SIM7070_SIM7080_SIM7090 Series_AT Command Manual

LPWA Module

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Version History

Version	Date	Chapter	What is new
V1.00	2019.06.17		New version
V1.01.	2019.11.07	AT+CGNSURC,AT+CGNSPORT,AT+CGNSCFG,AT+CGNSTST,AT+CGNSRTMS	Delete commands
		3.2.25 AT+CVHU	Add command
		3.2.26 AT+CLIP	Add command
		3.2.27 AT+CLCC	Add command
		5.2.46 AT+CREBOOT	Add command
		8.2.9 AT+SGNSCFG	Add command
		8.2.10 AT+SGNSCMD	Add command
		12.2.4 AT+CASERVER	Add command
		13.2.7 AT+SHCPARA	Add command
		15 AT Commands for FTP Application	Add charpter
		16 AT Commands for NTP Application	Add charpter
		17.2.11 +SMSUB	Add command
		20 ATC Differences among SIM7080 Series	Add charpter
V1.02	2020.02.26	1.1 Scope	Add SIM7070G-NG and SIM7090G
		5.2.47 AT+SPKMUTESW	Add command
		5.2.48 AT+ANTENALLCFG	Add command
		6.2.5 AT+CGREG	Add parameter <rac>
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		15.2.31 AT+FTPSINGLEIP	Add command
		17.2.1 AT+SMCONF	Modify response of test command
		17.2.13 +SMSUB	Modify URC and note

Contents

1 Introduction

1.1 Scope of the document

This document presents the AT Command Set for SIMCom SIM7070_SIM7080_SIM7090 Series, including SIM7070 series, SIM7080 series, SIM7090 series and SIM7075 series.

1.2 Related documents

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

1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:

- ME (Mobile Equipment);
- MS (Mobile Station);
- TA (Terminal Adapter);
- DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface. The controlling device at the other end of the serial line is referred to as following term:

- TE (Terminal Equipment);
- DTE (Data Terminal Equipment) or plainly "the application" which is running on an embedded system;

1.4 AT Command syntax

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

The AT Command set implemented by SIM7070_SIM7080_SIM7090 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 SIM7070_SIM7080_SIM7090 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	This command sets the user-definable parameter values.

AT+<x>=<...>	
Execution Command AT+<x>	The execution command reads non-variable parameters affected by internal processes in the GSM engine.

1.4.4 Combining AT commands on the same Command line

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

The Command line buffer can accept a maximum of 559 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 SIM7070_SIM7080_SIM7090 Series AT Command interface defaults to the **IRA** character set. The SIM7070_SIM7080_SIM7090 Series supports the following character sets:
GSM format
UCS2
IRA
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. SIM7070_SIM7080_SIM7090 Series support both two kinds of flow control.
In Multiplex mode, it is recommended to use the hardware flow control.

1.6.1 Software flow control (XON/XOFF flow control)

Software flow control sends different characters to stop (XOFF, decimal 19) and resume (XON, decimal 17) data flow. It is quite useful in some applications that only use three wires on the serial interface.

The default flow control approach of SIM7070_SIM7080_SIM7090 Series is hardware flow control (RTS/CTS flow control), to enable software flow control in the DTE interface and within GSM engine, type the following AT Command:
AT+IFC=1,1

Ensure that any communications software package (e.g. Hyper terminal) uses software flow control.

NOTE

Software Flow control should not be used for data calls where binary data will be transmitted or received (e.g. TCP/IP) as the DTE interface may interpret binary data as flow control characters.

1.6.2 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.
- **AUTO_SAVE_REBOOT**: The parameter of the current AT command will be kept in NVRAM automatically and take in effect after reboot, and it won't be lost if module is rebooted.
- -: "-" means this AT command does not 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 does not care the response time.

2 AT Commands According to V.25TER

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

2.1 Overview of AT Commands According to V.25TER

Command	Description
A/	Re-issues the last command given
ATD	Mobile originated call to dial a number
ATE	Set command echo mode
ATH	Disconnect existing connection
ATI	Display product identification information
ATL	Set monitor speaker loudness
ATM	Set monitor speaker mode
+++	Switch from data mode or PPP online mode to command mode
ATO	Switch from command mode to data mode
ATQ	Set result code presentation 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
ATS6	Pause before blind dialing
ATS7	Set number of seconds to wait for connection completion
ATS8	Set number of seconds to wait for comma dial modifier encountered in dial string of D command
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&E	Set CONNECT Result Code Format About Speed
AT+GCAP	Request complete TA capabilities list
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+IPR	Set TE-TA fixed local rate

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

2.2.1 A/ Re-issues the Last Command Given

A/ Re-issues the Last Command Given	
Execution Command **A/**	Response Re-issues the previous Command
Parameter Saving Mode	NO_SAVE
Max Response Time	120000ms
Reference	

Example

```
A/
SIM7080G R1951

OK
```

2.2.2 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>[<mgsm]**	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** 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**
Parameter Saving Mode	NO_SAVE
Max Response Time	Timeout set with ATS7 (data call)
Reference	

Defined Values

<n>	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,@
Emergency call:	
<n>	Standardized emergency number 112
<mgsm>	String of GSM modifiers: I Actives 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

Example

```
ATD*99#
CONNECT 150000000

OK
```

```
ATH
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.

2.2.3 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	NO_SAVE
Max Response Time	
Reference	V.25ter

Defined Values

<value>	0 Echo mode off 1 Echo mode on

Example

```
ATE0
OK
ATE1
OK
ATE
OK
```

2.2.4 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**
Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference	V.25ter

Example

```
ATH
OK
```

NOTE

- OK is issued after circuit 109(DCD) is turned off, if it was previously on.

2.2.5 ATI Display Product Identification Information

ATI Display Product Identification Information	
Execution Command **ATI**	Response TA issues product information text. Example: **R1951.01** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	V.25ter

Example

```
ATI
```

```
R1951.01

OK
```

2.2.6 ATL Set Monitor Speaker Loudness

ATL Set Monitor Speaker Loudness	
Execution Command **ATL<value>**	Response **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	
Reference	V.25ter

Defined Values

<value>	Volume 0..3

Example

```
ATL0
OK
```

NOTE

- No effect in GSM

2.2.7 ATM Set Monitor Speaker Mode

ATL Set Monitor Speaker Mode	
Execution Command **ATM<value>**	Response **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	
Reference	V.25ter

Defined Values

<value>	Mode 0..2

NOTE

- No effect in GSM

Example

```
ATM0
OK
```

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

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

Example

```
+++
```

NOTE

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

2.2.9 ATO Switch from Command Mode to Data Mode

ATO Switch from Command Mode to Data Mode	
Execution Command **ATO[n]**	Response TA resumes the connection and switches back from command mode to data mode. **CONNECT** If connection is not successfully resumed **ERROR** else TA returns to data mode from command mode **CONNECT <text>** Note: <text> only if parameter setting ATX>0
Parameter Saving Mode	NO_SAVE
Max Response Time	
Reference	V.25ter

Defined Values

<n>	0 Switch from command mode to data mode

Example

```
ATD*99#
CONNECT 150000000

OK
ATO
CONNECT 150000000
```

2.2.10 ATQ Set Result Code Presentation Mode

ATQ Set Result Code Presentation Mode	
Execution Command **ATQ<n>**	Response This parameter setting determines whether or not the TA transmits any result code to the TE. Information text transmitted in response is not affected by this setting. If <**n**>=0: **OK** If <**n**>=1: (none)
Parameter Saving Mode	NO_SAVE
Max Response Time	
Reference	V.25ter

Defined Values

<n>	0 TA transmit result code 1 Result codes are suppressed and not transmitted

Example

```
ATQ1ATQ0
OK
```

2.2.11 ATS0 Set Number of Rings before Automatically Answering the call

ATS0 Set Number of Rings before Automatically Answering the call	
Read Command **ATS0?**	Response **<n>** **OK**
Write Command **ATS0=<n>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	This parameter setting determines the number of rings before auto-answer. 0 Automatic answering is disable. 1-255 Number of rings the modem will wait for before answering the phone if a ring is detected.

Example

```
ATS0
000

OK
ATS0=3
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.

2.2.12 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	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	13 Command line termination character

Example

```
ATS3?
013

OK
```

NOTE

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

2.2.13 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	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	10 Response formatting character

Example

```
ATS4=?
010

OK
ATS4=10
OK
```

2.2.14 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	-
Max Response Time	-
Reference V.25ter	Note Default 8=Backspace

Defined Values

<n>	Response formatting character 0-8-127

Example

```
ATS5=?
008

OK
ATS5=10
OK
```

NOTE

- Default 8=Backspace.

2.2.15 ATS6 Pause Before Blind Dialling

ATS6 Pause Before Blind Dialling	
Read Command **ATS6?**	Response **<n>** **OK**
Write Command **ATS6=<n>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	Time 0-2-999

Example

```
ATS6=?
002
```

```
OK
ATS6=100
OK
```

NOTE

- No effect in GSM

2.2.16 ATS7 Set Number of Seconds to Wait for Connection Completion

ATS7 Set Number of Seconds to Wait for Connection Completion	
Read Command **ATS7?**	Response **<n>** **OK**
Write Command **ATS7=<n>**	Response This parameter setting determines the amount of time to wait for the connection completion in case of answering or originating a call. **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	Number of seconds to wait for connection completion 0-255

Example

```
ATS7=?
000

OK
ATS7=100
```

```
OK
```

NOTE

- If called party has specified a high value for ATS0=<n>, call setup may fail.
- The correlation between ATS7 and ATS0 is important
- Example: Call may fail if ATS7=30 and ATS0=20.
- ATS7 is only applicable to data call.

2.2.17 ATS8 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command

ATS8 Set Number of Seconds to Wait for Comma Dial Modifier Encountered in Dial String of D Command	
Read Command **ATS8?**	Response **<n>** **OK**
Write Command **ATS8=<n>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference V.25ter	Note No effect in GSM

Defined Values

<n>	The value of this register determines how long the modem should pause when it sees a comma in the dialing string. 0-2-255

Example

```
ATS8=?
002
```

```
OK
ATS8=100
OK
```

NOTE

- No effect in GSM

2.2.18 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	-
Max Response Time	-
Reference	V.25ter

Defined Values

<n>	Number of tenths seconds of delay 1-14-255

Example

```
ATS10=?
014

OK
ATS10=100
```

OK

2.2.19 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	-
Max Response Time	-
Reference	V.25ter

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
RING	2	The DCE has detected an incoming call signal from network
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
NO DIALTONE	6	No dial tone detected
BUSY	7	Engaged (busy) signal detected
NO ANSWER	8	"@" (Wait for Quiet Answer) dial modifier was used, but remote ringing followed by five seconds of silence was not detected before expiration of the connection timer (S7)
PROCEEDING	9	An AT command is being processed
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

Defined Values

<value>	0 Information response: <text><CR><LF>

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

Example

```
ATV0
0
ATV1
OK
```

2.2.20 ATX Set CONNECT Result Code Format and Monitor Call Progress

ATX	Set CONNECT Result Code Format and Monitor Call Progress
Execution Command **ATX[<value>]**	Response This parameter setting determines whether or not the TA detected the presence of dial tone and busy signal and whether or not TA transmits particular result codes. **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

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

Example

```
ATX1
OK
ATX2
OK
```

2.2.21 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	-
Max Response Time	-
Reference	V.25ter

Defined Values

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

Example

```
AT&C1
OK
AT&C0
OK
```

2.2.22 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	-
Max Response Time	-
Reference	V.25ter

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&D1
OK
AT&D0
OK
```

2.2.23 AT&E Set CONNECT Result Code Format About Speed

AT&E Set CONNECT Result Code Format About Speed	
Execution Command **AT&E[<value>]**	This parameter setting determines to report Serial connection rate or Wireless connection speed. It is valid only ATX above 0. Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

<value>	0 Wireless connection speed in integer format. 1 Serial connection rate in integer format. Such as: "115200"

Example

```
AT&E1
OK
ATD*99#
CONNECT

OK
```

2.2.24 AT+GCAP Request Complete TA Capabilities List

AT+GCAP Request Complete TA Capabilities List	
Execution Command **AT+GCAP**	Response TA reports a list of additional capabilities. **+GCAP:** list of supported **<name>**s **OK**
Parameter Saving Mode	-
Max Response Time	-
Reference	V.25ter

Defined Values

<name>	+CGSM GSM function is supported +DS Data compression is supported

Example

```
AT+GCAP
+GCAP: +CGSM,+DS

OK
```

2.2.25 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
Max Response Time	-
Reference V.25ter	Note

Example

```
AT+GMI
SIMCOM_Ltd

OK
```

2.2.26 AT+GMM Request TA Model Identification

AT+GMM Request TA Model Identification	
Test Command **AT+GMM=?**	Response **OK**
Execution Command **AT+GMM**	Response 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
Max Response Time	-
Reference V.25ter	Note

Defined Values

<model>	Product model identification text

Example

```
AT+GMM
SIMCOM_SIM7080G

OK
```

2.2.27 AT+GMR Request TA Revision Identification of Software Release

AT+GMR Request TA Revision Identification of Software Release	
Test Command **AT+GMR=?**	Response **OK**
Execution Command **AT+GMR**	Response TA reports one or more lines of information text which permit the user to identify the revision of software release. **Revision:<revision>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	V.25ter

Defined Values

<revision>	Revision of software release

Example

```
AT+GMR
Revision:1951B01SIM7080G

OK
```

2.2.28 AT+GOI Request Global Object Idenitification

AT+GOI Request Global Object Idenitification	
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
Max Response Time	-
Reference	V.25ter

Defined Values

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

Example

```
AT+GOI
SIM7080G

OK
```

2.2.29 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	NO_SAVE
Max Response Time	-
Reference	V.25ter

Defined Values

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

Example

```
AT+GSN
869951030006302

OK
```

NOTE

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

2.2.30 AT+ICF Set TE-TA Control Character Framing

AT+ICF Set TE-TA Control Character Framing	
Test Command **AT+ICF=?**	Response **+ICF:** (range of supported <**format**>s),(range 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	-
Max Response Time	-
Reference V.25ter	

Defined Values

<format>	3 8 data 0 parity 1 stop
<parity>	0 odd 1 even 3 space (0)

Example

```
AT+ICF=?
+ICF: (3),(0-3)

OK
AT+ICF?
+ICF: 3,3

OK
```

NOTE

- The Command is applied for Command state;
- In <format> parameter, "0 parity" means no parity;
- The <parity> field is ignored if the <format> field specifies no parity and string "+ICF: <format>,255" will be response to "AT+ICF?" Command.

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

AT+IFC Set TE-TA Local Data Flow Control	
Test Command **AT+IFC=?**	Response **+IFC:** (list of supported **<dce_by_dte>**s),(list of supported **<dte_by_dce>**s) **OK**
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	NO_SAVE
Max Response Time	-
Reference	V.25ter

Defined Values

<dce_by_dte>	Specifies the method will be used by TE at receive of data from TA 0 No flow control 1 Software 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 1 Software flow control 2 Hardware flow control

Example

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

OK
AT+IFC?
+IFC: 0,0

OK
```

2.2.32 AT+IPR Set TE-TA Fixed Local Rate

AT+IPR Set TE-TA Fixed Local Rate	
Test Command **AT+IPR=?**	Response +IPR: (**list of supported auto detectable** <rate>**s**),(**list of supported fixed-only** <rate>**s**) **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	AUTO_SAVE
Max Response Time	-
Reference	V.25ter

Defined Values

<rate>	Baud rate per second 0 300 600 1200 2400 4800 9600 14400 19200 38400 57600 115200 230400 460800 921600 1000000 1200000 1500000 2000000 3000000 4000000

Example

```
AT+IPR?
+IPR: 0

OK
AT+IPR=115200
```

OK

3 AT Commands According to 3GPP TS 27.007

3.1 Overview of AT Commands According to 3GPP TS 27.007

Command	Description
AT+CGMI	Request manufacturer identification
AT+CGMM	Request model identification
AT+CGMR	Request TA revision identification of software release
AT+CGSN	Request product serial number identification (identical with +GSN)
AT+CSCS	Select TE character set
AT+CIMI	Request international mobile subscriber identity
AT+CLCK	Facility lock
AT+CMEE	Report mobile equipment error
AT+COPS	Operator selection
AT+CPAS	Phone activity status
AT+CPIN	Enter PIN
AT+CPWD	Change password
AT+CRC	Set cellular result codes for incoming call indication
AT+CREG	Network registration
AT+CRSM	Restricted SIM access
AT+CSQ	Signal quality report
AT+CPOL	Preferred operator list
AT+COPN	Read operator names
AT+CFUN	Set phone functionality
AT+CCLK	Clock
AT+CSIM	Generic SIM access
AT+CBC	Battery charge
AT+CNUM	Subscriber Number
AT+CMUX	Multiplexer Control
AT+CVHU	Voice Hang Up Control
AT+CLIP	Calling Line Identification Presentation
AT+CLCC	List Current Calls of ME

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

3.2.1 AT+CGMI Request Manufacturer Identification

AT+CGMI Request Manufacturer Identification	
Test Command **AT+CGMI=?**	Response **OK**
Execution Command **AT+CGMI**	Response TA returns manufacturer identification text. **<manufacturer>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<manufacturer>	The ID of manufacturer

Example

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

OK
```

3.2.2 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
Max Response Time	-
Reference	

Defined Values

<model>	Product model identification text

Example

```
AT+CGMM=?
OK
AT+CGMM
SIMCOM_SIM7080

OK
```

3.2.3 AT+CGMR RequestTA Revision Identification of Software Release

AT+CGMR Request TA Revision Identification of Software Release	
Test Command **AT+CGMR=?**	Response **OK**
Execution Command **AT+CGMR**	Response TA returns product software version identification text. **Revision:<revision>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<revision>	Product software version identification text

Example

```
AT+CGMR=?
OK
AT+CGMR
Revision:1951B02SIM7080

OK
```

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

AT+CGSN	**Request Product Serial Number Identification**
Test Command **AT+CGSN=?**	Response **OK**
Execution Command **AT+CGSN**	Response see +GSN **<sn>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<sn>	International mobile equipment identity (IMEI)

Example

```
AT+CGSN=?
OK
AT+CGSN
869951030006302

OK
```

3.2.5 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	NO_SAVE
Max 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)

Example

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

OK
AT+CSCS?
+CSCS: "IRA"

OK
```

3.2.6 AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI Request International Mobile Subscriber Identity	
Test Command **AT+CIMI=?**	Response **OK**
Execution Command **AT+CIMI**	Response TA returns <IMSI>for identifying the individual SIM which is attached to ME. **<IMSI>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	20s
Reference	

Defined Values

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

Example

```
AT+CIMI=?
OK
AT+CIMI
460113007570785

OK
```

3.2.7 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 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>. If <mode>≠2 and Command is successful **OK** If <mode>=2 and Command is successful **+CLCK: <status>[,<class1>[<CR><LF>+CLCK: <status>,<class2>[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	15s
Reference	

Defined Values

<fac>	"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code. "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>) "PN" Network Personalization, Correspond to NCK code "PU" Network subset Personalization Correspond to NSCK code "PP" Service Provider Personalization Correspond to SPCK code "PF" Lock Phone to the very First inserted SIM card or USIM card
<mode>	0 unlock 1 lock 2 query status
<passwd>	String type (Shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD)
<class>	1 Voice (telephony) 2 Data refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128) 4 Fax (facsimile services) 7 All classes

<status>	0 Not active 1 Active

Example

```
AT+CLCK=?
+CLCK: ("SC","FD","PN","PU","PP","PC","PF")

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

OK
```

NOTE

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

3.2.8 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 +CME ERROR: <err> as an indication of an error relating to the functionality of the ME. **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max 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: (0,1,2)

OK
AT+CMEE?
+CMEE: 0

OK
AT+CMEE=1
OK
```

3.2.9 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>,**short alphanumeric**<oper>,**numeric **<oper>,<netact>)**s**[,,(**list of supported **<mode>**s**),(**list of supported **<format>**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>,<netact>]** **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
Max 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>	0 Automatic mode; <oper> field is ignored 1 Manual (<oper> field shall be present, and <AcT> optionally) 2 Manual deregister from network 3 Set only <format> (for read Command +COPS?) - not shown in Read Command response 4 Manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered
<format>	0 Long format alphanumeric <oper> 1 Short format alphanumeric <oper> 2 Numeric <oper>; GSM Location Area Identification number
<netact>	0 User-specified GSM access technology 1 GSM compact 3 GSM EGPRS 7 User-specified LTE M1 A GB access technology 9 User-specified LTE NB S1 access technology

Example

```
AT+COPS=?
+COPS: (2,"CHINA MOBILE","CMCC","46000",0),(1,"CHINA
MOBILE","CMCC","46000",9),(3,"CHN-UNICOM","UNICOM","46001",0),(1,"CHN-CT","CT","46011",
9),(3,"CHN-UNICOM","UNICOM","46001",9),,(0,1,2,3,4),(0,1,2)

OK
AT+COPS?
+COPS: 0,0,"CHINA MOBILE",0

OK
AT+COPS=0
OK
```

3.2.10 AT+CPAS Phone Activity Status

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

Defined Values

<pas>	0 Ready (MT allows commands from TA/TE) 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+CAPS=?
+CAPS: (0,3,4)

OK
AT+CAPS
+CAPS: 0

OK
```

3.2.11 AT+CPIN Enter PIN

AT+CPIN Enter PIN	
Test Command **AT+CPIN=?**	Response **OK**
Read Command **AT+CPIN?**	Response TA returns an alphanumeric string indicating whether some password is required or not. **+CPIN: <code>** **OK**
Write Command **AT+CPIN=<pin>[,<new pin>]**	Response TA stores a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.). If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin <new pin>, is used to replace the old pin in the SIM. **OK** If error is related to ME functionality: **+CME ERROR:<err>**
Parameter Saving Mode	NO_SAVE
Max 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) PH_NET PIN ME is waiting network personalization password to be given 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
OK
```

3.2.12 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
Max Response Time	15s
Reference	

Defined Values

<fac>	"AB" All Barring services "AC" All incoming barring services(only for <mode>=0)

	"AG" All outgoing barring services(only for <mode>=0) "AI" BAIC (Barr All Incoming Calls) "AO" BAOC (Barr All Outgoing Calls) "IR" BIC Roam (Barr Incoming Calls when Roaming outside the home country) "OI" BOIC (Barr Outgoing International Calls) "OX" BOIC exHC (Barr Outgoing International Calls except to Home Country) "SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) Correspond to PIN1 code. "P2" SIM PIN2
<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:
("AB",4),("AC",4),("AG",4),("AI",4),("AO",4),("IR",4),("OI",4),("OX",4),("SC",8),("P2",8)

OK
AT+CPWD="SC","1234","4321"
OK
```

3.2.13 AT+CRC Set Cellular Result Codes for Incoming Call Indication

AT+CRC Set Cellular Result Codes for Incoming Call Indication	
Test Command **AT+CRC=?**	Response **+CRC:** (list of supported **<mode>**s) **OK**
Read Command **AT+CRC?**	Response **+CRC: <mode>** **OK**
Write Command	Response

AT+CRC=[<mode>]	TA controls whether or not the extended format of incoming call indication is used. **OK**
Unsolicited Result Code	When enabled, an incoming call is indicated to the TE with unsolicited result code **+CRING: <type>** instead of the normal **RING**.
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Disable extended format 1 Enable extended format Omitted Use previous value
<type>	ASYNC Asynchronous transparent SYNC Synchronous transparent REL ASYNC Asynchronous non-transparent REL SYNC Synchronous non-transparent FAX Facsimile VOICE Voice

Example

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

OK
AT+CRC?
+CRC: 0

OK
AT+CRC=1
OK
```

3.2.14 AT+CREG Network Registration

AT+CREG Network Registration	
Test Command **AT+CREG=?**	Response **+CREG:** (list 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>,<netact>]** **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>,<netact>]**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code **+CREG: <stat>** 2 Enable network registration unsolicited result code with location information(2 is only for 7080 series module which support GPRS.) **+CREG: <stat>[,<lac>,<ci>,<netact>]**
<stat>	0 Not registered, MT is not currently searching a new operator to register to 1 Registered, home network 2 Not registered, but MT is currently searching a new operator to register to 3 Registration denied 4 Unknown 5 Registered, roaming
<lac>	String type (string should be included in quotation marks); two byte location area code in hexadecimal format
<ci>	String type (string should be included in quotation marks); two byte cell ID in hexadecimal format

<netact>	0 User-specified GSM access technology 1 GSM compact 3 GSM EGPRS 7 User-specified LTE M1 A GB access technology 9 User-specified LTE NB S1 access technology

Example

```
AT+CREG=?
+CREG: (0-2)

OK
AT+CREG?
+CREG: 0,2

OK
AT+CREG=2
OK
AT+CFUN=4
OK

+CREG: 0
AT+CFUN=1
OK

+CREG: 2

+CREG: 1,"1816","550C",0
```

3.2.15 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
Max Response Time	-
Reference	

Defined Values

<Command>	176 READ BINARY 178 READ RECORD 192 GET RESPONSE 214 UPDATE BINARY 220 UPDATE RECORD 242 STATUS All other values are reserved; refer GSM 11.11.
<fileId>	Integer type; this is the identifier for an elementary data file on SIM. Mandatory for every Command except STATUS
<P1>,<p2>,<p3>	Integer type, range 0 – 255 Parameters to be passed on by the ME to the SIM; refer GSM 11.11.
<data>	Information which shall be written to the SIM (hex-decimal character format)
<sw1>,<sw2>	Integer type, range 0 - 255 Status information from the SIM about the execution of the actual Command. These parameters are delivered to the TE in both cases, on successful or failed execution of the Command; 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
+CRSM:
144,0,"62358202782183023F00A50980017183040080F608A01058B032F0611C6189001BC9501008
3011183010183010A83010B83010C83010D"

OK
```

3.2.16 AT+CSQ Signal Quality Report

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

Defined Values

<rssi>	0 -115 dBm or less 1 -111 dBm 2...30 -110... -54 dBm 31 -52 dBm or greater 99 not known or not detectable
<ber>	(in percent): 0...7 As RXQUAL values in the table in GSM 05.08 [20] subclause 7.2.4 99 Not known or not detectable

Example

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

OK
AT+CSQ
+CSQ: 24,0

OK
```

3.2.17 AT+CPOL Preferred Operator List

AT+CPOL Preferred Operator List	
Test Command **AT+CPOL=?**	Response **+CPOL: (**list of supported **<index>**s)**,(**list of supported **<format>**s) **OK**
Read Command **AT+CPOL?**	Response **+CPOL: <index1>,<format>,<oper1>[,<GSM>,<GSM_compact>,<UTRAN>,<E-UTRAN>][<CR><LF>+CPOL: <index2>,<format>,<oper2>[,<GSM,<GSM_compact>,<UTRAN>,<E-UTRAN>][…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CPOL=<index>[,<format>[,<oper>[<GSM>,<GSM_compact>,<UTRAN>,<E-UTRAN>]]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<index>	Integer type: order number of operator in SIM preferred operator list
<format>	Indicates whether alphanumeric or numeric format used (see +COPS Command) 0 Long format alphanumeric <oper> 1 Short format alphanumeric <oper> 2 Numeric <oper>
<oper>	String type(string should be included in quotation marks)
<GSM>	GSM access technology 0 Access technology is not selected 1 Access technology is selected
<GSM_compact>	GSM compact access technology 0 Access technology is not selected 1 Access technology is selected
<UTRAN>	UTRAN access technology 0 Access technology is not selected

	1 Access technology is selected
<E-UTRAN>	E-UTRAN access technology 0 Access technology is not selected 1 Access technology is selected

Example

```
AT+CPOL=?
+CPOL: (1-80),(0-2)

OK
AT+CPOL?
+CPOL: 1,2,"46000",1,0,1,0

OK
```

3.2.18 AT+COPN Read Operator Names

AT+COPN Read Operator Names	
Test Command **AT+COPN=?**	Response **OK**
Execution Command **AT+COPN**	**+COPN: <numeric1>,<alpha1>[<CR><LF>+COPN: <numeric2>,<alpha2>[…]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

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

Example

```
AT+COPN=?
OK
AT+COPN
+COPN: "00101","Test PLMN 1-1"
+COPN: "00102","Test PLMN 1-2"
+COPN: "00201","Test PLMN 2-1"
+COPN: "20201","GR COSMOTE"
+COPN: "20205","vodafone GR"
+COPN: "20209","WIND GR"
+COPN: "20210","WIND GR"
:
:
:
OK
```

3.2.19 AT+CFUN Set Phone Functionality

AT+CFUN Set Phone Functionality	
Test Command **AT+CFUN=?**	Response **+CFUN:** (list of supported **<fun>**s),(list of supported **<rst>**s) **OK** If error is related to ME functionality: **+CME ERROR: <err>**
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	-
Max Response Time	10s
Reference	

Defined Values

<fun>	0 Minimum functionality

	1 Full functionality (Default) 4 Disable phone both transmit and receive RF circuits. 5 Factory Test Mode 6 Reset 7 Offline Mode
<rst>	0 Do not Reset the MT before setting it to <fun> power level. 1 Reset the MT before setting it to <fun> power level.

Example

```
AT+CFUN=?
+CFUN: (0-1,4-7),(0-1)

OK
AT+CFUN?
+CFUN: 1

OK
AT+CFUN=1,1
OK

RDY

+CFUN: 1

+CPIN: READY

SMS Ready
```

NOTE

- The <fun> power level will be written to flash except minimum functionality.
- AT+CFUN=1,1 can be used to reset module purposely at minimum/full functionality mode.
- Response string "OK" will be returned after module resets if baud rate is set to fixed baud rate.
- AT+CFUN=6 must be used after setting AT+CFUN=7. If module in offline mode,must execute AT+CFUN=6 or restart module to online mode.

3.2.20 AT+CCLK Clock

AT+CCLK Clock	
Test 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
Max 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 -96...+96). 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: "80/01/06,00:37:28+00"

OK
AT+CCLK="18/07/09,12:00:00"
OK
AT+CCLK?
+CCLK: "18/07/09,12:00:04+32"

OK
```

NOTE

- Only time zone is auto saved.

3.2.21 AT+CSIM Generic SIM Access

AT+CSIM Generic SIM Access	
Test Command **AT+CSIM=?**	Response **OK**
Write Command **AT+CSIM=<length>,<Command>**	Response **+CSIM: <length>,<response>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<length>	Integer type: length of characters sent to the TE in <Command> or <response> (i.e. twice the number of octets in the raw data).
<Command>	String type (string should be included in quotation marks): hex format: GSM 11.11 SIM Command sent from the ME to the SIM.
<response>	String type(string should be included in quotation marks): hex format: GSM 11.11 response from SIM to <Command>.

Example

```
AT+CSIM=?
OK
```

3.2.22 AT+CBC Battery Charge

AT+CBC Battery Charge	
Test Command	Response

AT+CBC=?	**+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
Max 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: 0,62,3810

OK
```

3.2.23 AT+CNUM Subscriber Number

AT+CNUM Subscriber Number	
Test Command AT+CNUM=?	Response **OK**

Execution Command **AT+CNUM**	Response **+CNUM: "",<number1>,<type1>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<number*x*>	String type (string should be included in quotation marks) phone number of format specified by <type*x*>
<type*x*>	Type of address octet in integer format (refer GSM04.08[8] sub clause 10.5.4.7)

Example

```
AT+CNUM=?
OK
AT+CNUM
+CNUM: "","13817825065",129

OK
```

3.2.24 AT+CMUX Multiplexer Control

AT+CMUX Multiplexer Control	
Test Command **AT+CMUX=?**	Response **+CMUX: (0),(0),(1-8),(1-1500),(0),(0),(2-1000)** **OK**
Read Command **AT+CMUX?**	Response **+CMUX: <mode>,<subset>,<port_speed>,<N1>,<T1>,<N2>,<T2>** **OK**
Write Command **AT+CMUX=<mode>[,<subset>,<port_speed>,<N1>,<T1>,<N2>,<T2>]**	Response If error is related to ME functionality: **+CME ERROR: <err>**

Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Multiplexer transparency mechanism 0 Basic option
<subset>	The way in which the multiplexer control channel is set up 0 UIH frames used only
<port_speed>	Transmission rate 1 9600 bit/s 2 19200 bit/s 3 38400 bit/s 4 57600 bit/s 5 115200 bit/s 6 230400 bit/s Proprietary values, available if MUX NEW PORT SPEED FTR is activated
<N1>	Maximum frame size 1-1500 Default:118
<T1>	Acknowledgement timer in units of ten milliseconds 0
<N2>	Maximum number of retransmissions 0
<T2>	Max Response Timer for the multiplexer control channel in milliseconds 2-1000 Default:600

Example

```
AT+CMUX=?
+CMUX: (0),(0),(1-8),(1-1500),(0),(0),(2-1000)

OK
AT+CMUX?
+CMUX: 0,0,5,118,0,0,600

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

3.2.25 AT+CVHU Voice Hang Up Control

AT+CVHU Voice Hang Up Control	
Test Command **AT+CVHU=?**	Response **+CVHU: (**list of supported **<mode>**s) **OK**
Read Command **AT+CVHU?**	Response **+CVHU: <mode>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CVHU=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Integer type. Voice call hang up control. 0 ATH disconnects voice call 1 ATH ignored.

Example

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

OK
AT+CVHU?
+CVHU: 1

OK
```

NOTE

- Part of the projects supported by this AT command, please refer to chapter 23 for details.

3.2.26 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>** **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>,<alphaId>,<CLI**

	validity>]
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable +CLIP notification. 1 Enable +CLIP notification.
<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(subaddress of format specified by <satype>)
<satype>	Integer type (type of subaddress)
<alphaId>	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

OK
```

NOTE

- Part of the projects supported by this AT command, please refer to chapter 23 for details.

3.2.27 AT+CLCC List Current Calls of ME

AT+CLCC List Current Calls of ME	
Test Command **AT+CLCC=?**	Response **+CLCC:** (list of supported **<n>**s) **OK**
Read Command **AT+CLCC?**	Response **+CLCC: <n>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
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	NO_SAVE
Max 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>	Call identification number This number can be used in +CHLD command operations 1..7
<dir>	0 Mobile originated (MO) call 1 Mobile terminated (MT) call
<stat>	State of the call:

	0 Active 1 Held 2 Dialing (MO call) 3 Alerting (MO call) 4 Incoming (MT call) 5 Waiting (MT call) 6 Disconnect
<mode>	Bearer/tele service: 0 Voice 1 Data 2 Fax
<mpty>	0 Call is not one of multiparty (conference) call parties 1 Call is one of multiparty (conference) call parties
<number>	String type (string should be included in quotation marks) phone number in format specified by <type>.
<type>	Type of address
<alphaId>	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: 0

OK
```

NOTE

- Part of the projects supported by this AT command, please refer to chapter 23 for details.

4 AT Commands According to 3GPP TS 27.005

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+CSAS	Save SMS settings
AT+CSCA	SMS service center address
AT+CSDH	Show SMS text mode parameters
AT+CSMP	Set SMS text mode parameters
AT+CSMS	Select message service
AT+CMGSEX	Send long SMS Messages

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

	OK
Write Command **AT+CMGD=<index>[,<delflag>]**	Response TA deletes message from preferred message storage <mem1> location <index>. **OK** or **ERROR** If error is related to ME functionality: **+CMS ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max 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>	0 Delete the message specified in <index> 1 Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2 Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched 4 Delete all messages from preferred message storage including unread messages

Example

```
AT+CMGD=?
+CMGD: (0,1,2),(0-4)

OK
AT+CMGD=0
OK
```

NOTE

- If set <delcfg>=1,2,3 or 4,<index> is omitted, such as AT+CGMD=,4.

4.2.2 AT+CMGF Select SMS Message Format

AT+CMGF Select SMS Message Format	
Test Command **AT+CMGF=?**	Response **+CMGF: (**range 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	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 PDU mode 1 Text mode

Example

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

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

OK

4.2.3 AT+CMGL List SMS Messages from Preferred Store

AT+CMGL List SMS Messages from Preferred Store	
Test Command **AT+CMGL=?**	Response **+CMGL: (**list of supported **<stat>**s**)** **OK**
Write Command **AT+CMGL=<stat>[,<mode>]**	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'. 1) If text mode (+CMGF=1) and Command successful: for SMS-SUBMITs and/or SMS-DELIVERs: **+CMGL:** **<index>,<stat>,<oa/da>[,<alpha>][,<scts>][,<tooa/toda>,<length>]** **<CR><LF><data>** **[<CR><LF>+CMGL:** **<index>,<stat>,<da/oa>[,<alpha>][,<scts>][,<tooa/toda>,<length>]** **<CR><LF><data>[...]]** for SMS-STATUS-REPORTs: **+CMGL:** **<index>,<stat>,<fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>** **[<CR><LF>+CMGL:** **<index>,<stat>,<fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>[...]]** for SMS-COMMANDs: **+CMGL: <index>,<stat>,<fo>,<ct>** **[<CR><LF>+CMGL: <index>,<stat>,<fo>,<ct>[...]]** for CBM storage: **+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages>** **<CR><LF><data>** **<CR><LF>+CMGL: <index>,<stat>,<sn>,<mid>,<page>,<pages>** **<CR><LF><data>[...]]** **OK** 2) If PDU mode (**+CMGF=0**) and Command successful: **+CMGL: <index>,<stat>[,<alpha>],<length>**

	<CR><LF><pdu> **<CR><LF>+CMGL: <index>,<stat>[,alpha],<length>** **<CR><LF><pdu>[...]]** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
Execution Command **AT+CMGL**	Response 1) If text mode: the same as AT+CMGL="REC UNREAD",received unread messages 2) If PDU mode: the same as AT+CMGL=0, received unread messages See more messages please refer to Write Command.
Parameter Saving Mode	NO_SAVE

Max Response Time	20s(list 50 messages)
	20s(list 150 messages)

Reference	

Defined Values

<stat>	1) If text mode: "REC UNREAD" Received unread messages "REC READ" Received read messages "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages "ALL" All messages 2) If PDU mode: 0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages 4 All messages
<mode>	0 Normal 1 Not change status of the specified SMS record
<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; used character set should be the one selected with Command Select TE Character Set +CSCS (see definition of this Command in 3GPP TS 27.007)
<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 GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55)) - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format: - if <dcs> indicates that GSM 03.38 default alphabet is used: - if TE character set other than "HEX" (refer Command +CSCS in 3GPP TS 27.007): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number
<length>	Integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)
<index>	Integer type; value in the range of location numbers supported by the associated memory
<oa>	GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (refer Command +CSCS in 3GPP TS 27.007); type of address given by <tooa>
<pdu>	In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.

<scts>	GSM 03.40 TP-Service-Center-Time-Stamp in time-string format (refer <dt>)
<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)
<tooa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<toda>)

Example

```
AT+CMGL=?                                                        //PDU mode
+CMGL: (0-4)

OK
AT+CMGL=?                                                        //Text mode
+CMGL: ("REC UNREAD","REC READ","STO UNSENT","STO
SENT","ALL")

OK
AT+CMGL=4
+CMGL: 1,2,,18
0891683108200105F011640B813118662902F40011A70441E19008
+CMGL: 2,2,,19
0891683108200105F011000D91683118662902F40018010400410042

OK
```

4.2.4 AT+CMGR Read SMS Messages

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

	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
Max Response Time	5s
Reference	

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory
<mode>	0 Normal 1 Not change status of the specified SMS record
<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
<da>	GSM 03.40 TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <toda>
<data>	In the case of SMS: GSM 03.40 TP-User-Data in text mode responses; format:

	- if <dcs> indicates that GSM 03.38 default alphabet is used and <fo> indicates that GSM 03.40 TPUser-Data-Header-Indication is not set: - if TE character set other than "HEX" (refer Command Select TE Character Set +CSCS in 3GPP TS 27.007):ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character P (GSM 23) is presented as 17 (IRA 49 and 55)) - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that GSM 03.40 TP-User-Data-Header-Indication is set: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) In the case of CBS: GSM 03.41 CBM Content of Message in text mode responses; format: - if <dcs> indicates that GSM 03.38 default alphabet is used: - if TE character set other than "HEX" (refer Command +CSCS in 3GPP TS 27.007): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A - if TE character set is "HEX": ME/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number - if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number
<dcs>	Depending on the Command or result code: GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format
<fo>	Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format
<length>	Integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)
<mid>	GSM 03.41 CBM Message Identifier in integer format
<oa>	GSM 03.40 TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <tooa>
<pdu>	In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.
<pid>	GSM 03.40 TP-Protocol-Identifier in integer format

	(default 0)
<sca>	GSM 04.11 RP SC address Address-Value field in string format; BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <tosca>
<scts>	GSM 03.40 TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)
<stat>	0 "REC UNREAD" Received unread messages 1 "REC READ" Received read messages 2 "STO UNSENT" Stored unsent messages 3 "STO SENT" Stored sent messages 4 "ALL" All messages
<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)
<tooa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer<toda>)
<tosca>	GSM 04.11 RP SC address Type-of-Address octet in integer format (default refer <toda>)
<vp>	Depending on SMS-SUBMIT <fo> setting: GSM 03.40 TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>)

Example

```
AT+CMGR=?
OK
AT+CMGR=1
+CMGR: "STO UNSENT","13816692204",
ABCD

OK
```

4.2.5 AT+CMGS Send SMS Messages

AT+CMGS Send SMS Messages	
Test Command **AT+CMGS=?**	Response **OK**
Write Command 1) If text mode (+CMGF=1): **AT+CMGS=<da>[,<toda>]**	Response TA sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful

<CR>text is entered <ctrl-Z/ESC> ESC quits without sending 2) If PDU mode (+CMGF=0): **AT+CMGS=<length>** **<CR>PDU is given <ctrl-Z/ESC>**	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>** **OK** 2) If PDU mode(+CMGF=0) and sending successful: **+CMGS: <mr>** **OK** 3)If error is related to ME functionality: **+CMS ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max 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)
<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)
<mr>	GSM 03.40 TP-Message-Reference in integer format

Example

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

OK
```

NOTE

- Reject incoming call when sending messages.

