GPRS Series Module AT Instruction Set

Version 1.0

Ai-Thinker Inc

Note

History

Date	Version	Author	Description
2017.7.14	V1.0	Wang Chong	Initial

Contents

1 Introduction

1.1 Purpose

This is intended to provide the AT Command Set which implemented by Ai-Thinker.

1.2 Document Conventions

The following style conventions and terminology are used throughout this document.

Name	Description
AT	Attention Command
TE	Terminal equipment
TA	Terminal adapter
MT	Mobile termination
MT Message	Mobile terminated message
MO Message	Mobile originated message
SMS	Short message services
USSD	Unstructured supplementary services data
CC	Call control
SS	Supplementary services
CRSS	Call related SS
ID	Identification
NW	Network

All latest version changes are in yellow.

In addition:

The " T″ in the status table means the AT command type is the " TEST″.

The " R″ in the status table means the AT command type is the " READ″.

The " S″ in the status table means the AT command type is the " SET″.

The " E″ in the status table means the AT command type is the " EXE″.

The " Y″ in the status table means the AT command has been finished.

The " N″ in the status table means that the work for this AT command has not been started.

The " P″ in the status table means a part of all the functions of the AT command has been finished, leaving the remaining undone.

The **Syntax** table format is shown below:

Test command	Description
[If this command supports 'test', the instance should be inputted here.]	... Response ...
Read command	Description
[If this command supports 'read', the instance should be inputted here.]	... Response ... Parameter ...
Set command	Description
[If this command supports 'set', the instance should be inputted here.]	... Response

	. . .
	Parameter
	. . .
Exe command 　　[If this command supports 'exe', the instance should be inputted here.]	Description . . . Response . . . Parameter . . .
Reference	ITU-T　Recommandation　V.25 ter

1.3 References

V.25ter

3GPP TS 27.007

3GPP TS 27.005

AT Module Hardware Interface Description

1.4 Character Set

GSM, HEX, PCCP936, UCS2

1.5 AT Command Syntax

The "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.

Types of AT commands and responses:

AT command type	Syntax	Function
Test command	AT+CXXX=?	The mobile equipment returns the list of parameters and value ranges set with the corresponding Write command or by internal processes.
Read command	AT+CXXX?	This command returns the currently set value of the parameter or parameters.
Set command	AT+CXXX=<...>	This command sets user-definable parameter values.
Exec(ution) command	AT+CXXX	The execution command reads non-variable parameters determined by internal processes

The basic syntax of basic and extended command order what defined in ITU-T V.25 ter(5.3, 5.4, etc).

1.5.1 Syntax rules

1) Command line must begin with "AT" or "at", otherwise it would be treated as

invalid command line except "A/" and "+++". Especially, command line begin with "aT" or "At" are also invalid.

2) There is only one "at"/"AT" when it includes several commands which should be at the beginning of a command line.

3) Basic command can be followed either by basic command or by extended command in one command line. So does the extended command, but there should be a ";" between the extended command and others.

4) The maximum length of the command name is 20 bytes.

5) The maximum length of the parameter string is 80 bytes.

6) There should be no more than 256 characters in one command line including characters defined by S5 and S3.

7) There should be no spacing in "at"/"AT" and command name.

8) The command line is ended with the character defined by command S3;

9) If error happened during parser it return error and none of the command will be execute in the command line; but if error happened when execute one of a commands in a command line, system will return error and the rest part of the command line will be discard.

10) Command line will be break when receiving a new one, the rest part and the new command line will both be discarded.

11) The character of command line is not sensitive;

12) 'a' —'z', 'A' —'Z', '1' —'9', '&', '%', '\\', '!', ':', '-', '.', '/', '_' are available for command name.

13) Terminate character ";" is optional for each commands except for "D". At the same time, "#" can also terminate the "D" command at the data service.

14) Dial numbers are listed as below:

1 2 3 4 5 6 7 8 9 * = ; # + > A B C D

And also the modifier:

, T P ! W @

15) If the basic command's parameter is omitted, parser will set the default value to 0.

16) There should be no spacing in numeric parameter.

17) Unicode string in the command line should be converted to hex string.

18) If the string type parameter of a command include the character ' " ' , ' \' and ' "' , it need to append transferred meaning character " \" before it.

1.5.2 Demo

1.5.1.1 Basic command I follows O

ATOI

Ai-Thinker

A6 MODULE

VERSION 1.0

OK

1.5.1.2 Extended command +COPS? follows basic one

ATI+COPS?

+COPS: 0,0,"CMCC"

OK

1.5.1.3 Demo3

The +CIMI command ends with ' ;'   and +COPS? Command at the end of the command line,' '   is omitted in the last one.

AT+CIMI;+COPS?

460000381603828

+COPS: 0,0,"CMCC"

OK

1.5.1.4　The extended command +CIMI is followed by basic one I

```
AT+CIMI;I

460000381603828

Ai-Thinker

OK
```

1.5.1.5　I followed by D, the command behind D is omitted

```
ATID13240089312;+CIMI

Ai-Thinker

A6 MODULE

VERSION 1.0

OK

CONNECT
```

1.5.1.6　Compounded demo

The total number is 6，they are I, E, +CIMI, E1, I, +COPS?.

```
ATIE+CIMI;E1I+COPS?


Ai-Thinker

A6 MODULE


VERSION 1.0


460001255014827
```

Ai-Thinker

A6 MODULE

VERSION 1.0+COPS: 0,0,"CMCC"

OK

2 General Commands

The AT Commands described in this chapter allow the external application to access system related information in the Ai-Thinker AT module.

2.1 AT

2.1.1 Description

Return to online command state from online data state.

2.1.2 Syntax

Exec command	Response
AT	OK
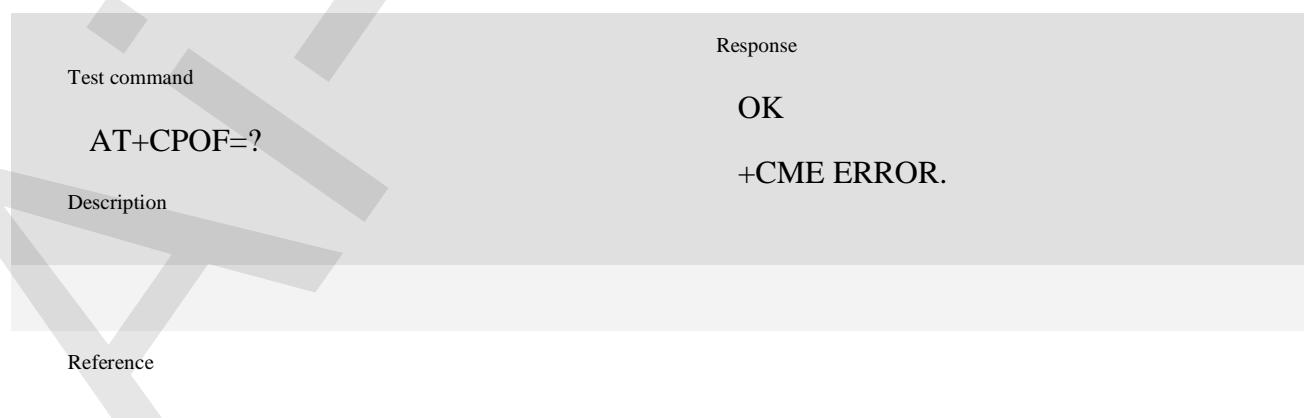
2.2 AT+CPOF Switch off mobile station

2.2.1 Description

Switch off mobile station.

2.2.2 Syntax

Test command	Response
AT+CPOF=?	OK
	+CME ERROR.
Description	

Reference

. . .

Exec command

   AT+CPOF

Description

Device will be switched off (power down mode)

   Do not send any command after this

command.

Response

   +CPOF: MS OFF OK

   +CME ERROR.

Reference

   . . .

2.2.3　Parameter

2.2.4　Remark

   Test this command will lead to the dev board switch off. But as soon as the board switches off, it will automatically power on.

2.2.5　Example

Command	Possible Response
AT+CPOF	+CPOF: MS OFF
	OK
	[Device will be switched off (power down mode)]

2.3　ATS0 automatic answering

2.3.1　Description

   This S-parameter controls the automatic answering feature of the DCE. If set to 0, automatic answering is disabled.

If set to a non-zero value, the DCE shall cause the DCE to answer when the incoming call ringing has occurred the number of times indicated by the value.

2.3.2 Syntax

	Response
Test command ATS0=?	Success: 0-255 OK Fail: ERROR
Read command ATS0?	Response Success: \<n> OK Fail: ERROR
Set command ATS0=[n]	Response Success: OK Fail: *+CME ERROR: \<err>*
Reference ITU-V.25ter	

2.3.3　Unsolicited Result Codes

None

2.3.4　Parameter

<n>:

The auto answering times, range from 0~255.

2.3.5　Remark

If set to 0, auto answering is disabled. This command is specially used on data service in

GPRS mode.

2.3.6　Example

The following examples show the typical application for this command.

Command	Possible Response
ATS0=2	OK
ATS0=?	0-255 OK
ATS0?	2 OK

2.4　ATS3 Response formatting character

2.4.1　Description

This S-parameter represents the decimal IA5 value of the character recognized by the DCE

from the DTE to terminate an incoming command line. It is also generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S4 parameter.

2.4.2 Syntax

Read command	Response
ATS3?	<n>
	OK
Reference	
V.25ter	

Set command	Response
ATS3=<n>	OK
Reference	
V.25ter	

2.4.3 Parameter

<n>
Command line termination character
0…13(default) …31

2.4.4 Remark

Using other value than 13 may cause problems when entering commands.

If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

2.4.5 Example

2.5 ATS4 Response formatting character

2.5.1 Description

This S-parameter represents the decimal IA5 value of the character generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter.

2.5.2 Syntax

Read command	Response
ATS4?	<n>
	OK
Reference	
V.25ter	

Set command	Response
ATS4=<n>	OK
Description	
Reference	
V.25ter	

2.5.3　Parameter

<n>
Command line termination character
0…10(default) …31

2.5.4　Remark

If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

2.5.5　Example

2.6　ATS5 Command line editing character

2.6.1　Description

This S-parameter represents the decimal IA5 value of the character recognized by the DCE as a request to delete from the command line the immediately preceding character.

2.6.2　Syntax

Read command	Response
ATS5?	<n>
	OK
Reference	
V.25ter	

Set command	
ATS5=<n>	Response

Description	OK
…	
Reference	
V.25ter	

2.6.3 Parameter

<n>
Command line termination character
0…8(default) …31

2.6.4 Remark

If ATS3, ATS4, ATS5 be set to the same value, it may be cause some problem.

2.6.5 Example

2.7 +++ Switch from online data or PPP mode to online CMD mode

2.7.1 Description

Return to online command state from online data state.

2.7.2 Syntax

Exec command
+++
Description
...
Response

OK   If value is valid.

ERROR   If value is not recognized or not supported.

Reference

ITU-T V.25

2.7.3　Parameter

2.7.4　Remark

2.7.5　Example

The following examples show the typical application for this command.

Command	Possible Response
+++	OK *<Note :…>*

2.8　ATO Switch from command mode to data mode/PPP online mode

2.8.1　Description

Causes the DCE to return to online data state and issue a CONNECT or CONNECT text result code.

2.8.2　Syntax

	Response
Exec command ATO[<value>] Description ...	If connection is not successfully resumed: NO CARRIER Or DCE returns to data mode from command

mode

CONNECT<text>

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

Reference

ITU-T V.25

2.8.3 Parameter

<value>

[0] Switch from command mode to data mode.

2.8.4 Remark

2.8.5 Example

Command	Possible Response
<set to DATA MODE>	+++ OK
ATO0	CONNECT

2.9 AT&F Set all current parameters to manufacturer defaults

2.9.1 Description

This command instructs the DCE to set all parameters to default values specified by the manufacture, which may take hardware configuration switches and other manufacture-defined criteria into consideration.

2.9.2   Syntax

Set command	Response
AT&F[<value>]	OK If value is valid.
Description	ERROR If value is not recognized or not supported.
Read command returns the list of current active alarm settings in the MT.	
Reference	
ITU-T V.25 ter(6.1.2)	

2.9.3   Parameter

<value>
[0] Set all TA parameters to manufacturer defaults.
(other) Reserved for manufacture proprietary use.

2.9.4   Remark

- List of parameters reset to manufacturer default can be found in Section.

- In addition to the default profile, you can store an individual one with AT&W. To alternate between the two profiles enter either ATZ (loads user profile) or AT&F (restores factory profile).

- Configuration table see *Appendix B*

2.9.5   Example

The following examples show the typical application for this command.

Command	Possible Response
AT&F	OK

<Note : Set alarm for Dec 26th, 2007 at 10:20:34   *<Note : the alarm is stored>*

am, the alarm name is alarm1>

2.10 ATV Set result code format mode

2.10.1 Description

The setting of this parameter determines the contents of the header and trailer transmitted with result codes and information responses. It also determines whether result codes are transmitted in a numeric form or an alphabetic (or "verbose") form. The text portion of information responses is not affected by this setting.

2.10.2 Syntax

Execute command ATV[<value>]	Response 0 If value is 0 (because numeric response text is being used). OK If value is 1. 4 For unsupported values (if previous value was V0). ERROR For unsupported values (if previous value was V1).
Reference ITU-T V.25 ter(6.2.7)	

2.10.3 Parameter

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

<u>1</u>	Short result code format: \<numeric code>\<CR>
	Information response: \<CR>\<LF>\<text>\<CR>\<LF>
	Long result code format: \<CR>\<LF>\<verbose code>\<CR>\<LF>

2.10.4 Remark

Following table shows the effect of the setting of this parameter on the format of information text and result codes. All references to cr mean "the character with the ordinal value specified in parameter S3"; all references to if likewise mean "the character with the ordinal value specified in parameter S4"

V0	V1
\<text>\<cr>\<lf>	\<cr>\<lf>
	\<text>\<cr>\<lf>
\<numeric code>\<cr>	\<cr>\<lf>\<verbose code>\<cr>\<lf>

2.10.5 Example

The following examples show the typical application for this command.

Command	Possible Response
ATV1 *\<Note : Set the result code format to default seeting>*	\<CR>\<LF>\<text>\<CR>\<LF> *\<Note: Information response>* \<CR>\<LF>\<verbose code>\<CR>\<LF> *\<Note: Long result code format >*

2.11 ATE Enable command echo

2.11.1 Description

This setting determines whether or not the TA echoes characters received from TE during command state.

2.11.2 Syntax

Exec command ATE[<value>] Description . . .	Response OK
Reference ITU-T V.25	

2.11.3 Parameter

<value>	
0	Echo mode off
1	Echo mode on

2.11.4 Remark

● In case of using the command without parameter, <value> is set to 0.

2.11.5 Example

The following examples show the typical application for this command.

Command	Possible Response
ATE	OK

2.12 AT&W Stores current configuration to user defined profile

2.12.1 Description

This command stores the currently set parameters to a user defined profile in the non-volatile memory.

2.12.2 Syntax

Exec command AT&W[<value>] Description …	Response OK
ERROR/+CME ERROR <err>	
Reference ITU-T V.25	

2.12.3 Parameter

<value>
0   Profile number

2.12.4 Remark

● The user defined profile will be restored automatically after power-up. Use ATZ to restore user profile and AT&F to restore factory settings. Until the first use of AT&W, ATZ works as AT&F.

● A list of parameters stored to the user profile can be found in Section chapter 29, appendix B, AT Command Settings storable with AT&W.

2.12.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT&W	OK

2.13 ATQ Set result code presentation mode

2.13.1 Description

This parameter setting determines whether or not the DCE transmits result codes to the DTE.

2.13.2 Syntax

Exec command ATQ[<value>] Description ATQ0: DCE transmits result codes. ATQ1: Result codes are suppressed and not transmitted.	Response OK none ERROR/+CME ERROR <err>
Reference ITU-T V.25	

2.13.3 Parameter

<value>	
0	DCE transmits result code
1	Result codes are suppressed and not transmitted

2.13.4 Remark

2.13.5 Example

The following examples show the typical application for this command.

Command	Possible Response
ATQ0 *<Note : >* *DCE transmits result code.*	 OK
ATQ1 <Note : > Result codes are suppressed and not transmitted	 (None)
ATQ <Note : > Current <value not changed>	 OK

2.14 ATX Set connect result code format and call monitoring

2.14.1 Description

This parameter setting determines whether or not the DCE detects the presence of dial tone and busy signal and whether or not DCE transmits particular result codes.

2.14.2 Syntax

Exec command	Response
ATX[value]	<value> = 0, 1, 2, 3, 4;

Description	OK
....	<value> > 4
	ERROR/+CME ERROR <err>
Reference	
ITU-T V.25	

2.14.3 Parameter

<value>	
0	CONNECT result code only returned; dial tone and busy detection are both disable.
1	CONNECT <text> result code only returned; dial tone and busy detection are both disable.
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.

