window size, for Advanced operation with Error Recovery options 1-7 Default:2

Example

```

AT+CMUX=?
+CMUX:
(0,1),(0),(1-6),(1-2048),(1-255),(0-100),(2-255),(1-255),(1-7)

OK
AT+CMUX?
+CMUX: 0,0,5,127,10,3,30,10,2

OK
AT+CMUX=?
OK
  
```

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

3.2.29 AT+CNUM Subscriber Number

AT+CNUM Subscriber Number

Test Command	Response
--------------	----------

AT+CNUM=?	OK
Execution Command AT+CNUM	Response +CNUM: [<alpha1>,<number1>,<type1>[,<speed>,<service>] [<CR><LF>+CNUM:[<alpha2>,<number2>,<type2>[,<speed>,<service>] [...]]
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<alphax>	Optional alphanumeric string associated with <numberx>; used character set should be the one selected with Command Select TE Character Set +CSCS
<number>	String type (string should be included in quotation marks) phone number of format specified by <typex>
<typex>	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

Example

AT+CNUM=?

OK

AT+CNUM

OK

3.2.30 AT+CPOL Preferred Operator List

AT+CPOL Preferred Operator List	
Text Command AT+CPOL=?	Response +CPOL: (list of supported <index>s),<format> OK
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>
Write Command AT+CPOL=<index>[,<format>,<oper>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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.

Example

```
AT+CPOL=?
+CPOL: (1-80),2
```

```
OK
```

```
AT+CPOL?
```

```
OK
```

```
AT+CPOL=1
```

```
OK
```

3.2.31 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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<alphan>	String type (string should be included in quotation marks): operator in long alphanumeric format (see +COPS)
<numericn>	String type (string should be included in quotation marks): operator in numeric format (see +COPS)

Example

AT+COPN=?

OK

AT+COPN

+COPN: "20201","COSMOTTEGR"

+COPN: "20205","vodafoneGR"

+COPN: "20210","WINDGR"

+COPN: "20404","VodafoneNL"

+COPN: "20408","KPNNL"

+COPN: "20412","TelfortNL"

+COPN: "20416","T-MobileNL"

...

...

OK

3.2.32 AT+CFUN Set Phone Functionality

AT+CFUN Set Phone Functionality

Text 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>
Read Command AT+CFUN?	Response +CFUN: <fun> OK If error is related to ME functionality: +CME ERROR:<err>
Write Command AT+CFUN=<fun>[,<rst>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	10s
Reference	

Defined Values

<fun>	1	Full functionality (Default)
	4	Disable phone both transmit and receive RF circuits
<rst>	1	Reset the MT before setting it to <fun> power level.

Example

```

AT+CFUN=?
+CFUN: (1,4),(1)

OK
AT+CFUN?
+CFUN: 1

OK
AT+CFUN=1,1
OK

```

NOTE

- AT+CFUN=1,1 can be used to reset module purposely at full functionality mode.
- Response string "OK" will be returned after module resets if baud rate is set to fixed baud rate.

3.2.33 AT+CCLK Clock

AT+CCLK Clock

Text Command AT+CCLK=?	Response OK
Read Command AT+CCLK?	Response +CCLK: <time> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CCLK=<time>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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".
---------------------	--

Example

```
AT+CCLK=?
OK
AT+CCLK?
```

+CCLK: "17/01/01,10:20:39+00"

OK

AT+CCLK="20/01/01,10:20:39+00"

OK

AT+CCLK?

+CCLK: "20/01/01,10:20:52+00"

OK

NOTE

- Only time zone is auto saved.

3.2.34 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
Execution Command AT+CBC	Response +CBC: <bcs>, <bcl>,<voltage> OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<bcs>	Charge status 0 ME is not charging 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)

Example

AT+CBC=?

+CBC: (0-2),(1-100),(voltage)

OK

AT+CBC

+CBC: 0,49,3792

OK

3.2.35 AT+CUSD Unstructured Supplementary Service Data

AT+CUSD Unstructured Supplementary Service Data

Text Command AT+CUSD=?	Response +CUSD: (list of supported <n>s) OK
Read Command AT+CUSD?	Response +CUSD: <n> OK
Write Command AT+CUSD=<n>[,<str>[,<dcs>]]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	A numeric parameter which indicates control of the unstructured supplementary service data <u>0</u> disable the result code presentation in the TE <u>1</u> enable the result code presentation in the TE <u>2</u> cancel session (not applicable to read Command response)
-----	--

<str>	String type (string should be included in quotation marks, the max length is 160) USSD-string
<dc>	Cell Broadcast Data Coding Scheme in integer format (default 0)

Example

```
AT+CUUSD=?
+CUUSD: (0,1,2)
```

```
OK
AT+CUUSD?
+CUUSD: 0
```

```
OK
AT+CUUSD=0
OK
```

NOTE

- When ussd is not support or return error, TE will print +CUUSD:4.

3.2.36 AT+CSSN Supplementary Services Notification

AT+CSSN Supplementary Services Notification

Text Command AT+CSSN=?	Response +CSSN: (list of supported <n>s),(list of supported <m>s) OK
Read Command AT+CSSN?	Response +CSSN: <n>,<m> OK
Write Command AT+CSSN=<n>[,<m>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-

Reference

Defined Values

<n>	<p>A numeric parameter which indicates whether to show the +CSSI:<code1>[,<index>] result code presentation status after a mobile originated call setup</p> <p>0 disable 1 enable</p>
<m>	<p>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.</p> <p>0 disable 1 enable</p>
<code1>	<p>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) 5 Outgoing calls are barred 6 Incoming calls are barred 7 CLIR suppression rejected</p>
<index>	<p>Closed user group index</p>
<code2>	<p>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)</p>

Example

AT+CSSN=?

+CSSN: (0,1),(0,1)

OK

AT+CSSN?

+CSSN: 0,0

OK

AT+CSSN=1,1

OK

3.2.37 AT+CALM Alert Sound Mode

AT+CALM Alert Sound Mode

Text Command AT+CALM=?	Response +CALM: (list of supported <mode> s) OK If error is related to ME functionality: +CME ERROR: <err>
Read Command AT+CALM?	Response +CALM: <mode> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CALM=<mode>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Normal mode 1 Silent mode (all sounds from ME are prevented)
---------------------	---

Example

AT+CALM=?

+CALM: (0,1)

OK

AT+CALM?

+CALM: 0

OK

AT+CALM=0

OK

NOTE

- If CALM is set to silent mode before, when user sets CALM to normal mode during an incoming call, the module maintains silent this time. But next time the normal mode works.

3.2.38 AT+CALS Alert Sound Select

AT+CALS Alert Sound Select

Text Command AT+CALS=?	Response +CALS: (list of supported <n>s),(list of supported <switch>s) OK If error is related to ME functionality: +CME ERROR: <err>
Read Command AT+CALS?	Response +CALS: <n>,<switch> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CALS=<n>[,<switch>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0-2 Alert sound type. Default value is 1.
<switch>	0 stop playing ring tone 1 start to play ring tone

Example

```
AT+CALS=?
+CALS: (0-1),(0,1)
```

```
OK
AT+CALS?
+CALS: 1,0
```

```
OK
AT+CALS=1,1
OK
```

3.2.39 AT+CRSL Ringer Sound Level

AT+CRSL Ringer Sound Level

Text Command AT+CRSL=?	Response +CRSL: (range of supported <level>s) OK If error is related to ME functionality: +CME ERROR: <err>
Read Command AT+CRSL?	Response +CRSL: <level> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CRSL=<level>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<level>	integer type value (0-15) with manufacturer specific range
---------	--

Example

```
AT+CRSL=?
+CRSL: (0-15)
```

```
OK
AT+CRSL?
+CRSL: 6
```

```
OK
AT+CRSL=7
OK
```

3.2.40 AT+CMUT Mute Control

AT+CMUT Mute Control

Text Command AT+CMUT=?	Response +CMUT: (list of supported <n>s) OK
Read Command AT+CMUT?	Response +CMUT: <n> OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+CMUT=<n>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0	Mute off
	1	Mute on

Example

```
AT+CMUT=?
```

```
+CMUT: (0,1)
```

```
OK
```

```
AT+CMUT?
```

```
+CMUT: 0
```

```
OK
```

```
AT+CMUT=1
```

```
OK
```

NOTE

- Only during a call this command can be set successfully.

4 AT Commands According to 3GPP TS 27.005

The 3GPP TS 27.005 commands are for performing SMS and CBS related operations. R800 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 Description of AT Commands According to 3GPP TS 27.005

4.2.1 AT+CMGD Delete SMS Message

AT+CMGD Delete SMS Message

Test Command	Response
AT+CMGD=?	+CMGD: (list of supported <index>s),(list of supported <delflag>s)

Write Command AT+CMGD=<index>[,<delflag>]	<p>OK</p> <p>Response</p> <p>TA deletes message from preferred message storage <mem1> location <index>.</p> <p>OK</p> <p>or</p> <p>ERROR</p> <p>If error is related to ME functionality:</p> <p>+CMS ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	5s(delete 1 message) 25s(delete 50 messages) 25s(delete 150 messages)
Reference	

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory
<delflag>	<p><u>0</u> Delete the message specified in <index></p> <p>1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched</p> <p>2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched</p> <p>3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched</p> <p>4 Delete all messages from preferred message storage including unread messages</p>

Example

```
AT+CMGD=?
+CMGD: (1-50),(0-4)
```

```
OK
AT+CMGD=1
OK
```

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format

Text Command AT+CMGF=?	Response +CMGF: (list of supported <mode>s) OK
Read Command AT+CMGF?	Response +CMGF: <mode> OK
Write Command AT+CMGF=[<mode>]	Response TA sets parameter to denote which input and output format of messages to use. OK
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 PDU mode
	1 Text mode

Example

```
AT+CMGF=?
+CMGF: (0,1)
```

```
OK
```

```
AT+CMGF?
+CMGF: 0
```

```
OK
```

```
AT+CMGF=1
OK
```

4.2.3 AT+CMGL List SMS Message from Preferred Store

AT+CMGL List SMS Messages from Preferred Store

<p>Test Command AT+CMGL=?</p>	<p>Response +CMGL: (list of supported <stat>s)</p> <p>OK</p>
<p>Write Command AT+CMGL=<stat></p>	<p>Response TA returns messages with status value <stat> from message storage <mem1> to the TE. If status of the message is 'received unread', status in the storage changes to 'received read'.</p> <p>1) If text mode (+CMGF=1) and Command successful: for SMS-SUBMITs and/or SMS-DELIVERs: +CMGL: <index>,<stat>,<oa/da>[,<alpha>][,<scts>] [,<toa/toda>,<length>]<CR><LF><data> [<CR><LF> +CMGL: <index>,<stat>,<da/oa>[,<alpha>][,<scts>][,<toa/toda>,<length>] <CR><LF><data>[...]]</p> <p>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>[...]]</p> <p>for SMS-COMMANDs: +CMGL: <index>,<stat>,<fo>,<ct>[<CR><LF> +CMGL: <index>,<stat>,<fo>,<ct>[...]]</p> <p>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>[...]]</p> <p>OK</p> <p>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>[...]]</p> <p>OK</p> <p>3)If error is related to ME functionality: +CMS ERROR: <err></p>

Execution Command AT+CMGL	<p>1) If text mode: the same as AT+CMGL="REC UNREAD", received unread messages</p> <p>2) If PDU mode: the same as AT+CMGL=0, received unread messages</p> <p>See more messages please refer to Write Command.</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	20s(list 50 messages) 20s(list 150 messages)
Reference	

Defined Values

<stat>	<p>1) If text mode:</p> <p>"REC UNREAD" Received unread messages "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages</p> <p>2) If PDU mode:</p> <p>0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages</p>
<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 (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

	<p>GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))</p> <p>if <dc> 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:</p> <p>if <dc> indicates that GSM 03.38 default alphabet is used:</p> <p>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</p> <p>if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number</p> <p>if <dc> 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</p>
<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 <toa>
<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.
<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)
<toa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)

Example

AT+CMGL=?

+CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO SENT","ALL")

OK

AT+CMGL="REC READ"

OK

AT+CMGL

+CMGL: 2,"REC UNREAD","10086",,"2019/12/17,10:54:46+32"

99108D3900390039002E003000305143003B000A0032300159579910591677ED5F694FE18D390030
002E003100305143003B000A0033300151CF514D002D00370030002E0030003051433002000A67E5
8BE28D3975288BE660C5FF0C8BF770B951FB00200068007400740070003A002F002F00310030003
000380036002E0063006E002F0064

+CMGL: 3,"REC UNREAD","10086",,"2019/12/17,10:54:46+32"

5355987597628BBF95EE514D6D4191CFFF0C66F4591A4FE1606F8BE68BE2003100300030003800
3630024E3A4E867ED960A863D04F9B66F44F188D28670D52A1FF0C4E2D56FD79FB52A873B05DF
25F00901A670D52A18D2891CF76D1776370ED7EBF00310030003000380030FF0C5728670D52A18
FC77A0B4E2DFF0C82E560A8768454087406

.....

OK

4.2.4 AT+CMGR Read SMS Message

AT+CMGR Read SMS Message

Test Command

AT+CMGR=?

Response

OK

Write Command

AT+CMGR=<index>

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>[,<toa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>

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>

Parameter Saving Mode	NO_SAVE
Maximum Response Time	20s(list 50 messages) 20s(list 150 messages)
Reference	

Defined Values

<stat>	<p>0 "REC UNREAD" Received unread messages</p> <p>1 "REC READ" Received read messages</p> <p>2 "STO UNSENT" Stored unsent messages</p> <p>3 "STO SENT" Stored sent messages</p> <p>4 "ALL" All messages</p>
<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 (refer Command +CSCS in 3GPP TS 27.007); type of address given by <toda>
<data>	<p>In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:</p> <p>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:</p> <p>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</p> <p>if TE character set is "HEX": ME/TA converts each 7-bit character of</p>

	<p>GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55))</p> <p>if <dc> 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:</p> <p>if <dc> indicates that GSM 03.38 default alphabet is used:</p> <p>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</p> <p>if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number</p> <p>if <dc> 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</p>
<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 <toa>
<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.
<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)
<toa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)
<dc>	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
<mid>	GSM 03.41 CBM Message Identifier in integer 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>
<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>)

Example

AT+CMGR=?

OK

AT+CMGR=2

+CMGR: "REC READ","10086",,"2019/12/17,10:54:46+32"

99108D3900390039002E003000305143003B000A0032300159579910591677ED5F694FE18D390030
002E003100305143003B000A0033300151CF514D002D00370030002E0030003051433002000A67E5
8BE28D3975288BE660C5FF0C8BF770B951FB00200068007400740070003A002F002F00310030003
000380036002E0063006E002F0064

OK

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>

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. 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>

<CR>PDU is given <ctrl-Z/ESC>	<p>OK</p> <p>2) If PDU mode(+CMGF=0) and sending successful: +CMGS: <mr></p> <p>OK</p> <p>3)If error is related to ME functionality: +CMS ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	60s
Reference	

Defined Values

<mr>	GSM 03.40 TP-Message-Reference in integer format
<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)

Example

```

AT+CMGS=?
OK
AT+CMGS="13816692204"
> 451212SFACDS#4
+CMGS: 213

OK

```

NOTE

- In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 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	Response
AT+CMGW=?	OK
Write Command 1) If text mode (+CMGF=1): AT+CMGW=<oa/da>[,<toa/oda>][,<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>
2) If PDU mode (+CMGF=0): AT+CMGW=<length>[,<stat>] <CR>PDU is given <ctrl-Z/ESC>	OK If error is related to ME functionality: +CMS ERROR: <err>
Execution Command (only text mode allow) AT+CMGW	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>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	5s
Reference	

Defined Values

<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>
<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(ISDN format number) 161 National number type(ISDN 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)
<tooa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)
<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
<index>	Index of message in selected storage <mem2>
<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.

Example

AT+CMGW=?

OK

AT+CMGW="13817825065"


```
> 8956565232323
+CMGW: 4

OK
AT+CMGW
> 111111
+CMGW: 5

OK
AT+CMGR=4
+CMGR: "STO UNSENT","13817825065",
8956565232323

OK
AT+CMGR=5
+CMGR: "STO UNSENT","",
111111

OK
```

4.2.7 AT+CMSS Send SMS Message from Storage

AT+CMSS Send SMS Message from Storage

Test Command	Response
AT+CMSS=?	OK
Write Command AT+CMSS=<index>[,<da>[,<today>]]	<p>Response</p> <p>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.</p> <p>1) If text mode(+CMGF=1) and sending successful: +CMSS: <mr></p> <p>OK</p> <p>2) If PDU mode(+CMGF=0) and sending successful: +CMSS: <mr></p> <p>OK</p> <p>3) If error is related to ME functionality: +CMS ERROR: <err></p>

Parameter Saving Mode	NO_SAVE
Maximum Response Time	60s
Reference	

Defined Values

<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)
<index>	Integer type; value in the range of location numbers supported by the associated memory
<mr>	GSM 03.40 TP-Message-Reference in integer format

Example

```

AT+CMSS=?
OK
AT+CMSS=1,"13817825065"
+CMSS: 1
OK

```

4.2.8 AT+CNMI New SMS Message Indications

AT+CNMI New SMS Message Indications

Text Command AT+CNMI=?	Response +CNMI: (list of supported < mode > s), (list of supported < mt > s), (list of supported < bm > s), (list of supported < ds > s), (list of supported < bfr > s) OK
Read Command AT+CNMI?	Response +CNMI: < mode > , < mt > , < bm > , < ds > , < bfr > OK
Write Command	Response

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

Defined Values

<p><mode></p>	<p>0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.</p> <p>1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.</p> <p>2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.</p> <p>3 Forward unsolicited result codes directly to the TE. TA-TE link</p>
----------------------------	--

	specific inband technique used to embed result codes and data when TA is in on-line data mode.
<mt>	<p>(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):</p> <p>0 No SMS-DELIVER indications are routed to the TE.</p> <p>1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index></p> <p>2 SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) or +CMT: <oa>,[<alpha>],<scts>[,<toa>,<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.</p> <p>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.</p>
<ds>	<p>0 No SMS-STATUS-REPORTs are routed to the TE.</p> <p>1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS:<length><CR><LF><pdu> (PDU mode enabled) or +CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st> (text mode enabled)</p>
<bm>	<p>(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):</p> <p>0 No CBM indications are routed to the TE.</p> <p>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).</p>
<bfr>	<p>0 TA buffer of unsolicited result codes defined within this Command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes).</p> <p>1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1...3 is entered</p>

Example

AT+CNMI=?