4.2.6 AT+CMGW Write SMS Message to Memory

AT+CMGW Write SMS Message to Memory	
Test Command **AT+CMGW=?**	Response **OK**
Write Command 1) If text mode (+CMGF=1): **AT+CMGW=<oa/da>[,<tooa/toda>][,<stat>]** <CR> text is entered <ctrl-Z/ESC> <ESC> quits without sending 2) If PDU mode (+CMGF=0): **AT+CMGW=<length>[,<stat>]** <CR>PDU is given <ctrl-Z/ESC>	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>**
Execution Command **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	NO_SAVE
Max 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>
<tooa>	GSM 04.11 TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)
<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129) 129 Unknown type(IDSN format number) 161 National number type(IDSN format) 145 International number type(ISDN format) 177 Network specific number(ISDN format)
<length>	Integer type value (not exceed 160 bytes) indicating in the text mode (+CMGF=1) the length of the message body <data> (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)
<stat>	In the text mode (+CMGF=1): "STO UNSENT" Stored unsent messages "STO SENT" Stored sent messages In PDU mode (+CMGF=0): 0 Received unread messages 1 Received read messages 2 Stored unsent messages 3 Stored sent messages
<pdu>	In the case of SMS: GSM 04.11 SC address followed by GSM 03.40 TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)). In the case of CBS: GSM 03.41 TPDU in hexadecimal format.
<index>	Index of message in selected storage <mem2>

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 **AT+CMSS=?**	Response **OK**
Write Command **AT+CMSS=<index>[,<da>,<toda>]**	Response TA sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT). If new recipient address <da> is given, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery. Values can be used to identify message upon unsolicited delivery status report result code. 1) If text mode(+CMGF=1) and sending successful: **+CMSS: <mr>** **OK** 2) If PDU mode(+CMGF=0) and sending successful: **+CMSS: <mr>** **OK**

	3)If error is related to ME functionality: **+CMS ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	60s
Reference	

Defined Values

<index>	Integer type; value in the range of location numbers supported by the associated memory
<da>	GSM 03.40 TP-Destination-Address Address-Value field in string format(string should be included in quotation marks); BCD numbers (or GSM default alphabet characters) are converted to characters of the currently selected TE character set (specified by +CSCS in 3GPP TS 27.007); type of address given by <toda>
<toda>	GSM 04.11 TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)
<mr>	GSM 03.40 TP-Message-Reference in integer format

Example

```
AT+CMSS=?
OK
AT+CMSS=1,"13817825065"
+CMSS: 214

OK

+CMTI: "SM",6
```

4.2.8 AT+CNMI New SMS Message Indications

AT+CNMI New SMS Message Indications	
Test Command **AT+CNMI=?**	Response **+CNMI:** (list of supported **<mode>**s),(list of supported **<mt>**s),(list of supported **<bm>**s),(list of supported **<ds>**s),(list of supported **<bfr>**s) **OK**
Read Command	Response

AT+CNMI?	**+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>** **OK**
Write Command **AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]**	Response TA selects the procedure for how the receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF), message receiving should be done as specified in GSM 03.38. **OK** or **ERROR**
Unsolicited result code	1. Indicates that new message has been received If <mt>=1: **+CMTI: <mem3>,<index>** If <mt>=2 (PDU mode enabled): **+CMT: [<alpha>],<length><CR><LF><pdu>** If <mt>=2 (text mode enabled): **+CMT: <oa>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>** 2. Indicates that new cell broadcast message has been received If <bm>=2 (PDU mode enabled): **+CBM: <length><CR><LF><pdu>** If <bm>=2 (text mode enabled): **+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>** 3. Indicates that new SMS status report has been received If <ds>=1 (PDU mode enabled): **+CDS: <length><CR><LF><pdu>** If <ds>=1 (text mode enabled): **+CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mode>	0 Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.
<mt>	(the rules for storing received SMs depend on its data coding scheme (refer GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value): 0 No SMS-DELIVER indications are routed to the TE. 1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index> 2 SMS-DELIVERs (except class 2) are routed directly to the TE using unsolicited result code: **+CMT: [<alpha>],<length><CR><LF><pdu>** (PDU mode enabled) or **+CMT: <oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data>** (text mode enabled; about parameters in italics, refer Command Show Text Mode Parameters +CSDH). Class 2 messages result in indication as defined in <mt>=1. 3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other classes result in indication as defined in <mt>=1.
<bm>	(the rules for storing received CBMs depend on its data coding scheme (refer GSM 03.38 [2]), the setting of Select CBM Types (+CSCB) and this value): 0 No CBM indications are routed to the TE. 2 New CBMs are routed directly to the TE using unsolicited result code: **+CBM: <length><CR><LF><pdu>** (PDU mode enabled) or **+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>** (text mode enabled).
<ds>	0 No SMS-STATUS-REPORTs are routed to the TE. 1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: **+CDS: <length><CR><LF><pdu>** (PDU mode enabled)

	or **+CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>**(text mode enabled) 2 If SMS-STATUS-REPORT is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: **+CDSI: <mem3>,<index>**
<bfr>	0 TA buffer of unsolicited result codes defined within this Command is flushed to the TE when <mode> 1...3 is entered (OK response shall be given before flushing the codes). 1 TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1…3 is entered

Example

```
AT+CNMI=?
+CNMI: (0,1,2),(0,1,2,3),(0,2),(0,1,2),(0,1)

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

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

NOTE

- This command is used to select the procedure how 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). If set <mt>=2,<mt>=3 or <ds>=1, make sure <mode>=1, otherwise it will return error.

4.2.9 AT+CPMS Preferred SMS Message Storage

AT+CPMS Preferred SMS Message Storage

Test Command **AT+CPMS=?**	Response **+CPMS:** (list of supported **<mem1>**s),(list of supported **<mem2>**s),(list of supported **<mem3>**s) **OK**
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
Max Response Time	-
Reference	

Defined Values

<mem1>	Messages to be read and deleted from this memory storage "SM" SIM message storage
<mem2>	Messages will be written and sent to this memory storage "SM" SIM message storage
<mem3>	Received messages will be placed in this memory storage if routing to PC is not set ("+CNMI") "SM" SIM message storage
<usedx>	Integer type; Number of messages currently in <memx>
<totalx>	Integer type; Number of messages storable in <memx>

Example

```
AT+CPMS=?
+CPMS: ("SM"),("SM"),("SM")

OK
```

```
AT+CPMS?
+CPMS: "SM",7,50,"SM",7,50,"SM",7,50

OK
AT+CPMS="SM","SM","SM"
+CPMS: 7,50,7,50,7,50

OK
```

4.2.10 AT+CSAS Save SMS Settings

AT+CSAS Save SMS Settings	
Test Command **AT+CSAS=?**	Response **+CSAS:** list of supported **<profile>**s **OK**
Write Command **AT+CSAS=<profile>**	Response Execution command saves active message service settings to a non-volatile memory. Settings specified in commands Service Centre Address +CSCA and Set Message Parameters +CSMP are saved. Certain settings may not be supported by the storage (e.g. (U)SIM SMS parameters) and therefore can not be saved. **OK** or **ERROR**
Execution Command **AT+CSAS**	Response Same as AT+CSAS=0 **OK** If error is related to ME functionality: **+CMS ERROR <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	5s
Reference	

Defined Values

<profile>	0 Restore SM service settings from profile 0

Example

```
AT+CSAS=?
+CSAS: 0

OK
AT+CSAS=0
OK
AT+CSAS
OK
```

4.2.11 AT+CSCA SMS Service Center Address

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

4.2.12 AT+CSDH Show SMS Text Mode Parameters

AT+CSDH Show SMS Text Mode Parameters	
Test Command **AT+CSDH=?**	Response **+CSDH:** (range of supported **<show>**s) **OK**
Read Command **AT+CSDH?**	Response **+CSDH: <show>** **OK**
Write Command **AT+CSDH=<show>**	Response TA determines whether detailed header information is shown in text mode result codes. **OK**
Execution Command **AT+CSDH**	Response **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

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

Example

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

OK
AT+CSDH?
+CSDH: 0

OK

AT+CMGR=1
+CMGR: "STO UNSENT","13816692204",
ABCD

OK
AT+CSDH=1
OK
AT+CMGR=1
+CMGR: "STO
UNSENT","13816692204",,129,17,0,17,167,"+8613800210500",145,4
ABCD
```

4.2.13 AT+CSMP Set SMS Text Mode Parameters

AT+CSMP Set SMS Text Mode Parameters	
Test Command **AT+CSMP=?**	Response **OK**
Read Command **AT+CSMP?**	Response **+CSMP: <fo>,<vp>,<pid>,<dcs>** **OK**
Write Command **AT+CSMP=[<fo>[,<vp>,<pid>,<dcs>]]**	Response 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). **OK**
Parameter Saving Mode	NO_SAVE
Max 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).
<dcs>	GSM 03.38 SMS Data Coding Scheme in Integer format.

Example

```
AT+CSMP=?
OK
AT+CSMP?
+CSMP: 17,167,0,0

OK

AT+CSMP=17,167,0,241
OK
AT+CSMP?
+CSMP: 17,167,0,241

OK
```

NOTE

- The Command writes the parameter <fo> in NON-VOLATILE memory.

4.2.14 AT+CSMS Select Message Service

AT+CSMS Select Message Service	
Test Command **AT+CSMS=?**	Response **+CSMS:** (list of supported **<service>**s) **OK**
Read Command **AT+CSMS?**	Response **+CSMS: <service>,<mt>,<mo>,<bm>** **OK**
Write Command **AT+CSMS=<service>**	Response **+CSMS: <mt>,<mo>,<bm>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<service>	0 GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2 version 4.7.0; Phase 2+ features which do not require new Command syntax may be supported (e.g. correct routing of messages with new Phase 2+ data coding schemes)) 1 GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2+ version; the requirement of <service> setting 1 is mentioned under corresponding command descriptions)
<mt>	Mobile Terminated Messages: 0 Type not supported 1 Type supported
<mo>	Mobile Originated Messages: 0 Type not supported 1 Type supported
<bm>	Broadcast Type Messages: 0 Type not supported 1 Type supported

Example

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

OK
AT+CSMS?
+CSMS: 0,1,1,1

OK
AT+CSMS=1
+CSMS: 1,1,1

OK
```

4.2.15 AT+CMGSEX Send long SMS Messages

AT+CMGSEX Send long SMS Messages	
Test Command **AT+CMGSEX=?**	Response **OK**
Write Command If text mode (AT+CMGF=1): **AT+CMGSEX=<da>[,<toda>][,<mr>,<msg_seg>,<msg_total>]<CR>Text is entered. <CTRL-Z/ESC>** ESC quits without sending	Response 1) If sending successfully: **+CMGSEX: <mr>** **OK** 2) If cancel sending: **OK** 3) If sending fails: **ERROR** 4) If sending fails: **+CMS ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	60s
Reference	

Defined Values

<da>	Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<toda>	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). The range of value is from 128 to 255.
<mr>	Message Reference GSM 03.40 TP-Message-Reference in integer format. The maximum length is 255.
<msg_seg>	The segment number for long sms
<msg_total>	The total number of the segments for long sms. Its range is from 2 to 255.

Example

```
AT+CMGSEX=?
OK
AT+CMGSEX=13012832788”, 190,1,2
> ABCD <ctrl-Z>
+CMGSEX: 238

OK
AT+CMGSEX=13012832788”, 190,2,2
> ABCD <ctrl-Z>
+CMGSEX: 239

OK
```

NOTE

- In text mode, the maximum length of an SMS depends on the used coding scheme: For single SMS, it is 160 characters if the 7 bit GSM coding scheme is used; For multiple long sms, it is 153 characters if the 7 bit GSM coding scheme is used.

5 AT Commands for SIMCom

5.1 Overview of AT Commands for SIMCom

Command	Description
AT+CPOWD	Power off
AT+CADC	Read ADC
AT+CFGRI	Indicate RI when using URC
AT+CLTS	Get local timestamp
AT+CBAND	Get and set mobile operation band
AT+CNSMOD	Show network system mode
AT+CSCLK	Configure slow clock
AT+CCID	Show ICCID
AT+GSV	Display product identification information
AT+SGPIO	Control the GPIO
AT+SLEDS	Set the timer period of net light
AT+CNETLIGHT	Close the net light or open it to shining
AT+CSGS	Netlight indication of GPRS status
AT+CGPIO	Control the GPIO by PIN Index
AT+CBATCHK	Set VBAT checking feature ON/OFF
AT+CNMP	Preferred mode selection
AT+CMNB	Preferred selection between CAT-M and NB-IoT
AT+CPSMS	Power Saving Mode Setting
AT+CPSI	Inquiring UE system information
AT+CGNAPN	Get Network APN in CAT-M or NB-IOT
AT+CSDP	Service Domain Preference
AT+MCELLLOCK	Lock the special CAT-M cell
AT+NCELLLOCK	Lock the special NB-IOT cell
AT+NBSC	Configure NB-IOT Scrambling Feature
AT+CRRCSTATE	Query RRC State
AT+CBANDCFG	Configure CAT-M or NB-IOT Band
AT+CEDUMP	Set whether the module reset when the module is crashed
AT+CNBS	Configure Band Scan Optimization for NB-IOT
AT+CNDS	Configure Service Domain Preference For NB-IOT
AT+CENG	Switch on or off Engineering Mode

AT+CTLIIC	Control the Switch of IIC
AT+CWIIC	Write Values to Register of IIC Device
AT+CRIIC	Read Values from Register of IIC Device
AT+CMCFG	Manage Mobile Operator Configuration
AT+CSIMLOCK	SIM Lock
AT+CRATSRCH	Configure parameter for better RAT search
AT+CASRIP	Show Remote IP Address and Port When Received Data
AT+CPSMRDP	Read PSM Dynamic Parameters
AT+CPSMCFG	Configure PSM version and Minimum Threshold Value
AT+CPSMCFGEXT	Configure Modem Optimization of PSM
AT+CPSMSTATUS	Enable Deep Sleep Wakeup Indication
AT+CEDRXS	Extended-DRX Setting
AT+CEDRX	Configure eDRX parameters
AT+CEDRXRDP	eDRX Read Dynamic Parameters
AT+CRAI	Configure Release Assistance Indication in NB-IOT network
AT+CREBOOT	Reboot Module
AT+SPKMUTESW	Set Handsfree On/off
AT+ANTENALLCFG	Configure Antenna Tuner
AT+CURCCFG	URC Report Configuration
AT+CFOTA	FOTA Operation
AT+CTBURST	The RF TX Burst Test
AT+CUSBSELNV	Select the USB Configuration
AT+SECMEN	Enable ECM Auto Connecting
AT+SECMAUTH	Set ECM APN and Authentication
AT+SECMDMZ	Set ECM Virtual Host
AT+CRATPRI	Configure RAT priority of searching network
AT+CIPV6RS	IPV6 Router solicitation settings
AT+CNASCFG	NAS Configuration
AT+CLRNET	Clear network registration information
AT+CEID	Read EID
AT+CGTA	Get Timing Advance
AT+STXPOWER	Power Settings
AT+CNII	Query the Amount of Data Sent and Received by PDP
AT+CTRJ	Inquire the value of Timer 3346
AT+CECL	Read ECL value
AT+CRRCSTATS	Statistics RRC information

5.2 Detailed Description of AT Commands 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
Max 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**),(**range of supported **<value>**s**)** **OK**
Read Command **AT+CADC?**	Response **+CADC: <status>,<value>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	2 second
Reference	

Defined Values

<status>	1 Success 0 Fail
<value>	Integer,0-1875

Example

```
AT+CADC=?
+CADC: (0,1),(0-1875)

OK
AT+CADC?
+CADC: 1,1872

OK
```

5.2.3 AT+CFGRI Indicate RI When Using URC

AT+CFGRI Indicate RI When Using URC	
Test Command **AT+CFGRI=?**	Response **+CFGRI: (**range of supported **<status>**s) **OK**
Read Command **AT+CFGRI?**	Response **+CFGRI: <status>** **OK**
Write Command **AT+CFGRI=<status>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max 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
```

NOTE

- RI pin cannot controlled by "AT+CFGRI" command when module has call service or receiving SMS.

5.2.4 AT+CLTS Get Local Timestamp

AT+CLTS Get Local Timestamp	
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 name by network:

	***PSNWID: "<mcc>","<mnc>","<full network name>",<full network name CI>,"<short network name>",<short network name CI>** 2. Refresh time and time zone by network: This is UTC time, the time queried by AT+CCLK command is local time. ***PSUTTZ: <year>,<month>,<day>,<hour>,<min>,<sec>,"<time zone>",<dst>** 3. Refresh network time zone by network: **+CTZV: "<time zone>"** 4. Refresh Network Daylight Saving Time by network: **DST: <dst>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<mode>	0 Disable 1 Enable
<mcc>	String type; mobile country code
<mnc>	String type; mobile network code
<full network name>	String type; name of the network in full length.
<full network name CI>	Integer type; indicates whether to add CI. 0 The MS will not add the initial letters of the Country's Name to the text string. 1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string.
<short network name>	String type; abbreviated name of the network
<short network name CI>	Integer type; indicates whether to add CI. 0 The MS will not add the initial letters of the Country's Name to the text string. 1 The MS will add the initial letters of the Country's Name and a separator (e.g. a space) to the text string.
<year>	4 digits of year (from network)
<month>	Month (from network)
<day>	Day (from network)
<hour>	Hour (from network)
<min>	Minute (from network)
<sec>	Second (from network)
<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
```

NOTE

- Support for this Command will be network dependent.
- Set AT+CLTS=1, it means user can receive network time updating and use AT+CCLK to show current time.
- ***PSUTTZ** may report twice.

5.2.5 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
Max Response Time	-
Reference	

Defined Values

<op_band>	A string parameter which indicate the operation band. And the following strings should be included in quotation marks. EGSM_MODE DCS_MODE ALL_MODE

Example

```
AT+CBAND=?
+CBAND:
(EGSM_MODE,DCS_MODE,ALL_MODE)

OK
```

NOTE

- Radio settings are stored in non-volatile memory.
- Only for GSM

5.2.6 AT+CNSMOD Show Network System Mode

AT+CNSMOD Show Network System Mode	
Test Command **AT+CNSMOD=?**	Response **+CNSMOD:** (range of supported <**n**>s) **OK**
Read Command	Response

AT+CNSMOD?	**+CNSMOD: <n>,<stat>** **OK**
Write Command **AT+CNSMOD=<n>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable auto report the network system mode information 1 Auto report the network system mode information, command: **+CNSMOD: <stat>**
<stat>	0 No service 1 GSM 3 EGPRS 7 LTE M1 9 LTE NB

Example

```
AT+CNSMOD=?
+CNSMODE: (0-1)

OK
AT+CNSMOD?
+CNSMODE: 0,1

OK
```

5.2.7 AT+CSCLK Configure Slow Clock

AT+CSCLK Configure Slow Clock	
Test Command **AT+CSCLK=?**	Response **+CSCLK:** (range 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	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<n>	Disable or enable slow clock 0 Disable slow clock, module will not enter sleep mode. 1 Enable slow clock, it is controlled by DTR. When DTR is high, module can enter sleep mode. When DTR changes to low level, module can quit sleep mode.

Example

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

OK
AT+CSCLK?
+CSCLK: 0

OK
```

5.2.8 AT+CCID Show ICCID

AT+CCID Show ICCID	
Test Command **AT+CCID=?**	Response **OK**
Execution Command **AT+CCID**	Response **Ccid data** [ex. 898600810906F8048812]

	OK
Parameter Saving Mode	NO_SAVE
Max Response Time	2 second
Reference	

Example

```
AT+CCID=?
OK
AT+CCID
89861118231006965031

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_SIM7080** **Revision: 1351B01SIM7080** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Example

```
AT+GSV
SIMCOM_Ltd
SIMCOM_SIM7080
Revision: 1951B02SIM7080

OK
```

5.2.10 AT+SGPIO Control the GPIO

AT+SGPIO Control the GPIO	
Test Command **AT+SGPIO=?**	Response **+SGPIO:** (range of supported <**operation**>s),(list of supported <**pin**>s),(range of supported <**function**>s),(range of supported <**level**>s) **OK**
Write Command **AT+SGPIO=<operation>,<GPIO>,<function>,<level>**	Response If <operation>=0 **OK** or **ERROR** If <operation>=1 **+SGPIO Value: <level>** **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<operation>	0 Set the GPIO function including the GPIO output. 1 Read the GPIO level. Please note that only when the gpio is set as input, user can use parameter 1 to read the GPIO level, otherwise the module will return "ERROR".
<GPIO>	The GPIO you want to be set. (It has relations with the hardware, please refer to the hardware manual)
<function>	Only when <operation> is set to 0, this option takes effect. 0 Set the GPIO to input. 1 Set the GPIO to output
<level>	0 GPIO low level 1 GPIO high level

Example

```
AT+SGPIO=?
+SGPIO: (0-1),(1-5),(0-1),(0-1)
```

OK

NOTE

- Part of the projects supported by this AT command, please refer to chapter 23 for details.

5.2.11 AT+SLEDS Set the Timer Period of Net Light

AT+SLEDS Set the Timer Period of Net Light	
Test Command **AT+SLEDS=?**	Response **+SLEDS: (**range of supported <**mode**>s)**,(0,40-65535),(0,40-65535)** **OK**
Read Command **AT+SLEDS?**	Response **+SLEDS: <mode>,<timer_on>,<timer_off>** **OK**
Write Command **AT+SLEDS=<mode>,<timer_on>,<timer_off>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	1 Set the timer period of net light while module does not register to the network 2 Set the timer period net light while module has already registered to the network 3 Set the timer period net light while module is in the state of PPP communication
<timer_on>	Timer period of "LED ON" in decimal format which range is 0 or 40-65535(ms)
<timer_off>	Timer period of "LED OFF" in decimal format which range is 0 or 40-65535(ms)

Example

```
AT+SLEDS=?
+SLEDS: (1-3),(0,40-65535),(0,40-65535)

OK
AT+SLEDS?
+SLEDS: 1,64,800
+SLEDS: 2,64,3000
+SLEDS: 3,64,300

OK
```

NOTE

- The default value is :

<mode>	<timer_on>	<timer_off>
1	64	800
2	64	3000
3	64	300

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 **AT+CNETLIGHT=?**	Response **+CNETLIGHT:** (list of supported <**mode**>s) **OK**
Read Command **AT+CNETLIGHT?**	Response **+CNETLIGHT: <mode>** **OK**
Write Command **AT+CNETLIGHT=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	AUTO_SAVE
Max 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
```

5.2.13 AT+CSGS Netlight Indication of GPRS Status

AT+CSGS Netlight Indication of GPRS Status	
Test Command **AT+CSGS=?**	Response **+CSGS:** (range of supported <**mode**>s) **OK**
Read Command **AT+CSGS?**	Response **+CSGS: <mode>** **OK**
Write Command **AT+CSGS=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Disable

	1 Enable, the netlight will be forced to enter into 64ms on/300ms off blinking state in GPRS data transmission service. Otherwise, the netlight state is not restricted. 2 Enable, the netlight will blink according to AT+SLEDS in GPRS data transmission service.

Example

```
AT+CSGS=?
+CSGS: (0-2)

OK
AT+CSGS?
+CSGS: 1

OK
```

5.2.14 AT+CGPIO Control the GPIO by PIN Index

AT+CGPIO Control the GPIO by PIN Index	
Test Command **AT+CGPIO=?**	Response **+CGPIO:** (range of supported <**operation**>s),(list of supported <**pin**>s),(range of supported <**function**>s),(range of supported <**level**>s) **OK**
Write Command **AT+CGPIO=<operation>,<pin>,<function>,<level>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<operation>	0 Set the GPIO function including the GPIO output . 1 Read the GPIO level. Please note that only when the gpio is set as input, user can use parameter 1 to read the GPIO level, otherwise the module will return "ERROR".

<pin>	The PIN index you want to be set. (It has relations with the hardware, please refer to the hardware manual)
<function>	Only when <operation> is set to 0, this option takes effect. 0 Set the GPIO to input. 1 Set the GPIO to output
<level>	0 Set the GPIO low level 1 Set the GPIO high level

Example

```
AT+CGPIO=?
+CGPIO:
(0-1),(5,7,9,10,11,12,14,41,42,48,49,50,51,57,5
8,59,60,61,62,64,65),(0-1),(0-1)

OK
```

NOTE

- Part of the projects supported by this AT command, please refer to chapter 23 for details.

5.2.15 AT+CBATCHK Set VBAT Checking Feature ON/OFF

AT+CBATCHK Set VBAT Checking Feature ON/OFF	
Test Command **AT+CBATCHK=?**	Response **+CBATCHK:** (list of supported <**mode**>s) **OK**
Read Command **AT+CBATCHK?**	Response **+CBATCHK: <mode>** **OK**
Write Command **AT+CBATCHK=<mode>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-

Reference	

Defined Values

<mode>	0 Close the function of VBAT checking 1 Open the function of VBAT checking

Example

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

OK
AT+CBATCHK?
+CBATCHK: 1

OK
```

5.2.16 AT+CNMP Preferred Mode Selection

AT+CNMP Preferred Mode Selection	
Test Command **AT+CNMP=?**	Response **+CNMP:** (list of supported **<mode>**s) **OK**
Read Command **AT+CNMP?**	Response **+CNMP: <mode>** **OK**
Write Command **AT+CNMP=<mode>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	2 Automatic 13 GSM only 38 LTE only 51 GSM and LTE only

NOTE

- Default value of parameter <mode> is different among SIM7070_SIM7080_SIM7090 Series project.

Example

```
AT+CNMP=?
+CNMP: ((2-Automatic),(13-GSM
Only),(38-LTE Only),(51-GSM And LTE Only))

OK
AT+CNMP?
+CNMP: 38

OK
```

5.2.17 AT+CMNB Preferred Selection between CAT-M and NB-IoT

AT+CMNB Preferred Selection between CAT-M and NB-IoT	
Test Command **AT+CMNB=?**	Response **+CMNB:** (list of supported **<mode>**s) **OK**
Read Command **AT+CMNB?**	Response **+CMNB: <mode>** **OK**
Write Command **AT+CMNB=<mode>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-

Reference	

Defined Values

<mode>	1 CAT-M 2 NB-Iot 3 CAT-M and NB-IoT

Example

```
AT+CMNB=?
+CMNB: ((1-Cat-M),(2-NB-IoT),(3-Cat-M And
NB-IoT))

OK
AT+CMNB?
+CMNB: 2

OK
```

NOTE

- Default value of parameter <**mode**> is different among SIM7070_SIM7080_SIM7090 Series project.

5.2.18 AT+CPSMS Power Saving Mode Setting

AT+CPSMS Power Saving Mode Setting	
Test Command **AT+CPSMS=?**	Response **+CPSMS: (**list of supported <**mode**>s),(list of supported <**Requested_Periodic-RAU**>s),(list of supported <**Requested_GPRS-READY-timer**>s),(list of supported <**Requested_Periodic-TAU**>s),(list of supported <**Requested_Active-Time**>s) **OK**
Read Command	Response

AT+CPSMS?	**+CPSMS: <mode>,[<Requested_Periodic-RAU>],[<Requested_GPRS-READY-timer>],[<Requested_Periodic-TAU>],[<Requested_Active-Time>]** **OK**
Write Command **AT+CPSMS=[<mode>[,<Requested_Periodic-RAU>[,<Requested_GPRS-READY-timer>[,<Requested_Periodic-TAU>[,<Requested_Active-Time>]]]]]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Disable the use of PSM 1 Enable the use of PSM
<Requested_Periodic-RAU>	Not supported
<Requested_GPRS-READY-timer>	Not supported
<Requested_Periodic-TAU>	String type; one byte in an 8 bit format. Requested extended periodic TAU value (T3412) to be allocated to the UE in E-UTRAN. The requested extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours). For the coding and the value range, see the GPRS Timer 3 IE in 3GPP TS 24.008 [8] Table 10.5.163a/3GPP TS 24.008. See also 3GPP TS 23.682 [149] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.
<Requested_Active-Time>	String type; one byte in an 8 bit format. Requested Active Time value (T3324) to be allocated to the UE. The requested Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes). For the coding and the value range, see the GPRS Timer 2 IE in 3GPP TS 24.008 [8] Table 10.5.163/3GPP TS 24.008. See also 3GPP TS 23.682 [149], 3GPP TS 23.060 [47] and 3GPP TS 23.401 [82]. The default value, if available, is manufacturer specific.

Example

```
AT+CPSMS=?
+CPSMS:
(0-1),(<Units(0-6)><TimerValue(0-31)> in
bits),(<Units(0-2)><TimerValue(0-31)> in
bits),(<Units(0-6)><TimerValue(0-31)> in
bits),(<Units(0-2)><TimerValue(0-31)> in bits)

OK
AT+CPSMS?
+CPSMS: 0,,,"01100000","00000000"

OK
```

5.2.19 AT+CPSI Inquiring UE System Information

AT+CPSI Inquiring UE System Information	
Test Command **AT+CPSI=?**	Response **OK**
Read Command **AT+CPSI?**	If camping on a gsm cell: **+CPSI: <System Mode>,<Operation Mode>,<MCC>-<MNC>,<LAC>,<Cell ID>,<Absolute RF Ch Num>,<RxLev>,<Track LO Adjust>,<C1-C2>** **OK** If camping on a CAT-M or NB-IOT cell: **+CPSI: <System Mode>,<Operation Mode>,<MCC>-<MNC>,<TAC>,<SCellID>,<PCellID>,<Frequency Band>,<earfcn>,<dlbw>,<ulbw>,<RSRQ>,<RSRP>,<RSSI>,<RSSNR>** **OK** If no service: **+CPSI: NO SERVICE,Online** **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<System Mode>	System mode. "NO SERVICE" "GSM" "LTE CAT-M1" "LTE NB-IOT"
<Operation Mode>	UE operation mode. "Online" "Offline" "Factory Test Mode" "Reset" "Low Power Mode"
<MCC>	Mobile Country Code (first part of the PLMN code)
<MNC>	Mobile Network Code (second part of the PLMN code)
<LAC>	Location Area Code (hexadecimal digits)
<Cell ID>	Service-cell Identify
<Absolute RF Ch Num>	AFRCN for service-cell.
<Track LO Adjust>	Track LO Adjust
<C1>	Coefficient for base station selection
<C2>	Coefficient for Cell re-selection
<TAC>	Tracing Area Code
<SCellID>	Serving Cell ID
<PCellID>	Physical Cell ID
<Frequency Band>	Frequency Band of active set
<earfcn>	E-UTRA absolute radio frequency channel number for searching CAT-M or NB-IOT cells
<dlbw>	Transmission bandwidth configuration of the serving cell on the downlink
<ulbw>	Transmission bandwidth configuration of the serving cell on the uplink
<RSRP>	Current reference signal received power.Available for CAT-M or NB-IOT.
<RSRQ>	Current reference signal receive quality as measured by L1.
<RSSI>	Current Received signal strength indicator
<RSSNR>	Average reference signal signal-to-noise ratio of the serving cell The value of SINR can be calculated according to <RSSNR>,the formula is as below: SINR=2 * <RSSNR> - 20 The range of SINR is from -20 to 30

Example

```
AT+CPSI=?
OK
AT+CPSI?
+CPSI:                                    LTE
NB-IOT,Online,460-11,0x5AE1,187212754,82,
EUTRAN-BAND5,2506,0,0,-7,-115,-110,13

OK
```

5.2.20 AT+CGNAPN Get Network APN in CAT-M or NB-IOT

AT+CGNAPN Get Network APN in CAT-M or NB-IOT	
Test Command **AT+CGNAPN=?**	Response **+CGNAPN: (**list of supported **<valid>**s)**,<length>** **OK**
Execution Command **AT+CGNAPN**	Response **+CGNAPN: <valid>,<Network_APN>** **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<valid>	0 The network did not sent APN parameter to UE.In the case,<Network_APN> is NULL. 1 The network sent APN parameter to UE.
<length>	Max the length of <network_APN>.
<Network_APN>	String type.The network sends APN parameter to UE when UE registers CAT-M or NB-IOT network successfully.In GSM,<Network_APN> always is NULL.

Example

```
AT+CGNAPN=?
+CGNAPN: (0,1),120
```

```
OK
AT+CGNAPN
+CGNAPN: 0,""

OK
```

NOTE

- In CAT-M or NB-IOT,after UE sending attach request message,If core network responds attach accept message that includes APN parameter,<Netwok_APN> is valid.

5.2.21 AT+CSDP Service Domain Preference

AT+CSDP Service Domain Preference	
Test Command **AT+CSDP=?**	Response **+CSDP:** (range of supported **<domain>**s) **OK**
Read Command **AT+CSDP?**	Response **+CSDP: <domain>** **OK**
Write Command **AT+CSDP=<domain>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<domain>	0 CS(Circuit Switched Domain) ONLY 1 PS(Packet Switched Domain) ONLY 2 CS(Circuit Switched Domain) + PS(Packet Switched Domain)

Example

```
AT+CSDP=?
+CSDP: (0-2)

OK
AT+CSDP?
+CSDP: 2

OK
```

5.2.22 AT+MCELLLOCK Lock the special CAT-M cell

AT+MCELLLOCK Lock the special CAT-M cell	
Test Command **AT+MCELLLOCK=?**	Response **+MCELLLOCK:** (list of supported **<mode>**s),(range of supported **<earfcn>**s),(range of supported **<pci>**s) **OK**
Read Command **AT+MCELLLOCK?**	Response **+MCELLLOCK: <mode>[,<earfcn>,<pci>]** **OK**
Write Command **AT+MCELLLOCK=<mode>[,<earfcn>,<pci>]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<mode>	0 Unlock 1 Lock
<earfcn>	A number in the range 0-4294967295 representing the EARFCN to search
<pci>	A number in the range 0-503 representing the Physical Cell ID to search

Example

```
AT+MCELLLOCK=?
+MCELLLOCK: (0,1),(0-4294967295),(0-503)

OK
AT+MCELLLOCK?
+MCELLLOCK: 0

OK
```

5.2.23 AT+NCELLLOCK Lock the special NB-IOT cell

AT+NCELLLOCK Lock the special NB-IOT cell	
Test Command **AT+NCELLLOCK=?**	Response **+NCELLLOCK: (**list of supported **<mode>**s)**,(**range of supported **<earfcn>**s)**,(**range of supported **<pci>**s) **OK**
Read Command **AT+NCELLLOCK?**	Response **+NCELLLOCK: <mode>[,<earfcn>,<pci>]** **OK**
Write Command **AT+NCELLLOCK=<mode>[,<earfcn>,<pci>]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<mode>	0 Unlock 1 Lock
<earfcn>	A number in the range 0-4294967295 representing the EARFCN to search
<pci>	A number in the range 0-503 representing the Physical Cell ID to search

Example

```
AT+NCELLLOCK=?
+NCELLLOCK: (0,1),(0-4294967295),(0-503)

OK
AT+NCELLLOCK?
+NCELLLOCK: 0

OK
```

5.2.24 AT+NBSC Configure NB-IOT Scrambling Feature

AT+NBSC Configure NB-IOT Scrambling Feature	
Test Command **AT+NBSC=?**	Response **+NBSC:** (list of supported **<mode>**s) **OK**
Read Command **AT+NBSC?**	Response **+NBSC: <mode>** **OK**
Write Command **AT+NBSC=<mode>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<mode>	0	Disable the scrambling feature in NB-IOT network.
	1	Enable the scrambling feature in NB-IOT network.

Example

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

```
OK
AT+NBSC?
+NBSC: 1

OK
```

NOTE

- Please configure UE in accordance with the base station,Otherwise UE can not register NB-IOT network.

5.2.25 AT+CRRCSTATE Query RRC State

AT+CRRCSTATE Query RRC State	
Test Command **AT+CRRCSTATE=?**	Response **+CRRCSTATE: (**list of supported **<n>**s**)** **OK**
Read Command **AT+CRRCSTATE?**	Response **+CRRCSTATE: <n>,<state>** **OK**
Write Command **AT+CRRCSTATE=<n>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<n>	Integer type 0 Disable unsolicited result code 1 Enable unsolicited result code "+CRRCSTATE: <state>"
<state>	Integer type,indicates RRC connection state 0 Idle 1 Connected 255 Other

Example

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

OK
AT+CRRCSTATE?
+CRRCSTATE: 0,255

OK
```

5.2.26 AT+CBANDCFG Configure CAT-M or NB-IOT Band

AT+CBANDCFG Configure CAT-M or NB-IOT Band	
Test Command **AT+CBANDCFG=?**	Response **+CBANDCFG:** (list of supported **<mode>**s),(list of supported **<band>**s) **OK**
Read Command **AT+CBANDCFG?**	Response **+CBANDCFG: "CAT-M",<band>[,<band>…]<CR><LF>+CBANDCFG: "NB-IOT",<band>[,<band>…]** **OK**
Write Command **AT+CBANDCFG=<mode>,<band>[,<band>…]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	String type; network system mode. "CAT-M" LTE Cat.M1(eMTC) "NB-IOT" Narrow Band Internet of Things
<band>	Integer type;The value of <band> must is in the band list of getting

	from AT+CBANDCFG=?