2.14.4 Remark

2.14.5 Example

2.15 ATZ Set all current parameters to user defined profile

2.15.1 Description

This command instructs the DCE to set all parameters to their factory defaults as specified by the manufactured.

2.15.2 Syntax

Exec command	Response
ATZ[<value>]	OK
Description	ERROR/+CME ERROR <err>

DCE sets all current parameters to the user profile stored with AT&W. If a connection is in progress, it will be terminated.	
Reference	
ITU-T V.25	

2.15.3 Parameter

<value>	
0	The default configure of the manufacturer.
(other)	Not be used.

2.15.4 Remark

● First the profile will be set to factory default (see AT&F). If there is a valid user profile (stored with AT&W), this profile will be loaded afterwards.

● Any additional commands on the same command line may be ignored. A delay of 300 ms is required before next command is sent; otherwise "OK" response may be corrupted.

2.15.5 Example

2.16 AT+CFUN Set phone functionality

2.16.1 Description

Set command currently can only be used to switch off and on the CSW platform.

2.16.2 Syntax

Test command	Response
AT+CFUN=?	+CFUN : (list of supported <fun>s),(list of

Description	supported <rst>s)
Test command.	ERROR/+CME ERROR <err>
Reference	
See also 3GPP TS 27.007 V3.12.0 (8.2): set phone functionality	

Read command	Response
AT+CFUN?	+CFUN:<fun>
Description	ERROR/+CME ERROR <err>
Read command.	
Reference	
See also 3GPP TS 27.007 V3.12.0 (8.2): set phone functionality	

Set command	Response
AT+CFUN=<fun>[,<rst>]	OK
Description	ERROR/+CME ERROR <err>
Set command selects the level of functionality <fun> in the MT.	
Reference	
See also 3GPP TS 27.007 V3.12.0 (8.2): set phone functionality	

2.16.3 Parameter

<fun>	Description
0	Minimum functionality
1	Full functionality
4	Disable phone both transmit and receive RF circuits

<rst>	Description
0	Do not reset the MT before setting it to <fun> power level. NOTE: this shall be always default when <rst> is not given.
1	Reset the MT before setting it to <fun> power level.

2.16.4 Remark

Current, only Parameter 0 and 1 is support.

When <fun> equals to 0 and 1, the second parameter <rst> is ignored.

For CSW only do the de-registering when switch off, when parameter is set by 0 or 1, CSW will operate the network job independent.

If AT modem can′t register the network when parameter is set to 5, please check pin1 status.

2.16.5 Example

Command	Possible Response
AT+CFUN=0	OK
AT+CFUN?	+CFUN:0
	OK

2.17   AT+CMEE report mobile equipment error

2.17.1 Description

This command controls the presentation of the result code +CME ERROR: <err> that indicates errors relating to ME functionality.

2.17.2 Syntax

Test command	Response
AT+CMEE=?	+CMEE: (list of supported <n>s)

Description	
Test command.	

Reference	
See also 3GPP TS 27.007 V3.12.0 (9.1): Mobile Termination event reporting.	

Read command	
AT+CMEE?	
Description	Response
Read command.	+CMEE:\<n\>
Reference	
See also 3GPP TS 27.007 V3.12.0 (9.1): Mobile Termination event reporting.	

Set command	
AT+CMEE=\<n\>	
Description	Response
Set command.	ERROR or OK
Reference	
See also 3GPP TS 27.007 V3.12.0 (9.1): Mobile Termination event reporting.	

2.17.3 Parameter

\<n\>	Description
0	Disable +CME ERROR: \<err\> code and use ERROR instead
1	Enable +CME ERROR: \<err\> code and use numeric \<err\> values (refer next sub clause)
2	Enable +CME ERROR: \<err\> result code and use verbose \<err\> values refer next sub clause)

2.17.4 Remark

When enable the result code, MT related errors cause +CME ERROR: <err> final result code instead of the regular ERROR final result code. ERROR is returned normally when error is related to syntax, invalid parameters, or TA functionality.

2.17.5 Example

Command	Possible Response
AT+CMEE=1	OK
AT+CMEE=5	+CME ERROR:53
at+cmee=?	+CMEE: (0-2)
	OK
at+cmee?	+CMEE: 1
	OK

2.18 AT+CSCS Select TE character set

2.18.1 Description

Write command informs DCE which character set <chset> is used by the TE. DCE is then able to convert character strings correctly between TE and ME character sets.

2.18.2 Syntax

	Response
	If success:
Exec command	+CSCS: (list of supported < chset >s)
AT+CSCS=?	OK
Description	if failed:
Test command to list the supported <chset>s.	ERROR

Reference

See also 3GPP TS 27.007 V3.12.0 (5.5): Mobile Termination event reporting.

Exec command AT+CSCS？ Description Read command shows current setting and test command displays conversion schemes implemented in the DCE.	Response If success: +CSCS: (list of supported < chset>s) OK If failed: ERROR
Reference See also 3GPP TS 27.007 V3.12.0 (5.5): Mobile Termination event reporting.	

Exec command AT+CSCS=[<chset>] Description Set command informs DCE which character set <chset> is used by the TE.	Response If success: OK If failed: ERROR
Reference See also 3GPP TS 27.007 V3.12.0 (5.5): Mobile Termination event reporting.	

2.18.3 Parameter

<chset>	NOTE
" GSM"	GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily software flow control (XON/XOFF) problems.
" UCS2"	16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); 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.

Hexadecimal mode. No character set used ; the user read or write directly hexadecimal values.

" HEX″

"PCCP936"

PC Set.

2.18.4 Remark

This command is used to read and write phonebook entries. SMS doesn′t effected by this command.

2.18.5 Example

Command	Possible Response
AT+CSCS=″UCS2″	OK
AT+CSCS?	+CSCS: "UCS2″
	OK
AT+CSCS=?	+CSCS: ("GSM","HEX","PCCP936","UCS2")
	OK

2.19 AT+CMUX Multiplexing mode

2.19.1 Description This command is used to enable the multiplexing protocol control channel.

2.19.2 Syntax

Exec command	Response
AT+CMUX=?	If success:
Description	+CMUX: (list of supported
Test command to returns the supported parameters as compound	\<transparency\>s)

values	OK
	if failed:
	ERROR
Reference	
See also 3GPP TS 27.010 [45]	

	Response
Exec command	If success:
AT+CMUX？	+CMUX: <transparency>
Description	OK
Read command returns the current settings.	If failed:
	ERROR
Reference	
See also 3GPP TS 27.010 [45]	

Exec command
AT+CMUX=<transparency>
Description
Set command enable the multiplexing protocol control channel.
Response
If success:
OK
If failed:
ERROR
Reference
See also 3GPP TS 27.010 [45]

2.19.3 Parameter

<transparency>:	
0	Basic option

2.19.4 Remark

At present we only support basic mode, if you want use this command, please contact Ai-Thinker software engineer

2.19.5 Example

Command	Possible Response
AT+CMUX=0	OK
AT+CMUX=?	+CMUX: (0)
	OK
AT+CMUX?	+CMUX: 0
	OK

2.20 AT+ICF DTE DCE character framing

2.20.1 Description

This extended-format compound parameter is used to determine the local serial port start-stop (asynchronous) character framing that the DCE shall use while accepting DTE commands and while transmitting information text and result code, if this is not automatically determined

2.20.2 Syntax

Read command	Response(s)
AT+ICF?	Success:

	+ICF:<format>,<parity>
Description The DCE shall transmit a string of information text to the DTE	OK Fail: ERROR
Test command AT+ICF=? Description The DCE shall transmit a string of information text to the DTE	Response(s) Success: +ICF:(list of supported format values),(list of supported parity values) OK Fail: ERROR
set command AT+ICF=[<format>[，<parity>]]	Response(s) Success: OK Fail: ERROR
Reference ITU-T V.25 ter(6.2.11)	

2.20.3 Parameter

<format>

determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame.

0: auto detect

1: 8 Data 2 Stop

2: 8 Data 1 Parity 1 Stop

3: 8 Data 1 Stop

4: 7 Data 2 Stop

5: 7 Data 1 Parity 1 Stop

6: 7 Data 1 Stop

<parity>

determines how the parity bit is generated and checked, if present(when format is 2 or 5).

0: Odd

1: Even

2: Mark

3: Space

2.20.4 Remark

Implementation of this parameter is optional. If the format specified is not supported by the

DCE, an **ERROR** result code shall be returned

2.20.5 Example

Command	Possible Response
AT+ICF=3,3	OK
<Note : > AT+ICF?	*<Note : >* +ICF:3,3 OK
AT+ICF=?	+ICF:(0-6),(0-3) OK

2.21 AT+IPR Set fixed local rate

2.21.1 Description

This numeric extended-format parameter specifies the data rate at which the DCE will accept commands, in addition to 1200 bit/s or 9600 bit/s

2.21.2 Syntax

Test command
AT+IPR=?
Description
This numeric extended-format parameter specifies the data rate at which the DCE will accept commands.
Response
Success:
+IPR:(list of supported auto detectable <rate> values)[,(list of fixed-only   <rate> values)]
Fail:

Read command	Response
AT+IPR?	Success:
Description	+IPR:<rate>
The DCE shall transmit a string of information text to the DTE	Fail:
	ERROR

	Response
	Success:
Set command	OK
AT+IPR=<rate>	Fail:
	ERROR.

Reference	
ITU-T V.25 ter(6.2.10)	

2.21.3 Parameter

<rate>

The <rate> value specified shall be the rate in bits per second at which the DTE-DCE interface should operate, e.g. "19 200" or "115 200". The rates supported by a particular DCE are manufacturer-specific; however, the   IPR parameter should permit the setting of any rate supported by the DCE during online operation. Rates which include a non-integral number of bits per second should be truncated to the next lower integer (e.g. 134.5 bit/s should be specified as 134; 45.45 bit/s should be specified as 45). If unspecified or set to 0, automatic detection is selected for the range determined by the DCE manufacturer

.

2.21.4 Remark

Make sure the MT and the module has the same bit rate, otherwise it can′t work.

2.21.5 Example

Command	**Possible Response**
AT+IPR=115 200	OK
	<Note : >
<Note : >	
AT+IPR?	+IPR:115200
<Note:>	<Note:>
at+ipr=?	(2400,4800,9600,14400,19200,28800,33600,38400,57600,115200,2304

00,460800,

921600,1843200)

OK

2.22 AT+GSN request TA serial number identification

2.22.1 Description

This commandrequest TA serial number identification

2.22.2 Syntax

Test command	
AT+GSN=?	Response
Description	OK
Set command	
AT+GSN	Response
Description	<sn>
The set command return the TA serial number indentification.	OK
Reference	
3GPP TS 27.007(V3.12.0)	

2.22.3 Parameter

<sn>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.22.4 Remark

2.22.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+GSN	012345678901234
	OK

2.23 AT+GMM Request TA model identification

2.23.1 Description

This command request TA model identification (may equal to +CGMM)

2.23.2 Syntax

Test command	
AT+GMM=?	Response
Description	OK

Read command	
None.	Response

Set command	
AT+GMM	Response
	<model>
Description	
The set command returns product	OK

firmware version identification text.

Reference

3GPP TS 27.007(V3.12.0)

2.23.3 Parameter

<model>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.23.4 Remark

2.23.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+GMM	GSM Ultimate Data Device OK

2.24 AT+CGMM Request model identification

2.24.1 Description

This command causes the TA to return one or more lines of information text <model>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the specific model of the MT to which it is connected to. Typically, the text will consist of a single line containing the name of the product, but manufacturers may choose to provide more information if desired. Refer to subclause 9.2 for possible <err> values.

2.24.2 Syntax

Test command	
+CGMM=?	Response
Description	OK

Set command	
+CGMM	Response
Description	<model>
The set command causes the TA to return one or more lines of information text <model>.	+CME ERROR: <err>

Reference

3GPP TS 27.007(V3.12.0)

2.24.3 Parameter

<model>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.24.4 Remark

2.24.5 Example

The following examples show the typical application for this command.

Command	Possible Response

AT+CGMM	GSM Ultimate Data Device
	OK

2.25 AT+GMR Request revision identification

2.25.1 Description

This command request TA revision identification (may equal to +CGMR)

2.25.2 Syntax

Test command	
+GMR=?	Response
Description	OK

Set command	
+GMR	
	Response
Description	
The set command causes the TA to return one or more lines of information text <revision>.	<revision>
	+CME ERROR: <err>

Reference	
3GPP TS 27.007(V3.12.0)	

2.25.3 Parameter

<revision>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.25.4 Remark

2.25.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+GMR	3.00 OK

2.26 AT+ CGMR Request revision identification

2.26.1 Description

This command causes the TA to return one or more lines of information text <revision>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the version, revision level or date, or other pertinent information of the MT to which it is connected to. Typically, the text will consist of a single line containing the version of the product, but manufacturers may choose to provide more information if desired. Refer subclause 9.2 for possible <err> values.

2.26.2 Syntax

Test command	Response
+CGMR=?	OK
Description	

Set command	Response
+CGMR	<revision>
Description	+CME ERROR: <err>
The set command causes the TA to return one or more lines of information text <revision>.	

Reference

3GPP TS 27.007(V3.12.0)

2.26.3 Parameter

<revision>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.26.4 Remark

2.26.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGMR	3.00
	OK

2.27 AT+GMI Request TA manufacturer identification

2.27.1 Description

Request TA manufacturer identification (may equal to +CGMI).

2.27.2 Syntax

Test command	
+GMI=?	Response
	OK
Description	

Set command	
+GMI	
Description	Response
The set command causes the TA to return one or more lines of information text <manufacturer>.	<manufacturer>
	+CME ERROR: <err>

Reference

3GPP TS 27.007(V3.12.0)

2.27.3 Parameter

<manufacturer>: the total number of characters, including line terminators, in the information

text shall not exceed 2048 characters.

2.27.4 Remark

2.27.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+GMI	Manufacturer ABC OK

2.28 AT+CGMI Request manufacturer identification

2.28.1 Description

This command causes the TA to return one or more lines of information text <manufacturer>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the manufacturer of the MT to which it is connected to. Typically, the text will consist of a single line containing the name of the manufacturer, but manufacturers may choose to provide more information if desired. Refer subclause 9.2 for possible <err> values.

2.28.2 Syntax

Test command	Response
+CGMI=?	OK

Description

Set command

  +CGMI

Description

   The set command causes the TA to return one or more lines of information text <manufacturer>.

Response

   <manufacturer>

  +CME ERROR: <err>

Reference

  3GPP TS 27.007(V3.12.0)

2.28.3 Parameter

  <manufacturer>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.

2.28.4 Remark

2.28.5 Example

 The following examples show the typical application for this command.

Command	Possible Response
AT+CGMI	Manufacturer ABC OK

2.29 ATI Request manufacturer specific information about the TA

2.29.1 Description

Request manufacturer specific information about the TA(software cannot use this command to determine the capabilities of a TA)

2.29.2 Syntax

Set command	Response
ATI[<value>]	<module name>
Description	<module version>
The set command request manufacturer specific information about the TA.	OK

Reference

3GPP TS 27.007(V3.12.0)

2.29.3 Parameter

<value> may optionally be used to select from among multiple types of identifying information, specified by the manufacturer..

0   return   manufacturer identification, model identification and revision identification of software.

(1-255) Reserved for manufacturer proprietary use

2.29.4 Remark

2.29.5 Example

The following examples show the typical application for this command.

Command	Possible Response
ATI	Ai-Thinker AT 3.0.0 OK

2.30   AT+CIMI Request international mobile subscriber identity

2.30.1 Description

This command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual active application in the UICC (GSM or USIM) or SIM card which is attached to MT. Refer subclause 9.2 for possible <err> values.

2.30.2 Syntax

Test command +CIMI=? Description	Response OK

Set command +CIMI Description The set command causes the TA to return <IMSI>.	Response <IMSI> +CME ERROR: <err>

Reference

3GPP TS 27.007(V3.12.0)

2.30.3 Parameter

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

2.30.4 Remark

2.30.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CIMI	460001033113523 OK

2.31 AT+EGMR Read and write IMEI

2.31.1 Description

This command read IMEI from factory partition,also can write IMEI to factory patition.

2.31.2 Syntax

Test command	Response
+EGMR=?	+EGMR: (0,1),(7)
Description	OK

Set command

+EGMR=<mode>,<format>,<data>

Description

The set command causes the TA to return

<IMEI>.

Response

<IMEI>

+CME ERROR: <err>

2.31.3 Parameter

<IMEI>:

<mode>   1 write mode,2 read mode

<format>   7 only can set this value,to match ap.

<data>   IMEI number.

2.31.4 Remark

2.31.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+EGMR=1,7,"11111111 1111111" AT+EGMR=2,7;	+EGMR OK +EGMR:11111111111 OK

2.32 AT+CALA Set an alarm time

2.32.1 Description

This command is used to set/list alarms or date/time in the ME.