+CNMI: (0-3),(0-3),(0,2),(0,1),(0,1)

```
OK
AT+CNMI?
+CNMI: 2,1,0,0,0

OK
AT+CNMI=2,1,0,1,0
OK
AT+CNMI=2,1,0,1,0
+CMS ERROR: 303
AT+CNMI=2,1,0,0,0
OK
```

4.2.9 AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage	
Text Command AT+CPMS=?	Response +CPMS: (list of supported <mem1>s),(list of supported <mem2>s),(list of supported <mem3>s) OK
Read Command AT+CPMS?	Response +CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> OK or ERROR
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 or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mem1>	Messages to be read and deleted from this memory storage "SM" SIM message storage "ME" Phone message storage
<mem2>	Messages will be written and sent to this memory storage "SM" SIM message storage "ME" Phone message storage
<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
<usedx>	Integer type; Number of messages currently in <memx>
<totalx>	Integer type; Number of messages storable in <memx>

Example

AT+CPMS=?

+CPMS: ("ME","SM"),("ME","SM"),("ME","SM")

OK

AT+CPMS?

+CPMS: "SM",50,50,"SM",50,50,"SM",50,50

OK

AT+CPMS="SM","SM","SM"

+CPMS: 50,50,50,50,50,50

OK

4.2.10 AT+CSCA SMS Service Center Address

AT+CSCA SMS Service Center Address

Text Command AT+CSCA=?	Response OK
Read Command AT+CSCA?	Response +CSCA: <sca>,<tosca>[,<scaAlpha>] OK
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>

Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	5s
Reference	

Defined Values

<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

Example

```
AT+CSCA=?
OK
AT+CSCA?
+CSCA: "+8613800210500",145

OK
AT+CSCA="+8613800210500"
OK
```

4.2.11 AT+CSCB Select Cell Broadcast SMS Messages

AT+CSCB Select Cell Broadcast SMS Messages

Text Command AT+CSCB=?	Response +CSCB: (list of supported <mode>s), (list of supported <mids>s), (list of supported <dcss>s) OK
Read Command AT+CSCB?	Response +CSCB: <mode> , <mids> , <dcss> OK
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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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 <dc>) (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".

Example

AT+CSCB=?

+CSCB: (0,1),(0,1,5,320-478,922),(0-3,5)

OK

<show>	<p><u>0</u> Do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dc>) nor <length>, <tda> or <tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode</p> <p>1 Show the values in result codes</p>
---------------------	--

Example

AT+CSDH=?

+CSDH: (0,1)

OK

AT+CSDH?

+CSDH: 0

OK

AT+CSDH=1

OK

4.2.13 AT+CSMP Set SMS Text Mode Parameters

AT+CSMP Set SMS Text Mode Parameters

<p>Text Command</p> <p>AT+CSMP=?</p>	<p>Response</p> <p>+CSMP: (list of supported <fo>s),(list of supported <vp>s),(list of supported <pid>s),(list of supported <dc>s)</p> <p>OK</p>
<p>Read Command</p> <p>AT+CSMP?</p>	<p>Response</p> <p>+CSMP: <fo>,<vp>,<pid>,<dc></p> <p>OK</p>
<p>Write Command</p> <p>AT+CSMP=[<fo>,<vp>,<pid>,<dc>]</p>	<p>Response</p> <p>TA selects values for additional parameters needed when SM is sent to the 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).</p> <p>Note: The Command writes the parameter <fo> in NON-VOLATILE memory.</p> <p>OK</p>

Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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).
<dc>	GSM 03.38 SMS Data Coding Scheme in Integer format. Support value (0-255) , For example, 0,4,8,24,25,240,241.

Example

AT+CSMP=?

+CSMP: (17,49),(0-255),(0-255),(0-255)

OK

AT+CSMP?

+CSMP: 17,167,0,0

OK

AT+CSMP=17,167,0,241

OK

5 AT Commands Special for SIMCom

5.1 Overview of AT Commands Special for SIMCom

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 module received class 0 SMS
AT+CCID	Show ICCID
AT+MORING	Show state of mobile originated call
AT+CCALR	Call ready query
AT+GSV	Display product identification information
AT+GSMBUSY	Reject incoming call
AT+CEMNL	Set the list of emergency number
AT+CNETLIGHT	Close the net light or open it to shining
AT+CWHITELIST	Set the white list
AT+CSDT	Switch on or off detecting SIM card
AT+CSGS	Netlight indication of GPRS status
AT+CLTS	Control network time zone by network
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
AT+CRFSYNC	Transmitting RF synchronization signal
AT+CVDD	AVDD pin supply external power
AT+STTONE	Play SIM toolkit tone
AT+SIMTONE	Generate specifically tone
AT+CLDTMF	Local DTMF tone generation
AT+CMEDPLAY	Play audio file
AT+SNDLEVEL	Set the sound level of special AT command
AT+MCELL	Show cell environment description

5.2 Detailed Description of AT Commands Special for SIMCom

5.2.1 AT+CPOWD Power Off

AT+CPOWD Power Off	
Write Command AT+CPOWD=<n>	Response [NORMAL POWER DOWN]
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0	Power off urgently (Will not send out NORMAL POWER DOWN)
	1	Normal power off (Will send out NORMAL POWER DOWN)

Example

```
AT+CPOWD=1
NORMAL POWER DOWN
```

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
Read Command AT+CADC?	Response +CADC: <status>,<value>
	OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	2s

Reference

Defined Values

<status>	1 Success 0 Fail
<value>	Integer0, 100-1800

Example

AT+CADC=?

+CADC: (0,1),(0,100-1800)

OK

AT+CADC?

+CADC: 1,0

OK

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
Read Command AT+CSCLK?	Response +CSCLK: <n> OK
Write Command AT+CSCLK=<n>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	<p><u>0</u> Disable slow clock, module will not enter sleep mode.</p> <p>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.</p> <p>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.</p>
-----	---

Example

```

AT+CSCLK=?
+CSCLK: (0,1,2)

OK
AT+CSCLK?
+CSCLK: 0

OK
AT+CSCLK=1
OK
  
```

NOTE

- There are two caveats when you want to quit sleep mode in mode 2:
 - You should input some characters (at least one) to awake module
 - 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. +CENG: (list of supported <mode>s),(list of supported <Ncell>s) OK
Read Command	Response

AT+CENG?

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:
 G: <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>"...]

OK

Write Command
AT+CENG=<mode>[,<Ncell>]

Response
 Switch on or off engineering mode. It will report +CENG: (network information) automatically if <mode>=2.

OK

	or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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
<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

Example

```
AT+CENG=?
+CENG: (0-4),(0-1)
```

OK

```
AT+CENG?
+CENG: 0,0
```

OK

```
AT+CENG=1,1
OK
```

NOTE

- Engineering mode can be switched on and taken effect after executing "AT+CFUN=1".
- Engineering mode only queries 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 Module Received Class 0 SMS

AT+SCLASS0 Store Class 0 SMS to SIM When Module Received Class 0 SMS

Test Command	Response
AT+SCLASS0=?	+SCLASS0: (0,1) OK
Read Command AT+SCLASS0?	Response +SCLASS0: <mode> OK
Write Command AT+SCLASS0=<mode>	Response OK or

	ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	<p><u>0</u> Disable to store Class 0 SMS to SIM when module receives Class 0 SMS</p> <p>1 Enable to store Class 0 SMS to SIM when module receives Class 0 SMS</p>
--------	---

Example

```

AT+SCLASS0=?
+SCLASS0: (0,1)

OK
AT+SCLASS0?
+SCLASS0: 0

OK
AT+SCLASS0=1
OK
  
```

5.2.6 AT+CCID Show ICCID

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

Example

AT+CCID=?

OK

AT+CCID

8986008109176000564

OK

5.2.7 AT+MORING Show State of Mobile Originated Call

AT+MORING Show State of Mobile Originated Call

Test Command AT+MORING=?	Response +MORING: (0,1) OK
Read Command AT+MORING?	Response +MORING: <mode> OK
Write Command AT+MORING=<mode>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Unsolicited Result Code	MO RING The call is alerted. MO CONNECTED The call is established.
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	<p>0 Not show call state of mobile originated call</p> <p>1 Show call state of mobile originated call. After the call number is dialed, the URC strings of MO RING will be sent if another call is alerted and the URC strings of MO CONNECTED will be sent if the call is established.</p>
---------------------	---

Example

AT+MORING=?

+MORING: (0,1)

OK

AT+MORING?

+MORING: 0

OK

AT+MORING=0

OK

5.2.8 AT+CCALR Call Ready Query

AT+CCALR Call Ready Query

Test Command

AT+CCALR=?

Response

+CCALR: (list of supported <mode>s)

OK

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.

+CCALR: <mode>

OK

Parameter Saving Mode

NO_SAVE

Maximum Response Time

-

Reference

Defined Values

<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

Example

AT+CCALR=?

+CCALR: (0,1)

```
OK
AT+CCALR=?
+CCALR: 1
OK
```

5.2.9 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:1850B02R800C OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

```
AT+GSV
SIMCOM_Ltd
SIMCOM_R800C
Revision: 1850B08R800C
OK
```

5.2.10 AT+GSMBUSY Reject Incoming Call

AT+GSMBUSY Reject Incoming Call

Test Command AT+GSMBUSY=?	Response +GSMBUSY: (0,1,2)
-------------------------------------	--------------------------------------

	OK
Read Command AT+GSMBUSY?	Response +GSMBUSY: <mode>
	OK
Write Command AT+GSMBUSY=<mode>	Response OK If error is related to ME functionality: +CME ERROR: <error>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0	Enable incoming call
	1	Forbid all incoming calls

Example

```
AT+GSMBUSY=?
+GSMBUSY: (0,1,2)
```

```
OK
AT+GSMBUSY?
+GSMBUSY: 0
```

```
OK
AT+GSMBUSY=0
OK
```

5.2.11 AT+CEMNL Set the List of Emergency Number

AT+CEMNL Set the List of Emergency Number

Test Command AT+CEMNL=?	Response +CEMNL: (0-1),(1-11),("0"- "999")...
	OK
Read Command AT+CEMNL?	Response +CEMNL: <mode>[,<amount>,<emergency numbers>]

	OK
Write Command	Response
AT+CEMNL=<mode>[,<amount>,<emergency numbers>]	OK or ERROR
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Disable 1 Enable
<amount>	Amount of emergency number to be set. Up to 11 emergency numbers supported. Default value is 2.
<emergency number>	Emergency numbers to be set by user which range is 0-999. Default numbers are 112 and 911.

Example

AT+CEMNL=?

+CEMNL: (0-1),(1-11),("0"- "999")...

OK

AT+CEMNL?

+CEMNL: 1,2,"112","911"

OK

AT+CEMNL=1

OK

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

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

Test Command	Response
AT+CNETLIGHT=?	+CNETLIGHT: (0,1)
	OK
Read Command	Response

AT+CNETLIGHT=?	+CNETLIGHT: <mode>
	OK
Write Command AT+CNETLIGHT=<mode>	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Close the net light 1 Open the net light to shining
---------------------	--

Example

```

AT+CNETLIGHT=?
+CNETLIGHT: (0,1)

OK
AT+CNETLIGHT?
+CNETLIGHT: 1

OK
AT+CNETLIGHT=1
OK

```

5.2.13 AT+CWHITELIST Set the White List

AT+CWHITELIST Set the White List	
Test Command AT+CWHITELIST=?	Response +CWHITELIST: (0-3)
	OK
Read Command AT+CWHITELIST?	Response +CWHITELIST: <mode>[,<phone number1>,<phone number2>,...<phone number30>]

	OK
Write Command AT+CWHITELIST=<mode>[,<index>,<phone number>]	Response OK or ERROR
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	<u>0</u> Disable 1 Enable only call white list 2 Enable only SMS white list 3 Enable call and SMS white list
<index>	The index of phone number, scope: 1-30
<phone number>	Phone number to be set

Example

AT+CWHITELIST=?

+CWHITELIST: (0-3)

OK

AT+CWHITELIST?

+CWHITELIST: 0

OK

AT+CWHITELIST=1,1,"10086"

OK

NOTE

- Parameter mode value is 1, can save white list phone number ,Other mode value does not save white list phone number.
- White list phone numbers are suitable to call and SMS function.

5.2.14 AT+CSDT Switch on or off Detecting SIM Card

AT+CSDT Switch on or off Detecting SIM Card

Test Command AT+CSDT=?	Response +CSDT: (0-1),(0-1) OK
Read Command AT+CSDT?	Response +CSDT: <mode>,<sw_mode> OK
Write Command AT+CSDT=<mode>,[<sw_mode>]	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	<u>0</u>	Switch off detecting SIM card by detecting 8-pin
	1	Switch on detecting SIM card by detecting 8-pin
<sw_mode>	<u>0</u>	Switch off detecting SIM card by software
	1	Switch on detecting SIM card by software

Example

```
AT+CSDT=?
+CSDT: (0,1),(0,1)
```

```
OK
AT+CSDT?
+CSDT: 0,0
```

```
OK
AT+CSDT=0,0
OK
```

NOTE

- User should select 8-pin SIM card holder to implement SIM card detection function.
- After plug out SIM card, User should wait 2 seconds before plug in SIM card.

5.2.15 AT+CSGS Netlight Indication of GPRS Status

AT+CSGS Netlight Indication of GPRS Status

Test Command AT+CSGS=?	Response +CSGS: (0,1) OK
Read Command AT+CSGS?	Response +CSGS: <mode> OK
Write Command AT+CSGS=<mode>	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Disable <u>1</u> 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.
---------------------	--

Example

```

AT+CSGS=?
+CSGS: (0,1)

OK
AT+CSGS?
+CSGS: 1
  
```

OK
AT+CSGS=1
OK

5.2.16 AT+CLTS Control Network Time Zone by Network

AT+CLTS Control Network Time Zone by Network

Test Command AT+CLTS=?	Response +CLTS: "yy/MM/dd,hh:mm:ss+/-zz" OK
Read Command AT+CLTS?	Response +CLTS: <mode> OK
Write Command AT+CLTS=<mode>	Response OK or ERROR
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>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Disable 1 Enable, display network time zone, when open machine.
<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

Example

AT+CLTS=?

+CLTS: "yy/MM/dd, hh:mm:ss+/-zz"

OK

AT+CLTS=?

+CLTS: 0

OK

AT+CLTS=1

OK

5.2.17 AT+SSN Read and Set TA Serial Number

AT+SSN Read and Set TA Serial Number

Read Command

AT+SSN?

Response

+IMEI: <imei>

OK

Write Command

AT+SSN=<sn>

Response

OK

Parameter Saving Mode

AUTO_SAVE

Maximum Response Time

-

Reference

Defined Values

<sn>

Series number (length is 7-20, include number and capital)

Example

AT+SSN?

+SN: 67906547

```
OK
AT+SSN="67906547"
OK
```

NOTE

- The serial number (IMEI) is varied by individual ME device.

5.2.18 AT+CIURC Enable or Disable Initial URC Presentation

AT+CIURC Enable or Disable Initial URC Presentation

Test Command AT+CIURC=?	Response +CIURC: (0-1) OK
Read Command AT+CIURC?	Response +CIURC: <mode> OK
Write Command AT+CIURC=<mode>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0	Disable URC presentation.
	1	Enable URC presentation

Example

```
AT+CIURC=?
+CIURC: (0-1)

OK
```

AT+CIURC?

+CIURC: 1

OK

AT+CIURC=0

OK

NOTE

- When module is powered on and initialization procedure is over.
- URC "Call Ready" will be presented if <mode> is 1.

5.2.19 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
Read Command AT+CELLLOCK?	Response +CELLLOCK: <mode>[,<amount>,<locked arfcn list>[,<locked arfcn list>...]] OK
Write Command AT+CELLLOCK=<mode>[,<amount>,<locked arfcn list>[,<locked arfcn list>...]]	Response OK or ERROR
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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).

Example

```

AT+CELLLOCK=?
+CELLLOCK:
(0-1),(1-3),(0-124;128-251;512-885;975-1023),(
0-124;128-251;512-885;975-1023),(0-124;128-
251;512-885;975-1023)

OK
AT+CELLLOCK?
+CELLLOCK: 0

OK
AT+CELLLOCK=0
OK

```

5.2.20 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
Read Command AT+CBAND?	Response +CBAND: <op_band> OK
Write Command AT+CBAND=<op_band>	Response OK If error is related to ME functionality: +CME ERROR:<err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<op_band>	<p>A string parameter which indicate the operation band.And the following strings should be included in quotation marks</p> <p>PGSM_MODE EGSM_MODE DCS_MODE GSM850_MODE PCS_MODE EGSM_DCS_MODE EGSM_PCS_MODE GSM850_DCS_MODE GSM850_PCS_MODE ALL_BAND</p>
------------------------	---

Example

```

AT+CBAND=?
+CBAND:
(PGSM_MODE,EGSM_MODE,DCS_MODE,AL
L_BAND)

OK
AT+CBAND?
+CBAND: INVALID_BAND_MODE

OK
AT+CBAND="PGSM_MODE"
OK

```

NOTE

- Radio settings are stored in non-volatile memory.

5.2.21 AT+CMGDA Delete All SMS

AT+CMGDA Delect All SMS

Test Command	Response
AT+CMGDA=?	+CMGDA: (list of supported <type>s)

	OK +CMS ERROR: <err>
Write Command AT+CMGDA=<type>	Response OK or ERROR +CMS ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	5s(delete 1 message) 25s(delete 50 messages) 25s(delete 150 messages)
Reference	

Defined Values

<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
--------	---

Example

AT+CMGDA=?

+CMGDA: (1-6)

OK

AT+CMGDA=3

OK

5.2.22 AT+CFGRI Indicate RI When Using URC

AT+CFGRI Indicate RI When Using URC

Test Command AT+CFGRI=?	Response +CFGRI: (0-2) OK
Read Command AT+CFGRI?	Response +CFGRI: <status> OK
Write Command AT+CFGRI=<status>	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<status>	0 Off
	1 On(TCPIP, FTP and URC control RI pin)
	2 On(only TCPIP control RI pin)

Example

AT+CFGRI=?

+CFGRI: (0-2)

OK

AT+CFGRI?

+CFGRI: 0

OK

AT+CFGRI=1

OK

NOTE

- RI pin does not control by "AT+CFGRI" command when module has call service or receiving SMS.