Example

```
AT+CBANDCFG=?
+CBANDCFG:
(CAT-M,NB-IOT),(1,2,3,4,5,8,12,13,14,18,19,20
,25,26,27,28,66,71,85)

OK
AT+CBANDCFG?
+CBANDCFG:
"CAT-M",1,2,3,4,5,8,12,13,14,18,19,20,25,26,2
7,28,66,85

+CBANDCFG:
"NB-IOT",1,2,3,4,5,8,12,13,18,19,20,25,26,28,6
6,71,85

OK
```

NOTE

- The command can take effect immediately,It does not need to reboot module.

5.2.27 AT+CEDUMP Set Whether the Module Reset When the Module is Crashed

AT+CEDUMP Set Whether the Module Reset When the Module is Crashed	
Read Command **AT+CEDUMP?**	Response **+CEDUMP: <mode>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CEDUMP=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<mode>	Dump mode 0 The module will reset when the module is crashed(Default) 1 The module will go into download mode when the module is crashed

Example

```
AT+CEDUMP?
+CEDUMP: 0

OK
AT+CEDUMP=1
OK
```

5.2.28 AT+CNBS Configure Band Scan Optimization for NB-IOT

AT+CNBS Configure Band Scan Optimization for NB-IOT	
Test Command **AT+CNBS=?**	Response **+CNBS:** (range of supported **<n>**s) **OK**
Read Command **AT+CNBS?**	Response **+CNBS: <n>** **OK**
Write Command **AT+CNBS=<n>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<n>	1 UE tries SNR level 0 band scan 2 UE tries SNR level 0 and level 1 band scan 3 UE tries SNR level 0, level 1, and level 2 band scan 4 Reserved 5 UE tries SNR level 2 band scan only Band scan is performed in the following levels based on the SNR: level 0 Used for good SNR levels(0 db and above); detects strong cells first and takes the shortest time to acquire cells.UE scans each raster in 30 ms. level 1 Used for medium SNR levels(-9 dB and above),UE scans each raster for 200 ms level 2 Used for poor SNR levels(-12.6 dB and above),UE scans each raster for 500 ms.

Example

```
AT+CNBS=?
+CNBS: (1-5)

OK
AT+CNBS?
+CNBS: 3

OK
```

NOTE

- The command controls the band scan for different SNR levels. This optimization is applicable only for NB-IOT and it reduces the band scan time and power consumption.

5.2.29 AT+CNDS Configure Service Domain Preference For NB-IOT

AT+CNDS Configure Service Domain Preference For NB-IOT	
Test Command AT+CNDS=?	Response **+CNDS:** (list of supported <**domain**>s)

	OK
Read Command **AT+CNDS?**	Response **+CNDS: <domain>** **OK**
Write Command **AT+CNDS=<domain>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	

Defined Values

<domain>	1 PS(Packet Switched Domain) ONLY 2 CS(Circuit Switched Domain) + PS(Packet Switched Domain)

Example

```
AT+CNDS=?
+CNDS: (1,2)

OK
AT+CNDS?
+CNDS: 1

OK
```

NOTE

- The command of AT+CSDP is used to config service domain preference for GSM and CAT-M.If you want to config service domain preference for NB-IOT,you can use AT+CNDS.

5.2.30 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 **AT+CENG?**	Response Engineering Mode is designed to allow a field engineer to view and test the network information received by a handset, when the handset is either in idle mode or dedicated mode (that is: with a call active). In each mode, the engineer is able to view network interaction for the "serving cell" (the cell the handset is currently registered with) or for the neighboring cells. TA returns the current engineering mode. The network information including serving cell and neighboring cells are returned. <cell> carry with them corresponding network interaction. If camping on a gsm cell: **+CENG: <mode>,<Ncell>,<cell num>,<System Mode>** **[+CENG: <cell>,"<bcch>,<rxl>,<bsic>,<cellid>,<mcc>,<mnc>,<lac>"<CR><LF>+CENG: <cell>,"<bcch>,<rxl>,<bsic>,<cellid>,<mcc>,<mnc>,<lac>"…** **]OK** If camping on a CAT-M or NB-IOT cell: **+CENG: <mode>,<Ncell>,<cell num>,<System Mode>** **[+CENG: <cell>,"<earfcn>,<pci>,<rsrp>,<rssi>,<rsrq>,<sinr>,<tac>,<cellid>,<mcc>,<mnc>,<tx power>"<CR><LF>+CENG: <cell>,"<earfcn>,<pci>,<rsrp>,<rssi>,<rsrq>,<sinr>"…** **]OK**
Write Command **AT+CENG=<mode>[,<Ncell>]**	Switch on or off engineering mode. **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mode>	0 Switch off engineering mode 1 Switch on engineering mode
<Ncell>	1 Display neighbor cell ID
<cell num>	The number of cell,it includes serving cell and neighbor cells.
<System Mode>	System mode. "NO SERVICE" "GSM" "LTE CAT-M1" "LTE NB-IOT"
<cell>	The serving cell 1-6 The index of the neighboring cell
<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 decimal format
<lac>	Location area code, in hexadecimal format
<earfcn>	E-UTRA absolute radio frequency channel number for searching CAT-M or NB-IOT cells
<pci>	Physical Cell ID
<rsrp>	Current reference signal received power.Available for CAT-M or NB-IOT.
<rssi>	Current Received signal strength indicator
<rsrq>	Current reference signal receive quality as measured by L1.
<sinr>	Signal to Interference plus Noise Ratio,The range is from -20 to 30.
<tac>	Tracing Area Code, in decimal format
<tx power>	Tx power value in 1/10 dBm. <tx power> is only meaningful when the device is in traffic. When there is no traffic, the value is invalid.The value of <tx power> is 255.

Example

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

OK
AT+CENG?
+CENG: 1,1,0,NO SERVICE
```

```
OK
```

5.2.31 AT+CTLIIC Control the Switch of IIC

AT+CTLIIC Control the Switch of IIC	
Test Command **AT+CTLIIC=?**	Response **+CTLIIC:** (list of supported **<mode>**s) **OK**
Read Command **AT+CTLIIC?**	Response **+CTLIIC: <mode>** **OK**
Write Command **AT+CTLIIC=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 switch off the IIC 1 switch on the IIC

Example

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

OK
AT+CTLIIC?
+CTLIIC: 0

OK
```

5.2.32 AT+CWIIC Write Values to Register of IIC Device

AT+CWIIC Write Values to Register of IIC Device	
Test Command **AT+CWIIC=?**	Response **OK**
Write Command **AT+CWIIC=<addr>,<reg>,<data>,<len>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<addr>	Device address. Input format must be hex, such as 0xFF.
<reg>	Register address. Input format must be hex, such as 0xFF.
<len>	Read length. Range: 1-4; unit: byte.
<data>	Data written. Input format must be hex, such as 0xFF–0xFFFFFFFF

Example

```
AT+CWIIC=?
OK
```

5.2.33 AT+CRIIC Read Values from Register of IIC Device

AT+CRIIC Read Values from Register of IIC Device	
Test Command **AT+CRIIC=?**	Response **OK**
Write Command **AT+CRIIC=<addr>,<reg>,<len>**	Response **+CRIIC: <data>** **OK** or **ERROR**
Parameter Saving Mode	-

Max Response Time	-
Reference	

Defined Values

<addr>	Device address. Input format must be hex, such as 0xFF.
<reg>	Register address. Input format must be hex, such as 0xFF.
<len>	Read length. Range:1-4; unit:byte.
<data>	Data read. Input format must be hex, such as 0xFF.

Example

```
AT+CRIIC=?
OK
```

5.2.34 AT+CMCFG Manage Mobile Operator Configuration

AT+CMCFG Manage Mobile Operator Configuration	
Test Command **AT+CMCFG=?**	Response TA returns the list of supported modes. **+CMCFG: (**list of supported **<mode>**s)**,<length>** **OK**
Read Command **AT+CMCFG?**	Response **+CMCFG: <mode>,<config_num>** **[+CMCFG: <index>,<config_name>,<config_version>,<state>…]** **OK**
Write Command **AT+CMCFG=<mode>[,<config_name>]**	when <**mode**>=0,1,2 or 3 and command successful: **OK** when <**mode**>=4 and command successful: **+CMCFG: 4**,**<flag>**,**<config_name>** **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mode>	0 Manually select mobile operator configuration 1 Automatically select mobile operator configuration according to ICCID information in SIM card 2 Activate specified mobile operator configuration,<config_name> must be provided. 3 Deactivation specified mobile operator configuration,<config_name> must be provided. 4 Query <config_name> of activating mobile operator configuration
<length>	Integer type,the maximum length of <config_name>
<config_num>	Integer type,the number of mobile network configuration
<index>	Integer type,the index of mobile network configuration
<config_name>	String type,the name of mobile network configuration. "Default" Default network configuration "ATT" ATT network configuration, not support VOLTE "Verizon" Verizon network configuration,not support VOLTE
<config _version>	Hex type,the version of mobile network configuration
<state>	Integer type,the state of mobile network configuration 0 Inactive 1 Active
<flag>	Integer type,it indicates whether module has activated a network configuration. If network configuration has been activated, The third parameter <config_name> is the name of activating network configuration. 0 Network configuration has been activated 1 Not any network configuration is activated

Example

```
AT+CMCFG=?
+CMCFG: (0-4),40

OK
AT+CMCFG?
+CMCFG: 0,4
+CMCFG: 0,"Non_VoLTE-ATT",0x09010300,0
+CMCFG: 1,"IMS",0x09016030,0
+CMCFG: 2,"SBM",0x09011C00,0
+CMCFG: 3,"Default",0x09010800,0
```

OK

NOTE

- After setting AT+CMCFG=1,module can select mobile operator configuration according to ICCID information in SIM card automatically,If network configuration has changed,module will reboot and make configuration effective
- If module needs to select mobile operator configuration manually, you should do as the following steps.
  1)Setting manual mode
  AT+CMCFG=0
  2)Activate specified configuration
  AT+CMCFG=2,<config_name>
  3) Reboot the module
  AT+CFUN=1,1

5.2.35 AT+CSIMLOCK SIM Lock

AT+CSIMLOCK SIM Lock	
Test Command **AT+CSIMLOCK=?**	Response TA returns the list of supported modes. **+CSIMLOCK:** (list of supported **<facility>**s),(list of supported **<mode>**s>,**<pwlength>**,**<pclength>** **OK**
Read Command **AT+CSIMLOCK?**	Response **OK**
Write Command **AT+CSIMLOCK=<facility>,<mode>[,<password>[,<pers_code_list>]]**	If <**mode**>≠2 and Command is successful **OK** If <**mode**>=2 and Command is successful **+CSIMLOCK: <status>,<pers_code_list>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<facility>	String type,Phone security locks set by factory or customer. which can be: "PN" Network Personalisation
<mode>	0 unlock 1 lock 2 query status
<pwlength>	Integer type,maximum length of <password>,the maxinum length is 16.
<pclength>	Integer type,maximum length of <pers_code_list>,the maxinum length is 160.
<password>	String type,password is used to lock or unlock a <facility>.
<pers_code_list>	String type,code list for device personalization.The contents depend on the selected <facility>. If <facility> is "PN": <pers_code_list> is in the format: "MCC1-MNC1[;MCC2-MNC2[…]]" It contains a list of pairs of MCC and MNC.MCC and MNC is separated by a '-',every pair of MCC and MNC is separated by semicolon. For example: "460-00;460-01"
<status>	Integer type,the status of lock 0 lock is inactive 1 lock is active

NOTE

- Lock device

Customer can send AT command to lock the deivce that can only use some specific SIM card.

AT+CSIMLOCK="PN",1,"0123456789ABCDEF","460-00;460-01"

- Unlock device

If the device is locking, Customer can send AT command to unlock the device.

AT+CSIMLOCK="PN",0,"0123456789ABCDEF"

- Query device status

customer may send AT command as follow to query status of the device

AT+CSIMLOCK="PN",2

Example

```
AT+CSIMLOCK=?
+CSIMLOCK: ("PN"),(0-2),16,160

OK
AT+CSIMLOCK?
OK
```

5.2.36 AT+CRATSRCH Configure Parameter for Better RAT Search

AT+CRATSRCH Configure Parameter for Better RAT Search	
Test Command **AT+CRATSRCH=?**	Response TA returns the list of supported modes. **+CRATSRCH:** (list of supported **<rat_timer>**s),(list of supported **<srch_align>**) **OK**
Read Command **AT+CRATSRCH?**	Response **+CRATSRCH: <rat_timer>**,**<srch_align>** **OK**
Write Command **AT+CRATSRCH=<rat_timer>,<srch_align>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<rat_timer>	Integer type,<rat_timer> is timeout for better RAT(radio access technology) search.The default value is 60, expressed in minutes. For SIM7070_SIM7080_SIM7090 Series modules,the priority of RAT is as follows: CAT-M > NB-IOT > GSM If UE has registered successfully GSM network,it will try to search CAT-Mand NB-IOT network after the timer expiring.
<srch_align>	Integer type,<srch_align> specifies an interval before eDRX page when a scan should begin.The default value is 20,expressed in minutes.

Example

```
AT+CRATSRCH=?
+CRATSRCH: (1-359),(1-20)

OK
AT+CRATSRCH?
+CRATSRCH: 60,20

OK
```

5.2.37 AT+CASRIP Show Remote IP Address and Port When Received Data

AT+CASRIP Show Remote IP Address and Port When Received Data	
Read Command **AT+CASRIP?**	Response **+CASRIP: <mode>** **OK**
Write Command **AT+CASRIP=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	A numeric parameter which shows remote IP address and port. 0 Do not show the prompt 1 Show the prompt, the format is as follows: xxx.xxx.xxx.xxx,<port> (IPV4) or xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx,<port> (IPV6)

Example

```
AT+CASRIP?
+CASRIP: 0
```

```
OK
```

5.2.38 AT+CPSMRDP Read PSM Dynamic Parameters

AT+CPSMRDP Read PSM Dynamic Parameters	
Test Command **AT+CPSMRDP=?**	Response **+CPSMRDP:** (list of supported **<mode>**s) **OK**
Execution Command **AT+CPSMRDP**	Response **+CPSMRDP:** **<mode>,<Requested_active_Time>,<Requested_Periodic_TAU>,<Network_Active_Time>,<Network_T3412_EXT_value>,<Network_T3412_value>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Integer type.Disable or enable the use of PSM in the UE. 0 Disable the use of PSM 1 Enable the use of PSM
<Requested_active_Time>	Integer type.Requested active time value(T3324) to be configed by UE in E-UTRAN network.Unit: second.
<Requested_Periodic_TAU>	Integer type.Requested extended periodic TAU value (T3412_EXT) to be configed by UE in E-UTRAN network.Unit: second.
<Network_Active_Time>	Integer type.Network assign active timer value(T3324) in E-UTRAN network.If <network_Active_Time> is 0,it show s that network does not support PSM feature.Unit:second.
<Network_T3412_EXT_value>	Integer type.Network assign extended periodic TAU value(T3412_EXT) in E-UTRAN network.Unit:second.
<Network_T3412_value>	Integer type.Network assign periodic TAU value(T3412) in E-UTRAN network.Unit:second.

Example

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

OK
```

NOTE

- If <Network_T3412_EXT_value> is greater than 0, UE will start TAU procedure according to <Network_T3412_EXT_value>.

5.2.39 AT+CPSMCFG Configure PSM version and Minimum Threshold Value

AT+CPSMCFG	**Configure PSM version and Minimum Threshold Value**
Test Command **AT+CPSMCFG=?**	Response TA returns the list of supported modes. **+CPSMCFG:** (range of supported **<threshold>**s),(range of supported **<psm_version**>s) **OK**
Read Command **AT+CPSMCFG?**	Response **+CPSMCFG: <threshold>**,**<psm_version**> **OK**
Write Command **AT+CPSMCFG=<threshold>[,<psm_version>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<threshold>	Integer type.Minimum threshold value(in second) to enter PSM.The range from 20 to 86400.The default value is 20 seconds.
<psm_version>	Integer type.Bitmask to indicate PSM modes(1-Enable/0-Disable). Each bit is configured independentyly.The range from 0 to 15. The default value is 15.

	BIT 0 PSM without network coordination BIT 1 Rel 12 PSM without context retention BIT 2 Rel 12 PSM with context retention BIT 3 PSM in between eDRX cycles

Example

```
AT+CPSMCFG=?
+CPSMCFG: (20-86400),(0-15)

OK
AT+CPSMCFG?
+CPSMCFG: 20,15

OK
```

5.2.40 AT+CPSMCFGEXT Configure Modem Optimization of PSM

AT+CPSMCFGEXT Configure Modem Optimization of PSM	
Test Command **AT+CPSMCFGEXT=?**	Response TA returns the list of supported modes. **+CPSMCFGEXT:** (list of supported **<psm_opt_mask>**s),(list of supported **<max_oos_full_scans>**s),(list of supported **<psm_duration_due_to_oos>**s),(list of supported **<psm_randomization_window>**s),(list of supported **<max_oos_time>**s),(list of supported **<early_wake_up_time>**s) **OK**
Read Command **AT+CPSMCFGEXT?**	Response **+CPSMCFGEXT:** **<psm_opt_mask>**,**<max_oos_full_scans>**,**<psm_duration_due_to_oos>**,**<psm_randomization_window>**,**<max_oos_time>**,**<early_wake_up_time>** **OK**
Write Command **AT+CPSMCFGEXT=<psm_opt_mask>[,<max_oos_full_scans>[,<psm_duration_due_to_oos>[,<psm_randomization_window>[,<max_oos_ti**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

me>[,<early_wake_up_time>]]]]]	
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<psm_opt_mask>	Integer type.The range is from 0 to 15.The default value is 10. 1st bit of <psm_opt_mask> is used to enable/disable PSM ENTER request without sending PSM_READY_REQ to NAS.This is a quick PSM operation. 2nd bit of <psm_opt_mask> is used to enable/disable Out of Service(OoS) status indication from Modem to AP. 3rd bit of <psm_opt_mask> is used to enable/disable limited service status indication from Modem to AP. 4th bit of <psm_opt_mask> is used to enable/disable deep-sleep mode.If PSM duration is less than the threshold value.If enabled,it puts the device in deep-sleep mode,if PSM is not entered due to not meeting threshold value.
<max_oos_full_scans>	Integer type.Maximum number of full scans to wait before modem declares SYS_PSM_STATUS_OOS to clients.The range is from 1 to 100.The default value is 2.
<psm_duration_due_to_oos>	Integer type.PSM duration used by PSM daemon upon OOS/Limited Service indication,due to service outage.The range is from 120 to 4294967295.The default value is 120.The unit is second.
<psm_randomization_window>	Integer type.PSM wakeup randomization window to avoid network congestion due to all the PSM devices waking up at the same time.The Range is from 1 to 1000.The default value is 5. The unit is 5.
<max_oos_time>	Integer type.Maximum time in seconds to wait before declaring SYS_PSM_STATUS_OOS to clients.The range is from 1 to 65535.The unit is second.
<early_wakeup_time>	Integer type.Device wakes up early to account for boot-up and acquisition delay.While programming PMIC,PSM daemon reduces PSM duration by this duration.The range is from 1 to 1000.The default value is 3.The unit is second.

Example

```
AT+CPSMCFGEXT=?
+CPSMCFGEXT: (0-15),(1-100),(120-4294967295),(1-1000),(1-65535),(1-1000)
```

```
OK
AT+CPSMCFGEXT?
+CPSMCFGEXT: 10,2,86400,5,200,3

OK
```

5.2.41 AT+CPSMSTATUS Enable Deep Sleep Wakeup Indication

AT+CPSMSTATUS	**Enable Deep Sleep Wakeup Indication**
Test Command AT+CPSMSTATUS=?	Response **+CPSMSTATUS:** (list of supported **<enable>**s) **OK**
Read Command AT+CPSMSTATUS?	Response **+CPSMSTATUS: <enable>** **OK**
Write Command AT+CPSMSTATUS=<enable>	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<enable>	0 Disable indication when modem wakes up from deep sleep 1 Enable indication when modem wakes up from deep sleep

Example

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

OK
AT+CPSMSTATUS?
+CPSMSTATUS: 1
```

OK

5.2.42 AT+CEDRXS Extended-DRX Setting

AT+CEDRXS Extended-DRX Setting	
Test Command AT+CEDRXS=?	Response **+CEDRXS: (**range of supported **<n>**s**),(**list of supported **<AcT-type>s),(**range of supported **<Requested_eDRX_value>s)** **OK**
Read Command AT+CEDRXS?	Response **+CEDRXS: <AcT-type>,<Requested_eDRX_value>** **OK**
Write Command AT+CEDRXS=<n>,<AcT-type>,<Requested_eDRX_value>	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable the use of eDRX 1 Enable the use of eDRX 2 Enable the use of eDRX and auto report URC **+CEDRXP: <AcT-type>[,<Requested_eDRX_value>[,<NW-provided_eDRX_value>[,<Paging_time_window>]]]** 3 Disable the use of eDRX(Reserved)
<AcT-type>	4 CAT-M 5 NB-IoT
<Requested_eDRX_value>	Requested eDRX value. 4 bit format. "0000"-"1111"
<NW-provided_eDRX_value>	String type; half a byte in a 4-bit format. The eDRX value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see sub- clause 10.5.5.32 of 3GPP TS 24.008). For the coding and the value range, see Extended DRX parameters information element in 3GPP TS 24.008 Table 10.5.5.32/3GPP TS 24.008.
<Paging_time_window>	String type; half a byte in a 4-bit format. The paging time window

	refers to bit 8 to 5 of octet 3 of the Extended DRX parameters information element (see sub-clause 10.5.5.32 of 3GPP TS 24.008). For the coding and the value range, see the Extended DRX parameters information element in 3GPP TS 24.008 Table 10.5.5.32/3GPP TS 24.008.

Example

```
AT+CEDRXS=?
+CEDRXS: (0-3),(4,5),("0000"-"1111")

OK
AT+CEDRXS?
ERROR
```

NOTE

- The <Requested_eDRX_value> is the value of cycle length, separately means 5.12,10.24,20.48,40.96,61.44,81.92,102.40,122.88,143.36,163.84,327.68,655.36,1310.72,2621.44,5242.88,10485.76.(seconds)

5.2.43 AT+CEDRX Configure eDRX parameters

AT+CEDRX Configure eDRX parameters	
Test Command **AT+CEDRX=?**	Response **+CEDRX: (**range of supported **<mode>**s**),(**range of supported **<enabled>**s**),(**range of supported **<ptw>**s**),(**range of supported **<cycle_length>**s**)** **OK**
Read Command **AT+CEDRX?**	Response **+CEDRX: <mode>,<enabled>,<ptw>,<cycle_length>** **…** **OK**
Write Command **AT+CEDRX=<mode>,<enabled>,<ptw>,<cycle_length>**	Response **OK** If failed:

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

Defined Values

<mode>	Network type 2 NB-IoT 3 CAT-M
<enabled>	Enable eDRX 0 Disable 1 Enable
<ptw>	Page time window 0-15
<cycle_length>	0-15

Example

```
AT+CEDRX=?
+CEDRX: (2-3),(0-1),(0-15),(0-15)

OK
AT+CEDRX?
+CEDRX: 2,0,0,0
+CEDRX: 3,0,0,0

OK
```

NOTE

- The value 0-15 of PTW(CAT-M) separately means 1280,2560,3840,5120,6400,7680,8960,10240,11520,12800,14080,15360,16640,17920,19200,20480.(ms)
- The value 0-15 of PTW(NB-IOT) separately means 2560,5120,7680,10240,12800,15360,17920,20480.23040,25600,28160,30720,33280,35840.38400,40960.(ms)
- The value 0-15 of cycle_length separately means 5.12,10.24,20.48,40.96,61.44,81.92,102.40,122.88,143.36,163.84,327.68,655.36,1310.72,2621.44,5242.88,10485.76.(seconds)
- There has no effect if <mode> is 0 or 1.

- The eDRX parameters can take effect after module restarting

5.2.44 AT+CEDRXRDP eDRX Read Dynamic Parameters

AT+CEDRXRDP eDRX Read Dynamic Parameters	
Test Command AT+CEDRXRDP=?	Response **OK**
Execution Command AT+CEDRXRDP	Response **+CEDRXRDP: <AcT-type>[,<Requested_eDRX_value>[,<NW-provided_eDRX_value>[,<Paging_time_window>]]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<AcT-type>	Integer type,indicates the type of access technology.This AT-command is used to specify the relationship between the type of access technology and the requested eDRX value 0 Access technology is not using eDRX 4 E-UTRAN(CAT-M1) 5 E-UTRAN(NB-S1 mode)
<Requested_eDRX_value>	String type;half a byte in a 4-bit format.The Edrx value refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see sub-clause 10.5.5.32 of 3GPP TS 24.008).For the coding and the value range,see Extended DRX parameters information element in 3GPP TS 24.008 Table 10.5.5.32/3GPP TS 24.008.
<NW-provided_eDRX_value>	String type;half a byte in a 4-bit format.The eDRX value Refers to bit 4 to 1 of octet 3 of the Extended DRX parameters information element (see sub-clause 10.5.5.32 of 3GPP TS 24.008).For the coding and the value range,see the Extended DRX parameters information element in 3GPP TS 24.008 Table 10.5.5.32/3GPP TS 24.008.
<Paging_time_window>	String type;half a byte in a 4-bit format.The paging time window refers to bit 8 to 5 octet 3of the Extended DRX. Parameters information

	element (see sub-clause 10.5.5.32 of 3GPP TS 24.008).For the coding and the value range,see the Extended DRX parameters information element in 3GPP TS 24.008 Table 10.5.5.32/3GPP TS 24.008.

Example

```
AT+CEDRXRDP=?
OK
```

5.2.45 AT+CRAI Configure Release Assistance Indication in NB-IOT network

AT+CRAI Configure Release Assistance Indication in NB-IOT network	
Test Command **AT+CRAI=?**	Response **+CRAI: (**list of supported **<rai>**s),(list of supported **<valid_time**>s) **OK**
Read Command **AT+CRAI?**	Response **+CRAI: <rai>**,**<valid_time**> **OK**
Write Command **AT+CRAI=<rai>[,<valid_time>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<rai>	Integer type.Indicates the value of the release assistance indication,refer 3GPP TS 24.301[83]subclause 9.9.4.25.V 0 No information available 1 The MT expects that exchange of data will be completed with the transmission of the ESM DATA TRANSPORT message. 2 The MT expects that exchange of data will be completed with the receipt of an ESM DATA TRANSPORT message.
<valid_time>	Integer type.<valid_time> is valid time of release assistance indication. 0 The valid time is 1

	1 unlimited time

Example

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

OK
AT+CRAI?
+CRAI: 0,0

OK
```

NOTE

- Before UE sends the last packet of data, AT+CRAI should be executed firstly.

5.2.46 AT+CREBOOT Reboot Module

AT+CREBOOT Reboot Module	
Test Command **AT+CREBOOT=?**	Response **OK**
Execution Command **AT+CREBOOT**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+CREBOOT=?
OK
AT+CREBOOT
OK
```

5.2.47 AT+SPKMUTESW Set Handsfree On/off

AT+SPKMUTESW Set Handsfree On/off	
Test Command **AT+SPKMUTESW=?**	Response **+SPKMUTESW: (**list of supported <**mode**>s**)** **OK**
Read Command **AT+SPKMUTESW?**	Response **+SPKMUTESW:** <**mode**> **OK**
Write Command **AT+SPKMUTESW=<mode>**	Response **OK** If failed: **+CME ERROR: <err>**
Execution Command **AT+SPKMUTESW**	Response **OK**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mode>	0 Close the function of Handsfree 1 Open the function of Handsfree

Example

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

OK
AT+SPKMUTESW?
+SPKMUTESW: 0

OK
AT+SPKMUTESW=1
OK
```

5.2.48 AT+ANTENALLCFG Configure Antenna Tuner

AT+ANTENALLCFG Configure Antenna Tuner	
Test Command **AT+ANTENALLCFG=?**	Response **+ANTENALLCFG:** (range of supported <**val1_band**>s),(range of supported <**val2_band**>s),(range of supported <**val3_band**>s) **OK**
Read Command **AT+ANTENALLCFG?**	Response **+ANTENALLCFG: <val1_band>,<val2_band>,<val3_band>** **OK**
Write Command **AT+ANTENALLCFG=<val1_band>,<val2_band>,<val3_band>[,<val0_band >]**	Response If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<val1_band>	Bands need to set value 1 0x0-0x7ffff
<val2_band>	Bands need to set value 2 0x0-0x7ffff
<val3_band>	Bands need to set value 3 0x0-0x7ffff
<val0_band>	Bands need to set value 0,It is possible without this parameter 0x0-0x7ffff
	Every bit represent one band, total 19 bands. Below table is SIM7080G PIN value

RFMIPI_CLK (high bit)	RFMIPI_DATA (low bit)	
0(low level)	1(high level)	1(<val1_band>)
1	0	2(<val2_band>)
1	1	3(<val3_band>)
0	0	0(<val0_band>)

Example

```
AT+ANTENALLCFG=?
+ANTENALLCFG:
(0x0-0x7ffff),(0x0-0x7ffff),(0x0-0x7ffff)

OK
AT+ANTENALLCFG?
+ANTENALLCFG: 0000000,0000000,0000000

OK
AT+ANTENALLCFG=0x00001,0x00010,0x002    Set band1 val1_band,
00,0x00000                              Set band5 val2_band,
                                        Set band18 val3_band
                                        Other bands default val0_band
OK
AT+ANTENALLCFG?
+ANTENALLCFG: 0x00001,0x00010,0x00200

OK
```

NOTE

- The band to be set is return value of "AT+CBANDCFG=?".
  +CBANDCFG: (CAT-M,NB-IOT),(1,2,3,4,5,8,12,13,14,18,19,20,25,26,27,28,66,71,85)

5.2.49 AT+CURCCFG URC Report Configuration

AT+CURCCFG URC Report Configuration	
Test Command AT+CURCCFG=?	Response +CURCCFG:("QUALCOMM","SYS”,"SIMCARD","SMS","NETWORK","TCPIP","NIDD"),(0-1) OK
Read Command AT+CURCCFG?	Response +CURCCFG: "QUALCOMM",<enable> +CURCCFG: "SYS",<enable> +CURCCFG: "SIMCARD",<enable> +CURCCFG: "SMS",<enable> +CURCCFG: "NETWORK",<enable> +CURCCFG: "TCPIP",<enable>

	+CURCCFG: "NIDD",<enable> **OK**
Write Command **AT+CURCCFG=<urc_type>,<enable>**	Response If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<urc_type>	The type of URC.string type. **"QUALCOMM"** config whether report these URC as below.These URC do not report in default. **QCIMGBOOTTYPE : <img_boot_type>** **$QCJDSTATE:<rat_type>,<jamming_status><soft_jamming_status>** **QCSRVCINFO : <rat_type>,<service_status>** **"SYS"** Config whether report these URC as below.These URC will report in default. **RDY** **+CFUN: <fun>** **"SIMCARD"** Config whether report these URC as below.These URC will report in default. **+CPIN: <code>** **"SMS"** config whether report these URC as below.These URC will report in default. **SMS Ready** **"NETWORK"** config whether report these URC as below.These URC will report in default. **DST: <daylight_saving_adj>** **"TCPIP"** **"NIDD"** config whether report NIDD data after device reboots
<enable>	Configure URC report 0 Disable 1 Enable
<img_boot_type>	Integer type

	1 Modem full image boot 2 Modem page-only image boot
<rat_type>	Radio access technology type. Integer type. 0 GSM 7 CAT-M 9 NB-IOT
<jamming_status>	Jamming status.Integer type. 0 Not jamming 1 Jamming 2 Unknown
<soft_jamming_status>	Soft jamming status.Integer type. 0 Not jamming 1 Jamming
<service_status>	Network service status.Integer type. 0 Not register network 1 register network
<fun>	0 Minimum functionality 1 Full functionality (Default) 4 Disable phone both transmit and receive RF circuits. 5 Factory Test Mode 6 Reset 7 Offline Mode
<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) PH_NET PIN ME is waiting network personalization password to be given 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.
<daylight_saving_adj>	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+CURCCFG=?
+CURCCFG:
```

```
("QUALCOMM","SYS","SIMCARD","SMS","N
ETWORK","TCPIP","NIDD"),(0-1)

OK
AT+CURCCFG?
+CURCCFG: "QUALCOMM",0
+CURCCFG: "SYS",1
+CURCCFG: "SIMCARD",1
+CURCCFG: "SMS",1
+CURCCFG: "NETWORK",1
+CURCCFG: "TCPIP",1
+CURCCFG: "NIDD",0

OK
```

5.2.50 AT+CFOTA FOTA Operation

AT+CFOTA	FOTA Operation
Read Command **AT+CFOTA?**	Response **+CFOTA: <status>** **OK**
Write Command **AT+CFOTA=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	1 Format the data area to be written, it is mandatory for writing data 0 Clean the flag
<status>	1 The module is updating. 6 The module updates successfully 7 The module updating fails 8 Clean the flag

Example

```
AT+CFOTA?
+CFOTA: 8

OK
```

5.2.51 AT+CTBURST The RF TX Burst Test

AT+CTBURST The RF TX Burst Test	
Write Command **AT+CTBURST=<mode>[,<band>,<channel>,<powerl>[,<slot_num>]]**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Stop RF TX Burst 1 Start RF TX Burst
<band>	0 GSM 850 Band 1 GSM 900 Band 2 GSM DCS 1800 Band 3 GSM PCS 1900 Band 101 LTE 1 Band 102 LTE 2 Band 103 LTE 3 Band 104 LTE 4 Band 105 LTE 5 Band 108 LTE 8 Band 112 LTE 12 Band 113 LTE 13 Band 118 LTE 18 Band 119 LTE 19 Band 120 LTE 20 Band 126 LTE 26 Band 128 LTE 28 Band 131 LTE 31 Band 166 LTE 66 Band

	171 LTE 71 Band 172 LTE 72 Band 185 LTE 85 Band
<channel>	Frequency channel 128~251 GSM 850 1~124,975~1023 GSM 900 512~885 GSM DCS 1800 512~810 GSM PCS 1900 18000~18599 LTE 1 18600~19199 LTE 2 19200~19949 LTE 3 19950~20399 LTE 4 20400~20649 LTE 5 21450~21799 LTE 8 23010~23179 LTE 12 23180~23279 LTE 13 23850~23999 LTE 18 24000~24149 LTE 19 24150~24449 LTE 20 26690~27039 LTE 26 27210~27659 LTE 28 27760~27809 LTE 31 131972~132671 LTE 66 133122~133471 LTE 71 133472~133521 LTE 72 134002~134181 LTE 85
<powerl>	Power control level. The power in dBm*100, the value is different for different band.
<slot_num>	The slot number for GSM burst, this parameter is invalid for WCDMA band and LTE band. 0-7

NOTE

- If <mode>=0, other parameters are not required, it will stop the current starting RF band test, otherwise it return error.
- If <mode>=1, all the other parameters are required.
- If <band> is GSM band, module should support GSM band.

5.2.52 AT+CUSBSELNV Select the USB Configuration

AT+CUSBSELNV Select the USB Configuration	
Test Command **AT+CUSBSELNV=?**	Response **OK**
Read Command **AT+CUSBSELNV?**	Response **+CUSBSELNV: <mode>** **OK**
Write Command **AT+CUSBSELNV=<mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Integer type. 1 VID=0x1E0E and PID=0x9205 86 VID=0x1E0E and PID=0x9206

Example

```
AT+CUSBSELNV=?
OK
AT+CUSBSELNV?
+CUSBSELNV: 86

OK
```

5.2.53 AT+SECMEN Enable ECM Auto Connecting

AT+SECMEN Enable ECM Auto Connecting	
Test Command **AT+SECMEN=?**	Response **+SECMEN:** (range of supported <**mode**>s),(range of supported <**pdpodx**>s)

	OK
Read Command **AT+SECMEN?**	Response **+SECMEN: <mode>,<ipaddr>** **OK**
Write Command **AT+SECMEN=<mode>[,<pdpidx>]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	Integer type. 0 Disable the ECM auto connecting 1 Enable the ECM auto connecting
<pdpidx>	PDP context identifier set by AT+CNCFG
<ipaddr>	IP address.format is **.**.**.**

Example

```
AT+SECMEN=?
+SECMEN: (0-1),(0-3)

OK
AT+SECMEN?
+SECMEN: 0,0.0.0.0

OK
```

5.2.54 AT+SECMAUTH Set ECM APN and Authentication

AT+SECMAUTH Set ECM APN and Authentication	
Test Command **AT+SECMAUTH=?**	Response **+SECMAUTH:** (range of supported <**pdpidx**>s) **OK**
Read Command **AT+SECMAUTH?**	Response **+SECMAUTH:**

	<ip_type>,<APN>,<AuthType>,<Username>,<Password> **OK**
Write Command **AT+SECMAUTH=<pdpidx>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<ip_type>	String type. (Packet Data Protocol type) A Integer type parameter which specifies the type of packet data protocol. "V4" Internet Protocol Version 4 "V6" Internet Protocol Version 6 "V4V6" Dual PDN Stack
<APN>	String type. (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.
<AuthType>	Integer type. Indicate the type of authentication to be used for the specified context. If CHAP is selected another parameter <Password> needs to be specified. If PAP is selected two additional parameters <Password> and <user> need to specify. 0 none 1 PAP 2 CHAP 3 PAP or CHAP
<Username>	String type. Username for authentication.
<Password>	String type. Password for authentication.
<pdpidx>	PDP context identifier set by AT+CNCFG

Example

```
AT+SECMAUTH=?
```

```
+SECMAUTH: (0-3)

OK
AT+SECMAUTH?
+SECMAUTH: "",0,"",""

OK
```

NOTE

- Effective after restart.