2.32.2 Syntax

Test command	Response
AT+CALA=?	+CALA: (list of supported <n>s),(list of supported <type>s),<tlength>,<rlength>,(list of supported <silent>s)
Description	
Test command returns supported array index values, alarm types, and maximum length of the text to be displayed.	+CME ERROR: <err>
	Response
Read command	[+CALA: <u>time</u>,<n1>,<type>,[<u>text</u>],[<recurr>],<silent>
AT+CALA?	
Description	[<CR><LF>+CALA: <time>,<n2>,<type>,[<u>text</u>],[<recurr>],<silent>[...]]]
Read command returns the list of current active alarm settings in the MT.	+CME ERROR: <err>
Set command	
AT+CALA= <u>time</u>[,<n>[,<type>[,<u>text</u>[,<recurr>[,<silent>]]]]]	Response
	OK
Description	+CME ERROR: <err> is returned
Set command sets an alarm time in the MT. There can be an array of different types of	

alarms, and each alarm may cause different text

to be displayed in the MT display

Reference

  3GPP TS 27.007 V3.12.0 (8.16)

2.32.3 Unsolicited Result Codes

URC1

  +CALV: <n>

  NOTE: it is always returned, even if the alarm is set up to be silent

2.32.4 Parameter

<time>

  string type value, the 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   -12...+13). E.g. 6th of May 2005, 22:10:00 GMT+2 hours equals to "05/05/06,22:10:00+08"

  Note: if <time> equals current date and time or is set to an earlier date, returns +CME ERROR: 21.

<n>, <n1>, <n2>

  Integer type value Indicating the index of the alarm.

  Default is 1, in the range of 1~15.

<type>

  Integer type value indicating the type of the alarm (e.g. sound, volume, LED); values and default is 0.

<text>

  String type value indicating the text to be displayed when alarm time is reached; maximum

length <tlength>

<tlength>

Integer type value indicating the maximum length of <text>

<recurr>

String type value indicating day of week for the alarm in one of the following formats:

"<1..7>[,<1..7>[…]]" － Sets a recurrent alarm for one or more days in the week. The digits 1 to 7

corresponds to the days in the week, Monday (1), …, Sunday (7).

Example: The string "1,2,3,4,5" may be used to set an alarm for all weekdays.

"0" － Sets a recurrent alarm for all days in the week.

<rlength>

Integer type value indicating the maximum length of <recurr>

<silent>:

Integer type value indicating if the alarm is silent or not. If set to 1 the alarm will be silent and

the only result from the alarm is the unsolicited result code +CALV. If set to 0 the alarm will not be

silent

2.32.5 Remark

> If you want set a recycle alarm,just import the time

> If don’t input recur , it will consider it not a recyclable alarm

> If don’t input index,the alarm index is 1 will be substitute

> String format of alarm: “yy/MM/dd,hh:mm:ss”.

> Maximum number of alarms is 15. Seconds are not taken into account.

2.32.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CALA="07/10/26,10:20:34",1 ,0,"alarm1"	OK

<Note : the alarm is stored>

<Note : Set alarm for Dec 26th, 2007 at 10:20:34 am, the alarm name is alarm1>

AT+CALA="18:02:10",2,0,"alarm 2","2"

OK

<Note : >

<Note : the alarm is stored>

+CALA: "07/10/27,17:35:30",1,0,"alarm1","1,2,3,4,5,6,7"

+CALA: "07/10/27,17:40:23",2,0,"alarm2","1,2,3,4,5,6,7"

+CALA: "07/10/27,18:50:30",3,0,"alarm test","2,4,6,""

AT+CALA?

+CALA: "07/10/27,17:35:30",4,0,"alarm5","1,3,5,6",""

<Note : >

+CALA: "07/10/29,18:45:30",5,0,"222","1,3,5",""

OK

<Note : >

AT+CALA=?

+CALA: (1-15),(0),(32),(15)

OK

<Note : >

<Note : >

<Note : >

<Note :

This function relates to the implementation of the alarm clock when the Mobile Phone be turned off.>

<Note : The process for setting alarm clock is same as mentioned above, after setting an alarm clock, close the module, check the '+CALA' event.>

2.33 AT+VGR Receive gain selection

2.33.1 Description

This refers to the amplification by the TA of audio samples sent from the TA to the computer.

2.33.2 Syntax

Test command 　　AT+VGR=? Description 　　The command operates on an integer <n>, range 0...255.	Response(s): Success: + VGR：(list of supported <n>s) 　　　　OK Fail: 　　ERROR
Read command 　　AT+VGR? Description 　　Read command returns the list of current setting.	Response(s): Success: + VGR:<n> 　　　　OK Fail: 　　ERROR
Set command 　　AT+VGR= <n> Description 　　Set command sets the gain.	Parameter Description < n>：range 5...8. if value equal to 8, then receiver is mute. Response(s) 　　Success: 　　　OK 　　Fail: 　　　ERROR

Reference

3GPP TS 27.007 V3.12.0 (2002-12)

2.33.3 Unsolicited Result Codes

2.33.4 Parameter

<n>

range 5...8. if value equal to 8, then receiver is mute..

2.33.5 Remark

➢ Values larger than 128 indicate a larger gain than nominal. Values less than 128 indicate a smaller gain than nominal. The entire range of 0...255 does not have to be provided. A value of zero implies the use of automatic gain control by the TA

2.33.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+ VGR =8	Response(s) Success: OK Fail: ERROR
AT+VGR?	+VGR: 7

OK

<Note : >

AT+VGR=?   +VGR: (5-8)

OK

<Note : >

2.34   AT+CLVL Loudspeaker volume level

2.34.1 Description

This command is used to select the volume of the internal loudspeaker of the MT.

2.34.2 Syntax

Test command AT+CLVL=? Description Test command returns supported values as compound value	Response +CLVL: (list of supported \<level>s)
Read command AT+ CLVL? Description Read command returns the list of current setting.	Response +CLVL: \<level> *+CME ERROR: \<err>*
Set command AT+CLVL= \<level> Description Set command sets	Response *+CME ERROR: \<err>*

Reference

See also 3GPP TS 27.007 V3.12.0 (8.23): Loudspeaker volume level

2.34.3 Unsolicited Result Codes

2.34.4 Parameter

integer type value with manufacturer specific range (smallest value represents the lowest

sound level)

2.34.5 Remark

2.34.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CLVL=5	OK
<Note : >	*<Note : >*
AT+CLVL?	+CLVL:5
	OK
<Note : >	*<Note : >*
AT+CLVL=?	+CLVL: (5-8)

<div align="center">OK</div>

<Note : >	*<Note : >*

2.35   AT+CMUT Mute control

2.35.1 Description

This command is used to enable and disable the uplink voice muting during a voice call.

2.35.2 Syntax

Test command	Response
AT+CMUT=?	+CMUT: (list of supported <n>s)
Description	
.	
Read command	Response
AT+CMUT?	+CMUT: <n>
Description	+CME ERROR: <err>
Read command returns.	Parameter
Set command	Response
AT+CMUT= <n>	+CME ERROR: <err>
Description	
Set command sets	
Reference	
See also 3GPP TS 27.007 V3.12.0 (8.24): Mute control	

2.35.3 Unsolicited Result Codes

2.35.4 Parameter

<n>
0   mute off
1   mute on.
<type>

2.35.5 Remark

2.35.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMUT=1	OK
<Note : 1>	*<Note : >*
AT+CMUT?	+CMUT: 1
	OK
<Note : >	*<Note : >*
AT+CMUT=?	

<Note : >

<Note : >

2.35.7 Remark

2.35.8 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMUT=1	OK
<Note : 1>	*<Note : >*
AT+CMUT?	+CMUT: 1
	OK
<Note : >	*<Note : >*
AT+CMUT=?	
<Note : >	*<Note : >*

2.36   AT+CCLK Real time clock

2.36.1 Description

Set command sets the real-time clock of the MT.

2.36.2 Syntax

Test command	
AT+CCLK=?	
Description	
Test command returns.	

Read command	
AT+CCLK?	Response
	+CCLK: <time>
Description	+CME ERROR: <err>
Read command returns	

Set command	
AT+CCLK= <time>	Response
	OK
Description	+CME ERROR: <err>
Set command sets	

Reference	
See also 3GPP TS 27.007 V3.12.0 (8.15): Clock	

2.36.3 Unsolicited Result Codes

2.36.4 Parameter

<time>

string type value, the 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 -12...+13). E.g. 6th of May 2005, 22:10:00 GMT+2 hours equals to "05/05/06,22:10:00+08"

Note: if <time> equals current date and time or is set to an earlier date, returns +CME ERROR: 21.

2.36.5 Remark

If MT does not support time zone information then the three last characters of <time> are not returned by +CCLK? The format of <time> is specified by use of the +CSDF command The range of the year is from 2000 to 2070

2.36.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CCLK="07/10/25,11:33:40+8 "	OK *<Note : >*
<Note : >	
AT+CCLK?	+CCLK: "07/10/25,11:33:44+8" OK
<Note : >	*<Note : >*
AT+CCLK=?	OK
<Note : >	*<Note : >*

2.37 AT+CALD Delete one alarm

2.37.1 Description

Action command deletes an alarm in the MT

2.37.2 Syntax

Test command	
AT+CALD=?	Response
Description	+CALD: (list of supported <n>s)
Test command returns supported array index values.	
Set command	
AT+CALD= <n>	Response
Description	+CME ERROR: <err>
Set command sets	
Reference	
See also 3GPP TS 27.007 V3.12.0 (8.37): delete Alarm	

2.37.3 Unsolicited Result Codes

2.37.4 Parameter

<n>

Integer type value Indicating the index of the alarm.

default is manufacturer specific

2.37.5 Remark

> .

2.37.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CALD=1	OK
<Note : >	*<Note : >*
AT+CALD=?	+CALD: 2
	OK
<Note : >	
	<Note : >

2.38 AT+CBC Battery charging / discharging and charge control

2.38.1 Description

This command is used to set/list alarms or date/time in the ME.

2.38.2 Syntax

	Response
	+CBC: (list of supported <bcs>s),(list of supported <bcl>s)
	Defined values
	<bcs>
	0 No charging adapter is connected
	1 Charging adapter is connected
	2 Charging adapter is connected, charging in progress
Test command	3 Charging adapter is connected, charging has finished
AT+CBC=?	4 Charging error, charging is interrupted
Description	5 False charging temperature, charging is interrupted while temperature is beyond allowed range
Test command .	<bcl>
	Battery capacity 0, 10,20, 30,40, 50,60, 70,80, 90,100 percent of remaining capacity (11 steps)
	0 indicates that either the battery is exhausted or the capacity value is not available.

Read command	Response
AT+CBC?	+CBC: <bcs>,<bcl>
	<bcs>
	Connection status of battery pack
	<bcl>
	Battery charge level
Description	While charging is in progress (charging adapter connected)
Read command returns.	The battery capacity is not available. Consequently, parameter <bcl>=0.To query the battery capacity disconnect the charger.

Set command	Battery charging / discharging and charge control
	Responses returned
	by the AT+CBC command vary with the operating mode of the ME:
	Normal mode:
	ME is switched on by Ignition pin and running the SLEEP, IDLE,
AT+CBC	TALK or DATA mode. Charger is not connected. AT+CBC can be
Description	used to query the battery capacity.
Set command sets	
	Normal mode + charging:
	Allows charging while ME is switched on by Ignition pin and running the SLEEP, IDLE,

TALK or DATA mode. AT+CBC returns

chargerstatus. Battery capacityis not available.

Charge-only mode:

Allows charging while ME is detached

from GSM network. Whenstarted, the mode is

indicated by the URC "+SYSTART

CHARGEONLY

MODE". AT+SBC returns charger status.

Percentage of battery capacity is not available.

Referenc

2.38.3 Unsolicited Result Codes

2.38.4 Parameter

2.38.5 Remark

2.38.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CBC?	+CBC: 0,100
	OK
<Note : >	
	<Note : >
AT+CBC=?	+CBC: (0-5), (0,10,20,30,40,50,60,70,80,90,100)
<Note : >	OK
	<Note : >

2.39 AT+CBCM Supply Information when Battery Capacity changed

2.39.1 Description

This command control information display when battery capacity changed. But this command not support now

2.39.2 Syntax

Test command	Response(s)
	Success:
AT+CBCM=?	+CBCM：list of supported <bNumber>s
Description	OK
Test command returns	Fail:
	ERROR
Read command	Response(s)
AT+CBCM	Success:

Description	+CBCM： <bNumber>
Read command returns	OK
	Fail:
	ERROR
	Response(s)
Set command	Success:
AT+CBCM=<bNumber>	OK
Description	Fail:
Set command sets	ERROR
Reference	
none	

2.39.3 Unsolicited Result Codes

2.39.4 Parameter

<bNumber>

0   means the battery status event will not be reported initiatively

1   means the battery status event will be reported initiatively

2.39.5 Remark

2.39.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CBC=1	OK
<Note : >	*<Note : >*
AT+CBC?	+CBC:0 OK
<Note : >	*<Note : >*
AT+CBC=?	+CBC: (0-1) OK
<Note : >	
	<Note : >

2.40 AT+CMER Mobile Termination event reporting

2.40.1 Description

This command set or query the sending mode of unsolicited result codes from TA to TE.

2.40.2 Syntax

Test command	Response
+CMER=?	+CMER: (list of supported <mode>s),(list
Description	of supported <keyp>s),(list of supported

Test command returns the modes supported as compound values.	<disp>s),(list of supported <ind>s),(list of supported <bfr>s)

Read command

　　+CMER?

Description	Response
Read command returns the mode of MT indicators. If MT is not currently reachable, +CME ERROR: <err> is returned. Refer subclause 9.2 for <err> values.	+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>

Set command

　　+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]

Description	Response
Set command enables or disables sending of unsolicited result codes from TA to TE in the case of key pressings, display changes, and indicator state changes.	Success: OK Failing: +CME ERROR: <err>

Reference

　　3GPP TS 27.007 V3.12.0

2.40.3 Parameter

<mode>:

0   buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded

1   discard 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

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

<keyp>:

0   no keypad event reporting

1   keypad event reporting using result code +CKEV: <key>,<press>. <key> indicates the key (refer IRA values defined in table in subclause "Keypad control +CKPD") and <press> if the key is pressed or released (1 for pressing and 0 for releasing). Only those key pressings, which are not caused by +CKPD shall be indicated by the TA to the TE.

NOTE 1:   When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.

2   keypad event reporting using result code +CKEV: <key>,<press>. All key pressings shall be directed from TA to TE.

NOTE 2:   When this mode is enabled, corresponding result codes of all keys currently pressed should be flushed to the TA regardless of <bfr> setting.

<disp>:

0   no display event reporting

1   display event reporting using result code +CDEV: <elem>,<text>. <elem> indicates the element order number (as specified for +CDIS) and <text> is the new value of text element. Only those display events, which are not caused by +CDIS shall be indicated by the TA to the TE. Character set used in <text> is as specified by command Select TE Character Set +CSCS

2   display event reporting using result code +CDEV: <elem>,<text>. All display events shall be directed from TA to TE. Character set used in <text> is as specified by command Select TE Character Set +CSCS

<ind>:

0   no indicator event reporting

1   indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator events, which are not caused by +CIND shall be indicated by the TA to the TE 2

indicator event reporting using result code +CIEV: <ind>,<value>. All indicator events shall be directed from TA to TE

<bfr>:

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

1   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)

2.40.4 Remark

2.40.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMER=3,0,0,2	OK
	+CIEV:battchg,5
	+CIEV:signal,99
AT+CMER =?	+CMER:(3),(0),(0),(0,2)
	OK
AT+CMER?	+CMER:3,0,0,2
	OK

2.41 AT+CEER Extended error report

2.41.1 Description

This command causes the TA to return one or more lines of information text <report>, determined by the MT manufacturer, which should offer the user of the TA an extended report of the reason for

- the failure in the last unsuccessful call setup (originating or answering) or in-call modification;

- the last call release;

- the last unsuccessful GPRS attach or unsuccessful PDP context activation;

- the last GPRS detach or PDP context deactivation.

Typically, the text will consist of a single line containing the cause information given by GSM/UMTS network in textual format.

.

2.41.2 Syntax

Test command	Response
+CEER=?	OK
Description	
The test command shell return " OK " .	

Set command	Response
+CEER	+CEER: <report>
Description	
The set command causes the TA to return one or more lines of information text <report>.	

| Reference | |

3GPP TS 27.007 V3.12.0

2.41.3 Parameter

<report>: the total number of characters, including line terminators, in the information text shall not exceed 2041 characters.

Text shall not contain the sequence 0<CR> or OK<CR>

2.41.4 Remark

2.41.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CEER = ?	OK
ATD13501275915;	OK
	BUSY
AT+CEER	+CEER: CALL RELEASED, NETWORK SENT UDUB TO ME
	OK

2.42 AT+CPAS Phone activity status

2.42.1 Description

This command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone. Refer subclause 9.2 for possible <err> values.

2.42.2 Syntax

Test command	Response

| +CPAS=? | +CPAS: (list of supported <pas>s) |
| | +CME ERROR: <err> |

Description

Test command returns values supported as a compound value.