5.2.23 AT+CRFSYNC Transmitting RF Synchronization Signal

AT+CRFSYNC Transmitting RF Synchronization Signal

Test Command AT+CRFSYNC=?	Response +CRFSYNC: (0,1) OK
Read Command AT+CRFSYNC?	Response +CRFSYNC: <status> OK
Write Command AT+CRFSYNC=<status>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<status>	0	turn off the RF Synchronization Signal
	1	turn on the RF synchronization signal

Example

```
AT+CRFSYNC=?
+CRFSYNC: (0,1)
```

```
OK
AT+CRFSYNC?
+CRFSYNC: 1
```

```
OK
AT+CRFSYNC=1
OK
```

5.2.24 AT+CVDD AVDD Pin Supply External Power

AT+CVDD AVDD Pin Supply External Power

Test Command AT+CVDD=?	Response +CVDD: (0,1) OK
Read Command AT+CVDD?	Response +CVDD: <status> OK
Write Command AT+CVDD=<status>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<status>	0	Disable
	1	Enable

Example

AT+CVDD=?

+CVDD: (0-1)

OK

AT+CVDD?

+CVDD: 1

OK

AT+CVDD=0

OK

5.2.25 AT+STTONE Play SIM Toolkit Tone

AT+STTONE Play SIM Toolkit Tone

Test Command AT+STTONE=?	Response +STTONE: (list of supported <mode>s),(list of supported <tone>s),(list of supported <duration>s) OK If error is related to ME functionality: +CME ERROR: <err>
Write Command AT+STTONE=<mode>,<tone>,<duration>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Unsolicited Result Code	The playing is stopped or completed. +STTONE: 0
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Stop playing tone 1 Start playing tone
<tone>	Numeric type 1 Dial Tone 2 Called Subscriber Busy 3 Congestion 4 Radio Path Acknowledge 5 Radio Path Not Available / Call Dropped 6 Error / Special information 7 Call Waiting Tone 8 Ringing Tone
<duration>	Numeric type, in milliseconds. Max requested value = 255*60*1000 = 15300000ms (supported range = 10-15300000)

Example

```
AT+STTONE=?
+STTONE: (0-1),(1-8),(10-15300000)

OK
AT+STTONE=1,1,100
OK
```

+STTONE: 0

5.2.26 AT+SIMTONE Generate Specifically Tone

AT+SIMTONE Generate Specifically Tone

Test Command AT+SIMTONE=?	Response +SIMTONE: (0,1),(425,950,1400,1800),(200-25500),(0,100-25500),(10-500000) OK
Write Command AT+SIMTONE=<mode>,<frequency>,<periodOn>,<periodOff>[,<duration>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Unsolicited Result Code	The playing is stopped or completed. +STTONE: 0
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Stop playing tone 1 Start playing tone
<frequency>	The frequency of tone to be generated
<periodOn>	The period of generating tone, must be multiple of 100
<periodOff>	The period of stopping tone, must be multiple of 100
<duration>	Duration of tones in milliseconds

Example

```
AT+SIMTONE=?
+SIMTONE:
(0,1),(425,950,1400,1800),(200-25500),(0,100-25500),(10-500000)

OK
AT+SIMTONE=1,425,25500,25500,50000
```


+SIMTONE: 0

OK

5.2.27 AT+CLDTMF Local DTMF Tone Generation

AT+CLDTMF Local DTMF Tone Generation

Test Command AT+CLDTMF=?	Response +CLDTMF: (1-100),(0-9,A,B,C,D,*,#),(10-500)
	OK
Write Command AT+CLDTMF=<n>,<DTMF string>[<timeBase>]	Response OK or ERROR
Execution Command AT+CLDTMF	Response OK Abort any DTMF tone currently being generated and any DTMF tone sequence.
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	A numeric parameter(1-100) which indicates the duration of all DTMF tones.
<DTMF string>	A string parameter(string should be included in quotation marks) which has a max length of 20 chars of form <DTMF>, separated by commas.
<DTMF>	A single ASCII chars in the set 0-9,#,*,A-D.
<timeBase>	timeBase to generate DTMF sound. the DTMF on time is <n>*<timeBase> DTMF off time is timeBase,the default value is 100ms.

Example

AT+CLDTMF=?

+CLDTMF: (1-100),(0-9,A,B,C,D,*,#),(10-500)

OK

AT+CLDTMF=1,"1,2,3,4,5,6,7,8,9,0",100

OK

AT+CLDTMF

OK

5.2.28 AT+CMEDPLAY Play Audio File

AT+CMEDPLAY Play Audio File

Test Command AT+CMEDPLAY=?	Response +CMEDPLAY: (0-3) OK
Read Command AT+CMEDPLAY?	Response +CMEDPLAY: <state> OK
Write Command AT+CMEDPLAY=<mode>	Response if<mode>=0 or 2 or 3 OK if<mode>=1, start playing AT+CMEDPLAY=1,<filepath>,<channel>,<volume> OK If error is related to MS functionality, response : +CME ERROR: <err>
Unsolicited result code	+CMEDPLAY:0 // play over
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	command operation mode 0 Stop playing 1 Start playing 2 Pause playing 3 Resume playing
<filepath>	Audio file path and name
<channel>	Audio play channel

	0 Main channel 1 Aux channel
<volume>	Audio play volume,0-100
<state>	Audio playing state 0 Idle 1 Playing 2 Paused

Example

AT+CMEDPLAY=?

+CMEDPLAY: (0-3)

OK

AT+CMEDPLAY?

+CMEDPLAY: 0

OK

AT+CMEDPLAY=2

OK

NOTE

- <mode> 1,2 and 3 are not supported when playing audio file during call.
- The audio file does not be played during incoming call or outgoing call.
- Only support WAV, PCM, AMR and MP3 format.
- Only support WAV format with 8K 16bit and AMR format during call.

5.2.29 AT+SNLEVEL Set the Sound Level of Special AT Command

AT+SNLEVEL Set the Sound Level of Special AT Command

Test Command
AT+SNLEVEL=?

Response
+SNLEVEL: (0-1),(0-100)

OK

Read Command
AT+SNLEVEL?

Response
+SNLEVEL: (0,<soundlevel0>),(1,<soundlevel1>)

OK

Write Command AT+SNDLEVEL=<mode>,<soundlevel>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 adjust the sound level of STTONE and SIMTONE 1 adjust the sound level of CLDTMF
<soundlevel>	0-100 Integer type value with manufacturer specific range (smallest value represents the lowest sound level). Default value of <soundlevel0> is 40 and <soundlevel1> is 40.

Example

```
AT+SNDLEVEL=?
+SNDLEVEL: (0-1),(0-100)
```

```
OK
AT+SNDLEVEL?
+SNDLEVEL: (0,40),(1,40)
```

```
OK
AT+SNDLEVEL=1,50
OK
```

5.2.30 AT+MCELL Show cell environment description

AT+MCELL Show cell environment description

Test Command AT+MCELL=?	Response +MCELL: (<mode>),(list of supported <request>) OK
Read Command AT+MCELL?	Response +MCELL: <mode>,<request> OK

Write Command AT+MCELL=<mode>,<request>	Response This command can be used by the application to retrieve the cell parameters of the main cell and of up to six neighbour cells. if <request>==25 [MCC:<mcc>,MNC:<mnc>,LAC:<lac>,Cell ID:<cellid>,BSIC:<bsic>,(P)BCCH ARFCN:<bcch>,RxLev:<rxl>,RxDbm:<dbm><CR><LF>MCC:<mcc>,<mnc>,LAC:<lac>,Cell ID:<cellid>,BSIC:<bsic>,(P)BCCH ARFCN:<bcch>,RxLev:<rxl>,RxDbm:<dbm>...] if <request>==26 [<mcc>,<mnc>,<lac>,<cellid>,<dbm><CR><LF><mcc>,<mnc>,<lac>,<cellid>,<dbm><CR><LF>...] OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Immediately respond once
<request>	25 Complete cell information 26 Simplify cell information
<bcch>	ARFCN(Absolute radio frequency channel number) of BCCH carrier, in decimal format
<rxl>	Receive level, 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
<dbm>	Receiving level in dBm

Example

```
AT+MCELL=?
+MCELL: (0),(25,26)
```

```
OK
```

AT+MCELL?

+MCELL: 0,25

OK

AT+MCELL=0,25

MCC:460,MNC: 0,LAC:13116,Cell

ID:58153,BSIC:059,(P)BCCH

ARFCN:0027,RxLev:017,RxDbm:-93

MCC:460,MNC: 0,LAC:13116,Cell

ID:58151,BSIC:062,(P)BCCH

ARFCN:0020,RxLev:003,RxDbm:-107

MCC:460,MNC: 0,LAC:13116,Cell

ID:58712,BSIC:026,(P)BCCH

ARFCN:0021,RxLev:000,RxDbm:-110

OK

SIMCOM
Confidential

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 Description 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	
Text Command AT+CGATT=?	Response +CGATT: (range of supported <state>s) OK
Read Command AT+CGATT?	Response +CGATT: <state> OK
Write Command AT+CGATT=<state>	Response +CGATT: <state>

	OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75s
Reference	

Defined Values

<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.
----------------------	--

Example

AT+CGATT=?

+CGATT: (0-1)

OK

AT+CGATT?

+CGATT: 1

OK

AT+CGATT=1

+CGATT: 1

OK

6.2.2 AT+CGDCONT Define PDP Context

AT+CGDCONT Define PDP Context

Text 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
Read Command AT+CGDCONT?	Response +CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<data_comp>,<head_comp>[...]]
	OK
Write Command AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>]]]]]	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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

	<p>3 V.44bis Other values are reserved.</p>
<h_comp>	<p>A numeric parameter that controls PDP data compression</p> <p>0 PDP header compression off (default if value is omitted)</p> <p>1 on (manufacturer preferred compression)</p> <p>2 RFC1144</p> <p>3 RFC2507</p> <p>4 RFC3095</p> <p>Other values are reserved.</p>

Example

```

AT+CGDCONT=?
+CGDCONT:
(1-7),("IP","IPV6","IPV4V6"),,,(0-3),(0-4)

OK
AT+CGDCONT?
+CGDCONT: 1,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 2,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 3,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 4,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 5,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 6,"IP",,"", "0.0.0.0",0,0
+CGDCONT: 7,"IP",,"", "0.0.0.0",0,0

OK
AT+CGDCONT=2
OK

```

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

AT+CGQMIN Quality of Service Profile (Minimum Acceptable)

Text Command	Response
<p>AT+CGQMIN=?</p>	<p>+CGQMIN: <PDP_type>,(list of supported <precedence>s),(list of supported <delay>s),(list of supported <reliability>s),(list of supported <peak>s),(list of supported <mean>s)</p> <p>[<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)</p> <p>[...]</p>

	OK
Read Command AT+CGQMIN?	Response +CGQMIN: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>[<CR><LF>] +CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[...]]
Write Command AT+CGQMIN=<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]	OK Response +CGQMIN: <cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>
Parameter Saving Mode	OK If error is related to ME functionality: +CME ERROR: <err>
Maximum Response Time	AT&W_SAVE
Reference	-

Defined Values

<cid>	1..7 A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)
<precedence>	<u>0</u> QOS precedence class subscribed value 1..3 QOS precedence class
<delay>	<u>0</u> QOS delay class subscribed value 1..4 QOS delay class subscribed
<reliability>	<u>0</u> QOS reliability class subscribed value 1..5 QOS reliability class.
<peak>	<u>0</u> QOS peak throughput class subscribed value 1..9 QOS peak throughput class
<mean>	<u>0</u> QOS mean throughput class subscribed value 1..18 QOS mean throughput class 31 QOS mean throughput class best effort

Example

```
AT+CGQMIN=?
+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)
+CGQMIN:
"IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31)
+CGQMIN:
```

"IPV4V6",(0-3),(0-4),(0-5),(0-9),(0-18,31)

OK

AT+CGQMIN?

+CGQMIN: 1,0,0,0,0,0

+CGQMIN: 2,0,0,0,0,0

+CGQMIN: 3,0,0,0,0,0

+CGQMIN: 4,0,0,0,0,0

+CGQMIN: 5,0,0,0,0,0

+CGQMIN: 6,0,0,0,0,0

+CGQMIN: 7,0,0,0,0,0

OK

AT+CGQMIN=1,0,0,0,0,0

+CGQMIN: 1,0,0,0,0,0

OK

6.2.4 AT+CGQREQ Quality of Service Profile (Requested)

AT+CGQREQ Quality of Service Profile (Requested)

Text 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

Read Command

AT+CGQREQ?

Response

+CGQREQ:

<cid>,<precedence>,<delay>,>reliability>,<peak>,<mean>[<CR><LF>+CGQREQ:

<cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>[...]]

OK

Write Command

AT+CGQREQ=cid>[,<precedence>[,<delay>[,<reliability>

Response

OK

If error is related to ME functionality:

[,<peak>[,<mean>]]]]]	+CME ERROR: <err>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<cid>	1..7 A numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)
<precedence>	A numeric parameter which specifies the precedence class <u>0</u> QOS precedence class subscribed value 1..3 QOS precedence class
<delay>	A numeric parameter which specifies the delay class <u>0</u> QOS delay class subscribed value 1..4 QOS delay class subscribed
<reliability>	A numeric parameter which specifies the reliability class <u>0</u> QOS reliability class subscribed value 1..5 QOS reliability class.
<peak>	A numeric parameter which specifies the peak throughput class <u>0</u> QOS peak throughput class subscribed value 1..9 QOS peak throughput class
<mean>	A numeric parameter which specifies the mean throughput class <u>0</u> 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)

Example

AT+CGQREQ=?

+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)

+CGQREQ:

"IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31)

+CGQREQ:

"IPV4V6",(0-3),(0-4),(0-5),(0-9),(0-18,31)

OK

AT+CGQREQ?

+CGQREQ: 1,0,0,3,0,0

+CGQREQ: 2,0,0,3,0,0

+CGQREQ: 3,0,0,3,0,0

+CGQREQ: 4,0,0,3,0,0

+CGQREQ: 5,0,0,3,0,0

```
+CGQREQ: 6,0,0,3,0,0
+CGQREQ: 7,0,0,3,0,0

OK
AT+CGQREQ=1,0,0,3,0,0
+CGQREQ: 1,0,0,3,0,0

OK
```

6.2.5 AT+CGACT PDP Context Activate or Deactivate

AT+CGACT PDP Context Activate or Deactivate

Text Command AT+CGACT=?	Response +CGACT: (range of supported <state>s) OK
Read Command AT+CGACT?	Response +CGACT: <cid>,<state>[<CR><LF>+CGACT:<cid>,<state>...] OK
Write Command AT+CGACT=<state>[,<cid>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	150s
Reference	

Defined Values

<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.
<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.

Example

AT+CGACT=?

+CGACT: (0-1)

OK

AT+CGACT?

+CGACT: 1,0

+CGACT: 2,0

+CGACT: 3,0

+CGACT: 4,0

+CGACT: 5,0

+CGACT: 6,0

+CGACT: 7,0

OK

AT+CGACT=1

OK

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

Text Command AT+CGDATA=?	Response +CGDATA: ("PPP"),(1-7) OK
Write Command AT+CGDATA=<PPP>,<cid>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command)
<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.

Example

```
AT+CGDATA=?
+CGDATA: ("PPP"),(1-7)

OK
AT+CGDATA="PPP",2
CONNECT
```

6.2.7 AT+CGPADDR Show PDP Address

AT+CGPADDR Show PDP Address

Text Command AT+CGPADDR=?	Response +CGPADDR: (range of defined<cid>s) OK
Write Command AT+CGPADDR=<cid>	Response +CGPADDR: <cid>,<PDP_addr>[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[...]] OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command)
<PPP_addr>	"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.

Example

```
AT+CGPADDR=?
+CGPADDR: (1-7)

OK
AT+CGPADDR=1
+CGPADDR: 1,"100.0.73.121"

OK
```

NOTE

- Write command returns address provided by the network if a connection has been established.

6.2.8 AT+CGCLASS GPRS Mobile Station Class

AT+CGCLASS GPRS Mobile Station Class

Text Command AT+CGCLASS=?	Response +CGCLASS: (list of supported <class>s) OK
Read Command AT+CGCLASS?	Response +CGCLASS: <class> OK
Write Command AT+CGCLASS=<class>	Response OK or ERROR If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<class>	<p>A string parameter(string should be included in quotation marks) which indicates the GPRS mobile class (in descending order of functionality)</p> <p>B Class-B mode of operation (A/Gb mode), (not applicable in Lu mode) MT would operate PS and CS services but not simultaneously</p> <p>CC Class C in circuit switched only mode (lowest)</p>
----------------------	--

Example

```
AT+CGCLASS=?
+CGCLASS: ("B","CC")
```

```
OK
AT+CGCLASS?
+CGCLASS: "B"
```

```
OK
AT+CGCLASS="CC"
OK
```

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

<p>Text Command</p> <p>AT+CGEREP=?</p>	<p>Response</p> <p>+CGEREP: (list of supported <mode>s)</p> <p>OK</p>
<p>Read Command</p> <p>AT+CGEREP?</p>	<p>Response</p> <p>+CGEREP: <mode></p> <p>OK</p>
<p>Write Command</p> <p>AT+CGEREP=<mode></p>	<p>Response</p> <p>OK</p>

	or ERROR
Unsolicited Result Codes	+CGEV: NW DEACT <PDP_type>,<PDP_addr>[,<cid>] +CGEV: ME DEACT <PDP_type>,<PDP_addr>[,<cid>] +CGEV: NW DETACH +CGEV: ME DETACH
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Disable event reporting. 1 Enable event reporting.
<PDP_type>	Packet Data Protocol type (see +CGDCONT Command)
<PDP_addr>	Packet Data Protocol address (see +CGDCONT Command)
<cid>	Context Id (see +CGDCONT Command)

Example

```

AT+CGEREP=?
+CGEREP: (0,1)

OK
AT+CGEREP?
+CGEREP: 0

OK
AT+CGEREP=0
OK

```

6.2.10 AT+CGREG Network Registration Status

AT+CGREG Network Registration Status

Text Command AT+CGREG=?	Response +CGREG: (list of supported <n>s)
	OK
Read Command	Response

AT+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>]
	OK If error is related to ME functionality: +CME ERROR:<err>
Write Command AT+CGREG=<n>	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	<p>0 Disable network registration unsolicited result code</p> <p>1 Enable network registration unsolicited result code +CGREG: <stat></p> <p>2 Enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>]</p>
<stat>	<p>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.</p> <p>1 Registered, home network.</p> <p>2 Not registered, but MT is currently trying to attach or searching an operator to register to. 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.</p> <p>3 Registration denied, The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user.</p> <p>4 Unknown</p> <p>5 Registered, roaming</p>
<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

Example

AT+CGREG=?
+CGREG: (0,1,2)

OK

AT+CGREG?