5.2.55 AT+SECMDMZ Set ECM Virtual Host

AT+SECMDMZ Set ECM Virtual Host	
Test Command **AT+SECMDMZ=?**	Response **+SECMDMZ: (**max length of supported <**ipaddr>**s**)** **OK**
Read Command **AT+SECMDMZ?**	Response **+SECMDMZ: <ipaddr>** **OK**
Write Command **AT+SECMDMZ=<ipaddr>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<ipaddr>	IP address.format is **.**.**.**

Example

```
AT+SECMDMZ=?
+SECMAUTH: 15

OK
AT+SECMDMZ?
+SECMAUTH: ""

OK
```

5.2.56 AT+CRATPRI Config RAT Priority of Searching Network

AT+CRATPRI Config RAT Priority of Searching Network	
Test Command **AT+CRATPRI=?**	Response **+CRATPRI: (03-GSM,12-M1,13-NBIOT),(0,1)** **OK**
Read Command **AT+CRATPRI?**	Response **+CRATPRI: <rat_pri_list>,<mode>** **OK**
Write Command **AT+CRATPRI=<rat_pri_list>,<mode>**	**OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-

Defined Values

<rat_pri_list>	string type.It is used to config RAT priority of searching network.The default value is “121303”,it means： LTE CAT-M1 > NB-IOT > GSM 03 GSM 12 CAT-M1 13 NB-IOT “130312” NB-IOT > GSM > LTE CAT-M1
<mode>	integer type.valid terms: 0 change permanently 1 change in a power cycle

Example

```
AT+CRATPRI=?
+CRATPRI: (03-GSM,12-M1,13-NBIOT),(0,1)

OK
AT+CRATPRI?
+CRATPRI: "121303",0

OK
AT+CRATPRI=121303,0
OK
```

5.2.57 AT+CIPV6RS IPV6 Router Solicitation Settings

AT+CIPV6RS IPV6 Router Solicitation Settings	
Test Command **AT+CIPV6RS=?**	Response **+CIPV6RS:** (list of supported **<solicitation_interval>**s), (list of Supported **<max_solicitation_attempts>**s),(list of supported **<initial_solicitation_delay>s**),(list of supported**<resolicitation_interval>**s),(list of supported **<max_resolicitation_attempts>**s),(list of supported **< pre_RA_expiry_resolicitation_time>**s) **OK**
Read Command **AT+CIPV6RS?**	Response **+CIPV6RS:<solicitation_interval>,<max_solicitation_attempts>,<initial_solicitation_delay>,<resolicitation_interval>,<max_resolicitation_attempts>,<pre_RA_expiry_resolicitation_time>** **OK**
Write Command **AT+CIPV6RS=<solicitation_interval>[,<max_solicitation_attempts>[,<initial_solicitation_delay>[,<resolicitation_interval>[,<max_resolicitation_attempts>[,<pre_RA_expiry_resolicitation_time>]]]]**	**OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-

Defined Values

<solicitation_interval>	Integer type,router solicitation interval Amount of time the mobile device waits before sending a subsequent RS.The default value is 4000ms.
<max_solicitation_attempts>	Integer type,Maximum solicitation attempts.Number of solicitation attempts to make for the initial IPv6 sessio setup.The default value is 3
<initial_solicitation_delay>	Integer type,Initial solicitation delay Amount of time the mobile device waits before sending the first RS.The default value is 500ms.
<resolicitation_interval>	Integer type,Router resolicitation interval. Amount of time between RSs sent while resoliciting for a new RA. This interval applies only after the mobile device has previously received one valid RA and is soliciting for a new one to renew the lifetimes of the current prefix or retrieve a nondeprecated prefix.The default value is 4000ms.
<max_resolicitation_attempts>	Integer type,Maximum resolicitation attempts.Number of solicitation attempts to make to resolicit for a new RA.The default value is 3.
<pre_RA_expiry_resolicitation_time>	Integer type,Pre-RA expiry resolicitation time.Amount of time before the current RA expires to begin re-solicitations. The default value is 0.

Example

```
AT+CIPV6RS=?
+CIPV6RS:
(1-32767),(1-32767),(1-32767),(1-32767),(1-327
67),(0-32767)

OK
AT+CIPV6RS?
+CIPV6RS: 10000,6,500,4000,3,0

OK
AT+CIPV6RS=4000,3,500,4000,3,0
OK
```

5.2.58 AT+CNASCFG NAS Configuration

AT+CNASCFG NAS Configuration	
Test Command	Response

AT+CNASCFG=?	**+CNASCFG:** (list of supported **<mode>**s), (list of supported **<len>**s),**<length>** **OK**
Write Command **AT+CNASCFG=<mode>[,<len>[,<data>]]**	Response **If <mode>** = 0 or 2 and command successful: **OK** **If <mode>** = 1 and command successful: **+CNASCFG: <mode>,<len>,<data>** **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-

Defined Values

<mode>	Integer type;operation mode for NAS configuration file 0 write 1 read 2 delete
<len>	Integer type.the length of write data or read data. The maximum value is 120.
<data>	string type.the data of NAS configuration.These data are in hexadecimal formate.
<length>	Integer type;The maximum length of <data>

Example

```
AT+CNASCFG=?
+CNASCFG: (0,1,2),(1-120),240

OK
```

5.2.59 AT+CLRNET Clear network Registration Information

AT+CLRNET Clear network Registration Information	
Test Command **AT+CLRNET=?**	Response **+CLRNET:** (list of supported **<mode>**s),(list of supported

	<clr_rplmn_act>s) **OK**
Read Command **AT+CLRNET?**	Response **OK**
Write Command **AT+CLRNET=<mode>[,<clr_rplmn_act>]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-

Defined Values

<mode>	Integer type; Indicate which network registration informationto clear 0 Clear CAT-M1,NB-IOT and GSM registrationinformation 1 Clear CAM-M1 registration information 2 Clear NB-IOT registration information 3 Clear GSM registration information
<clr_rplmn_act>	Integer type; Indicate whether clear last registered plmn radio access technology 0 not clear last registered plmn radio accesstechnology 1 clear last registered plmn radio access technology

Example

```
AT+CLRNET=?
+CLRNET: (0-3),(0,1)

OK
AT+CLRNET?
OK
AT+CLRNET=0,0
OK
```

NOTE

Before executing AT+CLRNET,at first you should execute AT+CFUN=0 or AT+CFUN=4

5.2.60 AT+CEID Read EID

AT+CEID Read EID	
Test Command **AT+CEID=?**	Response **OK**
Execution Command **AT+CEID**	Response **+CEID: <EID>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	2 second

Defined Values

<EID>	Electronic IDentity(string without double quotes)

Example

```
AT+CEID=?
OK
AT+CEID
+CEID: 89001039240060118600000000282989

OK
```

5.2.61 AT+CGTA Get Timing Advance

AT+CGTA Get Timing Advance	
Test Command **AT+CGTA=?**	Response **OK**
Execution Command **AT+CGTA**	**+CGTA: <System Mode>,<timing_advance>** **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	1 second

Defined Values

<System Mode>	System mode. "NO SERVICE" "GSM" "LTE CAT-M1" "LTE NB-IOT"
<timing_advance>	Integer type; Timing advance.Now it only support to get the value in GSM network.If <timing_advance> is -1,it is not valid.

Example

```
AT+CGTA=?
OK
AT+CGTA
+CGTA: "GSM",3

OK
```

5.2.62 AT+STXPOWER Power Settings

AT+STXPOWER Power Settings	
Test Command **AT+STXPOWER=?**	Response **+STXPOWER:**(list of supported **<band>**),(list of supported **<class>**) **OK**
Read Command **AT+STXPOWER?**	Response **+STXPOWER: <band>,<class>** **OK** or **ERROR**
Write Command **AT+STXPOWER=<band>,<class>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<band>	31 72
<class>	class of TX power 2 26dBm 3 23dBm

Example

```
AT+STXPOWER=?
+STXPOWER: (31,72),(2,3)

OK
AT+STXPOWER=31,2
OK
AT+STXPOWER=72,3
OK
AT+STXPOWER?
+STXPOWER: 31,2
+STXPOWER: 72,3

OK
```

5.2.63 AT+CNII Query the Amount of Data Sent and Received by PDP

AT+CNII Query the Amount of Data Sent and Received by PDP	
Test Command **AT+CNII=?**	Response **+CNNI:** (range of supported **<pdpidx>**s) **OK**
Read Command **AT+CNII?**	Response **+CNII:** **<pdpindx>,<mtux>,<rx_bytesx>,<tx_bytesx>,<rx_packetsx>,<tx_packetsx>,<rx_dropped_packetsx>,<tx_dropped_packetsx>** **OK** or **ERROR**
Write Command **AT+CNII=<pdpindx>**	Response Query active PDP **+CNII:** **<pdpindx>,<mtux>,<rx_bytesx>,<tx_bytesx>,<rx_packetsx>,<tx_packetsx>,<rx_dropped_packetsx>,<tx_dropped_packetsx>**

	OK or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<pdpidx>	(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=0) is returned by the test form of the command. 0…3
<mtux>	Maximum Transmission Unit
<rx_bytesx>	Number of bytes received
<tx_bytesx>	Number of bytes sent
<rx_packetsx>	Number of packets received
<tx_packetsx>	Number of packets sent
<rx_dropped_packetsx>	Number of dropped packets received
<tx_dropped_packetsx>	Number of dropped packets sent

Example

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

OK
AT+CNACT=0,1
OK
AT+CNACT?
+CNACT: 0,1,"10.123.88.18"
+CNACT: 1,0,"0.0.0.0"
+CNACT: 2,0,"0.0.0.0"
+CNACT: 3,0,"0.0.0.0"

OK
AT+CNII?
+CNII: 0,1500,0,0,0,0,0,0

OK
AT+CNII=0
```

```
+CNII: 0,1500,0,0,0,0,0,0

OK
```

NOTE

- After activating the PDP via "AT+CNACT=<pdpindx>,1", then execute "AT+CNII=<pdpindx>" or "AT+CNII=?" to query.

5.2.64 AT+CTRJ Inquire the value of Timer 3346

AT+CTRJ Inquire the value of Timer 3346	
Test Command **AT+CTRJ=?**	Response **OK**
Read Command **AT+CTRJ?**	Response **+CTRJ: <t3346>** **OK** or **ERROR**
Execution Command **AT+CTRJ**	Response **+CTRJ: <t3346>** **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<t3346>	The value of Timer 3346

Example

```
AT+CTRJ=?
OK
AT+CTRJ?
+CTRJ: 0
```

```
OK
AT+CTRJ
+CTRJ: 0

OK
```

NOTE

- Customer can use it to inquiry the value of Timer 3346, Refer to 3GPP, T3346 is sent to UE when the base station reject the attach request from UE. While T3346 is running, the module will not send attach request after booting up until it is expired.

5.2.65 AT+CECL Read ECL value

AT+CECL Read ECL value	
Test Command **AT+CECL=?**	Response **+CECL: (**list of supported **<rat>**s**), (**list of supported **<ce_level>**s**),** **OK**
Execution Command **AT+CECL**	Response **+CECL: <rat>,<ce_level>** **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<**rat**>	Register network type 7 CAT-M1 9 NB-IOT 255 Not registered or registerd GSM
<**ce_level**>	Coverage enhancement level. NB-IOT: [0 1 2] CAT-M1: [0 1 2 3]

Example

```
AT+CECL=?
+CECL: (7,9,255),(0,1,2,3)
```

```
OK
AT+CECL
+CECL: 9,0

OK
```

NOTE

- The command is not applicable to GSM network.

5.2.66 AT+CRRCSTATS Statistics RRC information

AT+CRRCSTATS Statistics RRC information	
Test Command **AT+CRRCSTATS=?**	Response **+CRRCSTATS:** (list of supported **<mode>**s) **OK**
Read Command **AT+CRRCSTATS?**	Response **+CRRCSTATS:<mode>,<catm_rrc_connecting_cnt>,<catm_rrc_connected_cnt>,<nbiot_rrc_connecting_cnt>,<nbiot_rrc_connected_cnt>** **OK** or **ERROR**
Write Command **AT+CRRCSTATS=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<**mode**>	Statistics RRC information 0 not statistics and reset data 1 statistics
<**catm_rrc_connecting_cnt**>	Integer type.RRC connecting count in CAT-M1 network
<**catm_rrc_connected_cnt**>	Integer type.RRC connected count in CAT-M1 network
<**nbiot_rrc_connecting_cnt**>	Integer type.RRC connecting count in NB-IOT network

<**nbiot_rrc_connected_cnt**>	Integer type.RRC connected count in NB-IOT network

Example

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

OK
AT+CRRCSTATS=1
OK
AT+CRRCSTATS?
+CRRCSTATS: 1,5,3,7,5

OK
```

NOTE

- The command is not applicable to GSM network.

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+CGACT	PDP context activate or deactivate
AT+CGPADDR	Show PDP address
AT+CGREG	Network registration status
AT+CGSMS	Select service for MO SMS messages
AT+CEREG	EPS Network Registration Status
AT+CGAUTH	Set Type of Authentication for PDP-IP Connections

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	
Test Command AT+CGATT=?	Response **+CGATT:** (list of supported **<state>**s) **OK**
Read Command AT+CGATT?	Response **+CGATT: <state>** **OK**
Write Command AT+CGATT=<state>	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE

Max Response Time	75 seconds
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: 0

OK
```

6.2.2 AT+CGDCONT Define PDP Context

AT+CGDCONT Define PDP Context	
Test Command AT+CGDCONT=?	Response **+CGDCONT:** (range of supported <**cid**>s),<**PDP_type**>,,,(list of supported <**d_comp**>s),(list of supported **<h_comp>**s),(list of **<ipv4_ctrl>**s) **OK**
Read Command AT+CGDCONT?	Response **+CGDCONT:** **[<cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>,<ipv4_ctrl>,<emergency_flag>[<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>,<ipv4_ctrl>[...]]]** **OK**
Write Command	Response

AT+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>][,<ipv4_ctrl>[,<emergency_flag>]]]]]]	**OK** or **ERROR**
Parameter Saving Mode	AUTO_SAVE
Max 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. 1…15
<PDP_type>	(Packet Data Protocol type) A string parameter which specifies the type of packet data protocol. IP Internet Protocol (IETF STD 5) IPV6 Internet Protocol Version 6 IPV4V6 Dual PDN Stack Non-IP Transfer of Non-IP data to external packet data Network (see 3GPP Technical Specifications 24.301).
<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 that identifies the MT in the address space applicable to the PDP. 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 <u>0</u> Off (default if value is omitted) 1 On 2 V.42bis
<h_comp>	A numeric parameter that controls PDP head compression <u>0</u> Off (default if value is omitted) 1 On 2 RFC1144 3 RFC2507

	4 RFC3095
<ipv4_ctrl>	Parameter that controls how the MT/TA requests to get the IPv4 address information: 0 Address Allocation through NAS Signaling 1 On
<emergency_flag>	emergency_flag: 0 off (default if value is omitted) 1 on

Example

```
AT+CGDCONT=?
+CGDCONT: (1-15),"IP",,,(0-2),(0-4),(0)
+CGDCONT: (1-15),"IPV6",,,(0-2),(0-4),(0)
+CGDCONT: (1-15),"IPV4V6",,,(0-2),(0-4),(0)
+CGDCONT: (1-15),"Non-IP",,,(0-2),(0-4),(0)

OK
AT+CGDCONT?
+CGDCONT: 1,"IPV4V6","","",0,0,0
+CGDCONT:
2,"IPV4V6","ims","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.
0",0,0,0

OK
```

6.2.3 AT+CGACT PDP Context Activate or Deactivate

AT+CGACT PDP Context Activate or Deactivate	
Test Command **AT+CGACT=?**	Response **+CGACT:** (list 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>[,<cid>[,…]]]**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**

Parameter Saving Mode	NO_SAVE
Max Response Time	150 seconds
Reference	

Defined Values

<state>	Indicates the state of PDP context activation 0 Deactivated 1 Activated Other values are reserved and will result in an ERROR response to the Write Command.
<cid>	A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command). If the <cid> is omitted,it affects all cid that the profile is valid. 1…15

Example

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

OK
AT+CGACT?
+CGACT: 1,0
+CGACT: 2,0

OK
```

NOTE

- This command is used to test PDPs with network simulators. Successful activation of PDP on real network is not guaranteed.

6.2.4 AT+CGPADDR Show PDP Address

AT+CGPADDR Show PDP Address	
Test Command AT+CGPADDR=?	Response **+CGPADDR:** (list of defined **<cid>**s)

	OK
Write Command **AT+CGPADDR=<cid>[,<cid>[,…]]**	Response **+CGPADDR: <cid>,<PDP_addr>[<CR><LF>+CGPADDR: <cid>,<PDP_addr>[…]]** **OK** If SIM card supports IPV4V6 type and the PDP_type of the command "AT+CGDCONT" defined is ipv4v6 : **[+CGPADDR: <cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6>]** **+CGPADDR: <cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6> [...]]]** **OK** or **ERROR**
Execution Command **AT+CGPADDR**	Response **[+CGPADDR: <cid>,<PDP_addr>] +CGPADDR: <cid>,<PDP_addr>[...]]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>** If SIM card supports IPV4V6 type and the PDP_type of the command "AT+CGDCONT" defined is ipv4v6 : **[+CGPADDR: <cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6>]** **+CGPADDR: <cid>,<PDP_addr_IPV4>,<PDP_addr_IPV6> [...]]]** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	A numeric parameter which specifies a particular PDP context definition (see +CGDCONT Command) 1…15
<PDP_addr>	String type, IP address Format: <n>.<n>.<n>.<n> where <n>=0..255
<PDP_addr_IPV4>	A string parameter that identifies the MT in the address space applicable to the PDP.
<PDP_addr_IPV6>	A string parameter that identifies the MT in the address space

	applicable to the PDP when the sim_card supports ipv6. The pdp type must be set to "ipv6" or "ipv4v6" by the AT+CGDCONT command.

Example

```
AT+CGPADDR=?
+CGPADDR: (1,2)

OK
```

NOTE

- <cid> values 17 to 24 are supported from MPSS JO 1.0+ onwards.
- Write command returns address provided by the network if a connection has been established.

6.2.5 AT+CGREG Network Registration Status

AT+CGREG Network Registration Status	
Test Command **AT+CGREG=?**	Response **+CGREG: (**list of supported **<n>**s**)** **OK**
Read Command **AT+CGREG?**	Response **+CGREG: <n>,<stat>[,<lac>,<ci>,<netact>,<rac>[,[<Active-Time>],[<Periodic-RAU>],[<GPRS-READY-timer>]]]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CGREG[=<n>]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code +CGREG: <stat> 2 Enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>,<netact>,<rac>] 4 Enable display GPRS time and periodic RAU
<stat>	0 Not registered, MT is not currently searching an operator to register to. The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user. 1 Registered, home network. 2 Not registered, but MT is currently trying to attach or searching an operator to register to. The GPRS service is enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available. 3 Registration denied, The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user. 4 Unknown 5 Registered, roaming 6 DSAT_REG_REGISTERED_MAX /* Internal use only! */
<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
<netact>	0 User-specified GSM access technology 1 GSM compact 3 GSM EGPRS 7 User-specified LTE M1 A GB access technology 9 User-specified LTE NB S1 access technology
<rac>	String type;One byte routing area code in hexadecimal format
<Active-Time>	String type; one byte in an 8 bit format. Requested Active Time value (T3324) to be allocated to the UE. The requested Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes).
<Periodic-RAU>	String type; one byte in an 8 bit format. Requested extended periodic TAU value (T3412) to be allocated to the UE in E-UTRAN. The requested extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours).
<GPRS-READY-timer>	String type; one byte in an 8 bit format. Requested GPRS READY timer value (T3314) to be allocated to the UE in GERAN/UTRAN. The requested GPRS READY timer value is coded as one byte (octet 2) of the GPRS Timer information element coded as bit format (e.g.

	"01000011" equals 3 decihours or 18 minutes).

Example

```
AT+CGREG=?
+CGREG: (0-2,4)

OK
AT+CGREG?
+CGREG: 0,2

OK
AT+CGREG
OK
```

6.2.6 AT+CGSMS Select Service for MO SMS Messages

AT+CGSMS Select Service for MO SMS Messages	
Test Command **AT+CGSMS=?**	Response **+CGSMS:** (list of currently available **<service>**s) **OK**
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	AUTO_SAVE
Max Response Time	-
Reference	

Defined Values

<service>	A numeric parameter which indicates the service or service preference to be used 0 Packet Domain(value is not really supported and is internally mapped to 2) 1 Circuit switched(value is not really supported and is internally

	mapped to 3) 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: 1

OK
```

NOTE

- <cid> values 17 to 24 are supported from MPSS JO 1.0+ onwards.
- Write command returns address provided by the network if a connection has been established.

6.2.7 AT+CEREG EPS Network Registration Status

AT+CEREG EPS Network Registration Status	
Test Command **AT+CEREG=?**	Response **+CEREG: (**list of supported **<n>**s**)** **OK**
Read Command **AT+CEREG?**	Response when <**n**>=0, 1, 2 and command successful: **+CEREG: <n>,<stat>[,[<tac>],[<rac>],[<ci>],[<AcT>]]** **OK** when <**n**>=4 and command successful: **+CEREG: <n>,<stat>[,[<tac>],[<rac>],[<ci>],[<AcT>][,,[,[<Active-Time>],[<Periodic-TAU>]]]]**

	OK If error is related to wrong AT syntax or operation not allowed: **+CME ERROR: <err>**
Write Command **AT+CEREG[=<n>]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<n>	0 Disable network registration unsolicited result code 1 Enable network registration unsolicited result code **+CEREG: <stat>** 2 Enable network registration and location information unsolicited result code **+CEREG: <stat>[,[<tac>],[<rac>],[<ci>],[<AcT>]]** 4 For a UE that wants to apply PSM, enable network registration and location information unsolicited result code **+CEREG: <stat>[,[<tac>],[<rac>],[<ci>],[<AcT>][,,[,[<Active-Time>],[<Periodic-RAU>]]]]**
<stat>	0 Not registered, MT is not currently searching an operator to register to.The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user. 1 Registered, home network. 2 Not registered, but MT is currently trying to attach or searching an operator to register to. The GPRS service is enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an allowable PLMN is available. 3 Registration denied, The GPRS service is disabled, the UE is not allowed to attach for GPRS if it is requested by the user. 4 Unknown 5 Registered, roaming
<tac>	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
<AcT>	0 User-specified GSM access technology 7 User-specified LTE M1 A GB access technology 9 User-specified LTE NB S1 access technology
<Active-Time>	String type; one byte in an 8 bit format. Requested Active Time value

	(T3324) to be allocated to the UE. The requested Active Time value is coded as one byte (octet 3) of the GPRS Timer 2 information element coded as bit format (e.g. "00100100" equals 4 minutes).
<Periodic-RAU>	String type; one byte in an 8 bit format. Requested extended periodic TAU value (T3412) to be allocated to the UE in E-UTRAN. The requested extended periodic TAU value is coded as one byte (octet 3) of the GPRS Timer 3 information element coded as bit format (e.g. "01000111" equals 70 hours).

Example

```
AT+CEREG=?
+CEREG: (0-2,4)

OK
AT+CEREG?
+CEREG: 0,2

OK
```

6.2.8 AT+CGAUTH Set Type of Authentication for PDP-IP Connections

AT+CGAUTH Set Type of Authentication for PDP-IP Connections	
Test Command **AT+CGAUTH=?**	Response **+CGAUTH:** (range of supported <**cid**>s),(list of supported <**auth_type**>s) **OK**
Read Command **AT+CGAUTH?**	Response **+CGAUTH: <cid>,<auth_type>[,<user>][<CR><LF>+CGAUTH: <cid>,<auth_type>[,<user>]<CR><LF>[...]]** **OK**
Write Command **AT+CGAUTH=<cid>[,<auth_type>[,<passwd>[,<user>]]]**	Response **OK** or **ERROR**
Parameter Saving Mode	AUTO_SAVE
Max 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. 1…15
<auth_type>	Indicate the type of authentication to be used for the specified context. If CHAP is selected another parameter <passwd> needs to be specified. If PAP is selected two additional parameters <passwd> and <user> need to specified. 0 none 1 PAP 2 CHAP 3 PAP or CHAP
<passwd>	Parameter specifies the password used for authentication.
<user>	Parameter specifies the user name used for authentication.

Example

```
AT+CGAUTH=?
+CGAUTH: (1-15),(0-3),,

OK
AT+CGAUTH?
+CGAUTH: 1,0
+CGAUTH: 2,0

OK
```

NOTE

- <cid> values 17 to 24 are supported from MPSS JO 1.0+ onwards.
- Write command returns address provided by the network if a connection has been established.

7 AT Commands for IP Application

7.1 Overview of AT Commands for IP Application

Command	Description
AT+CNACT	APP Network Active
AT+CNCFG	PDP Configure

7.2 Detailed Description of AT Commands for IP Application

7.2.1 AT+CNACT APP Network Active

AT+CNACT APP Network Active	
Test Command **AT+CNACT=?**	Response **+CNACT:** (list of supported <**pdpidx**>s),(list of supported <**statusx**>s) **OK**
Read Command **AT+CNACT?**	Response **+CNACT: <pdpidx>,<statusx>,<addressx>[,<IPV6_address>]** **OK**
Write Command **AT+CNACT=<pdpidx>,<action>**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<pdpidx>	(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=0) is returned by the test form of the command. 0…3
<action>	0 Deactive 1 Active 2 Auto Active
<statusx>	0 Deactived 1 Actived 2 In operation
<addressx>	IP address.Format is **.**.**.**
<IPV6_address>	IPV6 address.Format is ****:****:****:****:****:****:****:****

Example

```
AT+CNACT=?
+CNACT: (0-3),(0-2)

OK

AT+CNACT?
+CNACT: 0,0,"0.0.0.0"
+CNACT: 1,0,"0.0.0.0"
+CNACT: 2,0,"0.0.0.0"
+CNACT: 3,0,"0.0.0.0"

OK
```

NOTE

- "+APP PDP: <pdpidx>,ACTIVE" will be reported if the app network actived,and "+APP PDP: <pdpidx>,DEACTIVE" will be reported if the app network deactived.
- Auto Active means the will active automatically if the activation failed.

7.2.2 AT+CNCFG PDP Configure

AT+CNCFG PDP Configure	
Test Command **AT+CNCFG=?**	Response **+CNCFG:** (range of supported <**pdpidx**>s),(range of supported <**ip_type**>s),**<len_APN>,<len_usename>,<len_password>,**(range of supported <**authentication**>s) **OK**
Read Command **AT+CNCFG?**	Response **+CNCFG: <pdpidx>,<ip_type>,<APN>,<usename>,<password>,<authentication>** **OK**
Write Command **AT+CNCFG=<pdpidx>,<ip_type>,[<APN>,[<usename>,<password>,[<authentication>]]]**	Response **OK** If failed: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<pdpidx>	(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=0) is returned by the test form of the command. 0…3
<ip_type>	(Packet Data Protocol type) A Integer type parameter which specifies the type of packet data protocol. 0 Dual PDN Stack 1 Internet Protocol Version 4 2 Internet Protocol Version 6 3 NONIP 4 EX_NONIP
<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.
<usename>	Username for authentication.
<password>	Password for authentication.

<authentication>	0 NONE 1 PAP 2 CHAP 3 PAP or CHAP
<len_APN>	Integer type. Maximum length of parameter <APN>.
<len_name>	Integer type. Maximum length of parameter <usename>.
<len_password>	Integer type. Maximum length of parameter <password>.

Example

```
AT+CNCFG=?
+CNCFG: (0-3),(0-4),150,127,127,(0-3)

OK
AT+CNCFG?
+CNCFG: 0,0,"","","",0
+CNCFG: 1,0,"","","",0
+CNCFG: 2,0,"","","",0
+CNCFG: 3,0,"","","",0

OK
```

8 AT Commands for GNSS Application

SIM7070_SIM7080_SIM7090 Series modules provide GNSS AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_GNSS_Application Note".

8.1 Overview of AT Commands for GNSS Application

Command	Description
AT+CGNSPWR	GNSS Power Control
AT+CGNSINF	GNSS Navigation Information Parsed From NMEA Sentences
AT+CGNSCOLD	GNSS Cold Start
AT+CGNSWARM	GNSS Warm Start
AT+CGNSHOT	GNSS Hot Start
AT+CGNSMOD	GNSS Work Mode Set
AT+CGNSXTRA	GNSS XTRA Function Open
AT+CGNSCPY	GNSS XTRA File Copy
AT+SGNSCFG	GNSS Configure
AT+SGNSCMD	GNSS Command

8.2 Detailed Descriptions of AT Commands for GNSS Application

8.2.1 AT+CGNSPWR GNSS Power Control

AT+CGNSPWR GNSS Power Control	
Test Command AT+CGNSPWR=?	Response **+CGNSPWR:** (list of supported **<mode>**s) **OK**
Read Command AT+CGNSPWR?	Response TA returns the current status of GNSS Power supply **+CGNSPWR: <mode>**

	OK
Write Command **AT+CGNSPWR=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	0 Turn off GNSS power supply. 1 Turn on GNSS power supply.

NOTE

- NMEA data will not out put to usb’s NMEA port when set AT+CGNSPWR=1.

Example

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

OK
AT+CGNSPWR?
+CGNSPWR: 0

OK
AT+CGNSPWR=1
OK
```

8.2.2 AT+CGNSINF GNSS Navigation Information Parsed From NMEA Sentences

AT+CGNSINF GNSS Navigation Information Parsed From NMEA Sentences	
Test Command **AT+CGNSINF=?**	Response **OK**
Execution Command	Response

AT+CGNSINF	**+CGNSINF: <GNSS run status>,<Fix status>,<UTC date & Time>,<Latitude>,<Longitude>,<MSL Altitude>,<Speed Over Ground>,<Course Over Ground>,<Fix Mode>,<Reserved1>,<HDOP>,<PDOP>,<VDOP>,<Reserved2>,<GNSS Satellites in View>,<Reserved3>,<HPA>,<VPA>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<GNSS run status>	0 GNSS off. 1 GNSS on.
<Fix status>	0 Not fixed position. 1 Fixed position. See below table 8-1.

Table 8-1: AT+CGNSINF return Parameters

Index	Parameter	Unit	Range	Length
1	GNSS run status	--	0-1	1
2	Fix status	--	0-1	1
3	UTC date & Time	yyyyMMddhhmmss.sss	yyyy: [1980,2039] MM : [1,12] dd: [1,31] hh: [0,23] mm: [0,59] ss.sss:[0.000,60.999]	18
4	Latitude	±dd.dddddd	[-90.000000,90.000000]	10
5	Longitude	±ddd.dddddd	[-180.000000,180.000000]	11
6	MSL Altitude	meters		8
7	Speed Over Ground	Km/hour	[0,999.99]	6
8	Course Over Ground	degrees		6
9	Fix Mode	--	0,1,2[1]	1
10	Reserved1			0
11	HDOP	--	[0,99.9]	4
12	PDOP	--	[0,99.9]	4
13	VDOP	--	[0,99.9]	4
14	Reserved2			0

15	GPS Satellites in View	--	[0,99]	2
16	Reserved3			0
17	HPA[2]	meters	[0,9999.9]	6
18	VPA[2]	meters	[0,9999.9]	6

Total：(94) chars

Example

```
AT+CGNSPWR?
+CGNSPWR: 1

OK
AT+CGNSINF=?
OK
AT+CGNSINF
+CGNSINF:
1,,,0.000000,0.000000,-18.000,,,1,,0.1,0.1,0.1,,,
,9999000.0,6144.0

OK
```

8.2.3 AT+CGNSCOLD GNSS Cold Start

AT+CGNSCOLD GNSS Cold Start	
Test Command **AT+CGNSCOLD=?**	Response **OK**
Execution Command **AT+CGNSCOLD**	Response If AT+CGNSXTRA=0 **OK** Else if AT+CGNSXTRA=1 **OK** **+CGNSXTRA: <mod>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mod>	0 Aid XTRA file success.

	1 XTRA file is not exist. 2 XTRA file is not effective.

Example

```
AT+CGNSCOLD=?
OK
AT+CGNSPWR?
+CGNSPWR: 0

OK
AT+CGNSCLOD
OK
```

8.2.4 AT+CGNSWARM GNSS Warm Start

AT+CGNSWARM GNSS Warm Start	
Test Command **AT+CGNSWARM=?**	Response **OK**
Execution Command **AT+CGNSWARM**	Response **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Example

```
AT+CGNSWARM=?
OK
AT+CGNSPWR?
+CGNSPWR: 0

OK
AT+CGNSWARM
OK
```

8.2.5 AT+CGNSHOT GNSS Hot Start

AT+CGNSHOT GNSS Hot Start

Test Command **AT+CGNSHOT=?**	Response **OK**
Execution Command **AT+CGNSHOT**	Response **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Example

```
AT+CGNSHOT=?
OK
AT+CGNSPWR?
+CGNSPWR: 0

OK
AT+CGNSHOT
OK
```

8.2.6 AT+CGNSMOD GNSS Work Mode Set

AT+CGNSMOD GNSS Work Mode Set	
Test Command **AT+CGNSMOD=?**	Response **+CGNSMOD:** (list of supported **<gps mode>**),(list of supported **<glo mode>**s),(list of supported **<bd mode>**s),(list of supported **<gal mode>**s),(list of supported **<qzss mode>**s) **OK**
Read Command **AT+CGNSMOD?**	Response **+CGNSMOD: <gps mode>,<glo mode>,<bd mode>,<gal mode>,<qzss mode>** **OK**
Write Command **AT+CGNSMOD=<gps mode>,<glo mode>,<bd mode>,<gal mode>,<qzss mode>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	AUTO_SAVE_REBOOT
Max Response Time	-
Reference	Note

Defined Values

<gps mode>	GPS work mode. 1 Start GPS NMEA out.
<glo mode>	GLONASS work mode. 0 Stop GLONASS NMEA out. 1 Start GLONASS NMEA out.
<bd mode>	BEIDOU work mode. 0 Stop BEIDOU NMEA out. 1 Start BEIDOU NMEA out.
<gal mode>	GALILEAN work mode. 0 Stop GALILEAN NMEA out. 1 Start GALILEAN NMEA out.
<qzss mode>	QZSS work mode. 0 Stop QZSS NMEA out. 1 Start QZSS NMEA out.

Example

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

OK

AT+CGNSMOD?
+CGNSMOD: 1,1,0,0,0

OK

AT+CGNSMOD=1,1,0,0,0
OK
```

NOTE

- For <glo mode>,<bd mode>,<gal mode> and <qzss mode>,Only one of the four parameters can be set to 1.

8.2.7 AT+CGNSXTRA GNSS XTRA Function Open

AT+CGNSXTRA GNSS XTRA Function Open

Test Command **AT+CGNSXTRA=?**	Response **+CGNSXTRA: (0-1)** **OK**
Read Command **AT+CGNSXTRA?**	Response TA returns the current status of configure **+CGNSXTRA: <enable>** **OK**
Write Command **AT+CGNSXTRA=<enable>**	Response **OK** or **ERROR**
Execution Command **AT+CGNSXTRA**	Response This command is used to query validate time of XTRA file. The XTRA file exists if the download and copy are successful. If XTRA file is not exist **ERROR** Else if XTRA file is exist **+CGNSXTRA: <validDiffHours>,<validDurationHours>,<Inject gpsOneXTR GPS time>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<enable>	0 Disable XTRA function 1 Enable XTRA function
<validDiffHours>	Local time and download time difference,if validDiffHours value is -1,the time is invalid.
<validDurationHours>	Validate time of XTRA file,Unit is Hour.
<Inject gpsOneXTR GPS time>	Download time of XTRA file.

Example

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

```
OK

AT+CGNSXTRA?
+CGNSXTRA: 0

OK
AT+CGNSXTRA=1
OK
AT+CGNSCPY
+CGNSCPY: 1

OK
AT+CGNSXTRA
+CGNSXTRA: 1,72,2020/09/27,06:00:00

OK
```

8.2.8 AT+CGNSCPY GNSS XTRA File Copy

AT+CGNSCPY GNSS XTRA File Copy	
Test Command **AT+CGNSCPY=?**	Response **OK**
Execution Command **AT+CGNSCPY**	Response **+CGNSCPY: <ret>** **OK**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<ret>	1 File not exist. 0 Copy success.

Example

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

OK

8.2.9 AT+SGNSCFG GNSS Configure

AT+SGNSCFG GNSS Configure	
Test Command **AT+SGNSCFG=?**	Response **+SGNSCFG: "NMEAOUTPORT",(**range of supported **<port>**s**),(**list of supported **<baudrate>**s**)** **+SGNSCFG: "NMEATYPE",(**range of supported **<nmeatype>**s**)** **+SGNSCFG: "OUTURC",(**range of supported **<mode>**s**)** **+SGNSCFG: "ADSS",(**range of supported **<mode>**s**)** **+SGNSCFG: "MODE",(**range of supported **<mode>**s**)** **+SGNSCFG: "THRESHOLD",**(range of supported <**threshold**>s) **+SGNSCFG: "TIMEOUT"**,(range of supported <**timeout**>s) **+SGNSCFG: "EXTRAINFO",**(range of supported <**flag**>s) **OK**
Read Command **AT+SGNSCFG?**	Response TA returns the current status of configure **+SGNSCFG: "NMEAOUTPORT",<port>[,<baudrate>]** **+SGNSCFG: "NMEATYPE",<nmeatype>** **+SGNSCFG: "OUTURC",<mode>** **+SGNSCFG: "ADSS",<mode>** **+SGNSCFG: "MODE",<mode>** **+SGNSCFG: "THRESHOLD",<threshold>** **+SGNSCFG: "TIMEOUT",<timeout>** **+SGNSCFG: "EXTRAINFO",<flag>** **OK**
Write Command **AT+SGNSCFG="NMEAOUTPORT",<port>,[<baudrate>]**	Response **OK** or **ERROR**
Write Command **AT+SGNSCFG="NMEATYPE",<nmeatype>**	Response **OK** or **ERROR**
Write Command **AT+SGNSCFG="ADSS",<mode>**	Response **OK** or **ERROR**

Write Command **AT+SGNSCFG="MODE",<mode>**	Response **OK** If ok you need reboot module. or **ERROR**
Write Command **AT+SGNSCFG="THRESHOLD ",<threshold>**	Response **OK** or **ERROR**
Write Command **AT+SGNSCFG="TIMEOUT",<timeout>**	Response **OK** or **ERROR**
Write Command **AT+SGNSCFG="EXTRAINFO",<flag>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<port>	0 Turn off GNSS NMEA data output. 1 Turn on GNSS NMEA data output to USB's NMEA port. 2 Turn on GNSS NMEA data output to UART3 port.
<baudrate>	Baud rate when NMEA output from UART3. 9600 19200 38400 57600 115200
<nmeatype>	Range is 0-255. Each bit enables an NMEA sentence output as follows: Bit 0 GPGSV (GPS satellites in view). Bit 1 GLGSV (GLONASS satellites in view GLONASS fixes only). Bit 2 GAGSV (GALILEO satellites in view). Bit 3 BDGSV/QZGSV (BEIDOU/QZSS satellites in view) Bit 4 GPGSA/GLGSA/GAGSA/BDGSA/QZGSA (1. GPS/2. GLONASS/3. GALILE/4. BEIDOU/5. QZSS) Bit 5 GNVTG/GPVTG (track made good and ground speed). Bit6 GNRMC/GPRMC (recommended minimum specific GPS/TRANSIT data). Bit 7 GNGGA/GPGGA (global positioning system fix data).

<outurc>	0 Turn off navigation data URC report. 1 Turn on navigation data URC report.
<adss>	0 Do not delete any data. Perform hot start if the conditions are permitted after starting GNSS. 1 Delete some related data. Perform warm start if the conditions are permitted after starting GNSS. 2 Delete all assistance data except almanac data. Enforce cold start after starting GNSS. 3 Delete all assistance data except almanac and sv health data. Enforce xtra cold start after starting GNSS. 4 Delete all assistance data. Enforce reset start after starting GNSS.
<mode>	0 Start GPS and GLONASS constellation. 1 Start GPS and GALILEO constellation. 2 Start GPS and BEIDOU constellation. 3 Start GPS and QZSS constellation.
<threshold>	The threshold for GTP-IoT WWAN fixes to be considered acceptable. Integer type.The range from 1 to 10000(Meters).The default value is 1000 meters.
<timeout>	Timeout for Single-shot position session. Integer type.The range from 10000 to 180000(Milliseconds).The default value is 30000 milliseconds.
<flag>	0 Close the GPS extra info 1 Get the GPS extra info

Example

```
AT+SGNSCFG=?
+SGNSCFG:
"NMEAOUTPORT",(0-2),(9600,19200,38400,5
7600,115200)
+SGNSCFG: "NMEATYPE",(0-255)
+SGNSCFG: "OUTURC",(0-1)
+SGNSCFG: "ADSS",(0-4)
+SGNSCFG: "MODE",(0-3)
+SGNSCFG: "THRESHOLD",(1-10000)
+SGNSCFG: "TIMEOUT",(10000-180000)
+SGNSCFG: "EXTRAINFO",(0-1)