Set command

+CPAS

Description

The set command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone. Refer subclause 9.2 for possible <err> values.

Response

+CPAS: <pas>

+CME ERROR: <err>

Reference

3GPP TS 27.007 V3.12.0

2.42.3 Parameter

<pas>:

0   ready (MT allows commands from TA/TE)

1   unavailable (MT does not allow commands from TA/TE)

2   unknown (MT is not guaranteed to respond to instructions)

3   ringing (MT is ready for commands from TA/TE, but the ringer is active)

4   call in progress (MT is ready for commands from TA/TE, but a call is in progress)

5   asleep (MT is unable to process commands from TA/TE because it is in a low functionality state)

also all other values below 128 are reserved by the present document.

2.42.4 Remark

2.42.5 Example

The following examples show the typical application for this command.

Command	Possible Response
At+cpas=? +cpas:0,1,3,4 Ok At+cpas +cpas:0 ok	

2.43   AT+CTTS TTS command

2.43.1 Description

This command is used to play audio stream.

2.43.2 Syntax

Test command
 	
  +CTTS=?
Description
 	
  Test command returns values supported as
a compound value.
	Response
	
	  +CTTS: (list of supported <pas>s)
	
	  +CME ERROR: <err>

Set command
 	
  + CTTS=<mode>,″ text″
Description
 	
  The set command is used to play the text
as audio stream.
	Response
	
	  + CTTS: < CTTS >
	
	  +CME ERROR: <err>

2.43.3 Parameter

<pas>:

0   stop play

1   start play

2.43.4 Remark

2.43.5 Example

The following examples show the typical application for this command.

Command	Possible Response
At+ctts=? + ctts(0-2) Ok At+ ctts=2,"abcd" ok	

2.44   AT+CSCLK Set low clock mode

2.44.1   Description

This command is used to set low clock mode.

2.44.2 Syntax

Test command	Response

+CSCLK=?	+ CSCLK: (list of supported <pas>s)
	+*CME ERROR: <err>*
Description	
Test command returns values supported as a compound value.	

Set command	
+ CSCLK =<n>	Response
Description	+ CSCLK: < CSCLK >
The set command is used to play the text as audio stream.	+*CME ERROR: <err>*

2.44.3 Parameter

<pas>:

0 Disable slow clock

1 Enable slow clock mode,use DTR to control slow clock , when DTR is set high, enable slow clock, otherwise disable slow clock.

2 Set slow clock mode automaticlly , disable slow clock when uart recieve or send data,otherwise enable slow clock.

2.44.4 Remark

DTR: When use csclk command ,first need comfirm which GPIO used by DTR.

2.44.5 Example

The following examples show the typical application for this command.

Command	Possible Response
At+CSCLK=? + CSCLK:(0,1,2)	

OK

At+ CSCLK=1

   OK

2.45   AT+SRD MIC record command

2.45.1 Description

 This command is used to record MIC sound

2.45.2 Syntax

Test command	
+SRD=?	Response
Description	+SRD: (list of supported <pas>s)
Test command returns values supported as a compound value.	+CME ERROR: <err>

Set command	
+ SRD=<mode>	Response
Description	+ SRD: < mode >
The set command is used to contrel MIC recorder and play the record file.	+CME ERROR: <err>

2.45.3 Parameter

<pas>:
2   start record
3   stop record
8   play record file

2.45.4 Remark

2.45.5 Example

The following examples show the typical application for this command.

Command	Possible Response

At+srd=?
+ srd(2-3-8)
Ok
 	
At+ srd=2
    Ok
At+ srd=3
    Ok
At+ srd=8
    Ok	

3 SIM/PBK Commands

The AT Commands described in this chapter are related to the Ai-Thinker AT Module hardware interface. More information regarding this interface is available with the "AT Module Hardware Interface Description"[4].

3.1 AT+CPIN PIN Authentication

3.1.1 Description

Set command sends to the MT a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH- SIM PIN, etc.).

3.1.2 Syntax

Test command	
AT+CPIN =?	Response
Description	OK
..	
Read command	Response
AT+CPIN?	+CPIN: <code>
Description	OK
Read command returns an alphanumeric string indicating whether some password is required or not	ERROR
	+CME ERROR: <err>
Set command	Response
AT+CPIN=<pin>[,<newpin>]	OK
Description	ERROR
Set command sends to the MT a password which is necessary before it can be operated	*+CME ERROR: <err>*

(SIM PIN, SIM PUK, PH- SIM PIN, etc.). If the

PIN is to be entered twice, the TA shall

automatically repeat the PIN. If no PIN request

is pending, no action is taken towards MT and

an error message, +CME ERROR, is returned

to TE. Refer subclause 9.2 for possible <err>

values. If the PIN required is SIM PUK, the

second pin is required. This second pin,

<newpin>, is used to replace the old pin in the

active application in the UICC (GSM or USIM)

or SIM card.

Reference

  3GPP TS 27.007 V3.2.0 (2002-06)

3.1.3   Parameter

<pin>, <newpin>:

string type values

<code>

values reserved by the present document:

READY   MT is not pending for any password

SIM PIN   MT is waiting UICC/SIM PIN to be given

SIM PUK   MT is waiting UICC/SIM PUK to be given

SIM PIN2   MT is waiting active application in the UICC (GSM or USIM) or SIM card PIN2

to be given (this <code> is recommended to be returned only when the last

executed command resulted in PIN2 authentication failure (i.e. +CME ERROR:

17); if PIN2 is not entered right after the failure, it is recommended that MT does

not block its operation)

SIM PUK2 MT is waiting active application in the UICC (GSM or USIM) or SIM card PUK2

to be given (this <code> is recommended to be returned only when the last

executed command resulted in PUK2 authentication failure (i.e. +CME ERROR:

18); if PUK2 and new PIN2 are not entered right after the failure, it is

recommended that MT does not block its operation)

3.1.4 Remark

Commands which interact with MT that are accepted when MT is pending SIM PIN, SIM

PUK, or PH- SIM are: +CGMI, +CGMM, +CGMR, D112; (emergency call), +CPAS, +CFUN,

+CPIN, +CDIS (read and test command only), and +CIND (read and test command only).

Notes: After input three times wrong PIN, SIM card will be locked!

3.1.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPIN=″1234″	
Ok	
AT+CPIN=″5678″	
+CME ERROR: 3	Don′t need password
AT+CPIN=″00000000″,″2134″	+CPIN: SIM PIN: need input CHV1 code
+CME ERROR: 16	+CPIN: SIM PUK:need input PUK1 code
AT+CPIN=″123456578″,″1234″	
OK	

AT+CPIN?

+CPIN: READY

3.2 AT^CPINC total times of access the sim card

3.2.1 Description

Remaining times of access the sim card

3.2.2 Syntax

	Response
Test command AT^CPINC=?	^CPINC: PIN1&PIN2: (1-3), PUK1&PUK2: (1-10)
Description ..	OK ERROR : *+CME ERROR: <err>*
Exe command AT^CPINC	Response ^CPINC: <rest time>
Description Return the rest time corresponding to the current status of sim card.	OK ERROR : *+CME ERROR: <err>*
Reference	

3.2.3 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^CPINC ^CPINC:3,10,3,10 OK	

3.3 AT+CPIN2 PIN2 Authentication(For SIM)

3.3.1 Description

+CPIN2 controls network authentication of the MT.

3.3.2 Syntax

	Response
Test command AT+CPIN2=? Description	Success: OK Fail: ERROR
	Response
Read command AT+CPIN2? Description	Success: +CPIN2: <code> OK Fail: ERROR
Set command	Response

AT+CPIN2=<pin>[, <new pin>]	Success:
Description	OK
<pin>: Password (string type), usually SIM PIN2 or, if requested, SIM PUK2	Fail: ERROR
<new pin>: If the requested code was SIM PUK2: new password (PIN2).	
<code>:	
READYME is not pending for any password.	
SIM PIN2 ME is waiting for SIM PIN2.	
SIM PUK2 ME is waiting for SIM PUK2.	
Reference	
MC55 AT Command Set	

3.3.3　Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPIN2=?	OK
AT+CPIN2? +CPIN2: READY	OK
AT+CPIN2=″ 2345″	OK

3.4 AT+CLCK Facility lock

3.4.1 Description

This command be used to lock or unlock some functions of the list that be supported by this ME.

3.4.2 Syntax

Test command	
AT+CLCK=?	Response
Description	+CLCK: (list of supported <fac>s)
Test command returns facility values supported as a compound value	+CME ERROR: <err>

set command
AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]
Description
Execute command is used to lock, unlock or interrogate a MT 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>. Refer subclause 9.2 for possible <err> values. This command should be abortable when network facilities are set or interrogated.
Call barring facilities are based on GSM/UMTS supplementary services (refer 3GPP TS 22.088 [6]). The interaction of these with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standard.
Response
Mode == 2
+CLCK:<status>[,<class1>[<CR><LF>+CLCK:<status>,<class2>[...]]

+CME ERROR: <err>

Reference

3GPP TS 27.007 V3.2.0 (2002-06)

3.4.3 Parameter

<fac>
Type: string type
Meaning: values reserved by the present document:
"CS"　　CNTRL (lock Control surface (e.g. phone keyboard))
"AO"　　BAOC (Barr All Outgoing Calls) (refer 3GPP TS 22.088 [6] clause 1)
"OI"　　BOIC (Barr Outgoing International Calls) (refer 3GPP TS 22.088 [6] clause 1)
"OX"　　BOIC- exHC (Barr Outgoing International Calls except to Home Country) (refer 3GPP TS 22.088 [6] clause 1)
"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>)

<mode>:
Type: integer type
Meaning:
0　unlock
1　lock

2 query status

<status>:

Type: integer type

Meaning:

0 not active

1 active

<passwd>:

Type: string type;

Meaning: shall be the same as password specified for the facility from the MT user interface

or with command Change Password +CPWD

<class*x*> →for ss

Type: integer type

Meaning: is a sum of integers each representing a class of information (default 7):

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)

8 short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128 dedicated PAD access

3.4.4 Remark

3.4.5 Example

The following examples show the typical application for this command.

Command	Possible Response
<.SC: lock SIM cards>	
AT+CLCK="SC",1,"1234"	
OK	
Require lock status	
AT+CLCK="SC",2	
+CLCK: 1	
OK	
<Restart system>	
AT+CPIN?	Notes：1) After input three times wrong PIN, SIM
+CPIN: SIM PIN	card will be locked;
OK	
AT+CPIN="1234"	2) Here suppose correct SIM pin = 1234
OK	
AT+CLCK="SC",0,"1234"	
OK	
< Restart system >	
AT+CPIN?	
+CPIN: READY	
OK	
<.FD: SIM fixed dialing memory,	
NO support for the moment >	
<Call barring>	
AT+CLCK="OI",1,"0000", 255	
OK	Here suppose Bar code=0000。
ATD13560243602;	
NO CARRIER	

＜can,t call＞

AT+CLCK="OI",2,"0000"

+CLCK: 1,1

+CLCK: 1,2

+CLCK: 1,4

OK

AT+CLCK="AC",0,"0000",3

OK

<Factory set SIM locks, NO support for the

moment>

3.5 AT+CPWD Change password

3.5.1   Description

This command is used to change password [pin/pin2]

3.5.2   Syntax

Test command

AT+CPWD=?

Description

Test command returns a list of pairs which present the available facilities and the maximum

length of their password.

Response

+CPWD: list of supported (<fac>,<pwdlength>)

+CME ERROR: <err>

set command

AT+CPWD=<fac>,<oldpwd>,<newpwd>

Description

Action command sets a new password for the facility lock function defined by command

Facility Lock +CLCK.

Response

+CME ERROR: <err>

Reference

3GPP TS 27.007 V3.2.0 (2002-06)

3.5.3 Unsolicited Result Codes

..
..

3.5.4 Parameter

<fac>

Type: string type
Meaning:
"P2" SIM PIN2
refer Facility Lock +CLCK for other values

<oldpwd>, <newpwd>:

Type: string type;

Meaning: <oldpwd> shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD and <newpwd> is the new password; maximum length of password can be determined with <pwdlength>

<pwdlength>:

Type: integer type

Meaning: maximum length of the password for the facility

3.5.5 Remark

3.5.6 Example

The following examples show the typical application for this command.

Command	Possible Response
<.SC: to change SIM PIN> AT+CPWD="SC","3333","1234" +CME ERROR: 16 AT+CPINC +CPINC: 2 OK AT+CPWD="SC","1234","0000" OK <.P2: to change SIM PIN2> AT+CPWD="P2","1111","1234" +CME ERROR: 16 AT+CPINC +CPINC: 2 OK AT+CPWD="P2","0000","1234" OK	

3.6 AT+CRSM Restricted SIM Access

3.6.1 Description

This command support limited access to SIM database.

3.6.2 Syntax

Test command	Response
AT+CRSM=?	+OK

Description	+CME ERROR: <err>
This command support limited access to SIM database.	

Set command	Response
AT++CRSM=<command>[,<fileid> [,<P1>,<P2>,<P3>[,<data>]]]	Success:
	+CRSM: <sw1>,<sw2>[,<response>]
Description	Error:
Set command transmits to the MT the SIM <command> and its required parameters.	+CME ERROR: <err>
Reference	
3GPP TS 27.007	

3.6.3 Parameter

<command>(command passed on by the MT to the SIM; refer GSM 11.11[28]);

176 READ BINARY

178 READ RECORD

192 GET RESPONSE

214 UPDATE BINARY

220 UPDATE RECORD

242 STATUS

All other values are reserved

NOTE 1: NOTE 1:   The MT internally executes all commands necessary for

selecting the desired file, before performing the actual command.

<fileid>: integer type; this is the identifier of a elementary datafile on SIM.
Mandatory for every command except STATUS

NOTE 2 : The range of valid file identifiers depends on the actual SIM and is defined in
GSM 11.11 [28]. Optional files may not be present at all.

<P1>, <P2>, <P3>: integer type; parameters passed on by the MT to the SIM. These
parameters are mandatory for every command, except GET RESPONSE and
STATUS. The values are described in GSM 11.11 [28]

<data>: information which shall be written to the SIM (hexadecimal character format; refer
+CSCS)

<sw1>, <sw2>: integer type; 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

<response>: response of a successful completion of the command previously issued
(hexadecimal character format; refer +CSCS). STATUS and GET RESPONSE return data, which
gives information about the current elementary datafield. This information includes the type of file
and its size (refer GSM 11.11 [28]). After READ BINARY or READ RECORD command the
requested data will be returned. <response> is not returned after a successful UPDATE BINARY or
UPDATE RECORD command

3.6.4　Remark

3.6.5　Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CRSM=192,28433,0,0,15	+CRSM:144,0,621E82054221001C0283026F40 A503 OK

3.7 AT+CNUM Subscriber number

3.7.1 Description

The MS ISDN related to the subscriber.

3.7.2 Syntax

Test command	Response
AT+CNUM=?	OK
Description	
Just return OK	

	Response
	Success:
	+CNUM: [<alpha1>],<number1>,<type1>[<CR><LF>]
Exe command	+CNUM: [<alpha2>],<number2>,<type2>
+CNUM	OK
Description	Fail:
..	ERROR
Reference	

3GPP TS 27.007 V3.12.0

3.7.3 Unsolicited Result Codes

None

3.7.4 Parameter

< alphax >
optional alphanumeric string associated with <number$x$>; used character set should be the one selected with command Select TE Character Set +CSCS
<**numberx**>
string type phone number of format specified by <typex>
< **typex** >
type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)
< **text** >
Meaning: field of maximum length <tlength>; character set as specified by command +CSCS. The display of text depending to the storage format in the sim card. If we store the pbk entry with ucs2 format, we show Chinese string here, otherwise, we show NON-Chinese string. We don′t care about charsets, it is decided by command +CSCS setting when we store them.

3.7.5 Remark

3.7.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CNUM	+CNUM: "john","111",129 (non-Chinese string)

(with non-ucs2 of AT+CSCS setting as pbk storing)

+CNUM: "XXXXX","34",129   (Chinese string)

(with ucs2 of AT+CSCS setting as pbk storing)

OK

3.8 AT+CPBR Read current Phonebook

3.8.1 Description

Read phonebook entries in location number range <index1>…<index2> form the current phonebook memory storage

selected. If the <index2> is omitted, only the entry with index of <index1> is returned if exists.

3.8.2 Syntax

Test command	Response
AT+CPBR=?	Success:
	+CPBR: (support<index>s),[<nlength>],[<tlength>]
Description	OK
Return the parameter ranges.	Fail:
	ERROR

Set command	Response
	Success:
	[+CPBR:
	<index1>,<number>,<type>,<text>[[...]
+CPBR=<index1>[,<index2>]	<CR><LF>+CPBR:
	<index2>,<number>,<type>,<text>]
Description	]
..	OK
	Fail:
	ERROR

Reference

3GPP TS 27.007 V3.12.0

3.8.3 Unsolicited Result Codes

None

3.8.4 Parameter

\<index1\>, \<index2\>

Integer type values in the range of location numbers of phonebook memory

\<number\>

Type: string type

Meaning: phone number of format \<type\>

\< type \>

Type: integer type

Meaning: type of address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.7) ; default 145 when dialing string includes international access code character "+", otherwise 129

\< text \>

Type: string type

Meaning: character set as specified by command +CSCS. The display of text depending to the storage format in the sim card. If we store the pbk entry with ucs2 format, we show Chinese string here, otherwise, we show NON-Chinese string. We don′t care about charsets, it is decided by command +CSCS setting when we store them.