+CGREG: 0,0

OK

AT+CGREG=1

OK

6.2.11 AT+CGSMS Select Service for MO SMS Messages

AT+CGSMS Select Service for MO SMS Messages

Text Command AT+CGSMS=?	Response +CGSMS: (range of currently available <service>s) OK
Read Command AT+CGSMS?	Response +CGSMS: <service> OK
Write Command AT+CGSMS=<service>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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)
-----------	---

Example

AT+CGSMS=?

+CGSMS: (0-3)

OK

AT+CGSMS?

+CGSMS: 3

OK

AT+CGSMS=1

OK

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7 AT Commands for File System

7.1 Overview of AT Commands for File System

Command	Description
AT+CFSINIT	Get flash data buffer
AT+CFSCREAT	Create the File from the Flash
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 file
AT+CFSGFRS	Get the size of file system
AT+CFSTERM	Free the flash buffer allocated by CFSINIT
AT+CFSLFILE	List all files and directories

7.2 Detailed Description of AT Commands for File System

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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

AT+CFSINIT

OK

7.2.2 AT+CFSCREAT Create the File from the Flash

AT+CFSCREAT Create the File from the Flash

Text Command AT+CFSCREAT=?	Response +CFSDFILE: (0),"fileName" OK
Write Command AT+CFSCREAT=<index>,<file name>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<index>	Directory of AP file system: 0 "/customer/"
<file name>	File name length should be less than or equal to 50 characters.

Example

AT+CFSCREAT=?

+CFSCREAT: (0),"fileName"

OK

AT+CFSCREAT=0,"z.txt"

OK

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

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

Text Command AT+CFSWFILE=?	Response +CFSWFILE: (0),"fileName",(0-1),(1-10240),(100-10000)
	OK
Write Command AT+CFSWFILE=<index>,<file name>,<mode>,<file size>,<input time>	Response DOWNLOAD
	OK
	or ERROR
	or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<index>	Directory of AP file system: 0 "/customer/"
<file name>	File name length should be less than or equal to 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.

Example

```

AT+CFSWFILE=?
+CFSWFILE:
(0),"fileName",(0-1),(1-10240),(100-10000)

OK
AT+CFSWFILE= 0,"z.txt",0,10,10000
DOWNLOAD
//input 10 data
OK

```

7.2.4 AT+CFSRFILE Read File from Flash

AT+CFSRFILE Read File from Flash	
Text Command AT+CFSRFILE=?	Response +CFSRFILE: (0),"fileName",(0-1),(1-10240),(0-filesize)
	OK
Write Command AT+CFSRFILE=<index>,<file name>,<mode>,<file size>,<position>	Response +CFSRFILE: <size> <data>
	OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	-
Maximum Response Time	-
Reference	

Defined Values

<index>	Directory of AP file system: 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>	File size should be less than 10240 bytes.
<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

Example

```
AT+CFSRFILE=?
+CFSRFILE:
(0,"fileName",(0-1),(1-10240),(0-filesize)
```

```
OK
AT+CFSRFILE= 0,"z.txt",0,10,0
+CFSRFILE: 10
1234567890
OK
```

7.2.5 AT+CFSDFILE Delete the File from the Flash

AT+CFSDFILE Delete the File from the Flash

Text Command AT+CFSDFILE=?	Response +CFSDFILE: (0),"fileName" OK
Write Command AT+CFSDFILE=<index>,<file name>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<index>	Directory of AP file system: 0 "/customer/"
<file name>	File name length should be less than or equal to 50 characters.

Example

```
AT+CFSDFILE=?
+CFSDFILE: (0),"fileName"

OK
AT+CFSDFILE=0,"z.txt"
OK
```

7.2.6 AT+CFSGFIS Get File Size

AT+CFSGFIS Get File Size

Text Command	Response
AT+CFSGFIS=?	+CFSGFIS: (0),"fileName"

OK

Write Command	Response
AT+CFSGFIS=<index>,<file name>	ERROR
	or
	+CME ERROR: <err>
	or
	+CFSGFIS: <n>

OK

Parameter Saving Mode	NO_SAVE
-----------------------	---------

Maximum Response Time	-
-----------------------	---

Reference	
-----------	--

Defined Values

<index>	Directory of AP file system: 0 "/customer/"
<file name>	File name length should be less than or equal to 50 characters.
<n>	File size

Example

```
AT+CFSGFIS=?
+CFSGFIS: (0),"fileName"
```

OK

```
AT+CFSGFIS=0,"z.txt"
```

```
+CFSGFIS: 10
```

OK

7.2.7 AT+CFSREN Rename File

AT+CFSREN Rename File

Text Command AT+CFSREN=?	Response +CFSREN: (0),"old_name","new_name" OK
Write Command AT+CFSREN=<index>,<old file name>,<new file name>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<index>	Directory of AP file system: 0 "/customer/"
<old file name>	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.

Example

```
AT+CFSREN=?
+CFSREN: (0),"old_name","new_name"

OK
AT+CFSREN=0,"z.txt","t.txt"
OK
```

7.2.8 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
Parameter Saving Mode	-
Maximum Response Time	-
Reference	

Defined Values

<n>	Size of file system
-----	---------------------

Example

```
AT+CFSGFRS?
+CFSGFRS: 349696
OK
```

7.2.9 AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT

AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT

Execution Command	Response
AT+CFSTERM	OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

```
AT+CFSTERM
OK
```

7.2.10 AT+CFSLFILE List All Files and Directories

AT+CFSLFILE List All Files and Directories

Execution Command AT+CFSLFILE	Response Config_TEST.BIN,record.amr... OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

AT+CFSLFILE

cfw_nv.bin,Config_TEST.BIN,record.amr,AT_CFG_0.BIN,sms_dm_nv.bin,cfw_nv_pbk.bin,Detald.txt,customer,customer/z,customer/t.txt

OK

8 AT Commands for STK

8.1 Overview of AT Commands for STK

Command	Description
AT^STR	Remote-SAT response
AT^STGI	Remote-SAT get information
AT+STKAR	Auto Response &URC set
^STNN	End of proactive command
^STN	URC indication

8.2 Detailed Description of AT Commands for STK

8.2.1 AT^STR Remote-SAT Response

AT^STR Remote-SAT Response	
Test Command AT^STR=?	Response ^STR: (list of supported<cmdType>) OK
Read Command AT^STR?	Response ^STR: <cmdType> OK
Write Command AT^STR=<cmdType>,<result>[,<inputNumber>][,<inputString>,[<nScn>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	GSM11.14

Defined Values

<cmdType>	16 Setup call 19 Send short message 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>	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
<acc>	Positioning accuracy
<lon_type>	The type of longitude and latitude 0 WGS84 1 GCJ02
<times>	Access service times
<date>	Service date
<time>	Service time

Example

AT^STR?

^STR: 37

OK

AT^STR=?

^STR: (16,19,33,35,36,37,38,211)

OK

AT^STR=37,00

OK

STNN

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
Read Command AT^STGI?	Response ^STGI: <Command type> OK
Write Command AT^STGI=<Command type>	Response Command type=16: ^STGI: command type,"text string",type of address, address, subaddress,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 number of the item,"Alphaidentifier",nComQualifier command type, ID of menu item,"contents of menu",nComQualifier Command type=38: ^STGI: command type, nComQualifier OK or

	ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	GSM11.14

Defined Values

<cmdType>	
	16 Setup call
	19 Send short message
	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)

Example

AT^STGI=?

^STGI: (16,19,33,35,36,37,38)

OK

AT^STGI?

^STGI: 37

OK

AT^STGI=37

OK

8.2.3 AT+STKAR Auto Response &URC set

AT+STKAR Auto Response &URC set

Test Command AT+STKAR=?	Response +STKAR: (0-15)
	OK
Read Command AT+STKAR?	Response +STKAR: <Value>

	OK
Write Command AT+STKAR=<Value>	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Value>	0-(0000) CLOSE STK URC 1-(0001) OPEN STK URC 2-(0010) SET Display_text And Set up menu Auto Response 4-(0100) SET Select_item Auto Response
----------------------	--

Example

```
AT+STKAR=?
+STKAR: (0-15)
```

```
OK
AT+STKAR?
+STKAR: 0
```

```
OK
AT+STKAR=5
OK
```

NOTE

- When value ≥ 1 , it will open STK URC, Combining bits to implement functionality.

9 AT Commands for TCPIP

9.1 Overview of AT Commands for TCPIP

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 keep alive parameters

9.2 Detailed Description of AT Commands for TCP/IP

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
Read Command AT+CIPMUX?	Response +CIPMUX: <n> OK
Write Command AT+CIPMUX=<n>	Response OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0 Single IP connection(Default)
	1 Multi IP connection

Example

```

AT+CIPMUX=?
+CIPMUX: (0,1)

OK
AT+CIPMUX?
+CIPMUX: 0

OK
AT+CIPMUX=1
OK
  
```

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	Response
AT+CIPSTART=?	<p>1) If AT+CIPMUX=0</p> <p>+CIPSTART: (list of supported<mode>),(<IP address>),(<port>)</p> <p>+CIPSTART: (list of supported <mode>),(<domain name>),(<port>)</p> <p>OK</p> <p>2) If AT+CIPMUX=1</p> <p>+CIPSTART: (list of supported <n>),(list of supported <mode>),(<IP address>),(<port>)</p> <p>+CIPSTART: (list of supported<n>),(list of supported<mode>),(<domain name>),(<port>)</p> <p>OK</p>
<p>Write Command</p> <p>1)If single IP connection (AT+CIPMUX=0)</p> <p>AT+CIPSTART=<mode>,<IP address>,<port></p> <p>or</p> <p>AT+CIPSTART=<mode>,<domain name>,<port></p> <p>2)If multi-IP connection (AT+CIPMUX=1)</p> <p>AT+CIPSTART=<n>,<mode>,<address>,<port></p> <p>or</p> <p>AT+CIPSTART=<n>,<mode>,<domain name>,<port></p>	<p>Response</p> <p>1)If single IP connection (+CIPMUX=0)</p> <p>If format is right response</p> <p>OK</p> <p>otherwise response</p> <p>If error is related to ME functionality:</p> <p>+CME ERROR <err></p> <p>Response when connection exists</p> <p>ALREADY CONNECT</p> <p>Response when connection is successful</p> <p>CONNECT OK</p> <p>Otherwise</p> <p>STATE: <state></p> <p>CONNECT FAIL</p> <p>2)If multi-IP connection (+CIPMUX=1)</p> <p>If format is right</p> <p>OK</p> <p>otherwise response</p>

	<p>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</p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	<p>When mode is multi-IP state, the max response time 75 seconds. When mode is single state, and the state is IP INITIAL, the max response time is 160 seconds.</p>
Reference	

Defined Values

<n>	0..7 A numeric parameter which indicates the connection number
<mode>	<p>A string parameter which indicates the connection type "TCP" Establish a TCP connection "UDP" Establish a UDP connection</p>
<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>	<p>A string parameter which indicates the progress of connecting</p> <p>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</p> <p>In Multi-IP state:</p> <p>0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 IP PROCESSING 9 PDP DEACT</p>

Example

AT+CIPSTART=?

+CIPSTART:

(0-7),("TCP","UDP"),(("0-255).(0-255).(0-255).(0-255")), (1-65535)

+CIPSTART: (0-7),("TCP","UDP"),("DOMAIN NAME"), (1-65535)

OK

AT+CIPSTART="TCP","116.228.221.51","8500"

OK

CONNECT OK

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

Read Command
AT+CIPSEND?

Response

1) For single IP connection (**+CIPMUX=0**)
+CIPSEND: <size>

	<p>OK</p> <p>2) For multi IP connection (+CIPMUX=1) +CIPSEND: <n>,<size></p>
<p>Write Command</p> <p>1) If single IP connection (+CIPMUX=0) AT+CIPSEND=<length></p> <p>2) If multi IP connection (+CIPMUX=1) AT+CIPSEND=<n>[,<length>]</p>	<p>OK</p> <p>Response</p> <p>This Command is used to send changeable length data</p> <p>If single IP is connected (+CIPMUX=0)</p> <p>If connection is not established or module is disconnected:</p> <p>If error is related to ME functionality: +CME ERROR <err></p> <p>If sending is successful:</p> <p>When +CIPQSEND=0 SEND OK</p> <p>When +CIPQSEND=1 DATA ACCEPT:<length></p> <p>If sending fails: SEND FAIL</p> <p>If multi IP connection is established (+CIPMUX=1)</p> <p>If connection is not established or module is disconnected:</p> <p>If error is related to ME functionality: +CME ERROR <err></p> <p>If sending is successful:</p> <p>When +CIPQSEND=0 <n>,<length>,SEND OK</p> <p>When +CIPQSEND=1 DATA ACCEPT:<n>,<length></p> <p>If sending fails: <n>,<length>,SEND FAIL</p>
<p>Execution Command AT+CIPSEND</p> <p>response">",then type data for send, tap CTRL+Z to send, tap ESC to cancel the operation</p>	<p>Response</p> <p>This Command is used to send changeable length data.</p> <p>If single IP connection is established (+CIPMUX=0)</p> <p>If connection is not established or module is disconnected:</p> <p>If error is related to ME functionality: +CME ERROR <err></p> <p>If sending is successful:</p> <p>When +CIPQSEND=0 SEND OK</p> <p>When +CIPQSEND=1 DATA ACCEPT:<length></p> <p>If sending fails: SEND FAIL</p>
<p>Parameter Saving Mode</p>	<p>NO_SAVE</p>
<p>Maximum Response Time</p>	<p>When +CIPQSEND=0 and the remote server no response, after 645 seconds, "CLOSE" will be reported.</p>

Reference

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.

Defined Values

<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>
<size>	A numeric parameter which indicates the data length sent at a time

Example

```
AT+CIPSEND=?
+CIPSEND: (0-7),<length>
```

OK

```
AT+CIPSEND?
```

```
+CIPSEND: 0,0
+CIPSEND: 1,0
+CIPSEND: 2,0
+CIPSEND: 3,0
+CIPSEND: 4,0
+CIPSEND: 5,0
+CIPSEND: 6,0
+CIPSEND: 7,0
```

OK

```
AT+CIPSEND=1
```

```
> data from connection 1
```

```
1, SEND OK
```

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.
- 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	Response
AT+CIPQSEND=?	+CIPQSEND: (0,1) OK
Read Command AT+CIPQSEND?	Response +CIPQSEND: <n> OK
Write Command AT+CIPQSEND=<n>	Response OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0 Normal mode – when the server receives TCP data, it will response SEND OK .(Default) 1 Quick send mode – when the data is sent to module, it will response DATA ACCEPT:<n>,<length> , while not responding SEND OK .
-----	--

Example

```
AT+CIPQSEND=?
+CIPQSEND: (0,1)
```

```
OK
AT+CIPQSEND?
+CIPQSEND: 0
```

```
OK
AT+CIPQSEND=1
OK
```

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
Execution Command If in single IP connection (+CIPMUX=0) AT+CIPACK	Response +CIPACK: <txlen>, <acklen>, <nacklen> OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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

Example

AT+CIPACK=?

OK

AT+CIPACK=5

+CIPACK: 0,0,0

OK

AT+CIPACK

+CIPACK: 12,12,0

OK

9.2.6 AT+CIPCLOSE Close TCP or UDP Connection

AT+CIPCLOSE Close TCP or UDP Connection	
Test Command AT+CIPCLOSE=?	Response 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
Execution Command AT+CIPCLOSE	Response If close is successfully: CLOSE OK If close fails: ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0 Slow close(Default) 1 Quick close
<id>	A numeric parameter which indicates the connection number

Example

```
AT+CIPCLOSE=?
OK
AT+CIPCLOSE=0
0, CLOSE OK
AT+CIPCLOSE
CLOSE OK
```

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: ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	65 seconds
Reference	

Example

```
AT+CIPSHUT=?
OK
AT+CIPSHUT
SHUT OK
```

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

<p>Test Command AT+CLPORT=?</p>	<p>Response</p> <p>1) For single IP connection (+CIPMUX=0) +CLPORT: ("TCP","UDP"),(0-65535)</p> <p>OK</p> <p>2) For multi IP connection (+CIPMUX=1) +CLPORT: (0-7),("TCP","UDP"),(0-65535)</p> <p>OK</p>
<p>Read Command AT+CLPORT?</p>	<p>Response</p> <p>1) For single IP connection (+CIPMUX=0) +CLPORT: <TCP port>,<UDP port></p> <p>OK</p> <p>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></p> <p>OK</p>
<p>Write Command</p> <p>1) For single IP connection (+CIPMUX=0) AT+CLPORT=<mode>,<port></p> <p>2) For multi IP connection (+CIPMUX=1) AT+CLPORT=<n>,<mode>,<port></p>	<p>Response</p> <p>OK or ERROR</p>
<p>Parameter Saving Mode</p>	<p>NO_SAVE</p>
<p>Maximum Response Time</p>	<p>-</p>
<p>Reference</p>	<p></p>

Defined Values

<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.

Example

AT+CLPORT=?

+CLPORT: (0-7),("TCP","UDP"),(0-65535)

OK

AT+CLPORT?

+CLPORT: 0,0,0

+CLPORT: 1,0,0

+CLPORT: 2,0,0

+CLPORT: 3,0,0

+CLPORT: 4,0,0

+CLPORT: 5,0,0

+CLPORT: 6,0,0

+CLPORT: 7,0,0

OK

AT+CLPORT="UDP",8888

OK

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

Read Command

AT+CSTT?

Response

+CSTT: <apn>,<user name>,<password>

OK

Write Command AT+CSTT=<apn>,[<user name>],[<password>]	Response OK or ERROR
Execution Command AT+CSTT	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<apn>	A string parameter which indicates the GPRS access point name. The max length is 63 bytes. Default value is "CMNET".
<user name>	A string parameter which indicates the GPRS user name. The max length is 31 bytes.
<password>	A string parameter which indicates the GPRS password. The max length is 31 bytes.