OK
AT+SGNSCFG?
+SGNSCFG: "NMEAOUTPORT",0
+SGNSCFG: "NMEATYPE",0
+SGNSCFG: "OUTURC",0
+SGNSCFG: "ADSS",0
```

```
+SGNSCFG: "MODE",0
+SGNSCFG: "THRESHOLD",1000
+SGNSCFG: "TIMEOUT",30000
+SGNSCFG: "EXTRAINFO",0

OK
```

NOTE

- This command only supported in UART port.

8.2.10 AT+SGNSCMD GNSS Command

AT+SGNSCMD GNSS Command	
Test Command **AT+SGNSCMD=?**	Response **+SGNSCMD:** (list of supported **<mode>**s) **+SGNSCMD:** 1,(range of supported **<powerlevel>**s) **+SGNSCMD:** 2,(range of supported **<minInterval>**s),(range of supported **<minDistance>**s),(range of supported **<accuracy>**s) **OK**
Write Command If <mode>=0 **AT+SGNSCMD=<mode>** If <mode>=1 **AT+SGNSCMD=<mode>,<powerlevel>** If <mode>=2 **AT+SGNSCMD=<mode>,<minInterval>,<minDistance>,<accuracy>**	Response **OK** **+SGNSCMD: <mode>,<time>,<Latitude>,<longitude>,<accuracy>,<altitude>,<altitudeMeanSeaLevel>,<speed>,<bearing>,<timestamp>,<flags>** or **OK** **+SGNSCMD: <mode>,<date>,<time>,<total>,<Latitude>,<longitude>,<accuracy>,<altitude>,<altitudeMeanSeaLevel>,<speed>,<bearing>,<timestamp>,<flags>** or **+SGNSERR: <error code>** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-

Reference	-

Defined Values

<mode>	0 Turn off GNSS. 1 Turn on GNSS and get location information once. 2 Turn on GNSS and get multiple location information.
<powerlevel>	0 Use all technologies available to calculate location. 1 Use all low power technologies to calculate location. 2 Use only low and medium power technologies to calculate location.
<minInterval>	minInterval is the minimum time interval in milliseconds that must elapse between position reports. default value is 1000.
<minDistance>	Minimum distance in meters that must be traversed between position reports. Setting this interval to 0 will be a pure time-based tracking/batching.
<accuracy>	0 Accuracy is not specified, use default. 1 Low Accuracy for location is acceptable. 2 Medium Accuracy for location is acceptable. 3 Only High Accuracy for location is acceptable.
<error code>	0 Success. 1 General failure. 2 Callback is missing. 3 Invalid parameter. 4 ID already exists. 5 ID is unknown. 6 Already started. 7 Not initialized. 8 Maximum number of geofences reached. 9 Not supported. 10 Timeout when asking single shot. 11 GNSS engine could not get loaded. 12 Location module license is disabled. 13 Best available position is invalid. Parameters of URC see below table 8-1.

Table 8-2: AT+SGNSCMD return Parameters

Index	Parameter	Unit	Range	Length
1	GNSS mode	--	0-2	1
2	UTC date	yyyy-mm-dd		10
3	Total number of satellites	--		2
4	UTC Time	hh:mm:ss	hh: [0,23]	8

			mm: [0,59] ss.sss:[0,60]	
5	Latitude	±dd.ddddd	[-90.00000,90.00000]	9
6	Longitude	±ddd.ddddd	[-180.00000,180.00000]	10
7	MSL Accuracy	meters		6
8	MSL Altitude	meters		6
9	MSL Altitude sea level	meters		6
10	Speed Over Ground	Km/hour	[0,999.99]	6
11	Course Over Ground	degrees	[0,360.00]	6
12	Time Stamp	--		13
13	Flags			3

NOTE：
Flags means the bitwise OR of the below location flags.

Bit 0 latitude and longitude. */
Bit 1 altitude. */
Bit 2 speed. */
Bit 3 bearing. */
Bit 4 accuracy. */
Bit 5 vertical accuracy. */
Bit 6 speed accuracy. */
Bit 7 bearing accuracy. */
Bit 8 altitude wrt mean sea level. */
Bit 9 currently best available position. */

Example

```
AT+SGNSCMD=?
+SGNSCMD: 0
+SGNSCMD: 1,(0-2)
+SGNSCMD: 2,(1000-60000),(0-1000),(0-3)

OK
AT+SGNSCMD=0
OK
AT+SGNSCMD=1,0
OK

+SGNSCMD:
1,06:18:58,31.22211,121.35574,8.41,28.45,18.
99,0.2,0.0,0x171b31b118,311
AT+SGNSCMD=2,1000,0,0
OK
```

NOTE

- If we set AT+SGNSCFG="EXTRAINFO",1, then the return paramters of AT+SGNSCMD will be: **+SGNSCMD:<mode>,<date>,<time>,<total>,<Latitude>,<longitude>,<accuracy>,<altitude>,<altitudeMeanSeaLevel>,<speed>,<bearing>,<timestamp>,<flags>**.
- If we set AT+SGNSCFG="EXTRAINFO",0 or if we not set, then the return paramters of AT+SGNSCMD will be:
  +SGNSCMD:<mode>,<time>,<Latitude>,<longitude>,<accuracy>,<altitude>,<altitudeMeanSeaLevel>,<speed>,<bearing>,<timestamp>,<flags>

9 AT Commands for File System

SIM7070_SIM7080_SIM7090 Series modules provide FS AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_FS_Application Note".

9.1 Overview of AT Commands for File System

Command	Description
AT+CFSINIT	Get Flash Data Buffer
AT+CFSWFILE	Write File to the Flash Buffer Allocated by CFSINIT
AT+CFSRFILE	Read File from Flash
AT+CFSDFILE	Delete the File from the Flash
AT+CFSGFIS	Get File Size
AT+CFSREN	Rename a file
AT+CFSGFRS	Get the size of file system
AT+CFSTERM	Free the Flash Buffer Allocated by CFSINIT
AT+CBAINIT	Initialize the ap backup file system
AT+CBALIST	Set the files which want to backup
AT+CBAPPS	Start to backup ap file system allocated by CBAINIT and CBALIST
AT+CBART	Restore the file into ap file system

9.2 Detailed Descriptions of AT Commands for File System

9.2.1 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	-
Max Response Time	-
Reference	-

Example

```
AT+CFSINIT
OK
```

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

AT+CFSWFILE Write File to the Flash Buffer Allocated by CFSINIT	
Test Command **AT+CFSWFILE=?**	Response **+CFSWFILE:** (list of supported **<index>**s),**<len_filename>**,(list of supported **<mode>**s),(range of supported **<file size>**s),(range of supported **<input time>**s) **OK**
Write Command **AT+CFSWFILE=<index>,<file name>,<mode>,<file size>,<input time>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<index>	Directory of AP filesystem: 0 "/custapp/" 1 "/fota/" 2 "/datatx/"

	3 "/customer/"
<file name>	File name length should less or equal 230 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.
<len_filename>	Integer type. Maximum length of parameter <file name>.

Example

```
AT+CFSWFILE=?
+CFSWFILE:
(0-3),230,(0-1),(1-10240),(100-10000)

OK
```

9.2.3 AT+CFSRFILE Read File from Flash

AT+CFSRFILE Read File from Flash	
Test Command **AT+CFSRFILE=?**	Response **+CFSRFILE:** (list of supported **<index>**s),**<len_filename>**,(list of supported **<mode>**s),(range of supported **<file size>**s),(range of supported **<position>**s) **OK**
Write Command **AT+CFSRFILE=<index>,<file name>,<mode>,<file size>,<position>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<index>	Directory of AP filesystem: 0 "/custapp/" 1 "/fota/"

	2 "/datatx/" 3 "/customer/"
<file name>	File name length should be less than or equal to 230 characters
<mode>	0 Read data at the beginning of the file . 1 Read data at the <position> of the file .
<file size>	The size of the file that you want to read should be less than 10240.
<position>	The starting position that will be read in the file. When <write mode>=0, <position> is invalid. Read data from the beginning to the end of the file. When <write mode>=1, <position> is valid. Read data from the <position> to the end of the file.
<len_filename>	Integer type. Maximum length of parameter <file name>.

Example

```
AT+CFSRFILE=?
+CFSRFILE:
(0-3),230,(0-1),(1-10240),(0-filesize)

OK
```

9.2.4 AT+CFSDFILE Delete the File from the Flash

AT+CFSDFILE	**Delete the File from the Flash**
Test Command **AT+CFSDFILE=?**	Response **+CFSDFILE:** (list of supported **<index>**s),**<len_filename>** **OK**
Write Command **AT+CFSDFILE=<index>,<file name>**	Response **OK** or **ERROR** or **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<index>	Directory of AP filesystem:

	0 "/custapp/" 1 "/fota/" 2 "/datatx/" 3 "/customer/"
<file name>	File name length should be less than or equal to 230 characters.
<len_filename>	Integer type. Maximum length of parameter <file name>.

Example

```
AT+CFSDFILE=?
+CFSDFILE: (0-3),230

OK
```

9.2.5 AT+CFSGFIS Get File Size

AT+CFSGFIS Get File Size	
Test Command **AT+CFSGFIS=?**	Response **+CFSGFIS:** (list of supported **<index>**s),**<len_filename>** **OK**
Write Command **AT+CFSGFIS=<index>,<file name>**	Response **ERROR** or **CME ERROR: <err>** or **+CFSGFIS: <n>** **OK**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<file name>	File name length should be less than or equal to 230 characters.
<n>	File size
<index>	Directory of AP filesystem: 0 "/custapp/"

	1 "/fota/" 2 "/datatx/" 3 "/customer/"
<len_filename>	Integer type. Maximum length of parameter <file name>.

Example

```
AT+CFSGFIS=?
+CFSGFIS: (0-3),230

OK
```

9.2.6 AT+CFSREN Rename a File

AT+CFSREN Rename a File	
Test Command **AT+CFSREN=?**	Response **+CFSREN:** (list of supported **<index>**s),**<len_oldname>**,**<len_newname>** **OK**
Write Command **AT+CFSREN=<index>,<old file name>,<new file name>**	Response **OK** or **ERROR** or **CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<index>	Directory of AP filesystem: 0 "/custapp/" 1 "/fota/" 2 "/datatx/" 3 "/customer/"
<old file name>	File name length should be less than or equal to 230 characters.
<new file name>	File name length should be less than or equal to 230 characters.
<len_oldname>	Integer type. Maximum length of parameter <old file name>.

<len_newname>	Integer type. Maximum length of parameter <new file name>.

Example

```
AT+CFSREN=?
+CFSREN: (0-3),230,230

OK
```

9.2.7 AT+CFSGFRS Get the Size of File System

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

Defined Values

<n>	The size of file system

Example

```
AT+CFSGFRS?
+CFSGFRS: 6391808

OK
```

9.2.8 AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT

AT+CFSTERM Free the Flash Buffer Allocated by CFSINIT	
Execution Command **AT+CFSTERM**	Response **OK** or **ERROR** or **CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Example

```
AT+CFSTERM
OK
```

9.2.9 AT+CBAINIT Initialize the AP Backup File System

AT+CBAINIT Initialize the AP Backup File System	
Execution Command **AT+CBAINIT**	Response **OK** or **ERROR** or **CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	3 seconds
Reference	-

Example

```
AT+CBAINIT
OK
```

9.2.10 AT+CBALIST Set the files Which Want to Backup

AT+CBALIST	**Set the Files Which Want to Backup**
Read Command **AT+CBALIST?**	Response **+CBALIST: <index>,<filename>** **OK**
Write Command **AT+CBALIST=<index>,<file name>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<index>	0-9 The file index. 10 Disable log 11 Enable log
<file name>	File name length should less than or equal to 80 characters.

Example

```
AT+CBALIST?
+CBALIST: 0,/custapp/cust_app.bin
+CBALIST: 1,/firmware/image/cmnlib.mbn
+CBALIST:
2,/firmware/image/keymasterapp32.mbn
+CBALIST: 3,/datatx/private/imei
+CBALIST: 4
+CBALIST: 5
+CBALIST: 6
+CBALIST: 7
+CBALIST: 8
+CBALIST: 9

OK
```

9.2.11 AT+CBAPPS Start to Backup AP File System Allocated by CBAINIT and CBALIST

AT+CBAPPS	**Start to Backup AP File System Allocated by CBAINIT and CBALIST**

Execution Command **AT+CBAPPS**	Response **OK** or **ERROR** or **CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	3 seconds
Reference	-

Example

```
AT+CBAPPS
OK
```

9.2.12 AT+CBART Restore the File into AP File System

AT+CBART Restore the File into AP File System	
Execution Command **AT+CBART**	Response **OK** or **ERROR** or **CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	3 seconds
Reference	

Example

```
AT+CBART
OK
```

NOTE

- The files should have been backup into AP file system.

10 AT Commands for SIM Application Toolkit

SIM7070_SIM7080_SIM7090 Series modules provide SAT AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_SAT_Application Note".

10.1 Overview of AT Commands for SIM Application Toolkit

Command	Description
AT+STIN	SAT indication
AT+STGI	Get SAT information
AT+STGR	SAT respond
AT+STK	STK switch

10.2 Detailed Descriptions of AT Commands for SIM Application Toolkit

10.2.1 AT+STIN SAT Indication

AT+STIN SAT Indication	
Test Command **AT+STIN=?**	Response **OK**
Read Command **AT+STIN?**	Response **+STIN: <cmd_id>** **OK** If the current proactive command has been changed: **+STIN: <cmd_id>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<cmd_id>	Indicate the type of proactive command issued. 0 None command 21 Display text 22 Get inkey 23 Get input 24 Select item 25 Set up menu

NOTE

Notification that application will return to main menu automatically if user doesn't do any action in 2 minutes.

10.2.2 AT+STGI Get SAT Information

AT+STGI Get SAT Information	
Test Command **AT+STGI=?**	Response **OK**
Write Command **AT+STGI=<cmd_id>**	Response If **<cmd_id>**=21: **+STGI:21,<prio>,<clear_mode>,<text_len>,<text>** **OK** If **<cmd_id>**=22: **+STGI:22,<rsp_format>,<help>,<text_len>,<text>** **OK** If **<cmd_id>**=23: **+STGI:23,<rsp_format>,<max_len>,<min_len>,<help>,<show><text_len>,<text>** **OK** If **<cmd_id>**=24: **+STGI:24,<help>,<softkey>,<present>,<title_len>,<title><item_nu**

	m> **+STGI:24,<item_id>,<item_len>,<item_data>** **[…]** **OK** If **<cmd_id>**=25: **+STGI:25,<help>,<softkey>,<title_len>,<title><item_num>** **+STGI:25,<item_id>,<item_len>,<item_data>** **[…]** **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<cmd_id>	See AT+STIN.
<prio>	Priority of display text. 0 Normal priority 1 High priority
<clear_mode>	0 Clear after a delay 1 Clear by user
<text_len>	Length of text
<rsp_format>	0 SMS default alphabet 1 YES or NO 2 Numerical only 3 UCS2
<help>	0 Help unavailable 1 Help available
<max_len>	Maximum length of input
<min_len>	Minimum length of input
<show>	0 Hide input text 1 Display input text
<softkey>	0 No softkey preferred 1 Softkey preferred
<present>	Menu presentation format available for select item 0 Presentation not specified 1 Data value presentation 2 Navigation presentation
<title_len>	Length of title

<item_num>	Number of items in the menu
<item_id>	Identifier of item
<item_len>	Length of item
<title>	Title in ucs2 format
<item_data>	Content of the item in ucs2 format
<text>	Text in ucs2 format

NOTE

Regularly this command is used upon receipt of an URC "+STIN" to request the parameters of the proactive command. Then the TA is expected to acknowledge the AT+STGI response with AT+STGR to confirm that the proactive command has been executed.

10.2.3 AT+STGR SAT Respond

AT+STGR SAT respond	
Test Command **AT+STGR=?**	Response **OK**
Write Command **AT+STGR=<cmd_id>[,<data>]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<cmd_id>	Identifier of proactive command. 21 Display text 22 Get inkey 23 Get input 24 Select item 25 Set up menu 83 Session end by user 84 Go backward
<data>	If **<cmd_id>**=21: Display text If **<cmd_id>**=22: Input a character If **<cmd_id>**=23:

	Input a string. If **<rsp_format>** is YES or NO, input of a character in case of ANSI character set requests one byte, e.g. "Y". If **<rsp_format>** is numerical only, input the characters in decimal number, e.g. "123". If **<rsp_format>** is UCS2, requests a 4 byte string, e.g. "0031". **<rsp_format>** refer to the response by AT+STGI=23. If **<cmd_id>**=24: Input the identifier of the item selected by user. If **<cmd_id>**=25: Input the identifier of the item selected by user. If **<cmd_id>**=83: **<data>**Ignore Note: It could return main menu during proactive command id is not 22 or 23. If **<cmd_id>**=84: **<data>** Ignore

10.2.4 AT+STK STK Switch

AT+STK STK Switch	
Test Command **AT+STK=?**	Response **OK**
Read Command **AT+STK?**	Response **+STK: <value>** **OK**
Write Command **AT+STK=<value>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<value>	0 Disable STK 1 Enable STK

11 AT Commands for SSL Application

11.1 Overview of AT Commands for SSL Application

Command	Description
AT+CSSLCFG	Configure SSL parameters of a context identifier

11.2 Detailed Descriptions of AT Commands for SSL Application

11.2.1 AT+CSSLCFG Configure SSL Parameters of a Context Identifier

AT+CSSLCFG Configure SSL Parameters of a Context Identifier	
Test Command AT+CSSLCFG=?	Response **+CSSLCFG: "SSLVERSION",**(range of supported **<ctxindex>s),**(list of supported **<sslversion>**s) **+CSSLCFG: "CIPHERSUITE",**(range of supported **<ctxindex>**s),(range of supported **<cipher_index**>s),(list of supported **<ciphersuite>**s) **+CSSLCFG: "IGNORERTCTIME"**,(range of supported **<ctxindex>**s),(range of supported **<ignorertctime>**s) **+CSSLCFG: "PROTOCOL",**(range of supported **<ctxindex>**s),(list of supported **<protocol>**s) **+CSSLCFG: "SNI"**,(range of supported **<ctxindex>**s),**<len_servername>** **+CSSLCFG: "CTXINDEX"**,(range of supported **<ctxindex>**s) **+CSSLCFG: "MAXFRAGLENDISABLE"**,(range of supported **<ctxindex>**s), (range of supported **<maxfraglendisable>**s) **+CSSLCFG: "CONVERT"**,(list of supported **<ssltype**>s),**<len_cname>,<len_keyname>,<len_passkey>** **+CSSLCFG: "CERTDISABLE",**(range of supported <**ctxindex**>s),(range of supported <**certdisable**>s) **OK**

Read Command **AT+CSSLCFG?**	Response **OK**
Write Command **AT+CSSLCFG="SSLVERSION",<ctxindex>,<sslversion>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="CIPHERSUITE",<ctxindex>,<cipher_index>,<ciphersuite>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="IGNORERTCTIME",<ctxindex>,<ignorertctime>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="PROTOCOL",<ctxindex>,<protocol>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="CTXINDEX",<ctxindex>**	Response **+CSSLCFG: <ctxindex>,<sslversion>,<ciphersuite>,<ignorertctime>,<protocol>,<sni>** **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="CONVERT",<ssltype>,<cname>[,<keyname>[,<passkey>]]**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="SNI",<ctxindex>,<servername>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="MAXFRAGLENDISABLE",<ctxindex>,<maxfraglendisable>**	Response **OK** If failed: **+CME ERROR: <err>**
Write Command **AT+CSSLCFG="CERTDISABLE",<ctxindex>,<certdisable>**	Response **OK** If failed: **+CME ERROR**: <err>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<ctxindex>	0-5
<sslversion>	0 QAPI_NET_SSL_PROTOCOL_UNKNOWN 1 QAPI_NET_SSL_PROTOCOL_TLS_1_0 2 QAPI_NET_SSL_PROTOCOL_TLS_1_1 3 QAPI_NET_SSL_PROTOCOL_TLS_1_2 4 QAPI_NET_SSL_PROTOCOL_DTLS_1_0 5 QAPI_NET_SSL_PROTOCOL_DTLS_1_2 6 QAPI_NET_SSL_PROTOCOL_TLS_1_3 (only supported with 2117 firmware baseline)
<cipher_index>	0-7
<ciphersuite>	0x008A QAPI_NET_TLS_PSK_WITH_RC4_128_SHA 0x008B QAPI_NET_TLS_PSK_WITH_3DES_EDE_CBC_SHA 0x008C QAPI_NET_TLS_PSK_WITH_AES_128_CBC_SHA 0x008D QAPI_NET_TLS_PSK_WITH_AES_256_CBC_SHA 0x00A8 QAPI_NET_TLS_PSK_WITH_AES_128_GCM_SHA256 0x00A9 QAPI_NET_TLS_PSK_WITH_AES_256_GCM_SHA384 0x00AE QAPI_NET_TLS_PSK_WITH_AES_128_CBC_SHA256 0x00AF QAPI_NET_TLS_PSK_WITH_AES_256_CBC_SHA384 0x002F QAPI_NET_TLS_RSA_WITH_AES_128_CBC_SHA 0x0033 QAPI_NET_TLS_DHE_RSA_WITH_AES_128_CBC_SHA 0x0035 QAPI_NET_TLS_RSA_WITH_AES_256_CBC_SHA 0x0039 QAPI_NET_TLS_DHE_RSA_WITH_AES_256_CBC_SHA 0x003C QAPI_NET_TLS_RSA_WITH_AES_128_CBC_SHA256 0x003D QAPI_NET_TLS_RSA_WITH_AES_256_CBC_SHA256 0x0067 QAPI_NET_TLS_DHE_RSA_WITH_AES_128_CBC_SHA256 0x006B QAPI_NET_TLS_DHE_RSA_WITH_AES_256_CBC_SHA256 0x009C QAPI_NET_TLS_RSA_WITH_AES_128_GCM_SHA256 0x009D QAPI_NET_TLS_RSA_WITH_AES_256_GCM_SHA384 0x009E QAPI_NET_TLS_DHE_RSA_WITH_AES_128_GCM_SHA256 0x009F QAPI_NET_TLS_DHE_RSA_WITH_AES_256_GCM_SHA384 0xC004 QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA 0xC005 QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA 0xC009 QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA 0xC00A QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA

	0xC00E QAPI_NET_TLS_ECDH_RSA_WITH_AES_128_CBC_SHA 0xC00F QAPI_NET_TLS_ECDH_RSA_WITH_AES_256_CBC_SHA 0xC013 QAPI_NET_TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA 0xC014 QAPI_NET_TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA 0xC023 QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256 0xC024 QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384 0xC025 QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA256 0xC026 QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_256_CBC_SHA384 0xC027 QAPI_NET_TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256 0xC028 QAPI_NET_TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384 0xC029 QAPI_NET_TLS_ECDH_RSA_WITH_AES_128_CBC_SHA256 0xC02A QAPI_NET_TLS_ECDH_RSA_WITH_AES_256_CBC_SHA384 0xC02B QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 0xC02C QAPI_NET_TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 0xC02D QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_128_GCM_SHA256 0xC02E QAPI_NET_TLS_ECDH_ECDSA_WITH_AES_256_GCM_SHA384 0xC02F QAPI_NET_TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256 0xC030 QAPI_NET_TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384 0xC031 QAPI_NET_TLS_ECDH_RSA_WITH_AES_128_GCM_SHA256 0xC032 QAPI_NET_TLS_ECDH_RSA_WITH_AES_256_GCM_SHA384 0xC09C QAPI_NET_TLS_RSA_WITH_AES_128_CCM 0xC09D QAPI_NET_TLS_RSA_WITH_AES_256_CCM 0xC09E QAPI_NET_TLS_DHE_RSA_WITH_AES_128_CCM 0xC09F QAPI_NET_TLS_DHE_RSA_WITH_AES_256_CCM 0xC0A0 QAPI_NET_TLS_RSA_WITH_AES_128_CCM_8 0xC0A1 QAPI_NET_TLS_RSA_WITH_AES_256_CCM_8

	0xC0A2 QAPI_NET_TLS_DHE_RSA_WITH_AES_128_CCM_8 0xC0A3 QAPI_NET_TLS_DHE_RSA_WITH_AES_256_CCM_8 0xCC13 QAPI_NET_TLS_ECDHE_RSA_WITH_CHACHA20_POLY1305_SHA256 0xCC14 QAPI_NET_TLS_ECDHE_ECDSA_WITH_CHACHA20_POLY1305_SHA256 0xCC15 QAPI_NET_TLS_DHE_RSA_WITH_CHACHA20_POLY1305_SHA256 (Following options only supported when <sslversion>=6) 0x1301 QAPI_NET_TLS13_AES_128_GCM_SHA256 0x1302 QAPI_NET_TLS13_AES_256_GCM_SHA384 0x1303 QAPI_NET_TLS13_CHACHA20_POLY1305_SHA256
<ignorertctime>	0 Do not ignore the RTC time 1 Ignore the RTC time
<protocol>	1 QAPI_NET_SSL_TLS_E 2 QAPI_NET_SSL_DTLS_E
<ssltype>	1 QAPI_NET_SSL_CERTIFICATE_E 2 QAPI_NET_SSL_CA_LIST_E 3 QAPI_NET_SSL_PSK_TABLE_E
<cname>	String type (string should be included in quotation marks): name of cert file
<keyname>	String type (string should be included in quotation marks):name of key file
<passkey>	String type (string should be included in quotation marks):value of passkey
<len_cname>	Integer type. Maximum length of parameter <cname>.
<len_keyname>	Integer type. Maximum length of parameter <keyname>.
<len_passkey>	Integer type. Maximum length of parameter <passkey>.
<maxfraglendisable>	0 Do not disable the extension of max fragment length 1 Disable the extension of max fragment length
<certdisable>	Note: the value takes effect only after the module is restarted 0 Do loading the certs 1 Do not loading the certs

Example

```
AT+CSSLCFG=?
+CSSLCFG: "SSLVERSION",(0-5),(0-5)
+CSSLCFG:
"CIPHERSUITE",(0-5),(0-7),(0x008A,0x008B,0
x008C,0x008D,0x00A8,0x00A9,0x00AE,0x00A
F,0x002F,0x0033,0x0035,0x0039,0xC02A,0xC
02B,0xC02C,0xC02D,0xC02E,0xC02F,0xC030,
0xC031,0xC032,0xC09C,0xC09D,0xC09E,0xC
09F,0xC0A0,0xC09F,0xC0A1,0xC0A2,0xC0A3,
0xCC13,0xCC14,0xCC15)
+CSSLCFG: "IGNORERTCTIME",(0-5),(0-1)
+CSSLCFG: "PROTOCOL",(0-5),(1-2)
+CSSLCFG: "SNI",(0-5),253
+CSSLCFG: "CTXINDEX",(0-5)
+CSSLCFG:
"MAXFRAGLENDISABLE",(0-5),(0-1)
+CSSLCFG: "CONVERT",(1-3),50,50,50
+CSSLCFG: "CERTDISABLE",(0-5),(0-1)

OK
AT+CSSLCFG="CONVERT",2,"ca.crt"
OK
AT+CSSLCFG="CONVERT",1,"myclient.crt",
"myclient.key"
OK
```

12 AT Commands for TCP/UDP(S) Application

SIM7070_SIM7080_SIM7090 Series modules provide TCP/UDP AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_TCPUDP(S)_Application Note".

12.1 Overview of AT Commands for TCP/UDP(S) Application

Command	Description
AT+CACID	Set TCP/UDP identifier
AT+CASSLCFG	Set SSL certificate and timeout parameters
AT+CAOPEN	Open a TCP/UDP connection
AT+CASERVER	Open a TCP/UDP Server
AT+CARECV	Receive data via an established connection
AT+CASEND	Send Data via an Established Connection
AT+CAACK	Query Send Data Information
AT+CASTATE	Query TCP/UDP Connection State
AT+CACLOSE	Close a TCP/UDP connection
AT+CACFG	Configure transparent transmission parameters
AT+CASWITCH	Switch to transparent transport mode
AT+CASRIP	Show the remote IP and port when print the received data or not

12.2 Detailed Descriptions of AT Commands for TCP/UDP(S) Application

12.2.1 AT+CACID(option) Set TCP/UDP Identifier

AT+CACID Set TCP/UDP Identifier	
Test Command AT+CACID=?	Response **+CACID:** (range of supported **<cid>**s)

	OK
Read Command **AT+CACID?**	Response **[+CACID: <cid>** **]** **OK**
Write Command **AT+CACID=<cid>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<cid>	TCP/UDP identifier. Range is 0-12.

Example

```
AT+CACID=?
+CACID: (0-12)

OK
AT+CACID?
OK
```

12.2.2 AT+CASSLCFG Set SSL Certificate and Timeout Parameters

AT+CASSLCFG Set SSL Certificate and Timeout Parameters	
Test Command **AT+CASSLCFG=?**	Response **+CASSLCFG:** (range of supported **<cid>**s),**"SSL",**(list of supported **<sslFlag>**s) **+CASSLCFG:** (range of supported **<cid>**s),**"CRINDEX"**,(list of supported **<ctxindex>**s) **+CASSLCFG:** (range of supported **<cid>**s),**"CACERT"**,**<len_caname>** **+CASSLCFG:** (range of supported **<cid>**s),**"CERT",<len_certname>**

	+CASSLCFG: (range of supported **<cid>**s),**"PSKTABLE"**,**<len_pskname>** **OK**
Read Command **AT+CASSLCFG?**	Response **[+CASSLCFG: <cid>,<sslFlag>,<crindex>,<caname>,<certname>,<pskname>]** **OK**
Write Command **AT+CASSLCFG=<cid>,"CACERT",<caname>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CASSLCFG=<cid>,"CERT",<certname>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CASSLCFG=<cid>,"PSKTABLE",<pskname>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CASSLCFG=<cid>,"SSL",<sslFlag>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CASSLCFG=<cid>,"CRINDEX",<crindex>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	see AT+CACID
<certname>	Alphanumeric ASCII text string up to 64 characters. Client certificate name that has been configured by AT+CSSLCFG.
<len_certname>	Integer type. Maximum length of parameter <certname>.
<pskname>	Alphanumeric ASCII text string up to 64 characters. PSK table name that has been configured by AT+CSSLCFG.
<len_pakname>	Integer type. Maximum length of parameter <pskname>.
<sslFlag>	Integer 0 Not support SSL

	1 Support SSL
<ctxindex>	The identifier of SSL configurations, see AT+CSSLCFG.

Example

```
AT+CASSLCFG=?
+CASSLCFG: (0-12),"SSL",(0,1)
+CASSLCFG: (0-12),"CRINDEX",(0-5)
+CASSLCFG: (0-12),"CACERT",(1-50)
+CASSLCFG: (0-12),"CERT",(1-50)
+CASSLCFG: (0-12),"PSKTABLE",(1-50)

OK
AT+CASSLCFG?
OK
AT+CACID=0
OK
AT+CASSLCFG?
+CASSLCFG: 0,0,0,,,

OK
AT+CACID=1
OK
AT+CASSLCFG?
+CASSLCFG: 0,0,0,,,
+CASSLCFG: 1,0,0,,,

OK
```

12.2.3 AT+CAOPEN Open a TCP/UDP Connection

AT+CAOPEN Open a TCP/UDP Connection	
Test Command **AT+CAOPEN=?**	Response **+CAOPEN:** (range of supported **<cid>**s),(range of supported **<pdp_index>**s),(list of supported **<conn_type>**s),**<len_server>**,(range of supported **<port>**s),(list of supported **<recv_mode>**s) **OK**
Read Command **AT+CAOPEN?**	Response **[+CAOPEN: <cid>,<pdp_index>,<conn_type>,<server>,<port>**

	] **OK**
Write Command **AT+CAOPEN=<cid>,<pdp_index>,<conn_type>,<server>,<port>[,<recv_mode>]**	Response If <asyncOpen_enable**>** not set or set 0. **+CAOPEN: <cid>,<result>** **OK** Otherwise **OK** **+CAOPEN: <cid>,<result>** If error is related to ME functionality: **+CME ERROR: <err>**
Unsolicited Result Codes	Whether parameters <remoteIP> and <remote_port> are displayed is controlled by AT+CASRIP=<onoff>. If AT+CASRIP=1 **+CAURC: "recv",<id>,<length>[,<remoteIP>,<remote_port>]<CR><LF><data>** If AT+CASRIP=0 **+CAURC: "recv",<id>,<length><CR><LF><data>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	see AT+CACID
<pdp_index>	Index of PDP connection
<conn_type>	Transfer type "TCP" "UDP" "NONIP"
<server>	Alphanumeric ASCII text string up to 64 characters. Server IP address or host name.
<len_server>	Integer type. Maximum length of parameter <server>.
<port>	Integer. Server port.
<result>	0 Success 1 Socket error 2 No memory 3 Connection limit 4 Parameter invalid 6 Invalid IP address 7 Not support the function

	8 Session types do not match 9 The session has been closed but not released 10 Illegal operation 11 Unable to close socket 12 Can’t bind the port 13 Can’t listen the port 18 Connect failed 20 Can’t resolv the host 21 Network not active 23 Remote refuse 24 Certificate’s time expired 25 Certificate’s common name does not match 26 Certificate’s common name does not match and time expired 27 SSL Connect failed
<recv_mode>	0 The received data can only be read manually using AT+CARECV=<cid> 1 After receiving the data, it will automatically report URC: +CAURC: "recv",<id>,<length>[,<remoteIP>,<remote_port>]<CR><LF><data>

NOTE

- If <recv_mode>=0, After open a connection successfully, if module receives data, it will report "+CADATAIND: <cid>" to remind user to read data.
- If <recv_mode>=0, After open a connection successfully, if module receives data, If the buffer is full,URC will report +CAURC: “buffer full”
- If <recv_mode>=1, After open a connection successfully, if module receives data, it will report **+CAURC: "recv",<id>,<recvlen>,<remoteIP>,<remote_port><CR><LF><data>**（If the remote IP and port for printing are set through "AT+CASRIP", <remoteIP> and <remote_port> will be displayed）
- If the TCP server is established via “AT+CASERVER”, and the client connection is full, URC will report as follows: **+CAURC: "incoming full"**.

Example

```
AT+CAOPEN=?
+CAOPEN:
(0-12),(0-4),("TCP","UDP","NONIP"),64,(1-655
35),(0,1)

OK
AT+CAOPEN?
```

OK

12.2.4 AT+CASERVER Open a TCP/UDP Server

AT+CASERVER Open a TCP/UDP Server	
Test Command **AT+CASERVER=?**	Response **+CASERVER:** (range of supported **<cid>**s),(range of supported **<pdp_index>**s),(list of supported **<conn_type>**s),(range of supported **<port>**s),(list of supported **<recv_mode>**s) **OK**
Read Command **AT+CASERVER?**	Response **[+CASERVER: <cid>,<pdp_index>,<conn_type>,<port>,<recv_mode>]** **OK**
Write Command **AT+CASERVER=<cid>,<pdp_index>,<conn_type>,<port>[,<recv_mode>]**	Response **+CASERVER: <cid>,<result>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	TCP/UDP identifier
<pdp_index>	Index of PDP connection
<conn_type>	Transfer type "TCP" "TCP6" "UDP" "UDP6"
<port>	Integer. Server port.
<recv_mode>	0 The received data can only be read manually using AT+CARECV=<cid> 1 After receiving the data, it will automatically report URC: +CAURC: "recv",<id>,<length>,<remoteIP>,<remote_port><CR><LF><data>

<result>	0 Success 1 Socket error 2 No memory 3 Connection limit 4 Parameter invalid 6 Invalid IP address 7 Not support the function 12 Can't bind the port 13 Can't listen the port 20 Can't resolv the host 21 Network not active 23 Remote refuse 24 Certificate's time expired 25 Certificate's common name does not match 26 Certificate's common name does not match and time expired 27 Connect failed error

NOTE

- After a client access, it will report that.+CANEW: <server_cid>,<client_cid>,<client_ip>,<client_port>

Example

```
AT+CASERVER=?
+CASERVER:
(0-12),(0-4),("TCP","TCP6","UDP","UDP6"),(1
-65535),(0,1)

OK
AT+CASERVER?
OK
```

12.2.5 AT+CASEND Send Data via an Established Connection

AT+CASEND Send Data via an Established Connection	
Test Command AT+CASEND=?	Response **+CASEND:** (range of supported **<cid>**s),(range of supported **<datalen>**),(range of supported **<inputtime>**)

	OK
Write Command **AT+CASEND=<cid>**	Response **+CASEND: <leftsize>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+CASEND=<cid>,<datalen>[,<inputtime>]**	Response >…….. //Input data **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	Note

Defined Values

<leftsize>	Query free size for send buffer
<cid>	TCP/UDP identifier
<datalen>	Requested number of data bytes to be transmitted
<inputtime>	Millisecond, should input data during this period or you can't input data when timeout.

Example

```
AT+CASEND=?
+CASEND: (0-12),(1-1460),(100-10000)

OK
```

NOTE

- Set the input time that input data during this period or you can't input data when timeout. The default inputtime is 5000ms.

12.2.6 AT+CARECV Receive Data via an Established Connection

AT+CARECV Receive Data via an Established Connection	
Test Command **AT+CARECV=?**	Response **+CARECV:** (range of supported **<cid>**s),(range of supported **<readlen>**) **OK**
Write Command **AT+CARECV=<cid>,<readlen>**	Response **+CARECV: <recvlen>,[<remote IP>,<remote port>,]……**//output data **OK** (Note: <remote IP> and <remote port> will show if AT+CASRIP=1) If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	TCP/UDP identifier
<readlen>	Requested number of data bytes to be read
<recvlen>	Data bytes that has been actually received
<remote IP>	Remote IP
<remote port>	Remote port

Example

```
AT+CARECV=?
+CARECV: (0-12),(1-1460)

OK
```

12.2.7 AT+CAACK Query Send Data Information

AT+CAACK Query Send Data Informations	
Test Command	Response

AT+CAACK=?	**+CAACK:** (range of supported **<cid>**s) **OK**
Write Command **AT+CAACK=<cid>**	Response **+CAACK: <totalsize>,<unacksize>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<cid>	TCP/UDP identifier
<totalsize>	Total size of sent data.
<unacksize>	The size of unack data

Example

```
AT+CAACK=?
+CAACK: (0-12)

OK
```

12.2.8 AT+CASTATE Query TCP/UDP Connection State

AT+CASTATE	**Query TCP/UDP Connection State**
Read Command **AT+CASTATE?**	Response **[+CASTATE: <cid>,<state>** **]** **OK**
Unsolicited Result Code	If the remote connection is disconnected **+CASTATE: <cid>,<state>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<cid>	TCP/UDP identifier
<state>	0 Closed by remote server or internal error 1 Connected to remote server 2 Listening (server mode)

Example

```
AT+CASTATE?
OK
```

12.2.9 AT+CACLOSE Close a TCP/UDP Connection

AT+CACLOSE Close a TCP/UDP Connection	
Test Command **AT+CACLOSE=?**	Response **+CACLOSE:** (range of supported **<cid>**s) **OK**
Write Command **AT+CACLOSE=<cid>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Unsolicited Result Code	If the <autoClose_s> set 1, this report will be reported when the remote connection is disconnected. **+CACLOSE: <cid>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	TCP/UDP identifier

Example

```
AT+CACLOSE=?
+CACLOSE: (0-12)