\< nlength \>

Type: integer type

Meaning: value indicating the maximum length of field <number>

< <**tlength**> >

Meaning: field of maximum length <tlength>

3.8.5 Remark

- If <index2> is smaller than <index1>, error should be returned.

- When DTE character set is "GSM" (set by +CSCS command), the target phonebook entry will be output in an (big-endian) UCS2 hex string form if it is not a pure ASCII (single byte encoding) string. If the DTE character set is "UCS2" it will always be output in UCS2 hex string form.

3.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPBR=1 *(with non-ucs2 of AT+CSCS setting as pbk storing)*	+CPBR: 1,"111",129,"linda" OK
AT+CPBR=2 *(with ucs2 of AT+CSCS setting as pbk storing)*	+CPBR: 2,"+ 999999",145,"XXXXX" (Chinese string) OK

3.9 AT+CPBS Select phonebook memory storage

3.9.1 Description

Select a certain memory storage.

3.9.2 Syntax

Test command AT+CPBS=? Description Return the parameter ranges.	Response Success: +CPBS: (list of supported \<storage\>s) OK Fail: ERROR
Read command AT+CPBS? Description Read current storage.	Response Success: +CPBS: \<storage\>[,\<used\>,\<total\>] OK Fail: ERROR
Set command AT+CPBS=\<storage\> Description ..select certain storage	Response Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

3.9.3 Unsolicited Result Codes

none.

3.9.4 Parameter

<storage>

"SM" SIM/UICC phonebook

"ON" active application in the UICC (GSM or USIM) or SIM card (or MT) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM also)

"DC" MT dialled calls list (+CPBW may not be applicable for this storage)

"EN" active application in the UICC (GSM or USIM) or SIM card (or MT) emergency number (+CPBW is not be applicable for this storage)

"FD" active application in the UICC (GSM or USIM) or SIM card fixdialling- phonebook

"LD" active application in the UICC (GSM or USIM) or SIM card last- dialling- phonebook

"MC" MT missed (unanswered received) calls list (+CPBW may not be applicable for this storage)

"ME" MT phonebook

"MT" combined MT and SIM/UICC phonebook

"RC" MT received calls list (+CPBW may not be applicable for this storage)

"TA" TA phonebook

<password>:

string type value representing the PIN2-code required when selecting PIN2-code locked <storage>s above, e.g. "FD".

<used>:

integer type value indicating the number of used locations in selected memory

<total>

integer type value indicating the total number of locations in selected memory

3.9.5 Remark

- **If we want to write to〝FD〞pbk, the pin2-code are required, otherwise operation is forbidden.**

● **Once we input pin2-code with " AT+CPIN2" or " AT+CLCK" or others operation related with inputing pin2-code, the pin2-code will keep active and will be lost when system restart.**

3.9.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPBS=?	+CPBS: ("SM","ON","FD","LD","ME") OK
AT+CPBS?	+CPBS: "ON",2,2 OK
AT+CPBS="SM"	OK
AT+CPBS?	+CPBS: "SM",1,250 OK

3.10 AT+CPBF find phonebook entries

3.10.1 Description

The command returns phonebook entries with alphanumeric fielda starting with a given string. The AT+CPBF=" " command can be used to display all phonebook entries sorted in alphabetical order.

This command is not allowed for " LD" ," RC" ," MC" ," SN" phonebooks and for the " EN" phonebook, which does not contain alphanumeric fields.

It is possible to use this command with UCS2 strings. If a wrong UCS2 format is entered, the string is considered as an ASCII string..

3.10.2 Syntax

Test command **AT+CPBF=?** Description Return the parameter maximum.	Response Success: +CPBF: [<nlength>],[<tlength>] OK Fail: *+CME ERROR: <err>*
Set command **AT+CPBF=<findtext>** Description	Response Success: [+CPBF: <index1>,<number>,<type>,<text>[[...] <CR><LF>+CBPF: <index2>,<number>,<type>,<text>]] Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

3.10.3 Parameter

<index1>, <index2>
Integer type values in the range of location numbers of phonebook memory
<number>
Type: string type
Meaning: phone number of format <type>
< type >
Type: integer type
Meaning: type of address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.7) ;

default 145 when dialing string includes international access code character "+", otherwise 129

<findtext>, <text>
Type: string type
Meaning: character set as specified by command +CSCS. If we want to find Chinese string in the all pbk entry, we must set charset value with command +CSCS of "ucs2", otherwise we find non-Chinese string with command +CSCS of "non-ucs2". And now the ucs2 supported in our environment is big-ending Unicode, we must input big-ending Unicode string in the field if setting value of cscs is equal to "ucs2".
< nlength >
Type: integer type
Meaning: value indicating the maximum length of field <number>
<tlength>
Type: integer type
Meaning: value indicating the maximum length of field <text>

3.10.4 Remark

1. If we want to write to "FD" pbk, the pin2-code are required, otherwise operation is forbidden.

2. Once we input pin2-code with "AT+CPIN2" or "AT+CLCK" or others operation related with inputing pin2-code, the pin2-code will keep active and will be lost when system restart.

3.10.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPBF=? (query storage information of cpbf)	+CPBF: 20,14 OK
AT+CSCS="non-ucs2 value"	OK

AT+CPBF="John"	+CPBF:3,"123434543",129," John"
	OK
(note1:with non-ucs2 of AT+CSCS setting when we find non-Chinese storing)	
(note2: "non-ucs2 value" = "GSM",or "HEX",or "PCCP936")	

AT+CSCS="UCS2"	OK
AT+CPBF="XXXXX"	+CPBF:5,"+861382253",145,"XXXXX"(Chinese string)
	OK
(note1: with ucs2 of AT+CSCS setting when we find Chinese storing)	*(if we found, "XXXXX" = local language, here is Chinese string)*
(note2: "XXXXX" = uncode big-ending string to input)	

3.11　AT+CPBW write phonebook entries

3.11.1　Description

Writes phonebook entry in location number <index> in the current phonebook memory storage selected.

if there is no index parameter in the command line, the record will be written to the free location.

If the current phonebook storage is " ON", modification is allowed, but deleting entry is forbidden.We can add entries to the " ON" phonebook when it have free location, otherwise add entry to " ON" is forbidden.

If the current phonebook storage is " LD", deleting is allowed, but adding or modification

entry is forbidden.

If the current phonebook storage is " FD", which is locked by pin2, executing the command may be returned ERROR or relevant CME error. To continue the operation, please enter the relevant pin specified by" +cpin?". Input pin2, deleting or adding or modification entry is allowed.

If the current phonebook storage is " SM", deleting or adding or modification entry is allowed.

3.11.2 Syntax

Test command AT+CPBW=? Description Return the parameter maximum.	Response Success: +CPBW: (list of supported <index>s),[<nlength>], (list of supported <type>s),[<tlength>] Fail: ERROR
Set command AT+CPBW=[<index>],<number> [,<type> [,<text>]] Description	Response Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

3.11.3 Parameter

<index>
Type: integer type
Meaning: values in the range of location numbers of phonebook memory

<number>
Type: string type
Meaning: phone number of format <type>
Note: valid phone numbe chars are as follows: 0-9,*,#,+(+only can be the first position)

< type >
Type: integer type
Meaning: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) ;
default 145 when dialling string includes international access code character "+", otherwise 129

<text>
Type: string type
Meaning: character set as specified by command +CSCS. If we want to find Chinese string in the all pbk entry, we must set charset value with command +CSCS of″ucs2″, otherwise we find non-Chinese string with command +CSCS of ″ non-ucs2″. And now the ucs2 supported in our environment is big-ending Unicode, we must input big-ending Unicode string in the field if setting value of cscs is equal to ″ ucs2″.

< nlength >
Type: integer type
Meaning: value indicating the maximum length of field <number>

<tlength>
Type: integer type
Meaning: value indicating the maximum length of field <text>,counting in single byte char.
Note: if phonebook characterset is ″ HEX″, the supported UCS2 char count is smaller than that specified by <tlength> by 1.This is because UCS2 char storing flag occupies 1 byte.

3.11.4 Remark

1. AT+CPBW=[<index>],<number>[,<type>[,<text>]]，the number setting NULL is forbidden.

1. Executed AT+CLCK and ＂FD＂ is locked, then operation of ＂SM＂ phonebooks are forbidden, but operation of other phonebooks is allowed.

3.11.5 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPBW=? *(query storage information of cpbw)*	+CPBW: (1-250),20,(129,145,161),14 OK
AT+CSCS="non-ucs2 value"	OK
AT+CPBW=1, "123",129, "Linda" *(note1:with non-ucs2 of AT+CSCS setting when we write non-Chinese storing)* *(note2: "non-ucs2 value" = "GSM",or "HEX",or "PCCP936")*	OK
AT+CSCS=" UCS2"	OK
AT+CPBW=1,"+123",145, "XXXXX" *(note1: with ucs2 of AT+CSCS setting when we write Chinese storing)* *(note2: "XXXXX" = uncode big-ending string to input)*	OK

AT+CPBW=1 *(not care about AT+CSCS setting when delete some one pbk entry whether it is Chinese string or not)*	OK

4 Call Control Commands

The AT Commands described in this chapter are related to Mobile Originated (MOC, i.e. outgoing) Calls and Mobile Terminated (MTC, i.e. incoming) Calls.

4.1 ATA Answer a call

4.1.1 Description

This command is used to answer an incoming call.

4.1.2 Syntax

Exe command ATA	Response Success: CONNECT Fail: ERROR NO CARRIER
Reference：ITU-T Recommandation V.25 ter	

4.1.3 Unsolicited Result Codes

URC1 RING: URC2 CIEV: SOUNDER 1 CIEV: CALL 1

4.1.4 Parameter

NONE

..

4.1.5 Remark

This command should be used only when there is one call. When there are several calls, please use the AT+CHLD to answer a new call.

4.1.6 Example

The following examples show the typical application for this command.

Command	Possible Response
RING\<incoming call\> **ATA**	*CONNECT*

4.2 ATD Make a call

4.2.1 Description

This command is used to make an outgoing call. The length of dial number is less than 20.

4.2.2 Syntax

	Response Success: When the call is in progress: OK **and** NO ANSWER **or** NO CARRIER **or** //connection be released NO DAILTONE **or**
Exe command ATD\<number\>;	

	BUSY
	Fail:
	ERROR
Reference	
ITU-T Recommandation V.25 ter	

4.2.3 Unsolicited Result Codes

URC1

CONNECT:

URC2

CIEV: SOUNDER 1

CIEV: CALL 1

4.2.4 Parameter

<Number>:

Dialing digits, include 1,2,3,4,5,6,7,8,9,0,*,#,+,A,B,C,….

4.2.5 Remark

4.2.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086;	OK
	CONNECT
AT+CLCC	

	+CLCC: 1,0,0,0,0,"10086",129
	OK
	OK
	NO CARRIER
ATD112;	
	<Only an emergency call can be made when we do the test without SIM card. " NO CARRIER" will be returned when you press the " CANCEL" button.>

4.3 AT+DLST Redial last MO call

4.3.1 Description

Redial last outgoing call.

4.3.2 Syntax

	Response
	Success:
	When the call is in progress:
Exe command	OK **and**
AT+DLST	NO ANSWER **or**
	NO CARRIER **or** //connection be released
	NO DAILTONE **or**
	BUSY
	Fail:
	ERROR
Reference	
MRD document	

4.3.3 Unsolicited Result Codes

URC1

CONNECT

4.3.4 Parameter

NONE

4.3.5 Remark

The usage of the command is the same as the ATD. The other command following this command in the same line is omitted.

4.3.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086;	OK CONNECT
ATH	OK
AT+DLST	OK CONNECT

4.4 ATH Disconnect existing call

4.4.1 Description

Hang up all existing connected calls, including active, waiting and hold calls

4.4.2 Syntax

Exe command	Response

ATH	Success:
	
	    OK
	
	Fail:
	
	    ERROR

Reference ITU-T V.25 ter(6.2.7): Result code suppression	

4.4.3 Unsolicited Result Codes

URC1	
CIEV: SOUNDER 0	None
CIEV: CALL 0	

4.4.4 Parameter

NONE

4.4.5 Remark

When the link is established or ringing, the command will get OK. But for the establishing, the command will get error.

4.4.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086; ATH	OK CONNECT OK

4.5 AT+CHUP Hang up all existing connected calls

4.5.1 Description

Hang up all existing connected calls, including active, waiting and hold calls

4.5.2 Syntax

Test command AT+CHUP=?	Response OK

Set command
 	
AT+CHUP
	Response
	
	Success:
	
	  OK
	
	Fail:
	
	  ERROR

Reference 3GPP TS 27.007 V3.12.0	

4.5.3 Unsolicited Result Codes

URC1

CIEV: SOUNDER 0

CIEV: CALL 0

4.5.4 Parameter

NONE

4.5.5 Remark

This command implements the same behavior as ATH.

4.5.6 Example

The following examples show the typical application for this command.

Command	Possible Response
<there are two connecting calls, one is active and the other is held>	
AT+CHUP <Both of the call was hang up>	OK

4.6 AT+CHLD Call hold and multiparty

4.6.1 Description

This command deal with call held, retrieve, multiparty and hang up functions and so on.

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4.6.2 Syntax

Test command	Response
AT+CHLD=?	OK

Set command	Response
AT+CHLD=<n>	Success:
	OK
	Fail:
	ERROR

Reference
3GPP TS 27.007 V3.12.0

4.6.3 Unsolicited Result Codes

URC1
CSSU: <code2>,

4.6.4 Parameter

<n>:

0: Releases all held calls or sets User Determined User Busy (UDUB) for a waiting call.

1: Releases all active calls (if any exist) and accepts the other (held or waiting) call [waiting call is the first].

1X: Releases a specific call X it can be in active, hold or waiting state.

2:    Places all active calls (if any exist) on hold and accepts the other (held or waiting) call.

2X: Places all active calls on hold except call X with which communication shall be supported.

3:    Adds a held call to the conversation.

<code2>:

2:    call has been put on hold (during a voice call).

3:    call has been retrieved (during a voice call).

4:    multiparty call entered (during a voice call).

4.6.5 Remark

The multiparty call has the MAX connection is 5, at the same time, the phone can also has a

waiting call.

4.6.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086;	
RING +CCWA: "13501275915",161,1,,255	OK
AT+CHLD=0	OK
AT+CHLD=2	OK

AT+CLCC	+CLCC: 1,0,1,0,0,"10086",129
	+CLCC: 2,1,0,0,0,"13501275915",161
	OK
<when there is a hold call and an active call>	
AT+CHLD=3	OK
at+clcc	+CLCC: 1,0,0,0,1,"10086",129
	+CLCC: 2,1,0,0,1,"13501275915",161
	OK
AT+CHLD=21	OK
at+clcc	+CLCC: 1,0,0,0,0,"10086",129
	+CLCC: 2,1,1,0,1,"13501275915",161
	OK
AT+CHLD=1	OK
at+clcc	+CLCC: 2,1,0,0,1,"13501275915",161
	OK
AT+CHLD=12<hang up connect 2>	OK
at+clcc	OK

4.7 AT+CLCC List current calls of ME

4.7.1 Description

List all calls of ME.

4.7.2 Syntax

Test command	Response
AT+CLCC=?	OK

Set command	Response
AT+CLCC	Success: [+CLCC: <id1>, <dir>, <stat>, <mode>, <mpty>[, <number>,<type>] [<CR><LF>+CLCC: <id2>, <dir>, <stat>, <mode>, <mpty>[, <number>,<type>] …] OK Fail: *+CME ERROR: <err>*

Reference：3GPP TS 27.007 V3.12.0

4.7.3 Unsolicited Result Codes

None

4.7.4 Parameter

< idx>:
integer type; call identification number as described in 3GPP TS 22.030 [19] sub clause 4.5.5.1; this number can be used in +CHLD command operations

<dir>:
0   mobile originated (MO) call
1   mobile terminated (MT) call

<stat>: (state of the call)
0   active
1   held

2   dialing (MO call)

3   alerting (MO call)

4   incoming (MT call)

5   waiting (MT call)

7 release (network release this call)

<mode> (bearer/teleservice)
0   voice
1   data
2   fax
3   voice followed by data, voice mode
4   alternating voice/data, voice mode
5   alternating voice/fax, voice mode
6   voice followed by data, data mode
7   alternating voice/data, data mode
8   alternating voice/fax, fax mode
9   unknown

<mpty>
0   call is not one of multiparty (conference) call parties
1   call is one of multiparty (conference) call parties

<number>:
string type phone number in format specified by <type>

<type>:
type of address octet in integer format (refer GSM 04.08 [8] sub clause 10.5.4.7)

4.7.5 Remark

4.7.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086;	OK
RING +CCWA: "13501275915",161,1,,255	OK
AT+CHLD=2	+CLCC: 1,0,1,0,0,"10086",129 +CLCC: 2,1,0,0,0,"13501275915",161
AT+CLCC	OK

4.8 AT+VTD Tone duration

4.8.1 Description

Set tone duration.