Example

```

AT+CSTT=?
+CSTT: "APN","USER","PWD"

OK
AT+CSTT?
+CSTT: "CMNET", "", ""

OK
AT+CSTT="CMNET"

OK
AT+CSTT

OK

```

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 or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	85 seconds
Reference	

Example

```
AT+CIICR=?
OK
AT+CIICR
OK
```

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
Parameter Saving Mode	NO_SAVE

Maximum Response Time	-
Reference	

Defined Values

<IP address>	A string parameter which indicates the IP address assigned from GPRS or CSD.
--------------	--

Example

```
AT+CIFSR=?
OK
AT+CIFSR
10.204.70.11
```

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>
Execution Command AT+CIPSTATUS	Response 1) If in single connection mode (+CIPMUX=0) OK

	<p>STATE:<state> 2) If in multi-connection mode (+CIPMUX=1) OK</p> <p>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></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<n>	0-7A numeric parameter which indicates the connection number
<bearer>	0-1GPRS bearer, default is 0
<server state>	OPENING LISTENING CLOSING
<client state>	INITIAL CONNECTING CONNECTED REMOTE CLOSING CLOSING CLOSED
<state>	<p>A string parameter which indicates the progress of connecting</p> <p>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</p> <p>In Multi-IP state:</p> <p>0 IP INITIAL 1 IP START 2 IP CONFIG 3 IP GPRSACT 4 IP STATUS 5 IP PROCESSING 9 PDP DEACT</p>

Example

```

AT+CIPSTATUS=?
OK
AT+CIPSTATUS=1
+CIPSTATUS: 1,,,"","","","INITIAL"

OK
AT+CIPSTATUS
OK
    
```

9.2.13 AT+CDNSCFG Configure Domain Name Server

AT+CDNSCFG Configure Domain Name Server

Test Command AT+CDNSCFG=?	Response +CDNSCFG: ("Primary DNS"),("Secondary DNS") OK
Read Command AT+CDNSCFG?	Response PrimaryDns: <pri_dns> SecondaryDns: <sec_dns> OK
Write Command AT+CDNSCFG=<pri_dns>[,<sec_dns>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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.

Example

```
AT+CDNSCFG=?
+CDNSCFG: ("PrimaryDNS"),("Secondary
DNS")
```

OK

```
AT+CDNSCFG?
```

```
PrimaryDns: 183.230.126.225
```

```
SecondaryDns: 183.230.126.224
```

OK

```
AT+CDNSCFG="8.8.8.8"
```

OK

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	Response
AT+CDNSGIP=?	OK
Write Command AT+CDNSGIP=<domain name>	Response OK or ERROR If successful, return: +CDNSGIP: 1, <domain name>,<IP1>[,<IP2>] If fail, return: +CDNSGIP: 0,<dns error code>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<domain name>	A string parameter which indicates the domain name
<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.

Example

```
AT+CDNSGIP=?
OK
AT+CDNSGIP=www.baidu.com
OK

+CDNSGIP:
1,"www.baidu.com","119.75.218.77","119.75.
217.56"
```

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
Read Command AT+CIPHEAD?	Response +CIPHEAD: <mode> OK
Write Command AT+CIPHEAD=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which indicates whether an IP header is added to the received data or not. 0 Not add IP header(Default) 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>:
<cmdType>	16 Setup call

Example

```

AT+CIPHEAD=?
+CIPHEAD: (0-NO HEADER,1-ADD HEADER)

OK
AT+CIPHEAD?
+CIPHEAD: 0

OK
AT+CIPHEAD=1
OK
  
```

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
Read Command AT+CIPATS?	Response +CIPATS:<mode>,<time> OK
Write Command AT+CIPATS=<mode>[,<time>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which indicates whether set timer when module
--------	---

	is sending data 0 Not set timer when module is sending data(Default) 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

Example

AT+CIPATS=?

+CIPATS: (0-NOT AUTO SEND,1-AUTO SEND),(1-100)

OK

AT+CIPATS?

+CIPATS: 0,0

OK

AT+CIPATS=1,50

OK

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) OK
Read Command AT+CIPSPRT?	Response +CIPSPRT: <send prompt> OK
Write Command AT+CIPSPRT=<send prompt>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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. (Default)

2 It neither prompts echo ‘>’ nor shows "send ok" when sending is successful.

Example

```
AT+CIPSPRT=?
+CIPSPRT: (0,1,2)
```

```
OK
AT+CIPSPRT?
+CIPSPRT: 1
```

```
OK
AT+CIPSPRT=1
OK
```

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
Read Command AT+CIPSERVER?	Response +CIPSERVER: <mode>[,<port>,<channel id>,<bearer>] OK
Write Command AT+CIPSERVER=<mode>[,<port>]	Response OK or ERROR
Execution Command	Response
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-

Reference

Defined Values

<mode>	0 Close server(Default) 1 Open server
<port>	1..65535 Listening port
<channel id>	Channel id
<bearer>	GPRS bearer

Example

AT+CIPSERVER=?

+CIPSERVER: (0-CLOSE SERVER,1-OPEN SERVER),(1-65535)

OK

AT+CIPSERVER=?

+CIPSERVER: 0

OK

AT+CIPSERVER=1,1234

OK

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
Read Command AT+CIPCSGP?	Response +CIPCSGP: <mode>,<apn>,<user name>,<password>[,<rate>]

	OK
Write Command	Response
AT+CIPCSGP=<mode>[,(<apn>,<user name>,<password>),(<dial number>,<user name>,<password>,<rate>)]	OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which indicates the wireless connection mode 1 set GPRS as wireless connection mode(Default)
<apn>	A string parameter which indicates the access point name
<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(Default) 3 14400

Example

```

AT+CIPCSGP=?
+CIPCSGP: 1-GPRS,APN,USER NAME,
PASSWORD

OK
AT+CIPCSGP?
+CIPCSGP: 1,"CMNET", "", ""

OK
AT+CIPCSGP=1,"CMNET"
OK
  
```

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
Read Command AT+CIPSRIP?	Response +CIPSRIP: <mode> OK
Write Command AT+CIPSRIP=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which shows remote IP address and port. 0 Do not show the prompt(Default) 1 Show the prompt, the format is as follows: 1) For single IP connection (+CIPMUX=0) +RECV FROM:<IP ADDRESS>:<PORT> 2) For multi IP connection (+CIPMUX=1) +RECEIVE,<n>,<data length>,<IP ADDRESS>:<PORT>
--------	---

Example

```

AT+CIPSRIP=?
+CIPSRIP: (0,1)

OK
AT+CIPSRIP=?
+CIPSRIP: 0

OK
AT+CIPSRIP=1

```

OK

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

AT+CIPDPPD Set Whether to Check State of GPRS Network Timing

Test Command AT+CIPDPPD=?	Response +CIPDPPD: (list of supported<mode>s,list of supported <interval>,list of supported <timer>) OK
Read Command AT+CIPDPPD?	Response +CIPDPPD: <mode>, <interval>, <timer> OK
Write Command AT+CIPDPPD=<mode>[,<interval>,<timer>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Not set detect PDP 1 Set detect PDP(Default)
<interval>	1<=interval<=180(s), default value is 10.
<timer>	1<=timer<=10, default value is 3.

Example

```

AT+CIPDPPD=?
+CIPDPPD: (0-NOT SET DET PDP,1-SET DET
PDP),(1-180),(1-10)

OK
AT+CIPDPPD=?
+CIPDPPD: 1,10,3

OK

```

AT+CIPDTPD=1,10,3

OK

NOTE

- If "+PDP: DEACT" urc is reported because of module not attaching to gprs 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
Read Command AT+CIPMODE?	Response +CIPMODE: <mode> OK
Write Command AT+CIPMODE=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Normal mode(Default)
	1 Transparent mode

Example

AT+CIPMODE=?

**+CIPMODE: (0-NORMAL MODE,
1-TRANSPARENT MODE)**


```
OK
AT+CIPMODE?
+CIPMODE: 0

OK
AT+CIPMODE=1
OK
```

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
Read Command AT+CIPCCFG?	Response +CIPCCFG: <NmRetry>,<WaitTm>,<SendSz>,<esc>,<Rxmode>,<RxSize>,<Rxtimer> OK
Write Command AT+CIPCCFG=<NmRetry>,<WaitTm>,<SendSz>,<esc>[,<Rxmode>,<RxSize>,<Rxtimer>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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(Default)
<Rxmode>	Whether to set time interval during output data from serial port. 0 output data to serial port without interval(Default) 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

Example

AT+CIPCCFG=?

+CIPCCFG:

(NmRetry:3-8),(WaitTm:1-10),(SendSz:1-1460),
(,)(esc:0,1),(Rxmode:0,1),(RxSize:50-1460),(Rx
timer:20-1000)

OK

AT+CIPCCFG?

+CIPCCFG: 5,1,1024,1,0,1460,50

OK

AT+CIPCCFG=5,1,1024,1,0,1460,50

OK

NOTE

- This command will be effective only in single connection mode (+CIPMUX=0)

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

AT+CIPSHOWTTP Display Transfer Protocol in IP Head When Received Data

Test Command

AT+CIPSHOWTTP=?

Response

+CIPSHOWTTP: (list of supported<mode>s)

OK

Read Command

AT+CIPSHOWTTP?

Response

+CIPSHOWTTP: <mode>

OK

Write Command AT+CIPSHOWTP=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which indicates whether to display transfer protocol in IP header to received data or not 0 Not display transfer protocol(Default) 1 Display transfer protocol, the format is "+IPD, <data size>,<TCP/UDP>:<data>"
---------------------	--

Example

AT+CIPSHOWTP=?

+CIPSHOWTP: (0,1)

OK

AT+CIPSHOWTP?

+CIPSHOWTP: 0

OK

AT+CIPSHOWTP=1

OK

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	Response
--------------	----------

<p>AT+CIPUDPMODE=?</p>	<p>1) For single IP connection (+CIPMUX=0) +CIPUDPMODE: (0-2),("0-255).(0-255).(0-255).(0-255)"),(1-65535)</p> <p>OK</p> <p>2) For multi IP connection (+CIPMUX=1) +CIPUDPMODE: (0-7),(0-2),("0-255).(0-255).(0-255).(0-255)"),(1-65535)</p> <p>OK</p>
<p>Read Command AT+CIPUDPMODE?</p>	<p>Response</p> <p>1) For single IP connection (+CIPMUX=0) +CIPUDPMODE: <mode>[,<IP address>,<Port>]</p> <p>OK</p> <p>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>]</p> <p>OK</p>
<p>Write Command</p> <p>1) For single IP connection (+CIPMUX=0) AT+CIPUDPMODE=<mode>[,<IP address>,<Port>]</p> <p>2) For multi IP connection (+CIPMUX=1) AT+CIPUDPMODE=<n>,<mode>[,<IP address>,<Port>]</p>	<p>Response</p> <p>OK or ERROR</p>
<p>Parameter Saving Mode</p>	<p>NO_SAVE</p>
<p>Maximum Response Time</p>	<p>-</p>
<p>Reference</p>	

Defined Values

<p><n></p>	<p>0-7 A numeric parameter which indicates the connection number</p>
<p><mode></p>	<p>0 UDP Normal Mode(Default) 1 UDP Extended Mode 2 Set UDP address to be sent</p>

<IP address>	A string parameter which indicates remote IP address
<port>	Remote port

Example

AT+CIPUDPMODE=?

+CIPUDPMODE:

(0-7),(0-2),("0-255).(0-255).(0-255).(0-255"),(1-65535)

OK

AT+CIPUDPMODE?

+CIPUDPMODE: 0,0

+CIPUDPMODE: 1,0

+CIPUDPMODE: 2,0

+CIPUDPMODE: 3,0

+CIPUDPMODE: 4,0

+CIPUDPMODE: 5,0

+CIPUDPMODE: 6,0

+CIPUDPMODE: 7,0

OK

AT+CIPUDPMODE=2,"211.136.131.65",4500

OK

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: (range of supported **<mode>s**),(range of supported**<reqlength>s**)

OK

If multi IP connection (+CIPMUX=1)

+CIPRXGET: (list of supported **<mode>s**), (list of supported **<id>s**), (list of supported**<reqlength>s**)

OK

Read Command

AT+CIPRXGET?

Response

+CIPRXGET: <mode>

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>]

OK

Response

OK

or

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 ADDRESS>:<PORT>]
5151...**

OK

if <mode>=4

+CIPRXGET: 4, <id>,<cnflength>

OK

If error is related to ME functionality:

	+CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	<p>0 Disable getting data from network manually, the module is set to normal mode, data will be pushed to TE directly.(Default)</p> <p>1 Enable getting data from network manually.</p> <p>2 The module can get data, but the length of output data cannot exceed 1460 bytes at a time.</p> <p>3 Similar to mode 2, but in HEX mode, which means the module can get 730 bytes maximum at a time.</p> <p>4 Query how many data are not read with a given ID.</p>
<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.

Example

AT+CIPRXGET=?

+CIPRXGET: (0-4),(0-7),(1-1460)

OK

AT+CIPRXGET?

+CIPRXGET: 0

OK

AT+CIPRXGET=2,1460

+CIPRXGET:2,11,0

HELLO WORLD

OK

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
Read Command AT+CIPRDTIMER?	Response +CIPRDTIMER: <rdsigtimer>,<rdmuxtimer> OK
Write Command AT+CIPRDTIMER=<rdsigtimer>,<rdmuxtimer>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<rdsigtimer>	Remote delay timer of single connection. Default value is 2000.
<rdmuxtimer>	Remote delay timer of multi-connections. Default value is 3500.

Example

```
AT+CIPRDTIMER=?
+CIPRDTIMER: (100-4000),(100-7000)
```

```
OK
AT+CIPRDTIMER?
+CIPRDTIMER: 2000,3500
```

```
OK
AT+CIPRDTIMER=2000,3500
OK
```

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
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 AT+CIPSGTXT=<mode>,<sgtxt>,<bearerid>,<state>,<ip>,<type>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Select first PDP context (Default) 1 Select second PDP context
<sgtxt>	0 first PDP context 1 second PDP context
<bearerid>	0 bearer id 0 1 bearer id 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

Example

```

AT+CIPSGTXT=?
+CIPSGTXT: (0,1)

OK
AT+CIPSGTXT?
+CIPSGTXT: 0,(0,DEACTIVE),(1,DEACTIVE)

OK
AT+CIPSGTXT=1
OK

```

NOTE

- This command is used to select PDP context, only for multi IP connection (+CIPMUX=1).

9.2.29 AT+CIPTKA Set TCP Keep Alive Parameters

AT+CIPTKA Set TCP Keep Alive 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
Read Command AT+CIPTKA?	Response +CIPTKA: <mode>,<keepIdle>,<keepInterval>,<keepCount> OK
Write Command AT+CIPTKA=<mode>[,<keep	Response OK

<code>pIdle>[,<keepInterval>[,<keepCount>]]]</code>	If error is related to ME functionality: ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<code><mode></code>	Set TCP keep alive option. 0 Disable TCP keep alive mechanism 1 Enable TCP keep alive mechanism
<code><keepIdle></code>	Integer type; Idle time (in second) before TCP send the initial keep alive probe. 30-7200 Default: 7200
<code><keepInterval></code>	Interval time (in second) between keep alive probes retransmission. 30-600 Default: 75
<code><keepCount></code>	Integer type; Maximum number of keep alive probes to be sent. 1-9 Default: 9

Example

```

AT+CIPTKA=?
+CIPTKA: (0,1),(30-7200),(30-600),(1-9)

OK
AT+CIPTKA?
+CIPTKA: 1,7200,75,9

OK
AT+CIPTKA=1,7200,75,9

OK

```

1 AT Commands for IP Application

10.1 Overview of AT Commands for IP Application

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

10.2 Detailed Description of AT Commands for IP Application

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"
Write Command AT+SAPBR=<cmd_type>,<cid>[,<ConParamTag>,<ConParamValue>]	Response OK 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
Parameter Saving Mode	NO_SAVE
Maximum Response Time	When <cmd_type>is 1, 85 seconds When <cmd_type>is 0, 65 seconds

Reference

Defined Values

<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 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 parameter value
<ConParamValue_ConType>	"CSD" Circuit-switched data call.
>	"GPRS" GPRS connection.
<IP_Addr>	The IP address of bearer

Example

```
AT+SAPBR=?
+SAPBR:(0-4),(1-3), "ConParamTag",
"ConParamValue"

OK
AT+SAPBR=3,1,"APN","CMNET"
OK
```

NOTE

- This command is applied to activate some applications such as HTTP, FTP.

11 AT Commands for HTTP

11.1 Overview of AT Commands for GPRS HTTP

Command	Description
AT+HTTPIPINIT	Initialize HTTP service
AT+HTTPTERM	Terminate HTTP service
AT+HTTTPARA	Set HTTP parameters value
AT+HTTTPDATA	Input HTTP data
AT+HTTTPACTION	HTTP method action
AT+HTTTPREAD	Read the HTTP server response
AT+HTTTPSTATUS	Read HTTP status
AT+HTTTPHEAD	Read the HTTP header information of server response
AT+HTTTPOPFS	HTTP read and save the file with file system
AT+HTTTPGETHEAD	Show the HTTP header information in HTTPREAD

11.2 Detailed Description of AT Commands for HTTP

11.2.1 AT+HTTPIPINIT Initialize HTTP Service

AT+HTTPIPINIT Initialize HTTP Service	
Test Command	Response
AT+HTTPIPINIT=?	OK
Execution Command	Response
AT+HTTPIPINIT	OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

```
AT+HTTPINIT=?
OK
AT+HTTPINIT
OK
```

NOTE

- HTTPINIT should first be executed to initialize the HTTP service.

11.2.2 AT+HTTPTERM Terminate HTTP Service

AT+HTTPTERM Terminate HTTP Service

Test Command	Response
AT+HTTPTERM=?	OK
Execution Command	Response
AT+HTTPTERM	OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Example

```
AT+HTTPTERM=?
OK
AT+HTTPTERM
OK
```

11.2.3 AT+HTTPPARA Set HTTP Parameters Value

AT+HTTPPARA Set HTTP Parameters Value	
Test Command AT+HTTPPARA=?	Response +HTTPPARA: "HTTPParamTag","HTTPParamValue" OK
Read Command AT+HTTPPARA?	Response +HTTPPARA: <HTTPParamTag>,<HTTPParamValue> OK
Write Command AT+HTTPPARA=<HTTPParamTag>,<HTTPParamValue>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<HTTPParamTag>	<p>HTTP Parameter</p> <p>"CID" (Mandatory Parameter) Bearer profile</p> <p>"URL" identifier (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.</p> <p>"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".</p> <p>"PROIP" The IP address of HTTP proxy server</p> <p>"PROPORT" The port of HTTP proxy server</p> <p>"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).</p> <p>"BREAK" Parameter for HTTP method "GET", used for resuming broken transfer.</p> <p>"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".</p>
-----------------------------	---

	<p>If the value of "BREAKEND" is smaller than "BREAK", the transfer scope is from "BREAK" to the end of the file.</p> <p>"TIMEOUT" If both "BREAKEND" and "BREAK" are 0, the resume broken transfer function is disabled. HTTP session timeout value, scope: 30-1000 second.</p> <p>Default value is 120 seconds.</p> <p>HTTP Parameter value. Type and supported content depend on related <HTTPParamTag>.</p> <p>"CONTENT" Used to set the "Content-Type" field in HTTP header.</p> <p>"USERDATA" User data</p>
<HTTPParamValue>	<p>HTTP Parameter value. Type and supported content depend on related<HTTPParamTag>.</p>

Example

AT+HTTPPARA=?