OK
```

```
AT+CACLOSE=0
OK
AT+CACLOSE=1
OK
AT+CACLOSE=2
ERROR
```

12.2.10 AT+CACFG Configure Transparent Transmission Parameters

AT+CACFG Configure Transparent Transmission Parameters	
Test Command AT+CACFG=?	Response **+CACFG: "TRANSWAITTM"**,(range of supported **<wait_timeout>**s) **+CACFG: "TRANSPKTSIZE"**,(range of supported **<size>**s) **+CACFG: "SACK",**(list of supported <**sack_enable**>s) **+CACFG: "MSS",**(range of supported <**mss_value**>s) **+CACFG: "ACKDELAY",**(range of supported **<ackDelay_ms>**s) **+CACFG: "TCPIRT",**(range of supported **<tcpIRT_ms>**s) **+CACFG: "MAXRXT",**(range of supported <**tcpMaxRXT_cnt**>s) **+CACFG: "TCPOT",**(range of supported **<tcpOT_ms>**s) **+CACFG: "KEEPALIVE",**(list of supported**<keepalive_enable>**s)**,**[(range of supported **<keepalive_idle>**s), (range of supported **<keepalive_intval>**s),(range of supported **<keepalive_cnt>**s)] **+CACFG: "TCP_NODELAY",**(list of supported **<tcpNodelay_enable>**s) **+CACFG: "LINGER",**(list of supported **<linger_enable>**s)[,(range of supported **<linger_ms>**s)] **+CACFG: "SNDBUF",**(range of supported **<sndBuf_size>**) **+CACFG: "RCVBUF",**(range of supported **<rcvBuf_size>**) **+CACFG: "ATOCLOSE",**(list of supported **<autoClose_enable>**s)[**,**(range of supported **<autoClose_s>**s] **+CACFG: "ACCEPTNUM",**(range of supported <**acceptMax_num**>s) **+CACFG: "ASYNCOPEN",**(list of supported <**asyncOpen_enable**>s) **+CACFG: "TIMEOUT",**(range of supported **<cid>**s),(range of supported **<timeout>**s) **+CACFG: "LOCALPORT"**,(range of supported **<cid>**s),(range of supported **<localport>**s) **+CACFG: "REMOTEADDR"**,(range of supported **<cid>**s),(range of supported **<ip address>**s),(range of supported **<port>**s)

	OK
Read Command **AT+CACFG?**	Response **+CACFG: "TRANSWAITTM", <wait_timeout>** **+CACFG: "TRANSPKTSIZE",<size>** **[+CACFG: "SACK",<sack_enable>** **+CACFG: "MSS",<mss_value>** **+CACFG: "ACKDELAY",<ackDelay_ms>** **+CACFG: "TCPIRT",<tcpIRT_ms>** **+CACFG: "MAXRXT",<tcpMaxRXT_cnt>s)** **+CACFG: "TCPOT",<tcpOT_ms>** **+CACFG: "KEEPALIVE",<keepalive_enable>**[**<keepalive_idle**>,**<keepalive_intval>,<keepalive_cnt>**] **+CACFG: "TCP_NODELAY",<tcpNodelay_enable>** **+CACFG: "LINGER",<linger_enable>**[,**<linger_ms>**] **+CACFG: "SNDBUF",<sndBuf_size>** **+CACFG: "RCVBUF",<rcvBuf_size>** **+CACFG: "ATOCLOSE",<autoClose_enable>**[,**<autoClose_s>**] **+CACFG: "ACCEPTNUM",<acceptMax_num>** **+CACFG: "ASYNCOPEN",<asyncOpen_enable>** **+CACFG: "TIMEOUT", <cidx>,<timeoutx>...** **+CACFG: "LOCALPORT",<cidx>,<localportx>...** **[+CACFG: "REMOTEADDR",<cidx>,<ipadressx>,<portx>...** **]]** **OK**
Write Command **AT+CACFG="TRANSWAITTM",<wait_timeout>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="TRANSPKTSIZE",<size>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="SACK",<sack_enable>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="MSS",<mss_value>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="ACKDELAY",<ackDelay_ms>**	Response **OK** or

	ERROR
Write Command **AT+CACFG="TCPIRT",<tcpIRT_ms>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="TCPOT",<tcpOT_ms>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="KEEPALIVE",<keepalive_enable>[<keepalive_idle>,<keepalive_intval>,<keepalive_cnt>]**	Response **OK** or **ERROR**
Write Command **AT+CACFG="TCP_NODELAY",<tcpNodelay_enable>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="LINGER",<linger_enable>[,<linger_ms>]**	Response **OK** or **ERROR**
Write Command **AT+CACFG="SNDBUF",<sndBuf_size>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="RCVBUF",<rcvBuf_size>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="ATOCLOSE",<autoClose_enable>[,<autoClose_s>]**	Response **OK** or **ERROR**
Write Command **AT+CACFG="ACCEPTNUM",<acceptMax_num>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="ASYNCOPEN",(0-1)**	Response **OK** or **ERROR**

Write Command **AT+CACFG="TIMEOUT",<cid>,<timeoutx>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="LOCALPORT",<cid>,<localport>**	Response **OK** or **ERROR**
Write Command **AT+CACFG="REMOTEADDR",<cid>,<ipaddress>,<localport>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	TCP/UDP identifier, see AT+CACID.
<wait_timeout>	Waiting to send time(unit is 100ms). default is 2
<size>	Waiting for the size of the sending packet(byte).default is 1320.
<sack_enable>	TCP selective acknowledgment function switch 0 Disable 1 Enable
<mss_value>	TCP maximum segment size. Unit is byte
<ackDelay_ms>	TCP delayed acknowledgment. Unit is ms
<tcpIRT_ms>	TCP retransmission interval time. Unit is ms
<tcpMaxRXT_cnt>	TCP retransmission maximum times
<tcpOT_ms>	TCP retransmission timeout. Unit is ms
<keepalive_enable>	TCP keepalive function switch 0 Disable 1 Enable
<keepalive_idle>	TCP keepalive idle. Unit is second
<keepalive_intval>	TCP keepalive interval. Unit is second
<keepalive_cnt>	TCP keepalive count
<tcpNodelay_enable>	TCP nodelay send switch 0 Disable 1 Enable
<linger_enable>	Linger active switch 0 Disable 1 Enable
<linger_ms>	How many seconds to linger for . Unit is ms
<sndBuf_size>	Set the size of the send buffer for each socket

<rcvBuf_size>	Set the size of the receive buffer for each socket
<autoClose_enable>	A function switch to automatically close the TCP/UDP identifier when the connection is closed remotely 0 Disable 1 Enable
<autoClose_s>	Delay time to close TCP/UDP identifier. Unit is second. When <autoClose_enable>=1, <autoClose_s> is to set the delay time and cannot be omitted.
<acceptMax_num>	The maximum number of clients allowed by the tcp server
<asyncOpen_enable>	caopen asynchronous switch 0 Disable 1 Enable
<timeout>	Timeout of send data. Unit is ms. Default is 100 ms.
<localport>	0-65535
<ipaddress>	Send to IP address (for UDP server)
<localport>	0-65535

Example

```
AT+CACFG=?
+CACFG: "TRANSWAITTM",(0-20)
+CACFG: "TRANSPKTSIZE",(1-1460)
+CACFG: "SACK",(0-1)
+CACFG: "MSS",(512-1420)
+CACFG: "ACKDELAY",(0-5000)
+CACFG: "TCPIRT",(200-120000)
+CACFG: "MAXRXT",(1-16)
+CACFG: "TCPOT",(200-120000)
+CACFG:
"KEEPALIVE",(0-1),[(30-86400),(30-86400),(1-
100)]
+CACFG: "TCP_NODELAY",(0-1)
+CACFG: "LINGER",(0-1),(0-120000)
+CACFG: "SNDBUF",(5840-29200)
+CACFG: "RCVBUF",(5840-29200)
+CACFG: "ATOCLOSE",(0-1),(0-120)
+CACFG: "ACCEPTNUM",(1-7)
+CACFG: "ASYNCOPEN",(0-1)
+CACFG: "TIMEOUT",(0-12),(1-60000)
+CACFG: "LOCALPORT",(0-12),(0-65535)
+CACFG:
"REMOTEADDR",(0-12),64,(1-65535)

OK
```

```
AT+CACFG?
+CACFG: TRANSWAITTM,2
+CACFG: TRANSPKTSIZE,1320
+CACFG: SACK,1
+CACFG: ACKDELAY,0
+CACFG: KEEPALIVE,1,,,
+CACFG: TCP_NODELAY,1
+CACFG: SNDBUF,10240
+CACFG: RCVBUF,10240

OK
AT+CACLOSE=1
OK
AT+CACLOSE=2
ERROR
```

12.2.11 AT+CASWITCH Switch to Transparent Transport Mode

AT+CASWITCH Switch to Transparent Transport Mode	
Test Command **AT+CASWITCH=?**	Response **+CASWITCH:** (range of supported **<cid>**s),(list of supported **<transmode>**s) **OK**
Read Command **AT+CASWITCH?**	Response **+CASWITCH: <cid>,<transmode>** **OK** or If no <cid> has been set by AT+CACID: **OK**
Write Command **AT+CASWITCH=<cid>,<transmode>**	Response **OK** or **OK** **CONNECT** … … or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-

Reference	

Defined Values

<cid>	See AT+CACID
<transmode>	0 Non transparent transmission mode 1 Transparent transmission mode

12.2.12 AT+CASRIP Show the remote IP and port when print the received data or not

AT+CASRIP Show the remote IP and port when print the received data or not	
Test Command **AT+CASRIP=?**	Response **+CASRIP:** (list of supported **<onoff>**s) **OK**
Read Command **AT+CASRIP?**	Response **+CASRIP: <onoff>** **OK**
Write Command **AT+CASRIP=<onoff>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<onoff>	Show the remote IP and port when print the received data or not 0 Do not show the remote IP and prot 1 Show the remote IP and prot

13 AT Commands for HTTP(S) Application

SIM7070_SIM7080_SIM7090 Series modules provide HTTP(S) AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_HTTP(S)_Application Note".

13.1 Overview of AT Commands for HTTP(S) Application

Command	Description
AT+SHCONF	Set HTTP(S) Parameter
AT+SHSSL	Select SSL Configure
AT+SHCONN	HTTP(S) Connection
AT+SHBOD	Set Body
AT+SHAHEAD	Add Head
AT+SHPARA	Set HTTP(S) Para
AT+SHCPARA	Clear HTTP(S) Para
AT+SHCHEAD	Clear Head
AT+SHSTATE	Query HTTP(S) Connection Status
AT+SHREQ	Set Request Type
AT+SHREAD	Read Response Value
AT+SHDISC	Disconnect HTTP(S)
AT+HTTPTOFS	Download file to ap file system
AT+HTTPTOFSRL	State of download file to ap file system
AT+SHRHEAD	Read Response Headers

13.2 Detailed Descriptions of AT Commands for HTTP(S) Application

13.2.1 AT+SHCONF Set HTTP(S) Parameter

AT+SHCONF Set HTTP(S) Parameter	
Test Command **AT+SHCONF=?**	Response **+SHCONF: "URL",<len_URL>** **+SHCONF: "TIMEOUT",**(range of supported **<timeout>**s) **+SHCONF: "BODYLEN",**(range of supported **<bodylen>**s) **+SHCONF: "HEADERLEN",**(range of supported **<headerlen>**s) **+SHCONF: "POLLCNT",**(range of supported **<pollcnt>**s) **+SHCONF: "POLLINTMS",**(range of supported **<pollintms>**s) **+SHCONF: "IPVER",**(list of supported **<ipver>**s) **OK**
Read Command **AT+SHCONF?**	Response **+SHCONF:** **URL: <url>** **TIMEOUT: <timeout>** **BODYLEN: <bodylen>** **HEADERLEN: <headerlen>** **POLLCNT: <pollcnt>** **POLLINTMS: <pollintms>** **IPVER: <ipver>** **OK**
Write Command **AT+SHCONF="URL",<url>**	Response **OK** or **ERROR**
Write Command **AT+SHCONF="TIMEOUT",<timeout>**	Response **OK** or **ERROR**
Write Command **AT+SHCONF="HEADERLEN",<headerlen>**	Response **OK** or **ERROR**
Write Command **AT+SHCONF="POLLCNT",<pollcnt>**	Response **OK** or **ERROR**
Write Command **AT+SHCONF="IPVER",<ipver>**	Response **OK** or **ERROR**
Write Command **AT+SHCONF="BODYLEN",<bodylen>**	Response **OK** or

	ERROR
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<len_URL>	Integer type. Maximum length of parameter <URL>.
<url>	Server URL address (max is 64 bytes). "server domain[: tcpPort]"
<timeout>	Hold once request time. Unit is second. Default 60s. 30-1800
<bodylen>	Set body max length. 0-4096
<headerlen>	Set head max length. 0-350
<pollcnt>	Try connect times. Default is 15 times. 1-100
<pollintms>	Timeout for each attempt to connect. 500-5000
<ipver>	Set IP version. 0 IPv4 1 IPv6

NOTE

- Must set URL,BODYLEN,HEADERLEN value, TIMEOUT default is 60 s, URL format must "http://xxx.xx.xx" or "https://xxx.xx.xx"

Example

```
AT+SHCONF=?
+SHCONF: "URL",512
+SHCONF: "TIMEOUT",(30-1800)
+SHCONF: "BODYLEN",(0-4096)
+SHCONF: "HEADERLEN",(0-350)
+SHCONF: "POLLCNT",(1-100)
+SHCONF: "POLLINTMS",(500-5000)
+SHCONF: "IPVER",(0,1)
```

```
OK
AT+SHCONF?
+SHCONF:
URL: 0.0.0.0:80
TIMEOUT: 60
BODYLEN: 0
HEADERLEN: 0
POLLCNT: 15
POLLINTMS: 500
IPVER: 0

OK
```

13.2.2 AT+SHSSL Select SSL Configure

AT+SHSSL Select SSL Configure	
Test Command **AT+SHSSL=?**	Response **+SHSSL:** (range of supported **<index>**s),**<len_calist>**,**<len_certname>** **OK**
Read Command **AT+SHSSL?**	Response **+SHSSL: <index>,<ca list>,<cert name>** **OK**
Write Command **AT+SHSSL=<index>,<calist>[,<certname>]**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<index>	CSSLCFG set Configure index <ctxindex>. NOTE: if <index> is 0, only one parameter can be set, and this will set the parameter <calist>,<certname> to default value NULL.
<ca list>	Ca Certificate name
<cert name>	Cert Certificate name
<len_calist>	Integer type. Maximum length of parameter <ca list>.
<len_certname>	Integer type. Maximum length of parameter <cert name>.

Example

```
AT+SHSSL=?
+SHSSL: (0-5),20,20

OK
AT+SHSSL?
+SHSSL: 0,"",""

OK
```

13.2.3 AT+SHCONN HTTP(S) Connection

AT+SHCONN HTTP(S) Connection	
Executive Command **AT+SHCONN**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+SHCONN
OK
```

13.2.4 AT+SHBOD Set Body

AT+SHBOD Set Body	
Test Command **AT+SHBOD=?**	Response **+SHBOD:** (range of supported **<bodylen>**s),(range of supported **<timeout>**s) **OK**
Read Command **AT+SHBOD?**	Response **+SHBOD: <body>,<len_body>**

	OK
Write Command **AT+SHBOD=<len_body>,<timeout>** <CR>text is entered <ctrl-Z/ESC> ESC quits without sending	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<body>	Set body value (max length is SHCONF Set value)
<len_body>	Length of <body>. Max value is <bodylen>. <len_body>=0 Indicates that the length of the input body is calculated based on the input characters, as long as it does not exceed the maximum length
<bodylen>	Max length set by "AT+SHCONF="BODYLEN",<bodylen>"
<timeout>	Timeout for automatically sending edited data (100-10000 ms)

NOTE

- Must be executed after the connection.

Example

```
AT+SHBOD=?
+SHBOD: (0-0),(100-10000)

OK
AT+SHBOD?
+SHBOD: "",0

OK
```

13.2.5 AT+SHAHEAD Add Head

AT+SHAHEAD Add Head	
Test Command **AT+SHAHEAD=?**	Response **+SHAHEAD: <len_type>,<len_value>** **OK**
Read Command **AT+SHAHEAD?**	Response **[+SHAHEAD: <type>,<value>** **]** **OK**
Write Command **AT+SHAHEAD=<type>,<value>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<type>	Set type (max is <headerlen> bytes). For detail <type> information, please refer to document "rfc2616".
<value>	Set value (max is <headerlen> bytes)
<len_type>	Integer type. Maximum length of parameter <type>.
<len_value>	Integer type. Maximum length of parameter <value>.
<headerlen>	Max length set by "AT+SHCONF="HEADERLEN",<headerlen>"

NOTE

- NMEA data will not out put to usb's NMEA port when set AT+CGNSPWR=1.
- The sum of <len_type> and <len_value> max length is 350.

Example

```
AT+SHAHEAD=?
+SHAHEAD: 0,0

OK
```

```
AT+SHAHEAD?
OK
```

13.2.6 AT+SHPARA Set HTTP(S) Para

AT+SHPARA Set HTTP(S) Para	
Test Command **AT+SHPARA=?**	Response **+SHPARA: <len_key>,<len_value>** **OK**
Read Command **AT+SHPARA?**	Response **[+SHPARA: <key>,<value>** **]** **OK**
Write Command **AT+SHPARA=<key>,<value>**	Response **OK** or **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<key>	Set key (max is 64 bytes)
<value>	Set value (max is 64 bytes)
<len_key>	Integer type. Maximum length of parameter <key>.
<len_value>	Integer type. Maximum length of parameter <value>.

NOTE

- Must be executed after the connection

Example

```
AT+SHPARA=?
+SHPARA: 64,64

OK
```

```
AT+SHPARA?
OK
```

13.2.7 AT+SHCPARA Clear HTTP(S) Para

AT+SHCPARA Clear HTTP(S) Para	
Execution Command **AT+SHCPARA**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

NOTE

- Must be executed after the connection.

Example

```
AT+SHCPARA
OK
```

13.2.8 AT+SHSTATE Query HTTP(S) Connection Status

AT+SHSTATE Query HTTP(S) Connection Status	
Read Command **AT+SHSTATE?**	Response **+SHSTATE: <status>** **OK**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<status>	0 Expression HTTP(S) disconnect state 1 Expression HTTP(S) connect state

Example

```
AT+SHSTATE?
+SHSTATE: 0

OK
```

13.2.9 AT+SHCHEAD Clear Head

AT+SHCHEAD Clear Head	
Execution Command **AT+SHCHEAD**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

NOTE

- Must be executed after the connection

Example

```
AT+SHCHEAD
OK
```

13.2.10 AT+SHREQ Set Request Type

AT+SHREQ Set Request Type	
Test Command **AT+SHREQ=?**	Response **+SHREQ: <len_url>**,(list of supported **<type>**s)

	OK
Read Command **AT+SHREQ?**	Response **+SHREQ: <url>,<type>** **OK** or(default) **+SHREQ: ,0** **OK**
Write Command **AT+SHREQ=<url>,<type>**	Response **OK** or **ERROR**
Unsolicited Result Code	**+SHREQ: <type string>,<StatusCode>,<DataLen>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<url>	Request server domain (max is 512 bytes)
<len_url>	Integer type. Maximum length of parameter <url>.
<type>	1 GET 2 PUT 3 POST 4 PATCH 5 HEAD
<type string>	String of type are GET ,PUT,POST,PATCH,HEAD.
<StatusCode>	HTTP(S) 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(S) Version not supported
<DataLen>	The length of data got

NOTE

- Must be executed after the connection.

Example

```
AT+SHREQ=?
+SHREQ: 512,(1-5)

OK
AT+SHREQ?
+SHREQ: ,0

OK
```

13.2.11 AT+SHREAD Read Response Value

AT+SHREAD Read Response Value	
Test Command **AT+SHREAD=?**	Response **+SHREAD:** (range of supported **<startaddress>**s),(range of supported **<datalen>**s) **OK**
Write Command **AT+SHREAD=<startaddress>,<datalen>**	Response **OK** **+SHREAD: <data_len>** **<data>** **+SHREAD: <data_len>** **<data>** **.....** or **ERROR** If**<**datalen**>** is bigger than the data size received, it's error If **<**datalen**>** is bigger than 2048, will got multi URC +SHREAD
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<startaddress>	Start address of data.Max length is 307200 bytes.
<datalen>	Set read values length. Max length is 307200 bytes.
<data_len>	Return data length max is 2048 bytes once, if more than 2048 bytes, will return many timer until all data are read out
<data>	Response data

NOTE

- Read data after request.

Example

```
AT+SHREAD=?
+SHREAD: (0-307200),(1-307200)

OK
```

13.2.12 AT+SHDISC Disconnect HTTP(S)

AT+SHDISC Disconnect HTTP(S)	
Executive Command **AT+SHDISC**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+SHDISC
ERROR
```

13.2.13 AT+HTTPTOFS Download File to AP File System

AT+HTTPTOFS Download File to AP File System	
Test Command **AT+HTTPTOFS=?**	Response **+HTTPTOFS: (1-1023),(1-127)** **OK**
Read Command **AT+HTTPTOFS?**	Response **+HTTPTOFSRL: <status>,<url>,<file_path>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Write Command **AT+HTTPTOFS=<url>,<file_path>[,<timeout>[,<retrycnt>]]**	Response **OK** **+HTTPTOFS: <StatusCode>,<DataLen>**

Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<status>	Downloading state 0 Idle 1 During downloading
<url>	The url
<file_path>	File path and name on AP side, For example: "/customer/test.bin","**/custapp/** test.bin ","**/fota**/test.bin"
<timeout>	Timeout of HTTP request. Unit is second. Range is 10-1000, default value is 50.
<retrycnt>	Retry times of HTTP request. Range is 5-100, default value is 5.
<StatusCode>	HTTP Status Code responded by remote server, it identifier refer to HTTP1.1(RFC2616) 100 Continue 200 OK 206 Partial Content 400 Bad Request 404 Not Found 408 Request Time-out 500 Internal Server Error 600 Not HTTP PDU 601 Network Error 602 No memory 603 DNS Error 604 Stack Busy 620 SSL continue 65535 Other Errors
<DataLen>	The length of data download

Example

```
AT+HTTPTOFS=?
+HTTPTOFS: (1-1023),(1-127)

OK
AT+HTTPTOFS?
+HTTPTOFS: 0,"",""
```

```
OK
```

13.2.14 AT+HTTPTOFSRL State of Download File to AP File System

AT+HTTPTOFSRL State of Download File to AP File System	
Read Command AT+HTTPTOFSRL?	Response **+HTTPTOFSRL: <status>,<curlen>,<totallen>** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<status>	Downloading state 0 Idle 1 During downloading
<curlen>	The length of data have been download successfully
<totallen>	The length of data download. If total length does not been got, <totallen> will be 0.

Example

```
AT+HTTPTOFSRL?
+HTTPTOFS: 0,0,0

OK
```

13.2.15 AT+SHRHEAD Read Response Headers

AT+SHRHEAD Read Response Headers	
Write Command AT+SHRHEAD	Response **OK** **+SHRHEAD: <data_len>** **<data>**

	..... or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<data _len>	The length of output response headers

NOTE:

- Read data after request.

14 AT Commands for PING Application

SIM7070_SIM7080_SIM7090 Series modules provide PING AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_PING_Application Note".

14.1 Overview of AT Commands for PING Application

Command	Description
AT+SNPDPID	Select PDP Index for PING
AT+SNPING4	Sends an IPv4 PING
AT+SNPING6	Sends an IPv6 PING

14.2 Detailed Descriptions of AT Commands for PING Application

14.2.1 AT+SNPDPID Select PDP Index for PING

AT+SNPDPID Select PDP Index for PING	
Test Command AT+SNPDPID=?	Response **+SNPDPID:** (range of supported **<Index>**s) **OK**
Read Command AT+SNPDPID?	Response **+SNPDPID: <Index>** **OK**
Write Command AT+SNPDPID=<Index>	Response **OK** or **ERROR**

Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<Index>	The number of PDP index, range: 0~4 0-3 PDP index 4 Auto select defined PDP index(0-3)

Example

```
AT+SNPDPID=?
+SNPDPID: (0-4)

OK
AT+SNPDPID?
+SNPDPID: 4

OK
```

14.2.2 AT+SNPING4 Sends an IPv4 PING

AT+SNPING4 Sends an IPv4 PING	
Test Command AT+SNPING4=?	Response **+SNPING4: <len_URL>,**(range of supported **<count>**s),(range of supported **<size>**s),(range of supported **<timeout>**s) **OK**
Write Command AT+SNPING4=<URL>,<count>,<size>,<timeout>	Response If GPRS context is activated, response **+SNPING4: <replyId>,<IP address>,<replyTime>** **OK** Else if ping request fails, response **+SNPING4: ICMP Error is <err_info>** **OK** Else if GPRS context is not activated, response **+SNPING4: Bind failed for provided src**

	OK Other response **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<URL>	String type :Address of the remote host
<len_URL>	Integer type. Maximum length of parameter <URL>.
<count>	The number of Ping Echo Requset to send, range: 1~500
<size>	Number of data bytes to send, range: 1~1400
<timeout>	Ping request timeout value (in ms),range:1-60000
<replyId>	Echo Reply number
<IP Address>	IP Address of the remote host
<replyTime>	Time, in ms, required to receive the response
<err_info>	Response description for the ping

NOTE

- Before sending PING Request the GPRS context must be activated and PDP index must be selected.

Example

```
AT+SNPING4=?
+SNPING4: 512,(1-500),(1-1400),(1-60000)

OK
```

14.2.3 AT+SNPING6 Sends an IPv6 PING

AT+SNPING6 Sends an IPv6 PING	
Test Command **AT+SNPING6=?**	Response **+SNPING6: <len_URL>**,(range of supported **<count>**s),(range of supported **<size>**s),(range of supported **<timeout>**s) **OK**

Write Command **AT+SNPING6=<URL>,<count>,<size>,<timeout>**	Response **+SNPING6: <replyId>,<IP address>,<replyTime>** **OK** or **ERROR**
-	-
Max Response Time	-
Reference	

Defined Values

<URL>	String type :Address of the remote host
<len_URL>	Integer type.Maximumlength of parameter <URL>.
<count>	The number of Ping Echo Request to send, range: 1-500
<size>	Number of data bytes to send, range: 1-1400
<timeout>	Ping request timeout value (in ms),range:1-60000
<replyId>	Echo Reply number
<IP Address>	IP Address of the remote host
<replyTime>	Time, in ms, required to receive the response

NOTE

- Before sending PING Request the GPRS context must be activated and PDP index must be selected.

Example

```
AT+SNPING6=?
+SNPING6: 512,(1-500),(1-1400),(1-60000)

OK
```

15 AT Commands for FTP(S) Application

SIM7070_SIM7080_SIM7090 Series has an embedded TCP/IP stack that is driven by AT commands and enables the host application to easily access the Internet FTP service. This chapter is a reference guide to all the AT commands and responses defined for using with the TCP/IP stack in FTP Service.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_FTP(S)_Application Note".

15.1 Overview of AT Commands for FTP(S) 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+FTPEXTGET	Extend download file
AT+FTPETPUT	Upload File
AT+FTPETGET	Download File
AT+FTPQUIT	Quit current FTP session
AT+FTPRENAME	Rename the Specified File on the Remote Machine
AT+FTPMDTM	Get the Last Modification Timestamp of Specified File on the Remote Machine
AT+FTPSSL	Select FTP SSL Configure
AT+FTPTOFSST	Get FTP Download Status to FS
AT+FTPSINGLEIP	Set Both Data Link and Control Link Connecting Same Address

15.2 Detailed Descriptions of AT Commands for FTP(S) Application

15.2.1 AT+FTPPORT Set FTP Control Port

AT+FTPPORT Set FTP Control Port	
Test Command **AT+FTPPORT=?**	Response **+FTPPORT: (**range of supported **<value>**s) **OK**
Read Command **AT+FTPPORT?**	Response **+FTPPORT: <value>** **OK**
Write Command **AT+FTPPORT=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

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

Example

```
AT+FTPPORT=?
+FTPPORT: (1-65535)

OK
AT+FTPPORT?
+FTPPORT: 21

OK
```

NOTE

- Numbers above 65535 are illegal as the port identification fields are 16 bits long in the TCP header.

15.2.2 AT+FTPMODE Set Active or Passive FTP Mode

AT+FTPMODE Set Active or Passive FTP Mode	
Test Command AT+FTPMODE=?	Response **+FTPMODE:** (list of supported **<value>**s) **OK**
Read Command AT+FTPMODE?	Response **+FTPMODE: <value>** **OK**
Write Command AT+FTPMODE=<value>	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<value>	0 Active FTP mode 1 Passive FTP mode

Example

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

OK
AT+FTPMODE?
+FTPMODE: 1

OK
```

15.2.3 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 **+FTPTYPE:** (list of supported <**value**>s) **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
Max Response Time	-
Reference	Note

Defined Values

<value>	"A" For FTP ASCII sessions "I" For FTP Binary sessions

Example

```
AT+FTPTYPE=?
+FTPPORT: ("A","I")
```

```
OK
AT+FTPTYPE?
+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.

15.2.4 AT+FTPPUTOPT Set FTP Put Type

AT+FTPPUTOPT Set FTP Put Type	
Test Command **AT+FTPPUTOPT=?**	Response **+FTPPUTOPT:** (list of supported <**value**>s) **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
Max Response Time	-
Reference	-

Defined Values

<value>	"APPE" For appending file "STOU" For storing unique file "STOR" For storing file

Example

```
AT+FTPPUTOPT=?
+FTPPUTOPT: ("APPE","STOU","STOR")

OK
AT+FTPPUTOPT?
+FTPPUTOPT: "STOR"

OK
```

15.2.5 AT+FTPCID Set FTP Bearer Profile Identifier

AT+FTPCID Set FTP Bearer Profile Identifier	
Test Command **AT+FTPCID=?**	Response **+FTPCID:** (range of supported <**value**>s) **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
Max Response Time	-
Reference	-

Defined Values

<value>	Bearer profile identifier refer to AT+CNACT

Example

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

OK
AT+FTPCID?
```

```
+FTPCID: 1

OK
```

15.2.6 AT+FTPREST Set Resume Broken Download

AT+FTPREST Set Resume Broken Download	
Test Command AT+FTPREST=?	Response **+FTPREST:** (range of supported <**value**>s) **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
Max Response Time	-
Reference	-

Defined Values

<value>	Broken point to be resumed

Example

```
AT+FTPREST=?
+FTPREST: (0-4294967295)

OK
AT+FTPREST?
+FTPREST: 0

OK
```

15.2.7 AT+FTPSERV Set FTP Server Address

AT+FTPSERV Set FTP Server Address	
Test Command **AT+FTPSERV=?**	Response **+FTPSERV:** (rangd of supported <**value**>s) **OK**
Read Command **AT+FTPSERV?**	Response **+FTPSERV: <value>** **OK**
Write Command **AT+FTPSERV=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max 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=?
+FTPSERV: (0-49)

OK
AT+FTPSERV?
+FTPSERV: ""

OK
```

15.2.8 AT+FTPUN Set FTP User Name

AT+FTPUN Set FTP User Name	
Test Command **AT+FTPUN=?**	Response **+FTPUN: <len_value>** **OK**
Read Command	Response

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

Defined Values

<value>	Alphanumeric ASCII text string up to 49 characters.
<len_value>	Max length of <value>

Example

```
AT+FTPUN=?
+FTPUN: 49

OK
AT+FTPUN?
+FTPUN: ""

OK
```

15.2.9 AT+FTPPW Set FTP Password

AT+FTPPW Set FTP Password	
Test Command **AT+FTPPW=?**	Response **+FTPPW: <len_value>** **OK**
Read Command **AT+FTPPW?**	Response **+FTPPW: <value>** **OK**
Write Command **AT+FTPPW=<value>**	Response **OK**

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

Defined Values

<value>	Alphanumeric ASCII text string up to 49 characters.
<len_value>	Max length of <value>

Example

```
AT+FTPPW=?
+FTPPW: 49

OK
AT+FTPPW?
+FTPPW: ""

OK
```

15.2.10 AT+FTPGETNAME Set Download File Name

AT+FTPGETNAME Set Download File Name	
Test Command **AT+FTPGETNAME=?**	Response **+FTPGETNAME: <len_value>** **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
Max Response Time	-

Reference	

Defined Values

<value>	Alphanumeric ASCII text string up to 64 characters
<len_value>	Max length of <value>

Example

```
AT+FTPGETNAME=?
+FTPGETNAME: 64

OK
AT+FTPGETNAME?
+FTPGETNAME: ""

OK
```

15.2.11 AT+FTPGETPATH Set Download File Path

AT+FTPGETPATH Set Download File Path	
Test Command **AT+FTPGETPATH=?**	Response **+FTPGETPATH: <len_value>** **OK**
Read Command **AT+FTPGETPATH?**	Response **+FTPGETPATH: <value>** **OK**
Write Command **AT+FTPGETPATH=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<value>	Alphanumeric ASCII text string up to 255 characters

<len_value>	Max length of <value>

Example

```
AT+FTPGETPATH=?
+FTPGETPATH: 255

OK
AT+FTPGETPATH?
+FTPGETPATH: ""

OK
```

15.2.12 AT+FTPPUTNAME Set Upload File Name

AT+FTPPUTNAME Set Upload File Name	
Test Command **AT+FTPPUTNAME=?**	Response **+FTPPUTNAME: <len_value>** **OK**
Read Command **AT+FTPPUTNAME?**	Response **+FTPPUTNAME: <value>** **OK**
Write Command **AT+FTPPUTNAME=<value>**	Response **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Defined Values

<value>	Alphanumeric ASCII text string up to 64 characters
<len_value>	Max length of <value>

Example

```
AT+FTPPUTNAME=?
+FTPPUTNAME: 64

OK
AT+FTPPUTNAME?
+FTPPUTNAME: ""

OK
```

15.2.13 AT+FTPPUTPATH Set Upload File Path

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

Defined Values

<value>	Alphanumeric ASCII text string up to 255 characters
<len_value>	Max length of <value>

Example

```
AT+FTPPUTPATH=?
+FTPPUTPATH: 255

OK
AT+FTPPUTPATH?
```

```
+FTPPUTPATH: ""

OK
```

15.2.14 AT+FTPGET Download File

AT+FTPGET Download File	
Test Command **AT+FTPGET=?**	Response **+FTPGET: (**list of supported **<mode>**s),(range of supported <**reqlength**>s) **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
Max 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.
<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 Manual quit 90 SSL connect error 91 SSL alert error 92 AUTH error 93 PBSZE error 94 PORT error

Example

```
AT+FTPGET=?
+FTPGET: (1,2),(1-1460)

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.

15.2.15 AT+FTPPUT Set Upload File

AT+FTPPUT Set Upload File	
Test Command **AT+FTPPUT=?**	Response **+FTPPUT: (**list of supported **<mode>**s),<maxlength>,(range of supported <**reqlength**>s) **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: 1,1,1360** 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
Max 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=?
+FTPPUT: (1,2),1460,(1-1460)

OK
AT+FTPPUT=1
OK

+FTPPUT: 1,1
```

NOTE

- When "+FTPPUT: 1,1,<maxlength>" is shown, then use "AT+FTPPUT=2,<reqlength>" to write data.

15.2.16 AT+FTPDELE Delete Specified File in FTP Server

AT+FTPDELE Delete Specified File in FTP Server	
Test Command **AT+FTPDELE=?**	Response **OK**
Execution Command **AT+FTPDELE**	Response If successed: **OK** **+FTPDELE: 1,0** If failed: **OK** **+FTPDELE: 1,<error>** If error is related to ME functionality:

	+CME ERROR: <err>
Parameter Saving Mode	NO_SAVE
Max 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: 1,66
```

NOTE

- The file to be deleted is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

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

AT+FTPSIZE Get the Size of Specified File in FTP Server	
Test Command **AT+FTPSIZE=?**	Response **OK**
Execution Command **AT+FTPSIZE**	Response If successed: **OK** **+FTPSIZE: 1,0,<size>** If failed: **OK** **+FTPSIZE: 1,<error>,0**

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

Defined Values

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

Example

```
AT+FTPSIZE=?
OK
AT+FTPGETNAME="simftp.txt"
OK
AT+FTPGETPATH="/"
OK
AT+FTPSIZE
OK
+FTPSIZE:1,0,1024
```

NOTE

- The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

15.2.18 AT+FTPSTATE Get the FTP State

AT+FTPSTATE Get the FTP State	
Test Command **AT+FTPSTATE=?**	Response **+FTPSTATE**: (list of supported <**state**>s) **OK**
Execution Command **AT+FTPSTATE**	Response **+FTPSTATE: <state>**

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

Defined Values

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

Example

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

OK
AT+FTPSTATE
+FTPSTATE: 0

OK
```

15.2.19 AT+FTPEXTPUT Extend Upload File

AT+FTPEXTPUT Extend Upload File	
Test Command **AT+FTPEXTPUT=?**	Response **OK**
Read Command **AT+FTPEXTPUT?**	Response **+FTPEXTPUT: <mode>,<len>** **OK**
Write Command **AT+FTPEXTPUT=<mode>[,<pos>,<len>,<timeout>]**	Response If mode is 0 or 1 **OK** If mode is 2 **+FTPEXTPUT: <address>,<len>**

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

Defined Values

<mode>	FTPPUT method 0 Use default FTPPUT method 1 Use extend FTPPUT method 2 Send data to RAM through serial port, then FTPPUT method will get the data from RAM.
<pos>	Data offset address 0-320k
<len>	Data length 1-320k
<timeout>	Timeout value of serial port. 1000ms-1000000ms
<err>	See "AT+FTPGET"

Example

```
AT+FTPEXTPUT=1
OK
AT+FTPEXTPUT=2,0,1024,10000

……
OK
AT+FTPPUT=1
OK
+FTPPUT: 1,0
AT+FTPEXTPUT=0
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".

15.2.20 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
Max 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: 1,66
```

NOTE

- The created folder is specified by the "AT+FTPGETPATH" command.

15.2.21 AT+FTPRMD Remove Directory on the Remote Machine

AT+FTPRMD Remove Directory on the Remote Machine	
Test Command AT+FTPRMD=?	Response **OK**
Execution Command AT+FTPRMD	Response If success: **OK** **+FTPRMD: 1,0** If failed: **OK** **+FTPRMD: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max 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: 1,66
```

NOTE

- The removed folder is specified by the "AT+FTPGETPATH" command.

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

AT+FTPLIST List Contents of Directory on the Remote Machine	
Test Command **AT+FTPLIST=?**	Response **+FTPLIST:** (list of supported **<mode>**s),(range of supported <**reqlength**>s) **OK**
Write Command **AT+FTPLIST=<mode>[,<reqlength>]**	Response If mode is 1 and it is a successful FTP get session: **OK** **+FTPLIST: 1,1** If data transfer is finished: **+FTPLIST: 1,0** If mode is 1 and it is a failed FTP get session: **OK** **+FTPLIST: 1,<error>** If mode is 2: **+FTPLIST: 2,<cnflength>** **012345678…** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

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

<reqlength>	Requested number of data bytes (1-1460) to be read
<cnflength>	Confirmed number of data bytes to be read, which may be less than <reqlength>. 0 indicates that no data can be read.
<error>	See "AT+FTPGET"

Example

```
AT+FTPLIST=?
+FTPLIST: (1,2),(1-1460)

OK
AT+FTPLIST=1
OK

+FTPLIST: 1,66
```

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.
- If using "AT+FTPGETPATH" to set a directory path, it will returned the files contents under this directory; if set a file path, it will return the information of the file specified.