4.8.2 Syntax

Test command AT+VTD=?	Response Success: +VTD：(1-10) OK Fail: ERROR
Read command AT+VTD?	Response Success: +VTD:<n>

	OK
	Fail:
	ERROR
Set command AT+VTD=<n>	Response Success: OK Fail: *+CME ERROR: <err>*
Reference 3GPP TS 27.007 V3.12.0	

4.8.3 Unsolicited Result Codes

None

4.8.4 Parameter

<n>:
Duration of the tone in 1/10 second

4.8.5 Remark

4.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+VTD=10	OK
AT+VTD?	+VTD:10 OK
AT+VTD=?	+VTD: (1-10) OK

4.9 AT+VTS DTMF and Tone generation

4.9.1 Description

Sent the DTMF and generate the tone.

4.9.2 Syntax

Test command AT+VTS=?	Response Success: (list of supported <DTMF>s). OK Fail: ERROR
Set command AT+VTS=< DTMF>,<duration>	Response Success: OK Fail: +CME ERROR: <err>
Reference 3GPP TS 27.007 V3.12.0	

4.9.3 Unsolicited Result Codes

None

4.9.4 Parameter

<DTMF>:

A single ASCII character in the set 0- 9, #,*,A- D. This is interpreted as a single ACSII character whose duration is set by the +VTD command.

<duration>:

time in 1/10 second

4.9.5 Remark

4.9.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD10086;	OK
AT+VTS=1	CONNECT
	OK
AT+VTS=2，10	OK
AT+VTS=?	+VTS: (0-9,*,#,A,B,C,D),(1-10) OK

5 Network Service Commands

The AT Commands described in this chapter are related to various network services. More commands related to this area can be found in Chapter 10, Supplementary Service Commands.

5.1 AT+COPN Read operator names

5.1.1 Description

List the operators name form MT

5.1.2 Syntax

	Response
Test command AT+COPN=? Description	Success: OK Fail: ERROR
	Response +COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] *+CME ERROR: <err>*
Exec command AT+COPN Description	
Reference 3GPP TS 27.007 V3.12.0	

5.1.3 Unsolicited Result Codes

URC1
+CALA: <u><text></u>

URC2

+SYSSTART ALARM MODE+CALA: <u><text></u>

5.1.4 Parameter

< numericn >
string type; operator in numeric format (see +COPS)
< alphan >
string type; operator in long alphanumeric format (see +COPS)

5.1.5 Remark

Execute command returns the list of operator names from the MT. Each operator code <numericn> that has an alphanumeric equivalent

<alphan> in the MT memory shall be returned.

5.1.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+COPN <Note : ..>	+COPN: 46000, "CMCC" +COPN: 46001, "China Unicom" …… OK <Note :..>

5.2 AT+COPS Operator selects

5.2.1 Description

This command be used to select the vender.

5.2.2 Syntax

Test command	Response
AT+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper>
	,short alphanumeric <oper>,numeric <oper>)s]
Description	[,,(list of supported <mode>s),(list of supported <format>s)]
	+CME ERROR: <err>
Read command	Response
AT+COPS?	+COPS: <mode>[,<format>,<oper>]
Description	*+CME ERROR: <err>*
Set command	
AT+COPS=mode[,<format>	Response
[,<oper>]]	*+CME ERROR: <err>*
Description	
Reference	
3GPP TS 27.007 V3.12.0	

5.2.3 Unsolicited Result Codes

URC1
+CALA: <u>\<text></u>
URC2
+SYSSTART ALARM MODE+CALA: <u>\<text></u>

5.2.4 Parameter

<mode>:

0 automatic (<oper> field is ignored)

1 manual (<oper> field shall be present)

2 deregister from network

3 set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> field is ignored); this value is not applicable in read command response

4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered

<format>:

0 long format alphanumeric <oper>

2 numeric <oper>

<oper>: string type; <format> indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer GSM 04.08 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 2)(network code digit 1)

<stat>:

0 unknown

1 available

2 current

3 forbidden

5.2.5 Remark

Set command forces an attempt to select and register the GSM/UMTS network <oper>. Mode is used to decide the register should be automatic or manual. If the selected mode is manual or manual first, the network should return with a list from which user can select one to register on.

Read command returns the current mode and the currently selected operator. If no operator is selected, <format> and <oper> are omitted.

Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. 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/UICC, and other networks.

5.2.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+COPS=? *<Note : ..>*	+COPS: (1,"D2",,"26202"),(2,"E-Plus",,"26203"),,(0-4),(0,2) OK *<Note :..>*
AT+COPS?	+COPS: 0 OK *<Note :..>* Register network failed
AT+COPS=3,0 <Set oper format>	OK
AT+COPS?	+COPS: 0,0," CMCC " OK
AT+COPS=3,2	OK
AT+COPS?	+COPS: 0, 0, 46000 OK *<Note :..>* Register network succeed
AT+COPS=0	OK
AT+COPS=1,2,″ 46000″	OK
AT+COPS?	+COPS: 0, 0, "CMCC" OK *<Note :..>* Automatic and manual

5.3 AT+CREG Network registration

5.3.1 Description

This command be used to query the register status.

5.3.2 Syntax

Test command	Response
AT+CREG=?	+CREG: (list of supported <n>s)
Description	

Read command	Response
AT+CREG?	+CREG: <n>,<stat>[,<lac>,<ci>]
Description	*+CME ERROR: <err>*
Read command return current register status.	

Set command	Response
AT+CREG=<n>	OK
Description	
Set CMD used to control the unsolicited result code +CREG	

Reference	
3GPP TS 27.007 V3.12.0	

5.3.3 Unsolicited Result Codes

URC1
+CALA: <u>text</u>
URC2
+SYSSTART ALARM MODE+CALA: <u>text</u>

5.3.4 Parameter

<n>:
0   disable network registration unsolicited result code

1   enable network registration unsolicited result code +CREG: <stat>

2   enable network registration and location information unsolicited result code +CREG:

<stat>[,<lac>,<ci>]

<stat>:
0   not registered, MT is not currently searching a new operator to register to
1   registered, home network
2   not registered, but MT is currently searching a new operator to register to
3   registration denied
4   unknown
5   registered, roaming
<lac>:
string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)
<ci>:
string type; two byte cell ID in hexadecimal format

5.3.5 Remark

5.3.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CREG=1 *<Note : ..>*	OK <参考 URC: +CREG> *<Note :..>* 1: Enable URC +CREG:<stat> to report status change of network registration

AT+CREG?	+CREG:0,1
	OK
	<参考 URC: +CREG>
	<Note :...>
	Query the register status of the local and network

5.4 AT+CSQ Signal quality

5.4.1 Description

This command be used to query the quality of the signal.

5.4.2 Syntax

Test command	Response
AT+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s)
Description	
Exec command	Response
AT+CSQ	+CSQ: <rssi>,<ber>
Description	
Execution command returns received signal strength indication <rssi> and channel bit error rate <ber> from the MT.	*+CME ERROR: <err>*
Reference	
3GPP TS 27.007 V3.12.0	

5.4.3 Unsolicited Result Codes

URC1

+CALA: <u><text></u>

URC2

+SYSSTART ALARM MODE+CALA: <u><text></u>

5.4.4 Parameter

<rssi>:
0　- 113 dBm or less
1　- 111 dBm
2...30　- 109... - 53 dBm
31　- 51 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] sub clause 8.2.4
99　not known or not detectable

5.4.5 Remark

5.4.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CSQ	+CSQ: 13, 99 OK *<Note :..>*
AT+CSQ=?	+CSQ: (0-31,99),(0-7,99)

5.5 AT+CPOL Preferred operator list

5.5.1 Description

This command is used to edit the user preferred list of networks in the active application on the UICC (GSM or USIM) or preferred list of networks in the SIM card. Execute command writes an entry in the SIM list of preferred operators (EF$_{PLMNsel}$), when the SIM card is present or when the UICC is present with an active GSM application. When UICC is present with an active USIM application, execute commands writes an entry in the User controlled PLMN selector with Access Technology list (EF$_{PLMNwAcT}$), only the PLMN field could be entered, the Access Technologies for each PLMN in this list is not accesible with this command (Note: new command for accessing the Access Technologies for each PLMN in this list is FFS). If <index> is given but <oper> is left out, entry is deleted. If <oper> is given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the <oper> in the read command is changed. Refer subclause 9.2 for possible <err> values.

Note: when adding preferred operater, <format> can only be 2.

Read command returns all used entries from the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card list of preferred operators.

Note: if <format> is 0, but there is no relevant long format alphanumeric <oper>, the numeric <oper> will be returned.

Test command returns the whole index range supported by the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card.

5.5.2 Syntax

Test command	Response

| AT+CPOL=? | +CPOL: (list of supported \<index\>s),(list of supported |
| Description | \<format\>s)+*CME ERROR: \<err\>* |

	Response
Read command	+CPOL: \<index1\>,\<format\>,\<oper1\>
AT+CPOL?	[\<CR\>\<LF\>+CPOL: \<index2\>,\<format\>,\<oper2\>
Description	[...]]
	+*CME ERROR: \<err\>*

	Response
Set command	Success:
AT+CPOL=[\<index\>][, \<format\>[,\<oper\>]]	OK
Description	Fail:
	ERROR

| Reference：3GPP TS 27.007 V3.12.0 |

5.5.3 Unsolicited Result Codes

| URC1 |
| +CALA: <u>\<text\></u> |
| URC2 |
| +SYSSTART ALARM MODE+CALA: <u>\<text\></u> |

5.5.4 Parameter

| \<indexn\>: |
| integer type; the order number of operator in the active application in the UICC (GSM or USIM) user preferred list of networks or SIM card preferred operator list |
| \<format\>: |

0   long format alphanumeric <oper>

1   short format alphanumeric <oper>

2   numeric <oper>

<opern>:

string type; <format> indicates if the format is alphanumeric or numeric (see +COPS)

5.5.5 Remark

5.5.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPOL=?	+CPOL: (1-8),(0,2) OK
AT+CPOL?	+CPOL: 1,2,"46000" OK
AT+CPOL=2,2,"46001"	OK *<Note : ..>*Add a preferred operator
AT+CPOL?	+CPOL: 1,2,"46000" +CPOL: 2,2,"46001" OK
AT+CPOL=,0	OK <Note : ..>Set the display format as long format alphanumeric <oper>
AT+CPOL?	+CPOL: 1,0,"China Mobile" +CPOL: 2,0,"China Unicom" OK
AT+CPOL=1 AT+CPOL?	OK <Note : ..>Delete the preferred operator with index of 1 +CPOL: 2,0,"China Unicom"
<Note : ..>	OK

5.6 AT+QNITZ Indicate network time

5.6.1 Description

Enable or disable indicate network time.

5.6.2 Syntax

Test command	Response
AT+QNITZ=?	+QNITZ(0,1)
Description	OK

Read command	Response
AT+QNITZ?	+QNITZ<enable>
Description	OK

Set command AT+QNITZ=<enable>Description	Response OK ERROR +CME ERROR:<err>
Reference：3GPP TS 27.007 V3.12.0	

5.6.3 Unsolicited Result Codes

5.6.4 Parameter

<enable>:
0 disable sync network time
1 enable sync network time

5.6.5 Remark

5.6.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+QNITZ=0	OK
AT+ QNITZ=1	OK
AT+ QNITZ=?	+QNITZ:(0, 1)

5.7 AT+QLTS Query Last Time Satus

5.7.1 Description

Get the last time from network.

5.7.2 Syntax

Test command AT+ QLTS =? Description	Response OK
Read command AT+ QLTS? Description	Response +QLTS:\<time\>,\<ds\> OK +CME ERROR:\<err\>
Reference：3GPP TS 27.007 V3.12.0	

5.7.3 Unsolicited Result Codes

5.7.4 Parameter

<time>:
string format, yy/MM//dd,hh:mm:ss+zz, means year, month, day, hour, minute, second and time zone(local time and GMT time difference)
<ds>:
daylight saving time

5.7.5 Remark

5.7.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+ QLTS=?	OK
AT+ QLTS	+QLTS:17/5/27,8:37:52+32,0

5.8 AT+CTZU Automatic update system time via NITZ

5.8.1 Description

Set command enables and disables automatic time zone update via NITZ. If setting fails in an MT error,

+CME ERROR: <err> is returned. Refer subclause 9.2 for possible <err> values.

Read command returns the current settings in the MT.

Test command returns supported on- and off-values as a compound value.

5.8.2 Syntax

Test command	Response
AT+ CTZU =?	+CTZU(<mode>)
Description	OK

Read command	Response
AT+ CTZU?	+CTZU<mode>
Description	OK

Set command	Response
	OK
AT+ CTZU =<enable>Description	ERROR
	+CME ERROR:<err>

Reference：3GPP TS 27.007 V3.12.0

5.8.3 Unsolicited Result Codes

5.8.4 Parameter

<mode>:
0: NITZ not update system time
1: NITZ update local time to system
2: NITZ update GMT time to system
3: same as 1
4: same as 2

5.8.5 Remark

5.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+ CTZU=?	+CTZU:0 OK
AT+ CTZU?	+CTZU:0 OK
AT+ CTZU=0	OK

6 STK/SS Commands

The AT Commands described in this chapter are related to various network services. More commands related to this area can be found in Chapter.

6.1 AT+CACM Accumulated call meter (ACM) reset or query

6.1.1 Description

The read command returns the current ACM value.

The write command resets the Advice of Charge related to the accumulated call meter (ACM) value in SIM file EF(ACM). ACM contains the total number of home units for both the current and preceding calls

6.1.2 Syntax

Test command	Response
AT+CACM=?	OK
Description	
..Only return ok	
	Response
Read command	Success:
AT+CACM?	＋CACM：<acm>
Description	OK
..	Fail:
	+CME ERROR: <err>
Set command	Response
AT+CACM = < password >	Success:
Description	OK
..reset ACM to zero.	Fail:

+CME ERROR: <err>

Reference

3GPP TS 27.007 V3.12.0

6.1.3 Unsolicited Result Codes

none.

6.1.4 Parameter

<passwd>
.. SIM PIN2
Note: the string length supported in our environment is no more than 4.
<acm>
.. string type; accumulated call meter value similarly coded as <ccm> under +CAOC

6.1.5 Remark

Set CMD reset ACM with parameter SIM PIN2, read CMD get current ACM, Test CMD not defined yet.

Three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates decimal value 30); value is in home units

Command AT+CCWE control the unsolicited result code: +CCWV to be sent shortly before the ACM maximum value reached.

6.1.6 Example

The following examples show the typical application for this command.

Command	Possible Response

AT+CACM?	+CACM: "000000"
	OK
	$_<$ TA returns the current ACM value:
	000000-FFFFFF (Total call fare)$_>$
AT+CACM="1234"	*OK*
	$_<$ TA resets the Advice of Charge related to the ACM value in SIM file EF(ACM). 1234 is SIM PIN2$_>$

6.2 AT+CAMM Accumulated call meter maximum (ACMmax) set or query

6.2.1 Description

The write command sets the Advice of Charge related to the accumulated call meter maximum value in SIM file EF (ACMmax). ACMmax contains the maximum number of home units allowed to be consumed by the subscriber.

The read command returns the current ACMmax value

6.2.2 Syntax

Test command	Response
AT+CAMM=?	OK
Description	
..Only return ok	

Read command	Response
AT+CAMM?	Success:
Description	+CAMM：<acmmax>
Get the ACMmax value	OK

	Fail:
	+CME ERROR: <err>
Set command AT+CAMM =<acmmax>[,<passwd>] Description .reset the ACM MAX value	Response Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.12.0	

6.2.3 Unsolicited Result Codes

none..

6.2.4 Parameter

<passwd>
SIM PIN2
< acmmax >
string type; accumulated call meter maximum value similarly coded as <ccm> under +CAOC; value zero disables ACMmax feature

6.2.5 Remark

Set CMD set the maximum of ACM with SIM PIN2, read command get the AMM, test CMD not defined yet.

Three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates decimal value 30); value is in home units

Shortly before ACM reaches AMM, the unsolicited result code +CCWV will be sent if AT+CCWE enables this operation.

For some SIM card, if the PIN1 is verified, the SIM PIN2 is not used as password and ignored.