+HTTPPARA:

"HTTPParamTag","HTTPParamValue"

OK

AT+HTTPPARA?

+HTTPPARA:

CID: 1

URL:

UA: SIMCOM_MODULE

PROIP: 0.0.0.0

PROPORT: 0

REDIR: 0

BREAK: 0

BREAKEND: 0

TIMEOUT: 120

CONTENT:

USERDATA:

OK

AT+HTTPPARA="CID",1

OK

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: (range of supported <size>s),(range of supported <time>s) OK
Write Command AT+HTTPDATA=<size>,<time>	Response DOWNLOAD OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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.

Example

```

AT+HTTPDATA=?
+HTTPDATA: (0-319488),(1000-120000)

OK
AT+HTTPDATA=1000,10000
DOWNLOAD
.....

OK

```

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) OK
Write Command AT+HTTPACTION=<Method> >	Response OK If error is related to ME functionality: +CME ERROR: <err> Unsolicited Result Code +HTTPACTION: <Method>,<StatusCode>,<DataLen>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	About 5 seconds in test, dependence on network status and the size of request website
Reference	

Defined Values

<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
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
-----------	------------------------

Example

```
AT+HTTPACTION=?
+HTTPACTION: (0-3)
```

```
OK
```

AT+HTTPACTION=1

OK

+HTTPACTION: 0,200,0

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

Write Command

AT+HTTPREAD=<start_address>,<byte_size>

+HTTPREAD: <date_len>
<data>

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>

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

Maximum Response Time

-

Reference

Defined Values

<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.

Example

```

AT+HTTPREAD=?
+HTTPREAD: (0-319488),(1-319488)

OK
AT+HTTPREAD=1000,1000
OK
AT+HTTPREAD=?
+HTTPREAD: 1000
.....

OK

```

11.2.7 AT+HTTPSTATUS Read HTTP Status

AT+HTTPSTATUS Read HTTP Status

Test Command	Response
AT+HTTPSTATUS=?	OK
Read Command	Response
AT+HTTPSTATUS?	+HTTPSTATUS: <mode>,<status>,<finish>,<remain>
	OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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

Example

AT+HTTPSTATUS=?

OK

AT+HTTPSTATUS?

+HTTPSTATUS: GET,0,0,0

OK

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	Response
AT+HTTPHEAD=?	OK
Execution Command	Response
AT+HTTPHEAD	+HTTPHEAD: <date_len> <data>
	OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<data_len>	The actual length for http header data output
<data>	Data from HTTP server

Example

```
AT+HTTPHEAD=?
OK
AT+HTTPHEAD=?
+HTTPHEAD: 5
Hello
OK
```

NOTE

- Read header data when AT+HTTPACTION=0 executed.

11.2.9 AT+HTTPOPFSS HTTP Read And Save the File with File System

AT+HTTPOPFSS HTTP Read And Save the File with File System

Test Command AT+HTTPOPFSS=?	Response +HTTPOPFSS: (range of supported <option>s) OK
Write Command AT+HTTPOPFSS=<action>[,<filenameName>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<action>	0 save to fota.delta (or "filename"). 1 read from fota.delta (or " filename").
<filename>	Specified file name

Example

AT+HTTPOPFS=?

+HTTPOPFS: (0-1)[,"FileName"]

OK

AT+HTTPOPFS=0,"123.bin"

OK

NOTE

- HTTPINIT should first be executed to initialize the HTTP service.

11.2.10 AT+HTTPGETHEAD Show the HTTP Header Information in HTTPREAD

AT+HTTPGETHEAD Show the HTTP Header Information in HTTPREAD

Test Command AT+HTTPGETHEAD=?	Response +HTTPGETHEAD: (0-1) OK
Read Command AT+HTTPGETHEAD?	Response +HTTPGETHEAD: <option> OK
Write Command AT+HTTPGETHEAD=<action>[,<fileName>]	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<option>	0	Can't show HTTP Header Information.(Default)
	1	Show HTTP Header Information.

Example

AT+HTTPGETHEAD=?

+HTTPGETHEAD: (0-1)

OK

AT+HTTPGETHEAD?

+HTTPGETHEAD: 0

OK

AT+HTTPGETHEAD=1

OK

NOTE

- HTTPINIT should first be executed to initialize the HTTP service.

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12 AT Commands for FTP Application

12.1 Overview of AT Commands for FTP Application

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+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
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 Description of AT Commands for FTP Application

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>
Write Command AT+FTPPORT=<value>	OK Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	The value of FTP Control port, from 1 to 65535. Default value is 21
---------	--

Example

```

AT+FTPPORT=?
OK
AT+FTPPORT?
+FTPPORT: 21

OK
AT+FTPPORT=21
OK

```

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
Read Command AT+FTPMODE?	Response +FTPMODE: <value>
Write Command AT+FTPMODE=<value>	OK Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<cmdType>	0 Active FTP mode
	1 Passive FTP mode(Default)

Example

```

AT+FTPMODE=?
OK
AT+FTPMODE?
+FTPMODE: 1

OK
AT+FTPMODE=1
OK
  
```

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
Write Command AT+FTPTYPE=<value>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	"A" For FTP ASCII sessions "I" For FTP Binary sessions(Default)
---------	--

Example

AT+FTPTYPE=?

OK

AT+FTPTYPE?

+FTPTYPE: "I"

OK

AT+FTPTYPE="I"

OK

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
Write Command AT+FTPPUTOPT=<value>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	"APPE" For appending file "STOU" For storing unique file "STOR" For storing file(Default)
---------	---

Example

```
AT+FTPPUTOPT=?
OK
AT+FTPPUTOPT?
+FTPPUTOPT: "STOR"

OK
AT+FTPPUTOPT="APPE"
OK
```

12.2.5 AT+FTPCID Set FTP Bearer Profile Identifier

AT+FTPCID Set FTP Bearer Profile Identifier	
Test Command AT+FTPCID=?	Response OK

Read Command AT+FTPCID?	Response +FTPCID: <value> OK
Write Command AT+FTPCID=<value>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Bearer profile identifier refer to AT+SAPBR
---------	---

Example

AT+FTPCID=?

OK

AT+FTPCID=?

+FTPCID: 1

OK

AT+FTPCID=?

OK

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
Write Command AT+FTPREST=<value>	Response OK If error is related to ME functionality: +CME ERROR: <err>

Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Broken point to be resumed
---------	----------------------------

Example

AT+FTPREST=?

OK

AT+FTPREST=?

+FTPREST: 0

OK

AT+FTPREST=16

OK

12.2.7 AT+FTPSERV Set FTP Server Address

AT+FTPSERV Set FTP Server Address

Test Command	Response
AT+FTPSERV=?	OK
Read Command	Response
AT+FTPSERV?	+FTPSERV: <value>
	OK
Write Command	Response
AT+FTPSERV=<value>	OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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
---------	---

Example

```

AT+FTPSERV=?
OK
AT+FTPSERV?
+FTPSERV: 116.228.221.52

OK
AT+FTPSERV="116.228.221.52"
OK

```

12.2.8 AT+FTPUN Set FTP User Name

AT+FTPUN Set FTP User Name

Test Command	Response
AT+FTPUN=?	OK
Read Command	Response
AT+FTPUN?	+FTPUN: <value>
	OK
Write Command	Response
AT+FTPUN=<value>	OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 49 characters.
---------	---

Example

```
AT+FTPUN=?
```

```
OK
AT+FTPUN?
+FTPUN: sim.cs1

OK
AT+FTPUN="sim.cs1"
OK
```

12.2.9 AT+FTPPW Set FTP Password

AT+FTPPW Set FTP Password

Test Command	Response
AT+FTPPW=?	OK
Read Command AT+FTPPW?	Response +FTPPW: <value>
Write Command AT+FTPPW=<value>	OK Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 49 characters.
---------	---

Example

```
AT+FTPPW=?
OK
AT+FTPPW?
+FTPPW: "ABC"

OK
AT+FTPPW="*****"
OK
```

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
Write Command AT+FTPGETNAME=<value>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 99 characters
---------	--

Example

```

AT+FTPGETNAME=?
OK
AT+FTPGETNAME?
+FTPGETNAME: "1K.txt"

OK
AT+FTPGETNAME="1K.txt"
OK

```

12.2.11 AT+FTPGETPATH Set Download File Path

AT+FTPGETPATH Set Download File Path

Test Command	Response
--------------	----------

AT+FTPGETPATH=?	OK
Read Command AT+FTPGETPATH?	Response +FTPGETPATH: <value>
Write Command AT+FTPGETPATH=<value>	OK Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 255 characters
---------	---

Example

```

AT+FTPGETPATH=?
OK
AT+FTPGETPATH?
+FTPGETPATH: "/"

OK
AT+FTPGETPATH="/"
OK

```

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>
Write Command AT+FTPPUTNAME=<value>	OK Response OK

	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 99 characters
---------	--

Example

```

AT+FTPPUTNAME=?
OK
AT+FTPPUTNAME?
+FTPPUTNAME: "1K.txt"

OK
AT+FTPPUTNAME="1K.txt"
OK

```

12.2.13 AT+FTPPUTPATH Set Upload File Path

AT+FTPPUTPATH Set Upload File Path

Test Command	Response
AT+FTPPUTPATH=?	OK
Read Command	Response
AT+FTPPUTPATH?	+FTPPUTPATH: <value>
	OK
Write Command	Response
AT+FTPPUTPATH=<value>	OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 99characters
---------	---

Example

```
AT+FTPPUTPATH=?
```

```
OK
```

```
AT+FTPPUTPATH?
```

```
+FTPPUTPATH: "/"
```

```
OK
```

```
AT+FTPPUTPATH="/"
```

```
OK
```

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
```

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>
```

Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<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 uther error 83 Pbsz error 84 Port error 85 Fs error 86 Manual quit 87 Md5 check error 88 FOTA size error

Example

```
AT+FTPGET=?
OK
AT+FTPGET=1
```


OK

+FTPGET:1,1

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>

Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<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"

Example

```
AT+FTPPUT=?
OK
AT+FTPPUT=1
OK

+FTPPUT: 1,0
```

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	Response
AT+FTPDELE=?	OK
Execution Command	Response
AT+FTPDELE	If succeeded: OK

	+FTPDELE: 1,0
	If failed: OK
	+FTPDELE: 1,<error>
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<error>	See "AT+FTPGET"
---------	-----------------

Example

AT+FTPDELE=?

OK

AT+FTPDELE

OK

+FTPDELE:1,0

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	Response
AT+FTPSIZE=?	OK
Execution Command	Response
AT+FTPSIZE	If succeeded:

	OK
	+FTPSIZE: 1,0,<size>
	If failed:
	OK
	+FTPSIZE: 1,<error>[,<size>]
	If error is related to ME functionality:
	+CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<error>	See "AT+FTPGET"
<size>	The file size. Unit: byte

Example

AT+FTPSIZE=?

OK

AT+FTPSIZE

OK

+FTPSIZE:1,0,1024

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	Response
AT+FTPSTATE=?	OK

Execution Command AT+FTPSTATE	Response +FTPSTATE: <state> OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<state>	0 Idle 1 In the FTP session, including FTPGET, FTPPUT, FTPDELE and FTPSIZE operation.
----------------------	--

Example

AT+FTPSTATE=?

OK

AT+FTPSTATE

+FTPSTATE: 0

OK

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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)

Reference

Defined Values

<mode>	0 use default FTPPUT method(Default) 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

Example

```
AT+FTPEXTPUT=?
OK
AT+FTPEXTPUT=1
OK
```

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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<error>	See "AT+FTPGET"
---------	-----------------

Example

AT+FTPMKD=?

OK

AT+FTPMKD

OK

+FTPMKD: 1,0

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	Response
AT+FTPRMD=?	OK
Execution Command	Response
AT+FTPRMD	If success: OK
	+FTPRMD: 1,0
	If failed: OK

	+FTPRMD: 1,<error>
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<error>	See "AT+FTPGET"
---------	-----------------

Example

```
AT+FTPRMD=?
OK
AT+FTPRMD
OK
+FTPRMD: 1,0
```

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	Response
AT+FTPLIST=?	OK
Write Command	Response
AT+FTPLIST=<mode>[,<req length>]	If mode is 1 and it is a successful FTP get session: OK
	+FTPLIST: 1,1
	If data transfer is finished:

	<p>+FTPLIST: 1,0</p> <p>If mode is 1 and it is a failed FTP get session: OK</p> <p>+FTPLIST: 1,<error></p> <p>If mode is 2: +FTPLIST: 2,<cnflength> 012345678...</p> <p>OK</p> <p>If error is related to ME functionality: +CME ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<mode>	<p>1 For opening FTP get file list session</p> <p>2 For reading FTP file list</p>
<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 "

Example

AT+FTPLIST=?

OK

AT+FTPLIST=2,1024

+FTPLIST: 2,126

total 0

drw-rw-rw- 1 user group 0 Oct 12 14:58

drw-rw-rw- 1 user group 0 Oct 12 14:58

...

OK

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
Write Command AT++FTPGETTOFS=<loc>[,<filename>,<num>,<time>]	Response If it is a successful FTP get session: OK If data transfer finished and loc=0. +FTPGETTOFS: 0,<totalLength> Else data transfer finished and loc=1. +FTPGETTOFS: 0,<totalLength>,<jump_length> If it is a failed FTP get session: OK +FTPGETTOFS: <error> If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<loc>	file saved in ROM. 0 Saved file will be saved in "/ user/ftp" 1 Saved file will be saved in "/"
<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
<jump_length>	When loc=1,it is not saved to file.
<error>	85 An error related with file system. Other errors please see AT+FTPGET .

Example

AT+FTPGETTOFS=?

OK

AT+FTPGETTOFS?

+FTPGETTOFS: 0

OK

AT+FTPGETTOFS=0,"test.txt"

OK

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
Write Command AT+FTPPUTFRMFS=<filepath>[,<num>,<time>]	Response If it is a successful FTP put session: OK If data transfer finished. +FTPPUTFRMFS: 0,<totalLength>

	<p>If it is a failed FTP put session: OK +FTPPUTFRMFS: <error></p> <p>If error is related to ME functionality: +CME ERROR: <err></p>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<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 AT+FTPGET .

Example

```

AT+FTPPUTFRMFS=?
OK
AT+FTPPUTFRMFS?
+FTPPUTFRMFS: 1,68160

OK

+FTPPUTFRMFS: 0,174125
AT+FTPPUTFRMFS="/user/ftp/test.txt"
OK

```

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
Write Command 1)if mode is 0 or 1 AT+FTPEXTGET=<mode>	Response If mode is 0 OK
2)if mode is 2 AT+FTPEXTGET=<mode>,<filename>	If it is a successful FTP get session in mode 1: OK
3)if mode is 3 AT+FTPEXTGET=<mode>,<readPosition>,<readLength> >	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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<mode>	<ul style="list-style-type: none"> 0 Use default FTPGET method 1 Start extend FTPGET method 2 Save download data to file system 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 AT+FTPGET .

Example

```

AT+FTPEXTGET=?
OK
AT+FTPEXTGET?
+FTPEXTGET: 1,64136

OK

+FTPEXTGET: 1,0
AT+FTPEXTGET=2,"test.txt"
+FTPEXTGET: 2,174125

OK

```

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 Upload with FTPPUT

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

Test Command	Response
AT+FTPFILEPUT=?	OK
Write Command	Response
AT+FTPFILEPUT=<mode>[,f ilename]	If success: OK

	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<mode>	0 Not use FTPFILEPUT method(Default) 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 AT+FTPGET .

Example

AT+FTPFILEPUT=?

OK

AT+FTPFILEPUT=1,"/user/ftp/test.txt"

OK

NOTE

- This function cannot 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	Response
AT+FTPQUIT=?	OK
Execution Command	Response
AT+FTPQUIT	If success: OK
	If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE

Maximum Response Time	-
Reference	

Example

```
AT+FTPQUIT=?  
OK  
AT+FTPQUIT  
OK
```

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13 AT Commands for MQTT

13.1 Overview of AT Commands for MQTT

Command	Description
AT+SMCONN	MQTT connect
AT+SMSUB	MQTT subscribe message
AT+SMPUB	MQTT unsubscribe message
AT+SMUNSUB	MQTT publish message
AT+SMSTATE	MQTT state query
AT+SMDISC	MQTT disconnect
AT+SMSL	MQTT SSL
+SMPUBLISH	MQTT receive publish data

13.2 Detailed Description of AT Commands for MQTT

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>,<clean session>,[<username>],[<password>]	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<host>	MQTT broker address
<port>	MQTT broker port
<clientid>	client id
<keepalive>	Keep Alive set time(s), range of 60~180
<cleansession>	Clean session range is (0-1)
<username>	username, default NULL
<password>	password, default NULL

Example

```
AT+SMCONN=?
OK
AT+SMCONN="test.mosquitto.org",1883,"rda
test",90,1
OK
```

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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<topic>	publish topic
---------	---------------

<qos>	subscribe Qos level, range of 0~1
<packet_id>	message id
<status>	message status 0 success 1 timeout 2 other error

Example

```

AT+SMSUB=?
+SMSUB: "topic",<qos>

OK
AT+SMSUB="Topic1",1
OK

+SMSUB: 1,0

```

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 If qos is 1 Unsolicited Result Code +SMPUB: <packet_id>,<status>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<topic>	publish topic
<qos>	subscribe Qos level, range of 0~1
<retain>	Retain flag default 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

Example

AT+SMPUB=?