15.2.23 AT+FTPEXTGET Extend Download File

AT+FTPEXTGET Extend Download File	
Test Command **AT+FTPEXTGET=?**	Response **+FTPEXTGET: (**range of supported **<mode>**s),(range of supported <dir>s),**<maxlen_filename>** **OK**
Read Command **AT+FTPEXTGET?**	Response **+FTPEXTGET: <mode>,<length>** **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>,<dir>,<file_name>** 3)if mode is 3 **AT+FTPEXTGET=<mode>,<pos>,<len>**	If mode is 1 and successfully download data: **OK** **+FTPEXTGET: 1,0** If mode is 1 and failed to download data: **OK** **+FTPEXTGET: 1,<error>** If mode is 2 and successfully download file to FS **OK** **+FTPEXTGETFILE: 1,0** If mode is 3 and successfully download data: **+FTPEXTGET: 3,<length>** **0123456…** **OK** If <file name> is already exist in flash: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	75 seconds(In case no response is received from server)
Reference	

Defined Values

<mode>	0 Use default FTPGET method. 1 Open extend FTP get session and download data to RAM. 2 Open extend FTP get session and download data to file system. 3 Read the downloaded data from RAM, then output it to the serial port.
<dir>	0 Download file to /custapp/ 1 Download file to /fota/ 2 Download file to /datatx/ 3 Download file to /customer/
<file_name>	File name length should less than or equal to 50 characters.
<maxlen_filename>	Max length of <file_name>
<pos>	Data offset should less than <length>.
<len>	Data length 1-320k.
<length>	The length of the downloaded data from the remote machine.
<error>	See "AT+FTPGET"

Example

```
AT+FTPEXTGET=?
+FTPEXTGET: (0-3),(0-3),50
OK
AT+FTPEXTGET?
+FTPEXTGET: 0,0
OK
AT+FTPEXTGET=0
OK
AT+FTPEXTGET=1
OK

+FTPEXTGET: 1,66
AT+FTPEXTGET=2
ERROR
```

NOTE

- The data it can get is 300k at most.

15.2.24 AT+FTPETPUT Upload File

AT+FTPETPUT Upload File	
Test Command **AT+FTPETPUT=?**	Response **+FTPETPUT: (**list of supported **<mode>**s) **OK**
Write Command **AT+FTPETPUT=<mode>**	Response If mode is 1 and successfully open PUT session: **OK** **+FTPETPUT: 1,1** If mode is 1 and failed to open PUT session: **OK** **+FTPETPUT: 1,<error>**

	If mode is 2: **+FTPETPUT: 2,1** **…** *//Input data* **<ETX>** *//To notify the module that all data has been sent,switch from data mode to command mode* **OK** If data transfer finished: **+FTPETPUT: 1,0** If data transfer failed: **+FTPETPUT: 1,<error>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	1 For opening FTPETPUT session. 2 For writing FTP upload data.
<error>	See "AT+FTPEXTGET"

Example

```
AT+FTPETPUT=?
+FTPETPUT: (1,2)
OK
AT+FTPETPUT=1
OK

+FTPETPUT: 1,66
```

NOTE

- The TCP/IP stack will only interpret an <ETX> character as the end of the file to be transferred if it's not preceded by a <DLE> character. As a consequence the attached host must send <ETX> characters preceded by <DLE> characters and it must also code <DLE> characters in <DLE><DLE>.

15.2.25 AT+FTPETGET Download File

AT+FTPETGET Download File	
Test Command **AT+FTPETGET=?**	Response **+FTPETGET: (**list of supported **<mode>**s) **OK**
Write Command **AT+FTPETGET=<mode>**	Response If mode is 1 and successfully open GET session: **OK** **+FTPETGET: 1,1** If data transfer finished: **0123456789…** **<ETX>** *//To notify the user that all data transfer has been finished,switch from data mode to command mode.* **+FTPETGET: 1,0** If mode is 1 and failed to download data: **OK** **+FTPETGET: 1,<error>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<mode>	1 Open FTPETGET session and download data.
<error>	See "AT+FTPEXTGET"

Example

```
AT+FTPETGET=?
+FTPETGET: 1

OK
AT+FTPETGET=1
OK

+FTPETGET: 1,66
```

NOTE

- Each <ETX> character present in the payload data of the FTP flow will be coded by the TCP/IP stack on the serial port as <DLE><ETX>. Each <DLE> character will be coded as <DLE><DLE>. The attached host must then decode the FTP flow to remove these escape characters.

15.2.26 AT+FTPQUIT Quit Current FTP Session

AT+FTPQUIT Quit Current FTP Session	
Test Command **AT+FTPQUIT=?**	Response **OK**
Execution Command **AT+FTPQUIT**	Response If the current operation is GET method: **OK** **+FTPGET: 1,80** If the current operation is PUT method: **OK** **+FTPPUT: 1,80** If FTP is in idle state: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	-

Example

```
AT+FTPQUIT=?
OK
AT+FTPQUIT=1
ERROR
```

15.2.27 AT+FTPRENAME Rename the Specified File on the Remote Machine

AT+FTPRENAME	Rename the Specified File on the Remote Machine
Test Command AT+FTPRENAME=?	Response **OK**
Execution Command AT+FTPRENAME	Response If success: **OK** **+FTPRENAME: 1,0** If failed: **OK** **+FTPRENAME: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<error>	See "AT+FTPGET"

Example

```
AT+FTPRENAME=?
OK
AT+FTPRENAME
OK

+FTPRENAME: 1,66
```

NOTE

- The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.
- The new file name is set by "AT+FTPPUTNAME" and "AT+FTPPUTPATH" command.

15.2.28 AT+FTPMDTM Get the Last Modification Timestamp of Specified File on the Remote Machine

AT+FTPMDTM Get the Last Modification Timestamp of Specified File on the Remote Machine	
Test Command **AT+FTPMDTM=?**	Response **OK**
Execution Command **AT+FTPMDTM**	Response If success: **OK** **+FTPMDTM: 1,0,<timestamp>** If failed: **OK** **+FTPMDTM: 1,<error>** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<error>	See "AT+FTPGET"
<timestamp>	The last modification timestamp of the specified file.

Example

```
AT+FTPMDTM=?
OK
AT+FTPMDTM
OK

+FTPMDTM: 1,66
```

NOTE

- The file is specified by the "AT+FTPGETNAME" and "AT+FTPGETPATH" commands.

15.2.29 AT+FTPSSL Select FTP SSL Configure

AT+FTPSSL Select FTP SSL Configure	
Test Command AT+FTPSSL=?	Response **+FTPSSL:** (list of supported **<ssltype>**s),(list of supported **<index>**s),**<len_calist>**,**<len_certname>** **OK**
Read Command AT+FTPSSL?	Response **+FTPSSL: <ssltype>,<index>,<ca list>,<cert name>** **OK**
Write Command **AT+FTPSSL=<ssltype>,<index>,<ca list>,<cert name>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<ssltype>	0 FTP disable SSL function 1 FTP implicit mode 2 FTP explicit mode
<index>	SSL configure , range: 0-5
<ca list>	CA_LIST file name, Max length is 50 bytes
<cert name>	CERT_NAME file name, Max length is 50 bytes
<len_calist>	Integer type.Maximum length of parameter <ca list>.
<len_certname>	Integer type. Maximum length of parameter <cert name>.

Example

```
AT+FTPSSL=?
+FTPSSL: (0-2),(0-5),50,50

OK
AT+FTPSSL?
+FTPSSL: 0,0,"",""
```

```
OK
AT+FTPSSL=2,0,"ftpca.crt","ftpclient.crt"
OK
```

15.2.30 AT+FTPTOFSST Get FTP Download Status to FS

AT+FTPTOFSST Get FTP Download Status to FS	
Test Command **AT+FTPTOFSST=?**	Response **+FTPTOFSST:** (list of supported **<fsstatus>**s),(range of supported **<filesize>**s) **OK**
Execution Command **AT+FTPTOFSST**	Response After executing "AT+FTPEXTGET=2,<dir>,<file name>" **+FTPTOFSST: <fsstatus>,<ftptatus>,<filesize>** **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<fsstatus>	0 FTP download file to FS complete 1 FTP downloading file
<ftpstatus>	FTP operation status , range is 0-0xFF 0 FTP download file successfully Other valus see <error> of "AT+FTPGET"
<filesize>	FTP download file size 0-5800000 bytes

Example

```
AT+FTPTOFSST=?
+FTPTOFSST: (0,1),(0-5800000)

OK
AT+FTPTOFSST
+FTPTOFSST: 0,0,6000
```

```
OK
```

15.2.31 AT+FTPSINGLEIP Set Both Data Link and Control Link Connecting Same Address

AT+FTPSINGLEIP	**Set Both Data Link and Control Link Connecting Same Address**
Test Command **AT+FTPSINGLEIP=?**	Response **+FTPSINGLEIP:** (list of supported **<mode>**s) **OK**
Read Command **AT+FTPSINGLEIP?**	Response **+FTPSINGLEIP: <mode>** **OK**
Write Command **AT+FTPSINGLEIP=<mode>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mode>	Integer type, which indicates enable or disable the feature of both data link and control link connecting same address. 0 Disable 1 Enable

Example

```
AT+FTPSINGLEIP=?
+FTPSIGNLEIP: (0,1)

OK
AT+FTPSINGLEIP=1
OK
```

16 AT Command for NTP Application

SIM7070_SIM7080_SIM7090 Series modules provide NTP AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_NTP_Application Note".

16.1 Overview of AT Command for NTP Application

Command	Description
AT+CNTPCID	Set GPRS bearer profile’s ID
AT+CNTP	Synchrosize UTC time

16.2 Detailed Descriptions of AT Command for NTP Application

16.2.1 AT+CNTPCID Set GPRS Bearer Profile’s ID

AT+CNTPCID Set GPRS Bearer Profile’s ID	
Test Command **AT+CNTPCID=?**	Response **+CNTPCID:** (range of supporded **<cid>**s) **OK**
Read Command **AT+CNTPCID?**	Response **+CNTPCID: <cid>** **OK**
Write Command **AT+CNTPCID=<cid>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<cid>	Bearer profile identifier, refer to <pdpidx> of AT+CNACT

Example

```
AT+CNTPCID=?
+CNTPCID: (0-3)
OK
AT+CNTPCID?
+CNTPCID: 0
OK
```

16.2.2 AT+CNTP Sychronize UTC Time

AT+CNTP Synchronize UTC Time	
Test Command **AT+CNTP=?**	Response **+CNTP:** (length of **<ntp server>**),(range of **<time zone>**),(range of **<cid>**),(range of **<mode>**) **OK**
Read Command **AT+CNTP?**	Response **+CNTP: <ntp sever>,<time zone>,<cid>,<mode>** **OK**
Write Command **AT+CNTP=<ntp server>[,<time zone>][,<cid>][,<mode>]**	Response **OK**
Execution Command **AT+CNTP**	Response **OK** **+CNTP: <code>[,<time>]**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<ntp server>	NTP server's url
<time zone>	Local time zone, the range is (-47 to 48), in fact, time zone range (-12 to 12), but taking into account that some countries and regions will use half time zone, or even fourth time zone, so the entire extended four time zones X, so that when the time zone of the input integers are used, without the need for decimal. Time zone in front of the West if it is a negative number indicates the time zone.
<cid>	Bearer profile identifier, refer to **<**pdpidx**>** of AT+CNACT
<mode>	print UTC time on uart and set to local time 0 Just set UTC to localtime 1 Just output UTC time to AT port 2 Set UTC to localtime and output UTC time to AT port
<code>	1 UTC time synchronization is successful 61 Network Error 62 DNS resolution error 63 Connection Erro 64 Service response error 65 Service Response Timeout
<time>	UTC(Coordinated Universal Time) time

Example

```
AT+CNTP=?
+CNTP: (1-64),(-47-48),(0-3),(0-2)

OK
AT+CNTP?
+CNTP: 202.120.2.101,32,0,2

OK
```

NOTE

- After successful synchronization time, you can use AT+CCLK to query local time.

17 AT Commands for MQTT(S) Application

SIM7070_SIM7080_SIM7090 Series modules provide MQTT(S) AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_MQTT(S)_Application Note".

17.1 Overview of AT Commands for MQTT(S) Application

Command	Description
AT+SMCONF	Set MQTT Parameter
AT+SMSSL	Select SSL Configure
AT+SMCONN	MQTT Connection
AT+SMPUB	Send Packet
AT+SMSUB	Subscribe Packet
AT+SMUNSUB	Unsubscribe Packet
AT+SMSTATE	Inquire MQTT Connection Status
AT+SMPUBHEX	Set SMPUB Data Format to Hex
AT+SMDISC	Disconnection MQTT
AT+SMALIAUTH	Set Alibaba Cloud Parameter（One device One Secret）
AT+SMALIDYNA	Set Alibaba Cloud Dynamic Register Parameter（One Product One Secret）
AT+SMRCVSLPTM	Set MQTT Thread Sleep Time
+SMSUB	MQTT Receive Subscribe Data

17.2 Detailed Descriptions of AT Commands for MQTT(S) Application

17.2.1 AT+SMCONF Set MQTT Parameter

AT+SMCONF Set MQTT Parameter	
Test Command	Response

AT+SMCONF=?	**+SMCONF: "CLIENTID"**,(range of supported **<clientid>**s) **+SMCONF: "URL",<len_server>**,(range of supported **<tcpPort>**s) **+SMCONF: "KEEPTIME"**,(range of supported **<keeptime>**s) **+SMCONF: "USERNAME",<len_username>** **+SMCONF: "PASSWORD",<len_password>** **+SMCONF: "CLEANSS"**,(range of supported **<cleanss>**s) **+SMCONF: "QOS"**,(list of supported **<qos>**s) **+SMCONF: "TOPIC",<len_topic>** **+SMCONF: "MESSAGE",<len_message>** **+SMCONF: "RETAIN"**,(list of supported **<retain>**s) **+SMCONF: "SUBHEX",(**list of supported **<subhex>**s) **+SMCONF: "ASYNCMODE",(**list of supported **<asyncmode>**s) **+SMCONF: "MESSAGELEN",(**list of supported **<messagelen>**s) **OK**
Read Command **AT+SMCONF?**	Response **+SMCONF:** **CLIENTID: <clientid>** **URL: <url>** **KEEPTIME: <keeptime>** **USERNAME: <username>** **PASSWORD: <password>** **CLEANSS: <cleanss>** **QOS: <qos>** **TOPIC: <topic>** **MESSAGE: <message>** **RETAIN: <retain>** **SUBHEX: <subhex>** **ASYNCMODE: <asyncmode>** **MESSAGELEN: <messagelen>** **OK**
Write Command **AT+SMCONF=<MQTTParamTag>,<MQTTParamValue>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<len_server>	Integer type.Maximum length of parameter <server domain>.
<tcpPort>	0-65535

<len_username>	Integer type. Maximum length of parameter <username>.
<len_password>	Integer type. Maximum length of parameter <password>.
<len_topic>	Integer type. Maximum length of parameter <topic>.
<len_message>	Integer type. Maximum length of parameter <message>.

<MQTTParamTag>	**<MQTTParamValue>**
"CLIENTID"	<**clientid**> Client connection id. 0-128
"URL"	<**url**> (indispensable parameter) server URL address. Format is <server domain>,[<tcpPort>] <**server domain**> Host or IP <**tcpPort**> Port. 0-65535. Default is 1883.
"KEEPTIME"	<**keeptime**>Hold connect time. Default is 60. 0-65535
"CLEANSS"	<**cleanss**> Session clean in. 0 Resume communication based on persent session 1 Resume communication with a new session
"USERNAME"	<**username**> User name. default null
"PASSWORD"	<**password**> Password. default null
"QOS"	<**qos**> Send packet QOS level. 0 At most once 1 At lease once 2 Only once
"TOPIC"	<**topic**> Publish topic name
"MESSAGE"	<**message**> Publish message details
"RETAIN"	<**retain**> Retain identification. 0 Message will not be saved or removed or replaced 1 Message and its <qos> will be saved
"SUBHEX"	**<subhex>** Retain identification. 0 +SMSUB data format is normal 1 +SMSUB data format is hex
"ASYNCMODE"	**<asyncmode>** Asynchronous mode identification. Default 0. 0 The MQTT connection uses synchronous mode 1 The MQTT connection uses asynchronous mode
"MESSAGELEN"	<messagelen> Message length identification. Default 0. 0 +SMSUB data report without length of the message 1 +SMSUB data report with length of the message

Example

```
AT+SMCONF=?
+SMCONF: "CLIENTID",128
+SMCONF: "URL",246,(0-65535)
```

```
+SMCONF: "KEEPTIME",(0-65535)
+SMCONF: "USERNAME",256
+SMCONF: "PASSWORD",512
+SMCONF: "CLEANSS",(0,1)
+SMCONF: "QOS",(0-2)
+SMCONF: "TOPIC",128
+SMCONF: "MESSAGE",1024
+SMCONF: "RETAIN",(0,1)
+SMCONF: "SUBHEX",(0,1)
+SMCONF: "ASYNCMODE",(0,1)
+SMCONF: "MESSAGELEN",(0,1)

OK
AT+SMCONF?
+SMCONF:
CLIENTID: ""
URL: "0.0.0.0",1883
KEEPTIME: 60
USERNAME: ""
PASSWORD: ""
CLEANSS: 0
QOS: 0
TOPIC: ""
MESSAGE: ""
RETAIN: 0
SUBHEX: 0
ASYNCMODE: 0
MESSAGELEN: 0

OK
AT+SMCONF="CLIENTID","id"
OK
AT+SMCONF="KEEPTIME",60
OK
AT+SMCONF="URL","test.mosquitto.org","1883"
OK
AT+SMCONF="CLEANSS",1
OK
AT+SMCONF="QOS",1
OK
AT+SMCONF="TOPIC","will topic"
OK
AT+SMCONF="MESSAGE","will message"
```

```
OK
AT+SMCONF="RETAIN",1
OK
AT+SMCONF="SUBHEX",1
OK
AT+SMCONF="ASYNCMODE",1
OK
```

17.2.2 AT+SMSSL Select SSL Configure

AT+SMSSL Select SSL Configure	
Test Command **AT+SMSSL=?**	Response **+SMSSL:** (list of supported **<index>**s),**<len_calist>**,**<len_certname>** **OK**
Read Command **AT+SMSSL?**	Response **+SMSSL: <index>,<ca list>,<cert name>** **OK**
Write Command **AT+SMSSL=<index>,<ca list>,<cert name>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<index>	SSL status, range: 0-6 0 Not support SSL 1-6 Corresponding to AT+CSSLCFG command parameter <ctindex> range 0-5
<ca list>	CA_LIST file name, Max length is 20 bytes
<cert name>	CERT_NAME file name, Max length is 20 bytes
<len_calist>	Integer type. Maximum length of parameter <ca list>.
<len_certname>	Integer type. Maximum length of parameter <cert name>.

Example

```
AT+SMSSL=?
+SMSSL: (0-6),20,20

OK
AT+SMSSL?
+SMSSL: 0,"",""

OK
AT+SMSSL=1,"ca.crt","myclient.crt"
OK
```

17.2.3 AT+SMCONN MQTT Connection

AT+SMCONN MQTT Connection	
Execution Command **AT+SMCONN**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+SMCONN
OK
```

17.2.4 AT+SMPUB Send Packet

AT+SMPUB Send Packet	
Test Command **AT+SMPUB=?**	Response **+SMPUB: <len_topic>**,(range of supported **<content length>**s),(list of supported **<qos>**s),(list of supported **<retain>**s) **OK**
Write Command **AT+SMPUB=<topic>,<content length>,<qos>,<retain>**	Response **OK** or

<CR>message is entered Quit edit mode if message length equals to <content length>.	**ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<topic>	Subscribe packet. <topic> set by AT+SMSUB.
<len_topic>	Max length of <topic>
<qos>	Send packet QOS level 0 At most once 1 At least once 2 Only once
<content length>	Message length, range: 0-5799
<retain>	Server hold message . 0 The server does not keep messages for this topic pushed by the client 1 The server keeps messages for this topic pushed by the client

Example

```
AT+SMPUB=?
+SMPUB: 128,(0-5799),(0-2),(0-1)

OK
AT+SMPUB="information",5,1,1
>hello
OK

+SMSUB: "information","hello"
```

17.2.5 AT+SMSUB Subscribe Packet

AT+SMSUB Subscribe Packet	
Test Command **AT+SMSUB=?**	Response **+SMSUB: <len_topic>**,(list of supported **<qos>**s) **OK**

Write Command **AT+SMSUB=<topic>,<qos>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<topic>	Subscribe packet
<len_topic>	Integer type. Maximum length of parameter <topic>.
<qos>	Send packet QOS level 0 At most once 1 At least once 2 Only once

Example

```
AT+SMSUB=?
+SMSUB: 128,(0-2)

OK
AT+SMSUB="information",1
OK
```

17.2.6 AT+SMUNSUB Unsubscribe Packet

AT+SMUNSUB Unsubscribe Packet	
Test Command **AT+SMUNSUB=?**	Response **+SMUNSUB: <len_topic>** **OK**
Write Command **AT+SMUNSUB=<topic>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<topic>	Subscribe subject
<len_topic>	Integer type. Maximum length of parameter <topic>.

Example

```
AT+SMUNSUB=?
+SMUNSUB: 128

OK
AT+SMUNSUB="information"
OK
```

17.2.7 AT+SMSTATE Inquire MQTT Connection Status

AT+SMSTATE Inquire MQTT Connection Status	
Test Command **AT+SMSTATE=?**	Response **+SMSTATE:** (list of supported **<status>**s) **OK**
Read Command **AT+SMSTATE?**	Response **+SMSTATE: <status>** **OK**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<status>	0	Expression MQTT disconnect state
	1	Expression MQTT on-line state
	2	Expression MQTT on-line state and SP(Session Present) flag is set

Example

```
AT+SMSTATE=?
```

```
+SMSTATE: (0-2)

OK
AT+SMSTATE?
+SMSTATE: 0

OK
```

17.2.8 AT+SMPUBHEX Set SMPUB Data Format to Hex

AT+SMPUBHEX Set SMPUB Data Format to Hex	
Test Command **AT+SMPUBHEX=?**	Response **+SMPUBHEX:** (range of supported **<status>**s) **OK**
Read Command **AT+SMPUBHEX?**	Response **+SMPUBHEX: <status>** **OK**
Write Command **AT+SMPUBHEX=<status>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<status>	SMPUB format status 0 SMPUB data format is normal 1 SMPUB data format is hex

Example

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

OK
AT+SMPUBHEX?
+SMPUBHEX: 0
```

```
OK
AT+SMPUBHEX=1
OK
```

17.2.9 AT+SMDISC Disconnect MQTT

AT+SMDISC Disconnect MQTT	
Execution Command **AT+SMDISC**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+SMDISC
OK
```

17.2.10 AT+SMALIAUTH Set Alibaba Cloud Parameter(One device One Secret)

AT+SMALIAUTH Set Alibaba Cloud Parameter（One device One Secret）	
Test Command **AT+SMALIAUTH=?**	Response **+SMALIAUTH: "Product Key","Device Name","Device Secret"** **OK**
Read Command **AT+SMALIAUTH?**	Response **+SMALIAUTH:** **Product Key: <productkey>** **Device Name: <devicename>** **Device Secret: <devicesecret>** **OK**
Write Command **AT+SMALIAUTH=<productkey>,<devicename>,<devicesecret>**	Response **OK** or **ERROR**

Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<productkey>	Product Key, get it from Alibaba Cloud. Max length is 20 bytes.
<devicename>	Device Name, get it from Alibaba Cloud. Max length is 32 bytes.
<devicesecret>	Device Secret, get it from Alibaba Cloud. Max length is 40 bytes.

Example

```
AT+SMALIAUTH=?
+SMALIAUTH:"ProductKey","DeviceName","D
  evice Secret"

OK
AT+SMALIAUTH?
+SMALIAUTH:
Product Key: ""
Device Name: ""
Device Secret: ""

OK
AT+SMALIAUTH="a1mGfEydcDb","SIM7080_t
est","1cea33667e1bec1ce074c63762168e99"
OK
```

17.2.11 AT+SMALIDYNA Set Alibaba Cloud Dynamic Register Parameters(One Product One Secret)

AT+SMALIDYNA Set Alibaba Cloud Dynamic Register Parameter（One Product One Secret）	
Test Command **AT+SMALIDYNA=?**	Response **+SMALIDYNA: "Product Key","Device Name","Product Secret"** **OK**
Read Command **AT+SMALIDYNA?**	Response **+SMALIDYNA:** **Product Key: <productkey>**

	Device Name: <devicename> **Product Secret: <productsecret>** **OK**
Write Command **AT+SMALIDYNA=<productkey>,<devicename>,<productsecret>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<productkey>	Product Key, get it from Alibaba Cloud. Max length is 20 bytes.
<devicename>	Device Name, user can define it by themselves. Max length is 32 bytes.
<productsecret>	Product Secret, get it from Alibaba Cloud. Max length is 24 bytes.

Example

```
AT+SMALIDYNA=?
+SMALIDYNA: "Product Key","Device
   Name","Product Secret"

OK
AT+SMALIDYNA?
+SMALIDYNA:
Product Key: ""
Device Name: ""
Product Secret: ""

OK
AT+SMALIDYNA="a1mGfEydcDb","device1","
UK2iuVb8yBUjQ286"
OK
```

17.2.12 AT+SMRCVSLPTM Set MQTT Thread Sleep Time

AT+SMRCVSLPTM	**Set MQTT Thread Sleep Time**
Test Command	Response

AT+SMRCVSLPTM=?	**+SMRCVSLPTM: (0,1),(10,500)** **OK**
Read Command **AT+SMRCVSLPTM?**	Response **+SMRCVSLPTM: 0** **OK** or **+SMRCVSLPTM: 1,<time>** **OK**
Write Command **AT+SMRCVSLPTM=<action>[,<time>]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<**action**>	Write or delete the MQTT thread time file 0 Delete 1 Write
<time>	MQTT thread sleep time, units is milliseconds

Example

```
AT+SMRCVSLPTM=?
+SMRCVSLPTM: (0,1),(10,500)

OK
AT+SMRCVSLPTM=1,50

OK
AT+SMRCVSLPTM?
+SMRCVSLPTM: 1,50

OK
```

NOTE

- This should be set before **AT+SMCONN**.

17.2.13+SMSUB Indication of MQTT Receive Subscribe Data

+SMSUB Indication of MQTT Receive Subscribe Data	
Unsolicited Result Code	**+SMSUB: <topic>,<message>[,<messagelen>]**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<topic>	Message topic
<message>	Received message

NOTE

- <messagelen> will only be displayed when "AT+SMCONF="MESSAGELEN", 1" is set.

18 AT Commands for CoAP Application

SIM7070_SIM7080_SIM7090 Series modules provide CoAP AT command is as follows.

For detail CoAP function information, please refer to document "rfc7252" and "rfc7959".

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_CoAP_Application Note".

18.1 Overview of AT Commands for CoAP Application

Command	Description
AT+CCOAPPDPID	Select PDP Index for CoAP
AT+CCOAPINIT	Create CoAP object
AT+CCOAPCFG	Select CoAP Configure
AT+CCOAPURL	Configure CoAP URL
AT+CCOAPPARA	Assembling CoAP data Packet
AT+CCOAPACTION	Operate CoAP object
AT+CCOAPHEAD	Read head of CoAP packet
AT+CCOAPREAD	Read data of CoAP Packet
AT+CCOAPTERM	Delete CoAP object

18.2 Detailed Descriptions of AT Commands for CoAP Application

18.2.1 AT+CCOAPPDPID Select PDP Index for CoAP

AT+CCOAPPDPID Select PDP Index for CoAP	
Test Command AT+CCOAPPDPID=?	Response **+CCOAPPDPID:** (range of supported **<index>**s) **OK**

Read Command **AT+CCOAPPDPID?**	Response **+CCOAPPDPID: <index>** **OK**
Write Command **AT+CCOAPPDPID=<index>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<index>	The number of PDP index 0-3 PDP index, Manual set 4 Auto select PDP index(0-3). <pdpidx> set by AT+CNACT

Example

```
AT+CCOAPPDPID=?
+CCOAPPDPID: (0-4)

OK
AT+CCOAPPDPID?
+CCOAPPDPID: 4

OK
```

18.2.2 AT+CCOAPINIT Create CoAP Object

AT+CCOAPINIT Create CoAP Object	
Test Command **AT+CCOAPINIT=?**	Response **OK**
Execution Command **AT+CCOAPINIT**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Example

```
AT+CCOAPINIT
OK
```

18.2.3 AT+CCOAPCFG Select CoAP Configure

AT+CCOAPCFG Select CoAP Configure	
Test Command AT+CCOAPCFG=?	Response **+CCOAPCFG: "SSL",**(list of supported **<index>**s),**<len_calist>**,**<len_certname>**,**<len_psktable>** **OK**
Write Command AT+CCOAPCFG="SSL",<index>,<ca list>,<cert name>,<psktable>	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<index>	SSL status, range: 0-5
<ca list>	CA_LIST file name, Max length is 50 bytes
<cert name>	CERT_NAME file name, Max length is 50 bytes
<len_calist>	Integer type. Maximum length of parameter <ca list>.
<len_certname>	Integer type. Maximum length of parameter <cert name>.
<psktable>	PSK table name, Max length is 50 bytes
<len_psktable>	Integer type. Maximum length of parameter <psktable>.

Example

```
AT+CCOAPCFG=?
+CCOAPCFG: "SSL",(0-5),50,50,50

OK
AT+SMSSL="SSL",0,"","","psktable.txt"
```

```
OK
```

18.2.4 AT+CCOAPURL Configure CoAP URL

AT+CCOAPURL Configure CoAP URL	
Test Command **AT+CCOAPURL=?**	Response **+CCOAPURL: <scheme>://<host>:<port>/<uri>** **OK**
Write Command **AT+CCOAPURL=<scheme>://<host>[:<port>][/<uri>]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<scheme>	Current only CoAP
<host>	Server name or address of remote server
<port>	Server port of remote CoAP server
<uri>	Resource（Once effective）

Example

```
AT+CCOAPURL="coap://117.131.85.139:6011"
OK
```

18.2.5 AT+CCOAPPARA Assembling CoAP Data Packet

AT+CCOAPPARA Assembling CoAP Data Packet	
Test Command **AT+CCOAPPARA=?**	Response **+CCOAPPARA: "CODE",<hex_value>** **+CCOAPPARA: "TYPE",**(list supported of **<type>**s) **+CCOAPPARA: "MID",<dec_value>** **+CCOAPPARA: "TOKEN",**(list supported of **<codex>**s),**<value>** **+CCOAPPARA: "CONTENT-FORMAT",<dec_value>**

	+CCOAPPARA: "ACCEPT",<dec_value> **+CCOAPPARA: "URI-PATH",**(list supported of **<codex>**s),**<value>** **+CCOAPPARA: "URI-QUERY",**(list supported of **<codex>**s),**<value>** **+CCOAPPARA: "ETAG",**(list supported of **<codex>**s),**<value>** **+CCOAPPARA: "OBSERVE",<dec_value>** **+CCOAPPARA: "MAX-AGE",<dec_value>** **+CCOAPPARA: "SIZE",<dec_value>** **+CCOAPPARA: "PAYLOAD",**(list supported of **<codex>**s),**<value>** **OK**
Write Command **AT+CCOAPPARA=<name1>[,<code1>],<value1>[,<name2>[,<code2>],<value2>][,...]**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<namex>	Various part of CoAP Packet,please refer response of test command.
<codex>	Parameter encoding of input value 0 Ascii format 1 Hex format string
<valuex>	Value of <namex>
<hex_value>	Value of hex format
<type>	"CON" "NON" "ACK" "RST"
<dec_value>	Value of decimal format

Example

```
AT+CCOAPPARA="CODE",1,uri-path,0,"home/query",uri-query,0,"address=1",payload,0,"hello
world"
OK
```

18.2.6 AT+CCOAPACTION Operate CoAP Object

AT+CCOAPACTION Operate CoAP Object	
Test Command **AT+CCOAPACTION=?**	Response **+CCOAPACTION:** (list supported of **<type>**s) **OK**
Write Command **AT+CCOAPACTION=<type>**	Response If <type>=4 **+CCOAPACTION: <type>,<num>,<mid>** **OK** If <type>=5 **OK** or If <type>=6 **OK** or **ERROR**
Execution Command **AT+CCOAPACTION**	Response **+CCOAPACTION: 0,<mid>** **OK** or **ERROR**
Unsolicited Result Codes	The receiving queue has enough space to store the unprocessed data packets of the protocol stack and will report it automatically. **+CCOAPRECV: <mid>,<packet size>,<payload size>** or **+CCOAPACTION: <errorcode>[,<mid>]**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<mid>	Message ID of the sent message Receive the mid of the first CoAP packet in the queue(If <errorcode>=1) Mid of Timeout packet(If <errorcode>=2)
<type>	Operation type 4 Query current receiving queue information 5 Clear the receive queue 6 Reconnect and send packet

<num>	Number of packets of the current receiving queue CoAP Receive the mid of the first CoAP packet in the queue
<packet size>	The size of the received CoAP packet
<payload size>	Received CoAP packet payload size
<errorcode>	1 Indicates that the receive queue is full 2 Indicates that the mid CoAP response packet receives timeout 3 CoAP socket error

Example

```
AT+CCOAPACTION=?
+CCOAPACTION: (4,5,6)

OK
AT+CCOAPACTION
+CCOAPACTION: 0,1

OK
AT+CCOAPACTION=4
+CCOAPACTION: 4,1,2

OK
```

18.2.7 AT+CCOAPHEAD Read Head of CoAP Packet

AT+CCOAPHEAD Read Head of CoAP Packet	
Test Command **AT+CCOAPHEAD=?**	Response **+CCOAPHEAD:** (range of supported **<mid>**s),(list of supported **<convert>**s) **OK**
Write Command **AT+CCOAPHEAD=<mid>,<convert>**	Response If <convert>=1 **+CCOAPHEAD: <convert>,<ver>,<type>,<tkl>,<code>,<mid>,<token>,<content-format>,<max-age>,<etag>,<accept>,<if-match>,<if-none-match>,<uri-host>,<uri-port>,<uri-path>,<uri-query>,<location-path>,<location-query>,<proxy-uri>,<observe>,<block2>,<block1>,<size>** **OK** If <convert>=0

	+CCOAPHEAD: <convert>,<length>,<data> **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<mid>	The message id of the CoAP packet will be read
<convert>	0 Print data in raw mode 1 Print data after parsing
<length>	length of CoAP head
<data>	Data of CoAP head For detail CoAP parameters information, please refer to document "rfc7252" and "rfc7959".

Example

```
AT+CCOAPHEAD=1,1
+CCOAPHEAD: 1,1,2,0,4.04,1,,,,,,,0,,,,,,,,

OK
```

18.2.8 AT+CCOAPREAD Read Data of CoAP Packet

AT+CCOAPREAD Read Data of CoAP Packet	
Test Command AT+CCOAPREAD=?	Response **+CCOAPREAD:** (range of supported **<mid>**s) **OK**
Write Command AT+CCOAPREAD=<mid>	Response **+CCOAPREAD: <length>,<data>** **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-

Reference	-

Defined Values

<mid>	The message id of the CoAP packet will be read
<length>	Length of packet
<data>	Data of packet

Example

```
AT+CCOAPREAD=?
+CCOAPREAD: (1-65535)

OK
AT+CCOAPREAD=2
+CCOAPREAD: 125,This is a test server made
with libcoap (see https://libcoap.net)
Copyright (C) 2010--2016 Olaf Bergmann
<bergmann@tzi.org>

OK
```

18.2.9 AT+CCOAPTERM Delete CoAP Object

AT+CCOAPTERM Delete CoAP Object	
Execution Command **AT+CCOAPTERM**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Example

```
AT+CCOAPTERM
OK
```

19 AT Commands for DNS Application

19.1 Overview of AT Commands for DNS Application

Command	Description
AT+CDNSPDPID	Select PDP Index for DNS
AT+CDNSCFG	Set DNS Server IP Adderess
AT+CDNSGIP	Resolve the Domain Name to IP Address

19.2 Detailed Descriptions of AT Commands for DNS Application

19.2.1 AT+CDNSPDPID Select PDP Index for DNS

AT+CDNSPDPID Select PDP Index for DNS	
Test Command AT+CDNSPDPID=?	Response **+CDNSPDPID:** (range of supported **<Index>**s) **OK**
Read Command AT+CDNSPDPID?	Response **+CDNSPDPID: <Index>** **OK**
Write Command AT+CDNSPDPID=<Index>	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<Index>	The number of PDP index, range: 0~4 0-3 PDP index 4 the default PDP index value

Example

```
AT+CDNSPDPID=?
+CDNSPDPID: (0-4)

OK
AT+CDNSPDPID?
+CDNSPDPID: 4

OK
AT+CDNSPDPID=0
OK
```

19.2.2 AT+CDNSCFG Set DNS Server IP Address

AT+CDNSCFG Set DNS Server IP Address	
Test Command **AT+CDNSCFG=?**	Response **+CDNSCFG: ("Primary DNS"),("Secondary DNS")** **OK**
Read Command **AT+CDNSCFG?**	Response **Ipv4PrimaryDns: <ipv4pri_dns>** **Ipv4SecondaryDns: <ipv4sec_dns>** **Ipv6PrimaryDns: <ipv6pri_dns>** **Ipv6SecondaryDns: <ipv6pri_dns>** **OK**
Write Command **AT+CDNSCFG=<Primary DNS>,<Secondary DNS>**	Response **OK** or **ERROR**
Parameter Saving Mode	-
Max Response Time	-
Reference	-

Defined Values

<Primary DNS>	String type.Primary (IPv4 or IPv6)DNS Server Ip Address
<Secondary DNS>	String type.Secondary((IPv4 or IPv6)) DNS Server Ip Address
<ipv4pri_dns>	A string parameter which indicates the IPV4 address of the primary domain name server. Default value is 0.0.0.0.
<ipv4sec_dns>	A string parameter which indicates the IPV4 address of the secondary domain name server. Default value is 0.0.0.0.
<ipv6pri_dns>	A string parameter which indicates the IPV6 address of the primary domain name server. Default value is 0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0.
<ipv6sec_dns>	A string parameter which indicates the IPV6 address of the secondary domain name server. Default value is 0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0. If only <ipv4pri_dns> and <ipv4sec_dns> are set manually, the ipv6pri_dns and the ipv6sec_dns are null. If only <ipv6pri_dns> and <ipv6sec_dns> are set manually, the ipv4pri_dns and the ipv4sec_dns are null.

Example

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

OK
AT+CDNSCFG?
Ipv4PrimaryDns: 0.0.0.0
Ipv4SecondaryDns: 0.0.0.0
Ipv6PrimaryDns:
0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0
Ipv6SecondaryDns:
0:0:0:0:0:0:0:0:0:0:0:0:0:0:0:0

OK
```

19.2.3 AT+CDNSGIP Resolve the Domain Name

AT+CDNSGIP Resolve the Domain Name	
Test Command **AT+CDNSGIP=?**	Response **+CDNSGIP: <len_url>,**(range of supported **<recount>**s),(range of supported **<timeout>**s)

	OK
Write Command **AT+CDNSGIP=<URL>,<recount>,<timeout>**	Response **OK** **+CDNSGIP: 1,<domain name>,<IP1>[,<IP2>]** or **+CDNSGIP: 0,<err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	Note

Defined Values

<len_url>	Max length of <URL>
<URL>	String type, the Domain Name
<domain name>	A string parameter which indicates the domain name
<IP1>	A string parameter which indicates the IP address corresponding to the domain name
<IP2>	When domain name to ipv4 and ipv6 both success, IP2 present the ipv6 address
<recount>	Retransmit count from 0 to 10 times
<timeout>	the Interval of Time for Retransmitting. Unit is ms,range is 0-60000.