6.2.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CAMM?	+CAMM: 1e OK ‹ TA returns the current ACMmax value: 0-ffffff)›
AT+CAMM= "00001E", "2345"	OK ‹ TA sets the Advice of Charge related to the ACM maximum value in SIM file EF (ACMmax). 2345 is SIM PIN2›

6.3 AT+CAOC Advice of charge information

6.3.1 Description

Execute command returns the current call meter value. (**Currently not support**)
The write command sets the Advice of Charge supplementary service function mode.

6.3.2 Syntax

Test command	**Response**
AT+CAOC=?	[+CAOC: (list of supported <mode>s]
Description	OK
..Return parameter range	**Response**
Read command	Success:
AT+CAOC?	+CAOC: <mode>
Description	OK
Get current mode	Fail:
	+CME ERROR: <err>
Set command	**Response**
AT+CAOC[=<mode>]	Success:
Description	+CAOC: <ccm>]
Operation mode	Fail:
	+CME ERROR: <err>
Reference：3GPP TS 27.007 V3.12.0	

6.3.3 Unsolicited Result Codes

none..

6.3.4 Parameter

< mode >

0   query CCM value

1   deactivate the unsolicited reporting of CCM value

2   activate the unsolicited reporting of CCM value

< ccm >

string type; three bytes of the current call meter value in hexadecimal format (e.g. "00001E"

indicates decimal value 30); value is in home units and bytes are similarly coded as ACMmax

value in the SIM card or in the active application in the UICC (GSM or USIM)

6.3.5 Remark

Set CMD set the maximum of ACM with SIM PIN2, read command get the AMM, test CMD

not defined yet.

Three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates

decimal value 30); value is in home units

Shortly before ACM reaches AMM, the unsolicited result code +CCWV will be sent if

AT+CCWE enables this operation.

6.3.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CAOC? +CAOC: 0 OK	+CAOC: 0 OK < TA returns the current call meter value: 000000-FFFFFF (Last call fare) >

6.4 AT+CPUC Price per unit and currency table

6.4.1 Description

Read command returns the current parameters of PUC.

Write command sets the parameters of Advice of Charge related price per unit and currency

table. SIM PIN2 is usually required to set the parameters.

PUCT information can be used to convert the home units (as used in +CAOC, +CACM and +CAMM) into currency units

6.4.2 Syntax

Test command	Response
AT+CPUC=?	OK
Description	
..Only return ok	

	Response
	Success:
Read command	+CPUC：<currency>,<ppu>
AT+CPUC?	OK
Description	Fail:
Get the currency and ppu	ERROR

	Response
Set command	Success:
AT+CPUC=<currency>,<ppu>,<password>	OK
Description	Fail:
Set currency and ppu	ERROR

Reference：3GPP TS 27.007 V3.12.0

6.4.3 Unsolicited Result Codes

none..

6.4.4　Parameter

< currency >
string type; three-character currency code (e.g. "GBP", "DEM") Note: if the string length of <currency> is less than 3, null character(0x20) will be a complement defaultly. Null string is also be allowed.
<ppu>
string type; price per unit; dot is used as a decimal separator (e.g. "2.66"). Note: the supported string length is no more than 5, and the valid number is less than 4096
< passwd >
string type; SIM PIN2 Note: the string length supported in our environment is no more than 4.

6.4.5　Remark

For some SIM card, if the PIN1 is verified, the SIM PIN2 is not used as password and ignored.

6.4.6　Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPUC="EUR","0.10","8888"	OK
AT+CPUC?	+CPUC: "EUR","0.10" OK

6.5 AT+CCFC call forwarding number and condition

6.5.1 Description

This command Controls the call forwarding supplementary services. Registration, erasure, activation, deactivation and status query are supported.

6.5.2 Syntax

	Response
Test command AT+CCFC=? Description List the supported reasons	Success: ＋CCFC：(list of supported\<reason\>s) OK Fail: ERROR
	Response
Set command AT+CCFC=\<reason\>,\<mode\>,[\<number\> ,[\<type\>, [\<class\>,[\<subaddr\> , [\<satype\>,[\<time\>]]]]]] Description Set call forwarding control	Success: If \<mode\> is not equal 2 and command successful: OK If \<mode\>= 2, \<reason\> is not equal 2 and command successful: +CCFC: \<status\>, \<class\>[, \<number\>, \<type\>] OK If \<mode\>= 2, \<reason\>= 2 and command successful: +CCFC: \<status\>, \<class\>[, \<number\>, \<type\>, \<time\>] OK

Fail:

If error is related to ME functionality

+CME ERROR

Reference：3GPP TS 27.007 V3.12.0

6.5.3 Unsolicited Result Codes

URC 1

CSSU: <code2>

CSSI: <code1>

6.5.4 Parameter

< reason >
0 unconditional
1 mobile busy
2 no reply
3 not reachable
4 all call forwarding.   Note: After setting, if quering the result, need set ＂reason＂ to 0.
5 all conditional call forwarding.
This operation can finish the call forwarding for the reason that from 1 to 3 by one time, not need by three times. That means all the call forwarding can be done by one time except unconditional.

< mode >
✓ When set mode=2, the range of ＂reason＂ is 0～3.
✓ For mode＝2，reason＝0, only the query of＂class ＝1＂ is support. The other will get error due to not support of the network.

0   disable

1   enable

2   query status

3   registration

4   erasure

< number >

string type phone number of forwarding address in format specified by <type>. The string length

of <number> is 0-20.

< type >

type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7); default 145

when dialling string includes international access code character "+", otherwise 129

< satype >

type of subaddress octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.8); default 128,

others should be defined by factory

< classx >

is a sum of integers each representing a class of information (default 1):

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)

8   short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128   dedicated PAD access

< time >
5...30   when "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded, default value 20
< status >
0   not active
1   active
<subaddr>
string type subaddress of format specified by <satype>
<satype>
type of subaddress octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.8); default 128

6.5.5 Remark

When setting the international call, the fourth parameter " type" must be filled. The " type" will be checked if presented.

When the " mode" is set to " 1" , the third parameter " number" will be omitted and don′t be checked. Except that non-number is input as " number" .

When the parameters are NULL, some will use the default parameters, some is omitted. The parameter" classx" is 1. the" subaddr" and" satype" is not used in current version. The" type" is determined by the " number" .

6.5.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CCFC=0,3,"13698754858",145	OK
AT+CCFC=0,2	+CCFC:1,1,"+13698754858",145 OK

6.6 AT+CCWA Set call waiting control

6.6.1 Description

This command allows control of the Call Waiting supplementary service according to 3GPP TS 22.083 [5]. Activation, deactivation and status query are supported. The interaction of this command with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standards..

6.6.2 Syntax

Test command	Response
AT+CCWA=?	+CCWA：(list of supported<n>s)
Description	OK
List the supported <n>s	

	Response
Read command	Success:
AT+CCWA?	+CCWA：<n>
Description	OK
Get current control value n	Fail:
	ERROR

	Response
Set command	Success:
AT+CCWA=<n>[,<mode>[,<class>]]	If <mode> is not equal 2 and command successful:
Description	
Set call waiting control	OK
	If <mode>= 2 and command successful:

+CCWA: <status>, <class>

[+CCWA: <status>, <class>]

[+CCWA: ...]<CR><LF>

<CR><LF>

OK

Fail:

If error is related to ME functionality

+CME ERROR

Reference：3GPP TS 27.007 V3.12.0

6.6.3 Unsolicited Result Codes

URC 1

CCWA; < number >,<type>,<class>,[<alpha>][,<CLI validity>]

6.6.4 Parameter

< n >

(sets/shows the result code presentation status in the MT/TA)

0 disable

1 enable

< mode >

(when <mode> parameter is not given, network is not interrogated)

0 disable

1 enable

2 query status

< class*x* >

is a sum of integers each representing a class of information (default 1)

1 voice (telephony)

< status >

0 not active

1 active

< number >

string type phone number of calling address in format specified by <type>

< type >

type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)

< alpha >

optional string type alphanumeric representation of <number> corresponding to the entry found in

phonebook; used character set should be the one selected with command Select TE Character

Set +CSCS

< 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.

6.6.5   Remark

6.6.6   Example

The following examples show the typical application for this command.

Command	Possible Response

AT+CCWA=1,1,1	
	OK
ATD1861;	
	OK
	+CCWA: "02085563410", 129, 1, "", 0
AT+CCWA=0,1 ,1	
	OK
ATD1861;	
	OK
AT+CCWA=1,2	
	+CCWA: 0,1
	+CCWA: 0,2
	+CCWA: 0,4
	OK
AT+CCWA=0,0,1	
AT+CCWA=1,1,1	OK
	OK

6.7 AT+ CLIP calling line identification presentation

6.7.1 Description

This command refers to the GSM supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the calling line identity (CLI) of the calling party when receiving a mobile terminated call

6.7.2 Syntax

Test command	Response
AT+CLIP=?	＋CLIP：(list of supported<n>s))
Description	OK
List the supported <n>s	

Read command	Response
AT+CLIP?	Success:
	＋CLIP：<n><m>
Description	OK
Get current control value n	Fail:
	ERROR

Set command	Response
AT+CLIP=<n>	Success:
	OK
Description	Fail:
Set CLIP	ERROR
Reference：3GPP TS 27.007 V3.12.0	

6.7.3 Unsolicited Result Codes

URC 1
+CLIP: <number>,<type>[,<subaddr>,<satype>[,[<alpha>][,<CLI validity>]]]

6.7.4 Parameter

< n >
(sets/shows the result code presentation status in the MT/TA)
0   disable
1   enable
< m >
(parameter shows the subscriber CLIP service status in the network):

0   CLIP not provisioned

1   CLIP provisioned

2 unknown (e.g. no network, etc.)

< number >

string type phone number of calling address in format specified by <type>

< type >

type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)

< alpha >

optional string type alphanumeric representation of <number> corresponding to the entry found

in phonebook; used character set should be the one selected with command Select TE

Character Set +CSCS

< 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.

< subaddr >

string type subaddress of format specified by <satype>

< satype>

type of subaddress octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.8)

6.7.5   Remark

Parameter n may control the unsolicited result code +CLIP should be presented to TE or not

6.7.6   Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CLIP=1	OK

RING
+CLIP: "02085563192",129,,,,0   <URC presentation>

6.8 AT+ CLIR Calling line identification restriction

6.8.1 Description

The AT+CLIR command refers to the GSM supplementary service CLIR (Calling Line Identification Restriction).

6.8.2 Syntax

Test command	Response
AT+CLIR=?	＋CLIR：(list of supported<n>s))
Description	OK
List the supported <n>s	

Read command	Response
	Success:
AT+CLIR?	＋CLIR：<n>,<m>
Description	OK
Get current control value n	Fail:
	ERROR

Set command	Response
	Success:
AT+CLIR=<n>	OK
Description	Fail:
Set CLIR	ERROR
Reference：3GPP TS 27.007 V3.12.0	

6.8.3 Unsolicited Result Codes

None

6.8.4 Parameter

< n >

(parameter sets the adjustment for outgoing calls)

    0 presentation indicator is used according to the subscription of the CLIR service

    1 CLIR invocation

    2 CLIR suppression

< m >

(parameter shows the subscriber CLIR service status in the network)

    0 CLIR not provisioned

    1 CLIR provisioned in permanent mode

    2 unknown (e.g. no network, etc.)

    3 CLIR temporary mode presentation restricted

    4 CLIR temporary mode presentation allowed

6.8.5 Remark

6.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response

AT+CLIR=2	OK
AT+CLIR=?	+CLIR:(0-2) OK
AT+CLIR?	+CLIR:2,0 OK

6.9 AT+ COLP Connected line identification presentation

6.9.1 Description

This command refers to the GSM/UMTS supplementary service COLP (Connected Line Identification Presentation) that enables a calling subscriber to get the connected line identity (COL) of the called party after setting up a mobile originated call. The command enables or disables the presentation of the COL at the TE. It has no effect on the execution of the supplementary service COLR in the network

6.9.2 Syntax

Test command
 	
  AT+COLP=?
Description
 	
  List the supported <n>s
	Response
	
	  +COLP：(list of supported<n>s))
	  OK

Read command
 	
  AT+COLP?
Description
 	
  Get current control value n
	Response
	
	  Success:
	  +COLP：<n>,<m>
	  OK
	  Fail:
	  ERROR

Set command	Response
AT+COLP=\<n>	Success:
	OK
Description	Fail:
Set COLP	ERROR

Reference：3GPP TS 27.007 V3.12.0

6.9.3 Unsolicited Result Codes

None

6.9.4 Parameter

< n >

(parameter sets/shows the result code presentation status in the MT/TA):

    0 presentation indicator is used according to the subscription of the CLIR service

    1 CLIR invocation

< m >

    (parameter shows the subscriber COLP service status in the network):

    0 COLP not provisioned

    1 COLP provisioned

    2 unknown (e.g. no network, etc.)

6.9.5 Remark

6.9.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+COLP=1	OK
AT+COLP=?	+COLP:(0,1) OK

6.10 AT+ CSSN Supplementary service notifications

6.10.1 Description

The write command enables or disables the presentation of URCs for supplementary services.

6.10.2 Syntax

Test command	Response
AT+CSSN=?	+CSSN: (list of supported <n>s),(list of
Description	supported<m>s)
List the supported values	OK

Read command	Response
AT+CSSN?	Success:
	＋CSSN:<n>,<m>
Description	OK
Get current control values	Fail:
	ERROR

Set command	Response
AT+CSSN=<n>[,<m>]	Success:
Description	OK

Set control value	Fail:
	ERROR

Reference：3GPP TS 27.007 V3.12.0

6.10.3 Unsolicited Result Codes

URC1

+CSSI: <code1>

URC 2

+CSSU: <code2>

6.10.4 Parameter

< n >
(parameter sets/shows the +CSSI result code presentation status to the TE):   <u>0</u> disable   1 enable
< m >
(parameter sets/shows the +CSSU result code presentation status to the TE):   <u>0</u> disable   1 enable
< code1>

(it is manufacturer specific, which of these codes are supported):

0 unconditional call forwarding is active

1 some of the conditional call forwardings are active

2 call has been forwarded

3 call is waiting

< code2>

(it is manufacturer specific, which of these codes are supported):

0 this is a forwarded call (MT call setup)

1 this is a CUG call (also <index> present) (MT call setup)

2 call has been put on hold (during a voice call)

3 call has been retrieved (during a voice call)

4 multiparty call entered (during a voice call)

5 call on hold has been released (this is not a SS notification) (during a voice call)

6.10.5 Remark

When <n>=1 and a supplementary service notification is received after a mobile originated call setup, intermediate result code +CSSI: <code1>[,<index>] is sent to TE before any other MO call setup result codes presented in the present document or in V.25ter [14]. When several different <code1>s are received from the network, each of them shall have its own +CSSI result code.

When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received, unsolicited result code +CSSU: <code2>[,<index>[,<number>,<type>[,<subaddr>,<satype>]]] is sent to TE. In case of MT call setup, result code is sent after every +CLIP result code (refer command "Calling line identification presentation +CLIP") and when several different <code2>s are received from the network, each of them shall have its own +CSSU result code.

Refer 27007 release99.

The gray item of <code1> doesn′t been supported by CMCC and UMCC.S

6.10.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CSSN=1,1	OK

6.11   AT+ CUSD Unstructured supplementary service data

6.11.1 Description

This command allows control of the Unstructured Supplementary Service Data (USSD) according to GSM 02.90. Both network and mobile initiated operations are supported.

6.11.2 Syntax

Test command AT+CUSD=? Description List the supported values	Response +CUSD: (list of supported \<n\>s) OK
Read command AT+CUSD? Description Get current control values	Response Success: ＋CUSD:\<n\> OK Fail: ERROR
Set command AT+ CUSD=\<n\>[,\<str\>[,\<dcs\>]] Description Set control value and data	Response Success: OK Fail: ERROR

6.11.3 Unsolicited Result Codes

URC1

+CUSD: <m>[,<str>,<dcs>]

6.11.4 Parameter

< n >
0 disable the result code presentation to the TE
1 enable the result code presentation to the TE
2 cancel session (not applicable to read command response)

< m >
0 no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation)
1 further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation)
2 USSD terminated by network
3 other local client has responded
4 operation not supported
5 network time out

< str >
string type USSD-string (when <str> parameter is not given, network is not interrogated):
- if <dcs> indicates that 3GPP TS 23.038 [25] 7 bit default alphabet is used:

- if TE character set other than "HEX" (refer command Select TE Character Set +CSCS): MT/TA converts GSM alphabet into current TE character set according to rules of 3GPP TS 27.005 [24] Annex A

- if TE character set is "HEX": MT/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character Π (GSM 23) is presented as 17 (IRA 49 and 55))

  - if <dcs> indicates that 8-bit data coding scheme is used: MT/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))

< DCS>

3GPP TS 23.038 [25] Cell Broadcast Data Coding Scheme in integer format (default 0)

6.11.5 Remark

This command allows control of the Unstuctured Supplementary Service Data (USSD) according to 3GPP TS 22.090 [23]. Both network and mobile initiated operations are supported. Parameter <n> is used to disable/enable the presentation of an unsolicited result code (USSD response from the network, or network initiated operation) +CUSD: <m>[,<str>,<dcs>] to the TE. In addition, value <n>=2 is used to cancel an ongoing USSD session.