+SMPUB: "topic",<qos>,"message"

OK

AT+SMPUB="Topic1",1,0,"hello world"

OK

+SMPUB: 3,0

+SMPUBLISH: 1,"Topic1",11,"hello world"

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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<topic>	unsubscribe topic
<packet_id>	message id
<status>	message status
	0 success
	1 timeout
	2 other error

Example

```

AT+SMUNSUB=?
+SMUNSUB: "topic"

OK
AT+SMUNSUB="Topic1"
OK

+SMUNSUB: 2,0

```

13.2.5 AT+SMSTATE MQTT State Query

AT+SMSTATE MQTT State Query

Read Command	Response
AT+SMSTATE?	+SMSTATE: <status>
	OK
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<status>	0 MQTT disconnect status
	1 MQTT connected status

Example

AT+SMSTATE?

+SMSTATE: 0

OK

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	NO_SAVE
Maximum Response Time	-
Reference	

Example

AT+SMDISC=?

OK

AT+SMDISC

OK

13.2.7 AT+SMSSL MQTT SSL

AT+SMSSL MQTT SSL

Test Command AT+SMSSL=?	Response OK
Read Command AT+SMSSL?	Response +SMSSL: <Enable> OK
Write Command AT+SMSSL=<Enable>	Response OK or ERROR

Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Enable>	0	disable SSL
	1	enable SSL

Example

```
AT+SMSSL=?  
OK  
AT+SMSSL?  
+SMSSL: 1  
  
OK  
AT+SMSSL=1  
OK
```

14 AT Commands for SSL Support

14.1 Overview of AT Commands for SSL Support

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 Description of AT Commands for SSL Support

14.2.1 AT+SSLSETCERT Import SSL Certificate File

AT+SSLSETCERT Import SSL Certificate File	
Test Command AT+SSLSETCERT=?	Response +SSLSETCERT: <max_filename> OK
Write Command AT+SSLSETCERT=</custo mer/filename>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<filename>	the name of Certificate file(maximum 50 characters)
------------	---

Example

```
AT+SSLSETCERT=?
+SSLSETCERT: 50

OK
AT+SSLSETCERT="/customer/ca.crt"
OK
```

14.2.2 AT+SSLCLICERT Import SSL Client Certificate File

AT+SSLCLICERT Import SSL Client Certificate File

Test Command AT+SSLCLICERT=?	Response +SSLCLICERT: <max_filename> OK
Write Command AT+SSLCLICERT=</customer/filename>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<filename>	the name of Client Certificate file(maximum 50 characters)
------------	--

Example

```
AT+SSLCLICERT=?
+SSLCLICERT: 50

OK
AT+SSLCLICERT="/customer/client.crt"
```

OK

14.2.3 AT+SSLGETKEY Import SSL Private Key File

AT+SSLGETKEY Import SSL Private Key File

Test Command AT+SSLGETKEY=?	Response +SSLGETKEY: <max_filename> OK
Write Command AT+SSLGETKEY=</custom er/filename>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<filename>	the name of Private Keyfile(maximum 50 characters)
------------	--

Example

```
AT+SSLGETKEY=?
+SSLGETKEY: 50

OK
AT+SSLGETKEY="/customer/client_key.key"
OK
```

14.2.4 AT+SSLOPT Set Client Authentication Mode

AT+SSLOPT Set Client Authentication Mode

Test Command AT+SSLOPT=?	Response +SSLOPT: (0-1) OK
------------------------------------	--

Read Command AT+SSLOPT?	Response +SSLOPT: <mode> OK
Write Command AT+SSLOPT=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Enable client authentication mode 1 Disable client authentication mode(Default)
--------	--

Example

```

AT+SSLOPT=?
+SSLOPT: (0-1)

OK
AT+SSLOPT?
+SSLOPT: 1

OK
AT+SSLOPT=1
OK

```

14.2.5 AT+CIPSSL Set TCP/IP SSL Function

AT+CIPSSL Set TCP/IP SSL Function

Test Command AT+CIPSSL=?	Response +CIPSSL: (0-1) OK
Read Command AT+CIPSSL?	Response +CIPSSL: <mode>

	OK
Write Command AT+CIPSSL=<mode>	Response OK or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 - Disable TCP/IP SSL Function 1 - Enable TCP/IP SSL Function
---------------------	---

Example

AT+CIPSSL=?

+CIPSSL: (0-1)

OK

AT+CIPSSL?

+CIPSSL: 1

OK

AT+CIPSSL=1

OK

14.2.6 AT+HTTPSSL Set HTTP SSL Function

AT+HTTPSSL Set HTTP SSL Function

Test Command AT+HTTPSSL=?	Response +HTTPSSL: (0-1) OK
Read Command AT+HTTPSSL?	Response +HTTPSSL: <mode> OK
Write Command AT+HTTPSSL=<mode>	Response OK

	or ERROR
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	0 Enable HTTP SSL Function 1 Disable HTTP SSL Function
--------	---

Example

```
AT+HTTPSSL=?
+HTTPSSL: (0-1)
```

```
OK
AT+HTTPSSL?
+HTTPSSL: 1
```

```
OK
AT+HTTPSSL=1
OK
```

14.2.7 AT+FTPSSL Set FTP SSL Function

AT+FTPSSL Set FTP SSL Function

Test Command AT+FTPSSL=?	Response +FTPSSL: (0-2) OK
Read Command AT+FTPSSL?	Response +FTPSSL: <mode> OK
Write Command AT+FTPSSL=<mode>	Response OK or ERROR

Defined Values

<mode>	0 Disable FTP SSL Function 1 Implicit FTP SSL Function 2 Explicit FTP SSL Function
---------------------	--

Example

AT+FTPSSL=?

+FTPSSL: (0-2)

OK

AT+FTPSSL?

+FTPSSL:1

OK

AT+FTPSSL=1

OK

14.2.8 AT+SSLCIPHERSUITES Add Ciphersuite Function

AT+SSLCIPHERSUITES Add Ciphersuite Function

Read Command

AT+SSLCIPHERSUITES?

Response

+SSLCIPHERSUITE:

<hex_index1>,

<hex_index2>

...

OK

Write Command

AT+SSLCIPHERSUITES=<mode>

Response

OK

or

ERROR

Defined Values

<hex_index>	0x0001 TLS_RSA_WITH_NULL_MD5 0x0002 TLS_RSA_WITH_NULL_SHA 0x0004 TLS_RSA_WITH_RC4_128_MD5 0x0005 TLS_RSA_WITH_RC4_128_SHA
--------------------------	--

0x0009 TLS_RSA_WITH_DES_CBC_SHA
0x000A TLS_RSA_WITH_3DES_EDE_CBC_SHA
0x0015 TLS_DHE_RSA_WITH_DES_CBC_SHA
0x0016 TLS_DHE_RSA_WITH_3DES_EDE_CBC_SHA
0x002C TLS_PSK_WITH_NULL_SHA
0x002D TLS_DHE_PSK_WITH_NULL_SHA
0x002E TLS_RSA_PSK_WITH_NULL_SHA
0x002F TLS_RSA_WITH_AES_128_CBC_SHA
0x0033 TLS_DHE_RSA_WITH_AES_128_CBC_SHA
0x0035 TLS_RSA_WITH_AES_256_CBC_SHA
0x0039 TLS_DHE_RSA_WITH_AES_256_CBC_SHA
0x003B TLS_RSA_WITH_NULL_SHA256
0x003C TLS_RSA_WITH_AES_128_CBC_SHA256
0x003D TLS_RSA_WITH_AES_256_CBC_SHA256
0x0041 TLS_RSA_WITH_CAMELLIA_128_CBC_SHA
0x0045 TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA
0x0067 TLS_DHE_RSA_WITH_AES_128_CBC_SHA256
0x006B TLS_DHE_RSA_WITH_AES_256_CBC_SHA256
0x0084 TLS_RSA_WITH_CAMELLIA_256_CBC_SHA
0x0088 TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA
0x008A TLS_PSK_WITH_RC4_128_SHA
0x008B TLS_PSK_WITH_3DES_EDE_CBC_SHA
0x008C TLS_PSK_WITH_AES_128_CBC_SHA
0x008D TLS_PSK_WITH_AES_256_CBC_SHA
0x008E TLS_DHE_PSK_WITH_RC4_128_SHA
0x008F TLS_DHE_PSK_WITH_3DES_EDE_CBC_SHA
0x0090 TLS_DHE_PSK_WITH_AES_128_CBC_SHA
0x0091 TLS_DHE_PSK_WITH_AES_256_CBC_SHA
0x0092 TLS_RSA_PSK_WITH_RC4_128_SHA
0x0093 TLS_RSA_PSK_WITH_3DES_EDE_CBC_SHA
0x0094 TLS_RSA_PSK_WITH_AES_128_CBC_SHA
0x0095 TLS_RSA_PSK_WITH_AES_256_CBC_SHA
0x009C TLS_RSA_WITH_AES_128_GCM_SHA256
0x009D TLS_RSA_WITH_AES_256_GCM_SHA384
0x009F TLS_DHE_RSA_WITH_AES_256_GCM_SHA384
0x00A8 TLS_PSK_WITH_AES_128_GCM_SHA256
0x00A9 TLS_PSK_WITH_AES_256_GCM_SHA384
0x00AA TLS_DHE_PSK_WITH_AES_128_GCM_SHA256
0x00AB TLS_DHE_PSK_WITH_AES_256_GCM_SHA384
0x00AC TLS_RSA_PSK_WITH_AES_128_GCM_SHA256
0x00AD TLS_RSA_PSK_WITH_AES_256_GCM_SHA384
0x00AE TLS_PSK_WITH_AES_128_CBC_SHA256
0x00AF TLS_PSK_WITH_AES_256_CBC_SHA384
0x00B0 TLS_PSK_WITH_NULL_SHA256
0x00B1 TLS_PSK_WITH_NULL_SHA384
0x00B2 TLS_DHE_PSK_WITH_AES_128_CBC_SHA256

0x00B3 TLS_DHE_PSK_WITH_AES_256_CBC_SHA384
0x00B4 TLS_DHE_PSK_WITH_NULL_SHA256
0x00B5 TLS_DHE_PSK_WITH_NULL_SHA384v
0x00B6 TLS_RSA_PSK_WITH_AES_128_CBC_SHA256
0x00B7 TLS_RSA_PSK_WITH_AES_256_CBC_SHA384
0x00B8 TLS_RSA_PSK_WITH_NULL_SHA256
0x00B9 TLS_RSA_PSK_WITH_NULL_SHA384
0x00BA TLS_RSA_WITH_CAMELLIA_128_CBC_SHA256
0x00BE TLS_DHE_RSA_WITH_CAMELLIA_128_CBC_SHA256
0x00C0 TLS_RSA_WITH_CAMELLIA_256_CBC_SHA256
0x00C4 TLS_DHE_RSA_WITH_CAMELLIA_256_CBC_SHA256
0xC001 TLS_ECDH_ECDSA_WITH_NULL_SHA
0xC002 TLS_ECDH_ECDSA_WITH_RC4_128_SHA
0xC003 TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA
0xC004 TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA
0xC005 TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA
0xC006 TLS_ECDHE_ECDSA_WITH_NULL_SHA
0xC007 TLS_ECDHE_ECDSA_WITH_RC4_128_SHA
0xC008 TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA
0xC009 TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA
0xC00A TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
0xC00B TLS_ECDH_RSA_WITH_NULL_SHA
0xC00C TLS_ECDH_RSA_WITH_RC4_128_SHA
0xC00D TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA
0xC00E TLS_ECDH_RSA_WITH_AES_128_CBC_SHA
0xC00F TLS_ECDH_RSA_WITH_AES_256_CBC_SHA
0xC010 TLS_ECDHE_RSA_WITH_NULL_SHA
0xC011 TLS_ECDHE_RSA_WITH_RC4_128_SHA
0xC012 TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
0xC013 TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA
0xC014 TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA
0xC023 TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256
0xC024 TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384
0xC025 TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA256
0xC026 TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA384
0xC027 TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
0xC028 TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
0xC029 TLS_ECDH_RSA_WITH_AES_128_CBC_SHA256
0xC02A TLS_ECDH_RSA_WITH_AES_256_CBC_SHA384
0xC02B TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
0xC02C TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
0xC02D TLS_ECDH_ECDSA_WITH_AES_128_GCM_SHA256
0xC02E TLS_ECDH_ECDSA_WITH_AES_256_GCM_SHA384
0xC02F TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
0xC030 TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
0xC031 TLS_ECDH_RSA_WITH_AES_128_GCM_SHA256

0xC032 TLS_ECDH_RSA_WITH_AES_256_GCM_SHA384
0xC033 TLS_ECDHE_PSK_WITH_RC4_128_SHA
0xC034 TLS_ECDHE_PSK_WITH_3DES_EDE_CBC_SHA
0xC035 TLS_ECDHE_PSK_WITH_AES_128_CBC_SHA
0xC036 TLS_ECDHE_PSK_WITH_AES_256_CBC_SHA
0xC037 TLS_ECDHE_PSK_WITH_AES_128_CBC_SHA256
0xC038 TLS_ECDHE_PSK_WITH_AES_256_CBC_SHA384
0xC039 TLS_ECDHE_PSK_WITH_NULL_SHA
0xC03A TLS_ECDHE_PSK_WITH_NULL_SHA256
0xC03B TLS_ECDHE_PSK_WITH_NULL_SHA384
0xC072 TLS_ECDHE_ECDSA_WITH_CAMELLIA_128_CBC_SHA256
6
0xC073
TLS_ECDHE_ECDSA_WITH_CAMELLIA_256_CBC_SHA384
0xC074 TLS_ECDH_ECDSA_WITH_CAMELLIA_128_CBC_SHA256
0xC075 TLS_ECDH_ECDSA_WITH_CAMELLIA_256_CBC_SHA384
0xC076 TLS_ECDHE_RSA_WITH_CAMELLIA_128_CBC_SHA256
0xC077 TLS_ECDHE_RSA_WITH_CAMELLIA_256_CBC_SHA384
0xC078 TLS_ECDH_RSA_WITH_CAMELLIA_128_CBC_SHA256
0xC079 TLS_ECDH_RSA_WITH_CAMELLIA_256_CBC_SHA384
0xC07A TLS_RSA_WITH_CAMELLIA_128_GCM_SHA256
0xC07B TLS_RSA_WITH_CAMELLIA_256_GCM_SHA384
0xC07C TLS_DHE_RSA_WITH_CAMELLIA_128_GCM_SHA256
0xC07D TLS_DHE_RSA_WITH_CAMELLIA_256_GCM_SHA384
0xC086
TLS_ECDHE_ECDSA_WITH_CAMELLIA_128_GCM_SHA256
0xC087
TLS_ECDHE_ECDSA_WITH_CAMELLIA_256_GCM_SHA384
0xC088 TLS_ECDH_ECDSA_WITH_CAMELLIA_128_GCM_SHA256
0xC089 TLS_ECDH_ECDSA_WITH_CAMELLIA_256_GCM_SHA384
0xC08A TLS_ECDHE_RSA_WITH_CAMELLIA_128_GCM_SHA256
0xC08B TLS_ECDHE_RSA_WITH_CAMELLIA_256_GCM_SHA384
0xC08C TLS_ECDH_RSA_WITH_CAMELLIA_128_GCM_SHA256
0xC08D TLS_ECDH_RSA_WITH_CAMELLIA_256_GCM_SHA384
0xC08E TLS_PSK_WITH_CAMELLIA_128_GCM_SHA256
0xC08F TLS_PSK_WITH_CAMELLIA_256_GCM_SHA384
0xC090 TLS_DHE_PSK_WITH_CAMELLIA_128_GCM_SHA256
0xC091 TLS_DHE_PSK_WITH_CAMELLIA_256_GCM_SHA384
0xC092 TLS_RSA_PSK_WITH_CAMELLIA_128_GCM_SHA256
0xC093 TLS_RSA_PSK_WITH_CAMELLIA_256_GCM_SHA384
0xC094 TLS_PSK_WITH_CAMELLIA_128_CBC_SHA256
0xC095 TLS_PSK_WITH_CAMELLIA_256_CBC_SHA384
0xC096 TLS_DHE_PSK_WITH_CAMELLIA_128_CBC_SHA256
0xC097 TLS_DHE_PSK_WITH_CAMELLIA_256_CBC_SHA384
0xC098 TLS_RSA_PSK_WITH_CAMELLIA_128_CBC_SHA256
0xC099 TLS_RSA_PSK_WITH_CAMELLIA_256_CBC_SHA384

```
0xC09A TLS_ECDHE_PSK_WITH_CAMELLIA_128_CBC_SHA256
0xC09B TLS_ECDHE_PSK_WITH_CAMELLIA_256_CBC_SHA384
0xC09C TLS_RSA_WITH_AES_128_CCM
0xC09D TLS_RSA_WITH_AES_256_CCM
0xC09E TLS_DHE_RSA_WITH_AES_128_CCM
0xC09F TLS_DHE_RSA_WITH_AES_256_CCM
0xC0A0 TLS_RSA_WITH_AES_128_CCM_8
0xC0A1 TLS_RSA_WITH_AES_256_CCM_8
0xC0A2 TLS_DHE_RSA_WITH_AES_128_CCM_8
0xC0A3 TLS_DHE_RSA_WITH_AES_256_CCM_8
0xC0A4 TLS_PSK_WITH_AES_128_CCM
0xC0A5 TLS_PSK_WITH_AES_256_CCM
0xC0A6 TLS_DHE_PSK_WITH_AES_128_CCM
0xC0A7 TLS_DHE_PSK_WITH_AES_256_CCM
0xC0A8 TLS_PSK_WITH_AES_128_CCM_8
0xC0A9 TLS_PSK_WITH_AES_256_CCM_8
0xC0AA TLS_DHE_PSK_WITH_AES_128_CCM_8
0xC0AB TLS_DHE_PSK_WITH_AES_256_CCM_8
0xC0AC TLS_ECDHE_ECDSA_WITH_AES_128_CCM
0xC0AD TLS_ECDHE_ECDSA_WITH_AES_256_CCM
0xC0AE TLS_ECDHE_ECDSA_WITH_AES_128_CCM_8
0xC0AF TLS_ECDHE_ECDSA_WITH_AES_256_CCM_8
0xC0FF TLS_ECJPAKE_WITH_AES_128_CCM_8
```

Example

AT+SSLCIPHERSUITES?