<err>	Error code
	DNS_RESULT_OK =0
	DNS_NOT_AUTH =1
	DNS_INVALID_PARA =2
	DNS_NETWORK_ERROR =3
	DNS_NO_SERVER =4
	DNS_TIMEOUT =5
	DNS_NO_CONFIG =6,
	DNS_NO_MEMORY =7,
	DNS_ERROR_UNKNOWN =8

Example

```
AT+CDNSGIP=?
+CDNSGIP: 65,(0-10),(0-60000)

OK
AT+CDNSGIP="www.baidu.com",1,1000
OK

+CDNSGIP:
```

```
1,"www.baidu.com","183.232.231.172"
```

NOTE

- Before sending DNS Request the GPRS context must be activated and PDP index must be selected.

20 AT Commands for LBS Application

SIM7070_SIM7080_SIM7090 Series modules provide LBS AT command is as follows.

20.1 Overview of AT Commands for LBS Application

Command	Description
AT+CLBS	Base station Location
AT+CLBSCFG	Base station Location configure

20.2 Detailed Description of AT Commands for LBS Application

20.2.1 AT+CLBS Base station Location

AT+CLBS Base station Location	
Test Command AT+CLBS=?	Response **+CLBS:** (list of supported <**type**>s),(range of supported <**cid**>s) **OK**
Write Command AT+CLBS=<type>,<cid>	Response 1)<type>=1,get longitude and latitude **+CLBS: <locationcode>[,<longitude>,<latitude>,<acc>]** **OK** 2)<type>=4,get longitude latitude and date time **+CLBS:** **<locationcode>[,<longitude>,<latitude>,<acc>,<date>,<time>]** **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<type>	1 Use 3 cell's information 4 Get longitude latitude and date time
<cid>	Bearer profile identifier, refer to <pdpidx> of AT+CNACT
<locationcode>	0 Success If the operation failed, the location code is not 0, such as: 1 Location Failed 2 Time Out 3 NET Error 4 DNS Error 5 Service Overdue 6 Authenticate Failed 7 Other Error 80 Report LBS to server success 81 Report LBS to server parameter error 82 Report LBS to server failed
<longitude>	Current longitude in degrees. -180.000000-180.000000
<latitude>	Current latitude in degrees -90.000000-90.000000
<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+CLBS=?
+CLBS: (1,4),(0-3)

OK
AT+CLBS=1,0
+CLBS: 0,106.642897,29.487558,500

OK
```

20.2.2 AT+CLBSCFG Base station Location configure

AT+CLBSCFG Base station Location configure	
Test Command **AT+CLBSCFG=?**	Response **+CLBSCFG:** (list of supported <**operate**>s),(range of supported <**para**>s),<**len_value**> OK
Write Command **AT+CLBSCFG=<operate>,<para>[,<value>]**	Response **+CLBSCFG: 0,<para>,<value>** **OK** or **OK** If error is related to ME functionality: **+CME ERROR: <err>**
Parameter Saving Mode	-
Max Response Time	-
Reference	

Defined Values

<operate>	0 Read operator 1 Set operator
<para>	1 Customer ID 2 Times have used positioning command 3 Server's address lbs-simcom.com:3001 lbs-simcom.com:3000 lbs-simcom.com:3002 (Default) 4 IMEI or IMSI 5 Timeout of LBS
<value>	The value of parameter. If <operate> is 1 and <para> is 3, <value> can be set. If <para>=4, <value> means IMEI or IMSI. 0 IMEI 1 IMSI If <para>=5, Unit of <value> is second. 0-35 timeout of LBS
<len_value>	Max length of <value>

Example

```
AT+CLBSCFG=?
+CLBSCFG: (0,1),(1-5),64

OK
AT+CLBSCFG=0,3
+CLBSCFG: 0,3,"lbs-simcom.com:3002"

OK
AT+CLBSCFG=0,4
+CLBSCFG: 0,4,0

OK
AT+CLBSCFG=0,5
+CLBSCFG: 0,5,35

OK
```

NOTE

- Server's address of"lbs-simcom.com:3002" is free. The other two servers are charged.
- If you want to use the charged address, the IMEI, customer information and software version must be provided to SIMCom.

21 AT Commands for Email Application

SIM7070_SIM7080_SIM7090 Series modules provide Email AT command is as follows.

For more application examples, please refer to the relevant application documents such as "SIM7070_SIM7080_SIM7090 Series_Email_Application Note".

21.1 Overview of AT Commands for Email Application

Command	Description
AT+EMAILCID	Set Email bearer profile identifier
AT+EMAILTO	Set timeout value of SMTP/POP3 server response
AT+SMTPSRV	Set SMTP server address and port
AT+SMTPAUTH	Set user name and password for SMTP authentication
AT+SMTPFROM	Set sender address and name
AT+SMTPRCPT	Set the Email recipient(to/cc/bcc) address and name
AT+SMTPSUB	Set the Email subject
AT+SMTPBODY	Set the Email body
AT+SMTPFILE	Set the Email attachment
AT+SMTPSEND	Send the Email
AT+SMTPFT	Transfer the Email attachment
AT+SMTPCS	Set the Email charset
AT+POP3SRV	Set POP3 server and account
AT+POP3IN	Log in POP3 server
AT+POP3NUM	Get Email number and total size
AT+POP3LIST	Get the specific Email size
AT+POP3UIDL	Get the specific Email unique-id
AT+POP3CMD	Get multi-line response
AT+POP3READ	Read multi-line response
AT+POP3DEL	Mark the specific Email to delete
AT+POP3RSET	Unmark the emails that be marked as deleted
AT+POP3OUT	Log out POP3 server

21.2 Detailed Description of AT Commands for Email Application

21.2.1 AT+EMAILCID Set Email Bearer Profile Identifier

AT+EMAILCID Set Email Bearer Profile Identifier	
Test Command **AT+EMAILCID=?**	Response **+EMAILCID: (**range of supported **<cid>**s**)** **OK**
Read Command **AT+EMAILCID?**	Response **+EMAILCID: <cid>** **OK**
Write Command **AT+EMAILCID=<cid>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cid>	Bearer profile identifier refer to AT+CNACT

Example

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

OK
AT+EMAILCID?
+EMAILCID: 0

OK
AT+EMAILCID=0
OK
```

21.2.2 AT+EMAILTO Set Timeout Value of SMTP/POP3 Server Response

AT+EMAILTO Set Timeout Value of SMTP/POP3 Server Response	
Test Command **AT+EMAILTO=?**	Response **+EMAILTO: (**range of supported **<timeout>**s) **OK**
Read Command **AT+EMAILTO?**	Response **+EMAILTO: <timeout>** **OK**
Write Command **AT+EMAILTO=<timeout>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<timeout>	The timeout value of SMTP/POP3 server response, in 1 second unit. 10-120 Default: 30(seconds)

Example

```
AT+EMAILTO=?
+EMAILTO: (10-120)

OK
AT+EMAILTO?
+EMAILTO: 30

OK
AT+EMAILTO=10
OK
```

21.2.3 AT+SMTPSRV Set SMTP Server Address and Port

AT+SMTPSRV Set SMTP Server Address and Port	
Test Command **AT+SMTPSRV=?**	Response **+SMTPSRV: <smtpServerLength>,(**range of supported **<smtpPort>**s) **OK**
Read Command **AT+SMTPSRV?**	Response **+SMTPSRV: <smtpServer>,<smtpPort>** **OK**
Write Command **AT+SMTPSRV=<smtpServer>[,<smtpPort>]**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<smtpServer>	SMTP server address, string type. This parameter can be either: - IP address in the format: xxx.xxx.xxx.xxx - Host name to be solved with a DNS query
<smtpPort>	The SMTP port 1-65535 Default: 25
<smtpServerLength>	The max length of <smtpServer>

Example

```
AT+SMTPSRV=?
+SMTPSRV: 64,(1-65535)

OK
AT+SMTPSRV?
+SMTPSRV: "",25

OK
AT+SMTPSRV="mail.sim.com",25
OK
```

21.2.4 AT+SMTPAUTH Set User Name and Password for SMTP Authentication

AT+SMTPAUTH Set User Name and Password for SMTP Authentication	
Test Command **AT+SMTPAUTH=?**	Response **+SMTPAUTH:** (range of supported**<authType>**s),**<userNameLength>**,**<passwordLength>** **OK**
Read Command **AT+SMTPAUTH?**	Response **+SMTPAUTH: <authType>,<userName>,<password>** **OK**
Write Command **AT+SMTPAUTH=<authType>[,<userName>,<password>]**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<authType>	The type of SMTP authentication 0 SMTP server does not request authentication. <userName> and <password> must not be given. 1 SMTP server requests authentication
<userName>	The user name for SMTP authentication.
<userNameLength>	The max length of <userName>.
<password>	The password for SMTP authentication.
<passwordLength>	The max length of <password>.

Example

```
AT+SMTPAUTH=?
+SMTPAUTH: (0-1),64,64

OK
AT+SMTPAUTH?
+SMTPAUTH: 0,"",""

OK
AT+SMTPAUTH=1,"john","123456"
```

```
OK
```

21.2.5 AT+SMTPFROM Set Sender Address and Name

AT+SMTPFROM Set Sender Address and Name	
Test Command **AT+SMTPFROM=?**	Response **+SMTPFROM: <senderAddressLength>,<senderNameLength>** **OK**
Read Command **AT+SMTPFROM?**	Response **+SMTPFROM: <senderAddress>,<senderName>** **OK**
Write Command **AT+SMTPFROM=<senderAddress>[,<senderName>]**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<senderAddress>	The Email sender address,string type.
<senderAddressLength>	The max length of <senderAddress>
<senderName>	The Email sender name,string type.
<senderNameLength>	The max length of <senderName>

Example

```
AT+SMTPFROM=?
+SMTPFROM: 48,48

OK
AT+SMTPFROM?
+SMTPFROM: "",""

OK
AT+SMTPFROM="john@sim.com","john"
OK
```

21.2.6 AT+SMTPRCPT Set the Email Recipient(TO/CC/BCC) Address and Name

AT+SMTPRCPT Set the Email Recipient(TO/CC/BCC) Address and Name	
Test Command **AT+SMTPRCPT=?**	Response **+SMTPRCPT: (**range of supported **<rcptType>**s**),(**range of supported **<index>**s),**<rcptAddressLength>**,**<rcptNameLength>** **OK**
Read Command **AT+SMTPRCPT?**	Response **[+SMTPRCPT: <rcptType>,<index>,<rcptAddress>,<rcptName>[<CR><LF>+SMTPRCPT: <rcptType>,<index>,<rcptAddress>,<rcptName>[…]]]** **OK**
Write Command **AT+SMTPRCPT=<rcptType>[,<index>[,<rcptAddress>[,<rcptName>]]]**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<rcptType>	The type of recipient, the types of TO and CC are used to construct e-mail header in the field: "To:" or "Cc:". 0 TO, Normal Recipient. 1 CC, Carbon Copy recipient. 2 BCC, Blind Carbon Copy recipient.
<index>	Index of the type of recipient, decimal format
<rcptAddress>	The Email recipient address.
<rcptName>	The Email recipient name.
<rcptAddressLength>	The max length of <rcptAddress>.
<rcptNameLength>	The max length of <rcptName>.

Example

```
AT+SMTPRCPT=?
+SMTPRCPT: (0-2),(0-4),48,48
```

```
OK
AT+SMTPRCPT?
OK
AT+SMTPRCPT=0,0,”john@sim.com”,”john”
OK
```

NOTE

- If only <rcptType> is given, it will delete all items of <rcptType>.
- If only <rcptType> and <index> are given, it will delete the <index> item of <rcptType>.

21.2.7 AT+SMTPSUB Set the Email Subject

AT+SMTPSUB Set the Email Subject	
Test Command **AT+SMTPSUB=?**	Response **+SMTPSUB: <subjectLength>** **OK**
Read Command **AT+SMTPSUB?**	Response **+SMTPSUB: <subject>** **OK**
Write Command **AT+SMTPSUB=<subject>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<subject>	The Email subject, string type. It will be present in the header of the Email sent by SMTP client in the field: "Subject:"
<subjectLength>	The max length of <subject>.

Example

```
AT+SMTPSUB=?
+SMTPSUB: 512

OK
AT+SMTPSUB?
+SMTPSUB: ""

OK
AT+SMTPSUB=”Test”
OK
```

NOTE

- If the Email charset is not ASCII,<subject> must be in hexadecimalfor mat.

21.2.8 AT+SMTPBODY Set the Email Body

AT+SMTPBODY Set the Email Body	
Test Command **AT+SMTPBODY=?**	Response **+SMTPBODY: <bodyLength>** **OK**
Read Command **AT+SMTPBODY?**	Response **+SMTPBODY: <body>** **OK**
Write Command **AT+SMTPBODY=<length>** ,then type data as Email body. When body’s length equal length, command is over!	Response **DOWNLOAD** **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<length>	The length of Email body.Max length is <bodylength>.
<body>	Email body
<bodylength>	The max length of Email body.

Example

```
AT+SMTPBODY=?
+SMTPBODY: 4096                                    `

OK
AT+SMTPBODY=19
DOWNLOAD
This is a new Email

OK
```

NOTE

- If the Email charset is not ASCII, the body of Email must be in hexadecimal format.
- After URC string "DOWNLOAD", User can input email's body.

21.2.9 AT+SMTPFILE Set the Email Attachment

AT+SMTPFILE Set the Email Attachment	
Test Command **AT+SMTPFILE=?**	Response **+SMTPFILE: (**range of **<fileType>**s**),<fileNameLength>,(**range of **<encodeType>**s**)** **OK**
Read Command **AT+SMTPFILE?**	Response **+SMTPFILE: <fileType>**,**<fileName>**,**<encodeType>** **OK**
Write Command **AT+SMTPFILE=<fileType>[,<fileName>,<encodeType>]**	Response **OK** If error is related to ME functionality: **ERROR**

Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<fileType>	The type of the Email attachment. 0 No attachment 1 Attach a txt file 2 Attach a binary file (bmp, mp3, video…)
<fileName>	The name of the Email attachment.
<fileNameLength>	The max length of <fileName>.
<encodeType>	Content-Transfer-Encoding used for attachment 0 "7bit" means data all represented as short lines of US-ASCII data 1 "base64" designed to represent arbitrary sequences of octets in a form that need not be humanly readable

Example

```
AT+SMTPFILE=?
+SMTPFILE: (0-2),100,(0-1)                    `

OK
AT+SMTPFILE?
+SMTPFILE: 0,"",0

OK
AT+SMTPFILE=1,”test.txt”,0
OK
```

NOTE

- If a txt file (<fileType>=1) is attached, <encodeType> must be 0.
- If a binary file (<fileType>=2) is attached, <encodeType> must be 1.

21.2.10 AT+SMTPSEND Send the Email

AT+SMTPSEND Send the Email	
Execution Command **AT+SMTPSEND**	Response **OK** If error is related to ME functionality: **ERROR** If send successfully or not, return: **+SMTPSEND: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<code>	The result of sending Email. 1 The Email has been sent successfully. 61 Network error. 62 DNS resolve error 63 SMTP TCP connection error. 64 Timeout of SMTP server response 65 SMTP server response error 66 Not authentication 67 Authentication failed. SMTP user name or password may be not right. 68 Bad recipient.

Example

```
AT+SMTPSEND
OK

+SMTPSEND: 1
```

21.2.11 AT+SMTPFT Transfer the Email Attachment

AT+SMTPFT Transfer the Email Attachment	
Test Command **AT+SMTPFT=?**	Response **OK**

Write Command **AT+SMTPFT=<reqLength>**	Response When the URC below is reported, the attachment can be transferred: **+SMTPFT: 1,<maxLength>** If <reqLength> is not 0 and send data successfully: **+SMTPFT: 2,<cnfLength>** **......** //Input data **OK** If <reqLength> is not 0 and send data unsuccessfully: **+SMTPFT: 2,<cnfLength>** **......** //Input data **ERROR** If <reqLength> is 0,it indicates that transferring the attachment have finished: **OK** If error is related to ME functionality: **ERROR** If some error occur: **+SMTPSEND**: **<code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<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.
<code>	See AT+SMTPSEND

Example

```
AT+SMTPFT=?
OK                                        `
AT+SMTPFT=100
+SMTPFT: 2,100
……      //Input data
```

```
OK
```

NOTE

- <reqLength> does not be greater than <maxLength>.
- When "+SMTPFT: 1,<maxLength>" is reported, then use "AT+SMTPFT=<reqLength>" to send data.

21.2.12 AT+SMTPCS Set the Email Charset

AT+SMTPCS Set the Email Charset	
Test Command **AT+SMTPCS=?**	Response **+SMTPCS: <charsetLength>** **OK**
Read Command **AT+SMTPCS?**	Response **+SMTPCS: <charset>** **OK**
Write Command **AT+SMTPCS=<charset>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<charset>	The Email charset, string type. It shows which charset the subject and the body are encoded in. If <charset> is not ASCII but UTF-8 or other, the subject and the body must be in hexadecimal format (e.g. "TEST" should be converted to "54455354"). The default charset is ASCII.
<charsetLength>	The max length of <charset>.

Example

```
AT+SMTPCS=?
+SMTPCS: 20

OK
AT+SMTPCS?
+SMTPCS: "ASCII"

OK
AT+SMTPCS="UTF-8"
OK
```

21.2.13 AT+POP3SRV Set POP3 Server and Account

AT+POP3SRV Set POP3 Server and Account	
Test Command **AT+POP3SRV=?**	Response **+POP3SRV: <pop3ServerLength>,<userNameLength>,<password-Length>,**(range of supported **<pop3Port>**s) **OK**
Read Command **AT+POP3SRV?**	Response **+POP3SRV: <pop3Server>,<userName>,<password>,<pop3Port>** **OK**
Write Command **AT+POP3SRV=<pop3Server>,<userName>,<password>[,<pop3Port>]**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<pop3Server>	POP3 server address, string type. This parameter can be either: - IP address in the format: xxx.xxx.xxx.xxx - Host name to be solved with a DNS query
<userName>	The user name to log in POP3 server, string type.
<password>	The password to log in POP3 server, string type.
<pop3Port>	The port of POP3 server.

	1-65535 Default: 110
<pop3ServerLength>	The max length of <pop3Server>.
<userNameLength>	The max length of <userName>.
<passwordLength>	The max length of <password>.

Example

```
AT+POP3SRV=?
+POP3SRV: 64,64,64,(1-65535)

OK
AT+POP3SRV?
+POP3SRV: "","","",110

OK
AT+POP3SRV=”mail.sim.com”,”john”,”12345
6”,110
OK
```

21.2.14 AT+POP3IN Log in POP3 Server

AT+POP3IN Log in POP3 Server	
Test Command **AT+POP3IN=?**	Response **OK**
Execution Command **AT+POP3IN**	Response **OK** If error is related to ME functionality: **ERROR** If logging in POP3 server or not, return: **+POP3IN: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<code>	The result of logging in POP3 server 1 Log in POP3 server successfully 61 Network error 62 DNS resolve error

	63 POP3 TCP connection error 64 Timeout of POP3 server response 65 POP3 server response error 66 POP3 server rejects to log in 67 Incorrect user name 68 Incorrect user name or password 69 Timeout of read data

Example

```
AT+POP3IN=?
OK
AT+POP3IN
OK

+POP3IN: 1
```

21.2.15 AT+POP3NUM Get Email Number and Total Size

AT+POP3NUM Get Email Number and Total Size	
Test Command **AT+POP3NUM=?**	Response **OK**
Execution Command **AT+POP3NUM**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3NUM**: **1**,**<totalNumber>**,**<totalSize>** If POP3 server issues a negative response: **+POP3NUM**: **0** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<totalNumber>	The Email number on the POP3 server, decimal format.
<totalSize>	The total size of all Email and the unit is in byte.

<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3NUM=?
OK                                        `
AT+POP3NUM
OK

+POP3NUM: 1,2,11124
```

21.2.16 AT+POP3LIST Get the Specific Email Size

AT+POP3LIST Get the Specific Email Size	
Test Command **AT+POP3LIST=?**	Response **+POP3LIST:** (range of supported **<msgNumber>**s) **OK**
Write Command **AT+POP3LIST=<msgNumber>**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3LIST**: **1**,**<msgNumber>**,**<size>** If POP3 server issues a negative response: **+POP3LIST**: **0** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<msgNumber>	The message number of Email.

<size>	The size of Email <msgNumber> and the unit is in byte.
<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3LIST=?
+POP3LIST: (1-65535)                          `

OK
AT+POP3LIST=1
OK

+POP3LIST: 1,1,5556
```

21.2.17 AT+POP3UIDL Get the Specific Email Unique-id

AT+POP3UIDL Get the Specific Email Unique-id	
Test Command **AT+POP3UIDL=?**	Response **+POP3UIDL: (**range of supported **<msgNumber>**s) **OK**
Write Command **AT+POP3UIDL=<msgNumber>**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3UIDL**: **1,<msgNumber>**,**<uid>** If POP3 server issues a negative response: **+POP3UIDL**: **0** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<msgNumber>	The message number of Email.
<UID>	The Email unique-id, the unique-id is an arbitrary server-determined string, consisting of 1 to 70 characters in the range 0x21 to 0x7E, which uniquely identifies a message within a maildrop and which persists across sessions.
<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3UIDL=?
+POP3UIDL: (1-65535)                                `

OK
AT+POP3UIDL=1
OK

+POP3UIDL: 1,1,
AAAFOpdCAAAv60+tksFqRqk3/6ogog+g
```

21.2.18 AT+POP3CMD Get Multi-line Response

AT+POP3CMD Get Multi-line Response	
Test Command **AT+POP3CMD=?**	Response **+POP3CMD:** (range of supported **<cmdType>**s),(range of supported**<msgNumber>**s),(range of supported **<lineNumber>**s) **OK**
Write Command **AT+POP3CMD=<cmdType>[,<msgNumber>[,lineNumber]]**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3CMD**: **1** If POP3 server issues a negative response: **+POP3CMD**: **0** If some error occur:

	+POP3OUT: <code>
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<cmdType>	The values that supported POP3 user command 1 List command The "List" command returns a multi-line "scan listing". For each message on the maildrop list of the server the POP3 service returns a line containing the message number and its size in bytes. A final "dotline" will be printed at the end of the "scan listing". If there are no messages on the maildrop list of the server, the POP3 service returns a positive response, i.e. It does not issue an error response, but the "scan listing" will be empty. In either case, each scan listing will be finished by so-called "dotline", i.e. a new line with just a single dot. <msgNumber> and <lineNumber> must not be given. 2 Uidl command The "Uidl" command returns a multi-line "unique-id Listing". For each message on the maildrop list of the Server the POP3 service returns a line containing the message number and its unique-id. A final "dotline" will be printed at the end of the "unique-id listing" If there are no messages on the maildrop list of the server. The POP3 service returns a positive response, i.e. It does not issue an error response, but the "unique-id listing" will be empty. In either case, each unique-id listing will be finished by so-called "dotline", i.e.a new line with just a singledot. <msgNumber> and <lineNumber> must not be given. 3 Top command The command retrieves the number of lines of the message’s body from the POP3 server’s maildrop list. The POP3 server sends the headers of the message, the blank line separating the headers from the body, and then the number of lines of the message’s body. If the number of lines requested by The POP3 client is greater than the number of lines in the body, then the POP3 server sends the entire message. If no such message exists on the server the POP3 service issues an error response to the user. Each email will be finished by a so-called "dotline", i.e.a new line with just a single dot. <msgNumber> and <lineNumber> must be given. 4 Retrieve command The command retrieves the related message from the POP3 server’s maildrop list. If no such message exists on the server the POP3 service issues an error response to the user. Each email will be finished by a so-called "dotline", i.e. a new line with just a single dot.

	<msgNumber> must be given.
<msgNumber>	The message number of Email.
<lineNumber>	The number of lines of the message body.
<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3CMD=?
+POP3CMD: (1-4),(1-65535),(0-65535)            `

OK
AT+POP3CMD=4,1
OK

+POP3CMD: 1
```

NOTE

- After sending these POP3 commands and POP3 server issuing a positive response, you can get the response by "AT+POP3READ"

21.2.19 AT+POP3READ Read Multi-line Response

AT+POP3READ Read Multi-line Response	
Test Command **AT+POP3READ=?**	Response **+POP3READ:** (range of supported **<reqLength>**s) **OK**
Write Command **AT+POP3READ=<reqLength>**	Response If the data of response not to be read completely: **+POP3READ: 1,<cnfLength>** If the data of response to be read completely: **+POP3READ: 2,<cnfLength>**

	If some data need to be read,the URC below is reported: **+POP3READ: 3,<dataLength>** If error is related to ME functionality: **ERROR** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<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.
<dataLength>	Received number of data bytes.
<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 tcp connection error 64 Timeout of POP3 server response 69 Read data timeout

Example

```
AT+POP3READ=?
+POP3READ: (1-1460)

OK
AT+POP3READ=1460
+POP3READ: 1,1460
…

OK
```

NOTE

- Other AT commands (but "AT+POP3OUT") do not be executed until the data of response are read completely.
- If <confLength> is less than <reqLength>, you should wait for a URC "**+POP3READ:**

3,<dataLength>" reported. Then you may continue to read data by "AT+POP3READ".

- If the module has some unread data, the URC "**+POP3READ: 3,<dataLength>**" is reported every once in a while. After some time, these data are not still been read, the module will quit the POP3 process.

21.2.20 AT+POP3DEL Mark the Specific Email to Delete

AT+POP3DEL Mark the Specific Email to Delete	
Test Command **AT+POP3DEL=?**	Response **+POP3DEL: (**range of supported **<msgNumber>**s**)** **OK**
Write Command **AT+POP3DEL=<msgNumber>**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3DEL**: **1** If POP3 server issues a negative response: **+POP3DEL**: **0** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<msgNumber>	The message number of Email
<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3DEL=?
```

```
+POP3DEL: (1-65535)

OK
AT+POP3DEL=1
OK

+POP3DEL: 1
```

NOTE

- The POP3 server marks the Email as deleted. Any future reference to the message-number associated with the Email in a POP3 command generates an error. The POP3 server does not actually delete the Email until the POP3 client logs out POP3 server and closes the session normally.

21.2.21 AT+POP3RSET Unmark the Emails that Be Marked as Deleted

AT+POP3RSET Unmark the Emails that Be Marked as Deleted	
Test Command **AT+POP3RSET=?**	Response **OK**
Execution Command **AT+POP3RSET**	Response **OK** If error is related to ME functionality: **ERROR** If POP3 server issues a positive response: **+POP3RSET**: **1** If POP3 server issues a negative response: **+POP3REST**: **0** If some error occur: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<code>	The result of logging out POP3 server 1 Normally log out POP3 server

	61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response

Example

```
AT+POP3RSET=?
OK
AT+POP3RSET
OK

+POP3RSET: 1
```

21.2.22 AT+POP3OUT Log Out POP3 Server

AT+POP3OUT Log Out POP3 Server	
Test Command AT+POP3OUT=?	Response **OK**
Execution Command AT+POP3OUT	Response **OK** If error is related to ME functionality: **ERROR** If the process is completed, return: **+POP3OUT: <code>**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<code>	The result of logging out POP3 server 1 Normally log out POP3 server 61 Network error 62 DNS resolve error 63 POP3 TCP connection error 64 Timeout of POP3 server response 69 Timeout of read data

Example

```
AT+POP3OUT=?
OK
AT+POP3OUT
OK

+POP3OUT: 1
```

21.2.23 AT+EMAILSSL Set Email SSL function

AT+EMAILSSL Set Email SSL function	
Test Command **AT+EMAILSSL=?**	Response **+EMAILSSL:** (list of supported <**ssltype**>s),(list of supported <**index**>s),**<len_calist>,<len_certname>** **OK**
Read Command **AT+EMAILSSL?**	Response **+EMAILSSL: <ssltype>,<index>,<ca list>,<cert name>** **OK**
Write Command **AT+EMAILSSL=<ssltype>,<index>,<calist>,<certname>**	Response **OK** If error is related to ME functionality: **ERROR**
Parameter Saving Mode	NO_SAVE
Max Response Time	-
Reference	

Defined Values

<ssltype>	Email SSL type:startSSL/SSL/no SSL 0 no SSL 1 SSL 2 startSSL only SMTP have
<index>	0-5 Corresponding to AT+CSSLCFG command parameter <ctindex> range 0-5
<ca list>	Ca Certificate name
<cert name>	Cert Certificate name
<len_calist>	Integer type. Maximum length of parameter <ca list>.

<len_certname>	Integer type. Maximum length of parameter <cert name>.

Example

```
AT+EMAILSSL=?
+EMAILSSL: (0-2),(0-5),51,51

OK
AT+EMAILSSL?
+EMAILSSL: 0,0,"",""

OK
AT+EMAILSSL=1,0,"email.cer","email.pem"
OK
```

22 Supported Unsolicited Result Codes and Error Codes

22.1 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
1	no connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string

30	no network service
31	network timeout
32	network not allowed - emergency call only
40	network personalisation PIN required
41	network personalisation PUK required
42	network subset personalisation PIN required
43	network subset personalisation PUK required
44	service provider personalisation PIN required
45	service provider personalisation PUK required
46	corporate personalisation PIN required
47	corporate personalisation PUK required
99	resource limitation
100	unknown
103	Illegal MS
106	Illegal ME
107	GPRS services not allowed
111	PLMN not allowed
112	Location area not allowed
113	Roaming not allowed in this location area
132	service option not supported
133	requested service option not subscribed
134	service option temporarily out of order
148	unspecified GPRS error
149	PDP authentication failure
150	invalid mobile class
160	DNS resolve failed
161	Socket open failed
171	MMS task is busy now
172	The MMS data is oversize
173	The operation is overtime
174	There is no MMS receiver
175	The storage for address is full
176	Not find the address
177	The connection to network is failed
178	Failed to read push message
179	This is not a push message
180	gprs is not attached
181	tcpip stack is busy
182	The MMS storage is full
183	The box is empty
184	failed to save MMS

185	It is in edit mode
186	It is not in edit mode
187	No content in the buffer
188	Not find the file
189	Failed to receive MMS
190	Failed to read MMS
191	Not M-Notification.ind
192	The MMS inclosure is full
193	Unknown
600	No Error
601	Unrecognized Command
602	Return Value Error
603	Syntax Error
604	Unspecified Error
605	Data Transfer Already
606	Action Already
607	Not At Cmd
608	Multi Cmd too long
609	Abort Cops
610	No Call Disc
611	BT SAP Undefined
612	BT SAP Not Accessible
613	BT SAP Card Removed
614	AT Not Allowed By Customer
753	missing required cmd parameter
754	invalid SIM command
755	invalid File Id
756	missing required P1/2/3 parameter
757	invalid P1/2/3 parameter
758	missing required command data
759	invalid characters in command data
765	Invalid input value
766	Unsupported mode
767	Operation failed
768	Mux already running
769	Unable to get control
770	SIM network reject
771	Call setup in progress
772	SIM powered down
773	SIM file not present
791	Param count not enough

792	Param count beyond
793	Param value range beyond
794	Param type not match
795	Param format invalid
796	Get a null param
797	CFUN state is 0 or 4

22.2 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
3	No route to destination
6	Channel unacceptable
8	Operator determined barring
10	Call barred
11	Reserved
16	Normal call clearing
17	User busy
18	No user responding
19	User alerting, no answer
21	Short message transfer rejected
22	Number changed
25	Pre-emption
26	Non-selected user clearing
27	Destination out of service
28	Invalid number format (incomplete number)
29	Facility rejected
30	Response to STATUS ENQUIRY
32	Normal, unspecified
34	No circuit/channel available
38	Network out of order
41	Temporary failure
42	Switching equipment Congestion
43	Access information discarded

44	Requested circuit/channel not available
47	Resources unavailable, unspecified
49	Quality of service unavailable
50	Requested facility not subscribed
55	Requested facility not subscribed
57	Bearer capability not authorized
58	Bearer capability not presently available
63	Service or option not available, unspecified
65	Bearer service not implemented
68	ACM equal or greater than ACM maximum
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 information element error
101	Message not compatible with protocol
102	Recovery on timer expiry
111	Protocol error, unspecified
127	Interworking, unspecified
128	Telematic interworking not supported
129	Short message Type 0 not supported
130	Cannot replace short message
143	Unspecified TP-PID error
144	Data coding scheme (alphabet) not supported
145	Message class not supported
159	Unspecified TP-DCS error
160	Command cannot be acted
161	Command unsupported
175	Unspecified TP-Command error
176	TPDU not supported
192	SC busy
193	No SC subscription
194	SC system failure

195	Invalid SME address
196	Destination SME barred
197	SM Rejected-Duplicate SM
198	TP-VPF not supported
199	TP-VP not supported
208	SIM SMS storage full
209	No SMS storage capability in SIM
210	Error in MS
211	Memory Capacity Exceeded
212	SIM Application Toolkit Busy
213	SIM data download error
224	CP retry exceed
225	RP trim timeout
226	SMS connection broken
255	Unspecified error cause
300	ME failure
301	SMS reserved
302	operation not allowed
303	operation not supported
304	invalid PDU mode
305	invalid text mode
310	SIM not inserted
311	SIM pin necessary
312	PH SIM pin necessary
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	memory failure
321	invalid memory index
322	memory full
323	invalid input parameter
324	invalid input format
325	invalid input value
330	SMSC address unknown
331	no network
332	network timeout
340	no cnma ack
500	Unknown

512	SMS no error
513	Message length exceeds maximum length
514	Invalid request parameters
515	ME storage failure
516	Invalid bearer service
517	Invalid service mode
518	Invalid storage type
519	Invalid message format
520	Too many MO concatenated messages
521	SMSAL not ready
522	SMSAL no more service
523	Not support TP-Status-Report & TP-Command in storage
524	Reserved MTI
525	No free entity in RL layer
526	The port number is already registered
527	There is no free entity for port number
528	More Message to Send state error
529	MO SMS is not allow
530	GPRS is suspended
531	ME storage full
532	Doing SIM refresh

22.3 Summary of Unsolicited Result Codes

URC	Description	AT Command
+CRING: <type>	Indicates incoming call to the TE if extended format is enabled.	**AT+CRC=1**
+CREG: <stat>[,<lac>,<ci>,<netact>]	There is a change in the MT network registration status or a change of the network cell.	**AT+CREG=<n>**
+CMTI: <mem3>,<index>	Indicates that new message has been received.	**AT+CNMI** <mt>=1
+CMTI: <mem3>,<index>,"MMS PUSH"	Indicates that new MMS message has been received.	**AT+CNMI** <mt>=1
+CMT: <length><CR><LF><pdu>	Indicates that new message has been received.	**AT+CNMI** <mt>=2 (PDU mode)
+CMT: <oa>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<lengt	Indicates that new message has been received.	**AT+CNMI** <mt>=2 (text mode)

h>]<CR><LF><data>		
+CBM: <length><CR><LF><pdu>	Indicates that new cell broadcast message has been received.	**AT+CNMI** <bm>=2(PDU mode enabled)
+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>	Indicates that new cell broadcast message has been received.	**AT+CNMI** <bm>=2(text mode enabled)
+CDS: <length><CR><LF><pdu>	Indicates that new SMS status report has been received.	**AT+CNMI** <ds>=1(PDU mode enabled)
+CDS: <fo>,<mr>[,<ra>][,<tora>],<scts>,<dt>,<st>	Indicates that new SMS status report has been received.	**AT+CNMI** <ds>=1(text mode enabled)
***PSNWID: "<mcc>","<mnc>","<full network name>",<full network name CI>,"<short network name>",<short network name CI>**	Refresh network name by network.	**AT+CLTS=1**
***PSUTTZ: <year>,<month>,<day>,<hour>,<min>,<sec>,"<time zone>",<dst>**	Refresh time and time zone by network.	
+CTZV: "<time zone>"	Refresh network time zone by network.	
DST: <dst>	Refresh Network Daylight Saving Time by network.	
+CPIN: <code>	Indicates whether some password is required or not.	**AT+CPIN**
+CPIN: NOT READY	SIM Card is not ready.	
+CPIN: NOT INSERTED	SIM Card is not inserted.	
NORMAL POWER DOWN	Module is powered down by the PWRKEY pin or AT command "AT+CPOWD=1".	
UNDER-VOLTAGE POWER DOWN	Under-voltage automatic power down.	
UNDER-VOLTAGE WARNNING	under-voltage warning	
OVER-VOLTAGE POWER DOWN	Over-voltage automatic power down.	
OVER-VOLTAGE WARNNING	over-voltage warning	
RDY	Power on procedure is completed, and the module is ready to operate at fixed baud rate. (This URC does not appear when auto-bauding function is active).	**AT+IPR=<rate>** <rate> is not 0
+CFUN: <fun>	Phone functionality indication (This URC does not appear when	**AT+IPR=<rate>** <rate> is not 0

	auto-bauding function is active).	
+CDNSGIP: 1,<domain name>,<IP>[,<IP2>]	DNS successful	**AT+CDNSGIP**
+CDNSGIP:0,<dns error code>	DNS failed	
+PDP: DEACT	GPRS is disconnected by network	
+APP PDP: <pdpidx>,ACTIVE	Active the network of app side	**AT+CNACT=<pdpidx>,1**
+APP PDP: <pdpidx>,DEACTIVE	Deactive the network of app side	**AT+CNACT=<pdpidx>,0**

23 ATC Differences among SIM7070_SIM7080_SIM7090 Series

23.1 AT+SGPIO

SIM7080 series	SIM7070 series	SIM7090 series	SIM7075 series
AT+SGPIO=? +SGPIO: (0-1),(1-5),(0-1),(0-1) OK	AT+SGPIO=? +SGPIO: (0-1),(1-7),(0-1),(0-1) OK	AT+SGPIO=? +SGPIO: (0-1),(1-3),(0-1),(0-1) OK	AT+SGPIO=? +SGPIO: (0-1),(6,7,12,13,28,31,36,40,41,50,52,57,58),(0-1),(0-1) OK
Difference: The GPIO to be set is different.			

23.2 AT+CGPIO

SIM7080 series	SIM7070 series	SIM7090 series	SIM7075 series
AT+CGPIO=? +CGPIO: (0-1),(5,7,9,10,11,12,14,41,42,48,49,50,51,57,58,59,60,61,62,64,65),(0-1),(0-1) OK	AT+CGPIO=? +CGPIO: (0-1),(4,5,11,12,13,14,19,20,21,22,23,37,38,48,49,50,52,66,67,68),(0-1),(0-1) OK	AT+CGPIO=? +CGPIO: (0-1),(1,2,3,4,5,6,7,8,21,22,23,37,38,48,52,66,67,68),(0-1),(0-1) OK	AT+CGPIO=? +CGPIO: (0-1),(1,4,5,6,7,16,18,19,20,21,22,23,25,26,27,28,30,34,35,36,37,38,39,40,41,42,44,45,46,60,62,64,65,67,68,75,76,77,78,79,86,87,88,89,90,91,92,93,97),(0-1),(0-1) OK
Difference: The GPIO to be set is different.			

23.3 AT+CVHU

SIM7080 series and SIM7090 series do not support this command.

23.4 AT+CLIP

Only SIM7080 series supports this command.

23.5 AT+CLCC

Only SIM7080 series supports this command.

23.6 AT+ANTENALLCFG

Only SIM7080 series supports this command.

23.7 AT+STXPOWER

This command only has an effect on SIM7070E and SIM7075 series.