+CiphersuitesList: 0xC0AF

OK

AT+SSLCIPHERSUITES=0xC0AF

OK

NOTE

- The default encryption suites are as follows:
TLS_RSA_WITH_AES_256_CBC_SHA256,
TLS_RSA_WITH_AES_256_CBC_SHA,
TLS_RSA_WITH_AES_128_CBC_SHA256,
TLS_RSA_WITH_AES_128_CBC_SHA,
TLS_RSA_WITH_3DES_EDE_CBC_SHA,
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA

15 AT Commands for NTP Application

15.1 Overview of AT Commands for NTP Application

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

15.2 Detailed Description of AT Commands for NTP Application

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
Read Command AT+CNTPCID?	Response +CNTPCID: <cid> OK
Write Command AT+CNTPCID=<cid>	Response OK If error is related to ME functionality: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<cid>	Bearer profile identifier, refer to AT+SAPBR
-------	--

Example

```

AT+CNTPCID=?
+CNTPCID: (1-3)

OK
AT+CNTPCID?
+CNTPCID: 1

OK
AT+CNTPCID=1
OK
  
```

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 <time zone>) OK
Read Command AT+CNTP?	Response +CNTP: <ntp sever>,<time zone> OK
Write Command AT+CNTP=<ntp server>[,<time zone>]	Response OK
Execution Command AT+CNTP	Response OK +CNTP: <code>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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 12actually, 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.
<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

Example

AT+CNTP=?

+CNTP: 64,(-47~48)

OK

AT+CNTP?

+CNTP: 120.25.108.11,0

OK

AT+CNTP=64,32

OK

AT+CNTP

OK

+CNTP: 61

NOTE

- After successful synchronizing time, you can use AT + CCLK to query the local time.

16 AT Commands for PING

16.1 Overview of AT Commands for PING

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 Description of AT Commands for PING

16.2.1 AT+CIPPING PING Request

AT+CIPPING PING Request	
Test Command AT+CIPPING=?	Response +CIPPING: (range of supported<retryNum>s),(range of supported <dataLen>s),(range of supported <timeout>s),(range of supported <tTl>s) OK
Read Command AT+CIPPING?	Response +CIPPING: <retryNum>,<dataLen>,<timeout>,<tTl> OK
Write Command AT+CIPPING=<IPAddr>[,<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>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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 Request to send1-100 Default: 4
<dataLen>	The length of Ping Echo Request data0-1024 Default: 32
<timeout>	The timeout,in units of 100 ms,waiting for a single Echo Reply 1-600 Default: 100(10 seconds)
<tll>	Time to live1-255 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

Example

AT+CIPPING=?

+CIPPING: (1-100),(0-1024),(1-600),(1-255)

OK

AT+CIPPING?

+CIPPING: 4,32,100,64

OK

AT+CIPPING="www.baidu.com",4,32,100,64

+CIPPING: 1,"183.232.231.172",819,53

+CIPPING: 2,"183.232.231.172",976,53

+CIPPING: 3,"183.232.231.172",614,53

+CIPPING: 4,"183.232.231.172",357,53

OK

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: (range of supported <mode>s) OK
Read Command AT+CIPCTL?	Response +CIPCTL: <mode> OK
Write Command AT+CIPCTL=<mode>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<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.
--------	---

Example

AT+CIPCTL=?

+CIPCTL: (0-2)

OK

AT+CIPCTL?

+CIPCTL: 2

OK

AT+CIPCTL=2

OK

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: (range of supported <action> s),(range of supported <item> s) OK
Read Command AT+CIPFLT?	Response +CIPFLT: <item> , <ipAddr> , <mask> [<CR><LF> + CIPFLT: <item> , <ipAddr> , <mask> [...]] OK
Write Command AT+CIPFLT=<action> [, <item> >],[<ipAddr> , <mask>]	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<action>	<p>0 Remove the rule specified by <item>. <item> must be given.</p> <p>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.</p> <p>2 Delete all of rules</p>
<item>	The item of IP filter rule1-20
<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"

Example

```
AT+CIPFLT=?
+CIPFLT: (0-2),(1-20)
```

OK

```
AT+CIPFLT?
```

```
+CIPFLT: 1,"", ""
+CIPFLT: 2,"", ""
+CIPFLT: 3,"", ""
+CIPFLT: 4,"", ""
+CIPFLT: 5,"", ""
+CIPFLT: 6,"", ""
+CIPFLT: 7,"", ""
+CIPFLT: 8,"", ""
+CIPFLT: 9,"", ""
+CIPFLT: 10,"", ""
+CIPFLT: 11,"", ""
+CIPFLT: 12,"", ""
+CIPFLT: 13,"", ""
+CIPFLT: 14,"", ""
+CIPFLT: 15,"", ""
+CIPFLT: 16,"", ""
+CIPFLT: 17,"", ""
+CIPFLT: 18,"", ""
+CIPFLT: 19,"", ""
+CIPFLT: 20,"", ""
```

OK

```
AT+CIPFLT=0,2
```

OK

NOTE

- When a packet comes from the IP address <coming_IP>, All rules will be scanned to match the following criterion:
 $\text{<coming_IP>\&\<mask> = <ipAddr>\&\<mask>}$
 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
Read Command AT+CIPBEIPING?	Response +CIPBEIPING: <mode> OK
Write Command AT+CIPBEIPING=<mode>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<action>	0	Disable the module to be PING.(Default)
	1	Enable the module to be PING.

Example

AT+CIPBEIPING=?

+CIPBEIPING: (0,1)

OK

AT+CIPBEIPING?

+CIPBEIPING: 1

OK

AT+CIPBEIPING=1

OK

NOTE

- If the user want the module can be PING by other device, the user must execute the **AT+CIPBEIPING=1** before the module is PING.

17 AT Commands for Audio

17.1 Overview of AT Commands for Audio

Command	Description
AT+CLVL	Loud speaker volume level
AT+CMIC	Change the microphone gain level
AT+CHFA	Swap the audio channels
AT+ECHO	Echo cancellation control
AT+SIDET	Change the side tone gain level
AT+CEXTERNTONE	Close or open the microphone

17.2 Detailed Description of AT Commands for Audio

17.2.1 AT+CLVL Loud Speaker Volume Level

AT+CLVL Loud Speaker Volume Level	
Test Command AT+CLVL=?	Response +CLVL: (range of supported<Level>s) OK
Read Command AT+CLVL?	Response +CLVL: <Level> OK
Write Command AT+CLVL=<Level>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE

Maximum Response Time	-
Reference	

Defined Values

<Level>	0-15 Integer type value with manufacturer specific range. (smallest value represents the lowest sound level). Default value of <Level> is 6.
---------	---

Example

```
AT+CLVL=?
+CLVL: (0-15)
```

```
OK
AT+CLVL?
+CLVL: 6
```

```
OK
AT+CLVL=7
OK
```

17.2.2 AT+CMIC Change the Microphone Gain Level

AT+CMIC Change the Microphone Gain Level

Test Command AT+CMIC=?	Response +CMIC: (0-1) OK
Read Command AT+CMIC?	Response +CMIC: <Level> OK
Write Command AT+CMIC=<Level>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE

Maximum Response Time	-
Reference	

Defined Values

<Level>	0 mute
	1 unmute

Example

AT+CMIC=?

+CMIC: (0-1)

OK

AT+CMIC?

+CMIC: 1

OK

AT+CMIC=1

OK

17.2.3 AT+CHFA Swap the Audio Channels

AT+CHFA Swap the Audio Channels

Test Command AT+CHFA=?	Response +CHFA: (list of supported<Channel>s) OK
Read Command AT+CHFA?	Response +CHFA: <Channel> OK
Write Command AT+CHFA=<Channel>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-

Reference

Defined Values

<Channel>	0 Receiver Channel(Default)
	1 Ear Piece Channel

Example

AT+CHFA=?

+CHFA: (0,1)

OK

AT+CHFA?

+CHFA: 1

OK

AT+CHFA=?

OK

17.2.4 AT+ECHO Echo Cancellation Control

AT+ECHO Echo Cancellation Control

Test Command AT+ECHO=?	Response +ECHO: (0-1),(0-16),(0-400),(2-16),(0-512),(1-128),(-32768~32767) OK
Read Command AT+ECHO?	Response +ECHO: (<NoiseOverEstFactor0>,<NoiseGainLimit0>,<EchoOverEstFactor0>,<EchoGainLimit0>,<PFCLDTDThreshold0>,<DelaySampleNum0>),(<NoiseOverEstFactor1>,<NoiseGainLimit1>,<EchoOverEstFactor1>,<EchoGainLimit1>,<PFCLDTDThreshold1>,<DelaySampleNum1>) OK
Write Command AT+ECHO=<Channel>,<NoiseOverEstFactor>,<NoiseGainLimit>,<EchoOverEstFactor>	Response OK or ERROR

tor>,<EchoGainLimit>,<PFC LDTDThreshold>,<DelaySampleNum>	or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Channel>	0 Receiver Channel 1 Ear Piece Channel
<NoiseOverEstFactor>	0~16 Integer type value with manufacturer specific range
<NoiseGainLimit>	0~400 Integer type value with manufacturer specific range
<EchoOverEstFactor>	2~16 Integer type value with manufacturer specific range
<EchoGainLimit>	0~512 Integer type value with manufacturer specific range
<PFCLDTDThreshold>	1~128 Integer type value with manufacturer specific range
<DelaySampleNum>	-32768~32767 Integer type value with manufacturer specific range

Example

```

AT+ECHO=?
+ECHO:
(0,1),(0-16),(0-400),(2-16),(0-512),(1-128),(-128-127)

OK
AT+ECHO?
+ECHO: (0,4,2,51,115,30),(0,4,2,51,115,30)

OK
AT+ECHO=1,16,320,2,256,128,0
OK

```

17.2.5 AT+SIDET Change the Side Tone Gain Level

AT+SIDET Change the Side Tone Gain Level

Test Command	Response
AT+SIDET=?	+SIDET: (0-1),(0-15)

	OK
Read Command AT+SIDET?	Response +SIDET: (0,<Level0>),(1,<Level1>)
	OK
Write Command AT+SIDET=<Channel>,<Level>	Response OK or ERROR or +CME ERROR: <err>
Parameter Saving Mode	AUTO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<Channel>	0 Receiver Channel 1 Ear Piece Channel
<Level>	0~15 Integer type value with manufacturer specific range

Example

```
AT+SIDET=?  
+SIDET: (0-1),(0-15)
```

```
OK  
AT+SIDET?  
+SIDET: (0,0),(1,14)
```

```
OK  
AT+SIDET=1,14  
OK
```

18 AT Commands for DDET

18.1 Overview of AT Commands for DDET

Command	Description
AT+DDET	DTMF detection control

18.2 Detailed Description of AT Commands for DDET

18.2.1 AT+DDET DTMF Detection Control

AT+DDET DTMF Detection Control	
Test Command AT+DDET=?	Response +DDET: (0,1),(0-10000),(0,1),(0,1) OK
Read Command AT+DDET?	Response +DDET: <mode>,<interval>,<reportMode>,<ssdet> OK
Write Command AT+DDET=<mode>[,<interval>][,<reportMode>][,<ssdet>]	Response OK or ERROR
Parameter Saving Mode	AT&W_SAVE
Maximum Response Time	-
Reference	

Defined Values

<mode>	Disable or enable DTMF detection control
--------	--

	<p>0 Disable(Default)</p> <p>1 Enable</p>
<interval>	The min interval between two same key URC. The range is 0-10000, the default value is 0. unit is ms.
<reportMode>	<p>URC report mode</p> <p>0 Key value reported only</p> <p>1 Key value and last time are reported, the last time is in ms</p>
<key>	Keytone detected, 0-9,*,#,A,B,C,D.if <ssdet> is 1,Single frequency sound 1400 and 2300 is supported too, when single frequency 1400HZ sound or 2300HZ sound is detected, +DTMF:1400 or +DTMF:2300 is reported
<last time>	Duration ofkeytone playing. unit is ms.
<ssdet>	<p>Single frequency sound detect function on off</p> <p>0 Switch off</p> <p>1 Switch on</p>

Example

AT+DDET=?

+DDET: (0,1),(0-10000),(0,1),(0,1)

OK

AT+DDET?

+DDET: 0,0,0,0

OK

AT+DDET=1,200,1,1

OK

NOTE

- The parameters <interval>, <reportMode> and <ssdet> cannot power off save.

19 AT Commands for TTS Application

19.1 Overview of AT Commands for TTS Application

Command	Description
AT+CTTS	TTS operation
AT+CTTSPARAM	Set parameters of the TTS playing
AT+CTTSPARAMEX	Set more parameters of the TTS playing

19.2 Detailed Description of AT Commands for TTS Application

19.2.1 AT+CTTS TTS Operation

AT+CTTS TTS Operation	
Test Command AT+CTTS=?	Response +CTTS: (0-2) OK
Read Command AT+CTTS?	Response +CTTS: <status> OK
Write Command AT+CTTS=<mode>[,<text>]	Response if<mode>=0 OK if<mode>=1 or 2 OK +CTTS: 0 // speech played over If error is related to MS functionality, response: +CME ERROR: <err>

Execution Command	Response
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<status>	0 Idle mode 1 Play mode
<mode>	0 Stop playing speech. In this case, <text> is not needed. 1 Start to play synthetic speech, <text> is in UCS2codingformat such as Chinese characters. 2 Start to play synthetic speech, <text> is in ASCII and GBK hybrid coding format such as Italian characters.
<text>	The text which is synthetized to speech to be played, maximum data length is 512 Bytes.

Example

AT+CTTS=?

+CTTS: (0-2)

OK

AT+CTTS?

+CTTS: 0

OK

AT+CTTS=0

OK

NOTE

- Call setup will stop the current TTS play
- TTS can play in call, but call release will stop the TTS play
- TTS play is not allowed when alert or ring

19.2.2 AT+CTTSPARAM Set Parameters of the TTS Playing

AT+CTTSPARAM Set Parameters of the TTS Playing

Test Command AT+CTTSPARAM=?	Response +CTTSPARAM: (0-4),(0-3),(0-2),(0-2),(0-1)
	OK
Read Command AT+CTTSPARAM?	Response +CTTSPARAM: <volume>,<mode>,<pitch>,<speed>,<channel>
	OK
Write Command AT+CTTSPARAM=<volume> ,<mode>,<pitch>,<speed>[, <channel>]	Response OK If error is related to MS functionality, response: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<volume>	TTS playing volume, the range is 0-4,the default is 2. 0 means the lowest volume.
<mode>	TTS playing mode, the range is 0-3 0 Auto read digit, and read digit based on number rule first(Default) 1 Auto read digit, and read digit based on telegram rule first 2 Read digit based on telegram rule 3 Read digit based on number rule
<pitch>	TTS playing pitch, the range is 0-2,the default is 1.
<speed>	TTS playing speed, the range is 0-2,the default is 1.
<channel>	TTS play channel. 0 Main channel 1 Aux channel

Example

```
AT+CTTSPARAM=?
+CTTSPARAM: (0-4),(0-3),(0-2),(0-2),(0-1)
```

```
OK
AT+CTTSPARAM?
+CTTSPARAM: 2,0,1,1,0
```

```
OK
```

AT+CTTSPARAM=2,0,1,1,0

OK

NOTE

- TTS play channel setting take no effect in call. TTS play channel depend on CHFA when in call.

19.2.3 AT+CTTSPARAMEX Set More Parameters of the TTS Playing

AT+CTTSPARAMEX Set More Parameters of the TTS Playing

Test Command AT+CTTSPARAMEX=?	Response +CTTSPARAMEX: "TTSParmTag","TTSParmValue" OK
Read Command AT+CTTSPARAMEX?	Response +CTTSPARAMEX: <TTSParmTag>,<TTSParmValue> OK
Write Command AT++CTTSPARAMEX=<TTS ParamTag>,<TTSParmValu e>	Response OK If error is related to MS functionality, response: +CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Maximum Response Time	-
Reference	

Defined Values

<TTSParmTag>	<p>PUNCTUATION</p> <p>Punctuation read mode</p> <p>0 not read punctuation (default)</p> <p>1 read punctuation, but not read RTN</p> <p>2 not read punctuation, but read RTN</p> <p>3 read punctuation and RTN</p> <p>OUTFORMAT</p> <p>output voice format</p> <p>0 normal pcm mode depend on voice data library (default)</p>
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- 1 8K 8bit mono pcm mode
- 2 8k 16bit mono pcm mode
- 3 16k 16bit mono pcm mode
- 4 16k 16bit mono pcm mode
- 5 11k 8bit mono pcm mode
- 6 11k 16bit mono pcm mode
- 7 22k 8bit mono pcm mode
- 8 22k 16bit mono pcm mode
- 9 44k 8bit mono pcm mode
- 10 44k 16bit mono pcm mode

ENGLISH

English read mode

- 0 auto read English text(default)
- 1 read English text through letter by letter
- 2 read English text

OUTSIZE

input text mode output voice data size ,must be even number.
Max value is 512.

SPEAKSTYLE

speak style

- 0 clear speak style
- 1 normal speak style (default)
- 2 plain speak style
- 3 vivid speak style

EFFECT

sound effect

- 0 NONE
- 1 chorus
- 2 echo
- 3 far and near
- 4 reverberation
- 5 robot

<TTSPParamValue>

TTS Parameter value. Type and supported content depend on related <TTSPParamTag>.

Example

AT+CTTSPARAMEX=?

+CTTSPARAMEX:

"TTSPParamTag", "TTSPParamValue"

OK

AT+CTTSPARAMEX?

+CTTSPARAMEX:

PUNCTUATION: 0

OUTFORMAT: 0

ENGLISH: 0

OUTSIZE: 512

SPEAKSTYLE: 1

EFFECT: 0

OK

AT+CTTSPARAMEX="OUTSIZE",128

OK

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20 Supported Unsolicited Result Codes and Error Codes

20.1 Summary of CME ERROR Codes

Final result code **+CME ERROR: <err>** indicates an error related to mobile equipment or network. The operation is similar to ERROR result code. None of the following commands in the same Command line is executed. Neither ERROR nor OK result code shall be returned.

<err> values used by common messaging commands:

Code of <err>	Meaning
0	phone failure

20.2 Summary of CMS ERROR Codes

Final result code **+CMS ERROR: <err>** indicates an error related to message service or network. The operation is similar to ERROR result code. None of the following commands in the same Command line is executed. Neither ERROR nor OK result code shall be returned.

<err> values used by common messaging commands:

Code of <err>	Meaning
1	Unassigned(unallocated) number

20.3 Summary of Unsolicited Result Codes

URC	Description	AT Command
+CMTI: <mem3>,<index>	Indicates that new message has been received.	AT+CNMI <mt>=1

21 ATC Differences among R800 Series

21.1 AT+CALS

AT+CALS=?	AT+CALS=?
+CALS: (0-2),(0,1)	+CALS: (0,1),(0,1)
OK	OK
Difference: R800 series with TTS function's first parameter range is 0-1	

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