When <str> is given, a mobile initiated USSD-string or a response USSD-string to a network initiated operation is sent to the network. The response USSD-string from the network is returned in a subsequent unsolicited +CUSD result code.

If the <dcs> parameter is input, the data will be transmitted as USSD vertion2, otherwise, it will be transmitted as USSD version 1.

6.11.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CUSD=1	OK
AT+CUSD?	+CUSD: 1 OK

6.12 AT^STA SAT Interface Activation

6.12.1 Description

This command is used to ask the current running status of the RSAT and the character set used by the RSAT, and it can be used to set SAT and the AT interface to activation.

6.12.2 Syntax

	Response
Test command AT^STA=？	Success: ^STA: (list of supported \<Alphabet>s) OK Fail: ERROR
	Response
Read command AT^STA?	Success: ^STA: \<Alphabet>, \<allowedInstance>, \<SatProfile> OK Fail: ERROR

Exe command	Response
AT^STA=<Alphabet>	Success: OK Fail: ERROR

Reference：3GPP TS 27.007 V3.12.0

6.12.3 Unsolicited Result Codes

URC1
..
URC2
..

6.12.4 Parameter

<Alphabet>：

　　　　　0　GSM character set

　　　1　UCS2 character set

<allowedInstance>：

　　0　SAT This module has been started.

　　1　SAT This module can be started.

<SatProfile>：SAT configuration data

6.12.5 Remark

6.12.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^STA?	^STA: 1,1,"7FFFFFFF7F0100DF1F"
	OK

6.13 AT^STN STK Notification

6.13.1 Description

Proactive Command notification

6.13.2 Syntax

6.13.3 Unsolicited Result Codes

URC1
^STN: <cmdType>..
..

6.13.4 Parameter

6.13.5 Remark

Every time the SIM Application issues a Proactive Command, via the ME, the TA will receive

a notification.

This indicates the type of Proactive Command issued.

AT^STGI must then be used by the TA to request the parameters of the Proactive Command from the ME.

Upon receiving the^STGI response from the ME, the TA must send AT^STR to confirm the execution of

the Proactive Command and provide any required user response, e.g. a selected menu item.

6.13.6 Example

The following examples show the typical application for this command.

Command	Possible Response
<Reference: URC: ^STN	URC

6.14   AT^STGI Remote-SAT Get Information

6.14.1 Description

AT^STGI: This command is used after receiving URC ^STN notification，That can get the parameters of the proactive command, current command type or some information of the current proactive command.

6.14.2 Syntax

	Response
Test command AT^STGI=?	Success: ^STGI: (list of supported <cmdType>s) OK Fail:

	ERROR
Read command AT^STGI?	Response Success: ^STGI: <cmdType> OK Fail: ERROR
Set command AT^STGI=<cmdType>	Response Success: OK Fail: ERROR
Reference：3GPP TS 27.007 V3.12.0	

6.14.3 Response definition

The event format：

Command type =37 or 36：

The first line: ^STGI: command type, 0, The number of the item,″ Alpha identifier″, ″nComQualifier″

Other lines：^STGI: command type, Item type,″ contents of menu,″ nComQualifier″

Command type＝16：

^STGI: command type, ″ text string″, type of address, address, subadress, text in calling″, scheme of the text, time unit when autodial, interval of ″ nComQualifier″

Command type＝33：

^STGI: command type,＂ text＂, scheme of text,＂ nComQualifier＂

Command type＝19：

^STGI: command type,＂ text for display＂ , Type of address,＂ address of SMS,＂ contents

of SMS″

Command type＝35:

^STGI: command type,＂ text″,＂ Default text″, scheme of text, max length of text, min

length of text,″ nComQualifier″

Command type＝38:

^STGI: command type,＂ nComQualifier″

，

6.14.4 Parameter

<Alphabet>：

    0   GSM character set

    1   UCS2 character set

<allowedInstance>：

    0   SAT This module has started up. you can execute the read or test command.

    1   SAT This module can be started.

<SatProfile>：SAT configuration data.

6.14.5 Remark

< cmdType >：Proactive command

。

6.14.6 Example

The following examples show the typical application for this command.

Command	Possible Response
	^STGI:
AT^STGI=37	37,128,5,"51687403901A670D52A1",0,1,1,0
< acknowledge >	^STGI:
AT^STR=37,0	37,1,"516C51714FE1606F670D52A1",0,0
	^STGI: 37,2,"8BC15238",0,0
<Select Submenu>	^STGI: 37,3,"624B673A94F6884C",0,0
AT^STR=211,0,1	^STGI: 37,4,"5BA26237670D52A1",0,0
<Get URC>	^STGI: 37,5,"82F16C498BCD5178",0,0
^STN: 36	OK
<get submenu content>	OK
AT^STGI=36	^STGI: 36,0,3,"",0,0,0,0,0
<acknowledge>	^STGI: 36,1,"59296C14988462A5",0,0
AT^STR=36,0,1	^STGI: 36,2,"4EA4901A4FE1606F",0,0
<get urc>	^STGI: 36,3,"65B095FB",0,0
^STN: 35	OK
<Get menu content>	OK
AT^STGI=35	*^STGI: 35,0,"957F9014533A53F7FF1F",3,5,"",0,0*
	OK

6.15   AT^STR Remote-SAT Response

6.15.1 Description

AT^STR: TA can use this command AT^STR to answer the AT^STGI command to tell the SIM
that the result executed of the proactive command.

6.15.2 Syntax

Test command AT^STR=?	Response Success: ^STR: (list of supported \<cmdType\>s) OK Fail: ERROR
Read command AT^STR?	Response Success: ^STR: \<cmdType\> OK Fail: ERROR
Exe command AT^STR=\<cmdType\>, \<status\>[, \<inputNumber\>][, \<inputString\>]	Response Success: OK Fail: ERROR
Reference：3GPP TS 27.007 V3.12.0	

6.15.3 Unsolicited Result Codes

URC1 +CALA: <u>\<text\></u> ..
URC2 +SYSSTART ALARM MODE+CALA: <u>\<text\></u> ..

6.15.4 Parameter

< cmdType >：Proactive command

    <status>：The status response to the proactive command.

        00   Command performed successfully

        16   Proactive SIM session terminated by user

        17   Backward move in the proactive SIM session requested by the user

        18   No response from user

        19   Help information required by the user

        20   USSD/SS Transact terminated by user

        32   ME currently unable to process command

        132   ME currently unable to process command -screen is busy

        34   User did not accept the proactive command

        35   User cleared down call before connection or network release

    <inputNumber>：Response number.

    <inputString>： Response string.

6.15.5 Remark

6.15.6 Example

The following examples show the typical application for this command.

Command	Possible Response
<Under main menu> AT^STR=211,0,X	STK select submenu

6.16 AT^STF Set format of responses

6.16.1 Description

This command is used to set format of a response of SAT command.

6.16.2 Syntax

AT^STF=<mode>

	Response
Read command AT^STF?	Success: ^STF: [Current mode] OK Fail: ERROR
	Response
Set command AT^STF=<mode>	Success: Set STF to [Mode] OK Fail: ERROR
	Response
Test command AT^STF=?	Success: ^STF: (0,1) OK Fail: ERROR

6.16.3 Unsolicited Result Codes

None

6.16.4 Parameter

<mode>:

0: PDU mode

1: Text mode

6.16.5 Remark

6.16.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^STF?	^STF: PDU Mode OK
AT^STF=1	Set STF to TEXT Mode OK

7 SMS Commands

This chapter describes AT Commands that a TE (Terminal Equipment, e.g. an application running on a controlling PC) may use to control the MC55 acting as GPRS Mobile Termination (MT).

7.1 AT+CSDH Show Text Mode Parameters (For SMS)

1.1.1 Description

Set command controls whether detailed header information is shown in text mode result codes.

1.1.2 Syntax

Test command AT+CSDH=? Description ..	Response Success: +CSDH: (list of supported < show >s) OK Fail: ERROR
Read command AT+CSDH? Description ..	Response Success: +CSDH: <show> OK Fail: ERROR
Set command AT+CSDH=<show>	Response Success:

Description	OK
..	Fail:
	ERROR

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.3 Unsolicited Result Codes

URC1

+CALA: <u>\<text\></u>

..

URC2

+SYSSTART ALARM MODE+CALA: <u>\<text\></u>

..

1.1.4 Parameter

\<show\> Range: 0-1

<u>0</u>   do not show the values in result codes

1   show the values in result codes

..

1.1.5 Remark

1.1.6 Example

The following examples show the typical application for this command.

Command	Possible Response

AT+CSDH=0	OK
<not show the message header when list message at the storage, read message in the storage, or indicate to CMTI that new message recieved.>	
AT+CSDH=1	OK
< show the message header when list message at the storage, read message in the storage, or indicate to CMTI that new message recieved.>	

7.2 AT+CSMP Set Text Mode Parameters

1.1.7 Description

Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected.

1.1.8 Syntax

Test command AT+CSMP=? Description ..	Response Success: OK Fail: ERROR
Read command AT+CSMP?	Response Success:

Description	+CSMP:<fo>,<vp>,<pid>,<dcs>
..	OK
	Fail:
	ERROR
Set command	Response
AT+CSMP=<fo>[,<vp>[,pid>[,<dcs>]]]	Success:
Description	OK
	Fail:
..	ERROR

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.9 Unsolicited Result Codes

URC1
+CALA: <u>\<text\></u>
..
URC2
+SYSSTART ALARM MODE+CALA: <u>\<text\></u>
..

1.1.10 Parameter

<fo>
depending on the command or result code: first octet of 3G TS 23.040 [3] SMS-DELIVER[mt], SMS-SUBMIT[mo] (default 17),
SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format.
<vp>
depending on SMS-SUBMIT <fo> setting: 3G TS 23.040 [3] TP-Validity-Period either in integer format (default 167), in time-string format
(refer <dt>), or if EVPF is supported, in enhanced format (hexadecimal coded string with double quotes)
<pid>

3G TS 23.040 [3] TP-Protocol-Identifier in integer format (default 0)—protocol identity [Different data storage protocol according to which services protocol used]

<dcs>

depending on the command or result code: 3G TS 23.038 [2] SMS Data Coding Scheme (default0), or Cell Broadcast Data Coding Scheme in integer format   [supported there types of   csw allowed，0，4，8]

1.1.11 Remark

Parameter <fo> <vp> <pid> and <dcs>, we recommend to set default value of them, but can use other values if need according to spec definite.

if setting ＂fo＂ value for MO message, we must make sure the ＂mti＂ segment of ＂fo＂ (as 03.40 description) is ＂01＂,

meanings that bit1 is ＂0＂ and bit0 is ＂1＂, otherwise exception would happened.

3. if setting ＂dcs＂ value for MO message, we must make sure that the dcs is equal to 0, or 4, or 8, other values is not allowed now.

1.1.12 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CSMP=17,167,0,0 *<in text mode, send message to others or write message to storage with 7bit encode>*	OK
AT+CSMP=17,167,0,4 *<in text mode, send message to others or write message to storage with 8bit encode>*	OK
AT+CSMP=17,167,0,8	OK

<in text mode, send message to others or write message

to storage with 16bit encode, sometimes the Chinese string>

7.3 AT+CMSS Send Message from Storage(For SMS)

1.1.13 Description

Execution command sends message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT

or SMS-COMMAND).

1.1.14 Syntax

Test command
 	
  AT+CMSS=?
 	
Description
 	
  ..
	Response
	
	Success:
	
	  OK
	
	Fail:
	
	  ERROR

Read command Description ..	Response

Set command
 	
AT+CMSS=<index>[,<da>[,<toda>]]
 	
Description
	Response
	
	Success:
	
	  +CMSS:<mr>
	
	  OK
	
	Fail:
	
	  ERROR

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.15 Unsolicited Result Codes

1.1.16 Parameter

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

1.1.17 Remark

1. <toda>have there values: 161，145，129

2. At PDU mode , wen can′t send MT message.

1.1.18 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF=0	OK
AT+CMGR=1	+CMGR: 3,,21 0891683110102105F031010B813120117013F50000A707F4F29C9E769F0
AT+CMSS=1	+CMSS: 3 OK

AT+CMGF=0	OK
AT+CMGR=1	+CMGR: 3,,21 0891683110102105F031010B813120117013F50000A707F4F29C9E769F0
AT+CMSS=1, "13466507607", 129	+CMSS: 6 OK
AT+CMGF=1	OK
AT+CSDH=1	OK
AT+CMGR=1	+CMGR: "STO SENT","13021107315",,129,17,0,0,167,"+8613010112500",145,7 testing
AT+CMSS=1	+CMSS: 7 OK
AT+CMGF=1	OK
AT+CSDH=1	OK
AT+CMGR=1	+CMGR: "STO SENT","13021107315",,129,17,0,0,167,"+8613010112500",145,7 testing
AT+CMSS=1, "13466507607", 129	

+CMSS: 10

OK

7.4 +CMTI/+CMT Indication New Short Message [For SMS]

1.1.19 Description

When receive new short message ,send +CMTI or +CMT[+CDS are message report]

1.1.20 Syntax

Test command Description ..	Response
Read command Description ..	Response
Set command Description ..	Response +CMTI: <mem>,<index> or +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) +CMT: <oa>, [<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>, <length>]<CR><LF><data> (Text mode enbaled)

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.21 Unsolicited Result Codes

1.1.22 Parameter

<mem> string type; memory for storage new messages

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

<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)

<fo> depending on the command or result code: first octet of 3G TS 23.040 [3] SMS-DELIVER, SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format

<vp> depending on SMS-SUBMIT

is supported, in enhanced format (hexadecimal coded string with double quotes)

<pid> 3G TS 23.040 [3] TP-Protocol-Identifier in integer format (default 0)

<dcs> depending on the command or result code: 3G TS 23.038 [2] SMS Data Coding Scheme (default0), or Cell Broadcast Data Coding Scheme in integer format

<sca> 3G TS 24.011 [6] RP SC address Address-Value field in string format;

<tosca> 3G TS 24.011 [6] RP SC address Type-of-Address octet in integer format

<scts> 3G TS 23.040 [3] TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)

<alpha> string type 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 Characte

..

1.1.23 Remark

1.1.24 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CNMI=0,1,0,0,0 +CMTI: "SM",7	OK
AT+CMGF=0 AT+CNMI=0,2,0,0,0 +CMT: ,27 0891683110102105F0240D91683120117013F500008070206193930007F4F29C9E769F01	OK OK
AT+CMGF=1 AT+CSDH=1 AT+CNMI=0,2,0,0,0 +CMT: "+8613021107315",,"2008/07/02,16:40:24+00",145,17,0,0,"+8613010112500",145 ,8 Testing	OK OK OK
AT+CMGF =1 AT+CNMI=0,0,0,1,0 *(need status report)* AT+CMGS="13445555991"	OK OK +CMGS: 12

OK

+CDS:

2,12,"+8613021107315",145,"2008/07/02,16:42:22+00","2008/07/02,16:42:34+00",0

7.5 AT+CMGD Delete SMS message

1.1.25 Description

Execution command deletes message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0 then

the ME shall ignore <index> and follow the rules for <delflag> shown below. If deleting fails, final result code +CMS ERROR: <err> is returned.

See chapter Message Service Failure Result Code for <err> values.

1.1.26 Syntax

Test command AT+CMGD=? Description ..	Response Success: +CMGD: (list of supported <index>s),(list of supported <delflag>s) Fail: ERROR
Read command Description ..	Response
Set command AT+CMGD=<index>[,<delflag>]	Response Success:

Description	OK
..	Fail:
	+CMS ERROR: <err>

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.27 Unsolicited Result Codes

URC1

  +CALA: <u><text></u>

  ..

URC2

  +SYSSTART ALARM MODE+CALA: <u><text></u>

  ..

1.1.28 Parameter

Index : indicate which message will be deleted

<delflag>: an integer indicating multiple message deletion request as follows:

  0 (or omitted)   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.

..

1.1.29 Remark

Test command

list of supported <index>s

1.1.30 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGD=1 *< note1:delete the specific index message in the storage>* *<note2: if have no message we specific to delete,* *just return ＂OK＂ only>*	OK
AT+CMGD=1,4 *<note1:delete all the message in the storage>* *<note2: if have no message we specific to delete,* *just return ＂OK＂ only>*	OK

7.6 AT+CMGF Select SMS message format

1.1.31 Description

Set command specifies the input and output format of the short messages. The input and output format of the short messages can be either PDU

mode or Text mode.

1.1.32 Syntax

Test command	Response
AT+CMGF=?	+CMGF：（list of supported <mode>s）
Description	OK
.. list of supported <mode>s	

Read command	Response
AT+CMGF?	+CMGF:<mode >
Description	OK
.. Return current setting	

Set command	Response
	Success:
AT+CMGF=< mode >	OK
Description	Fail:
..	ERROR

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.33 Unsolicited Result Codes

URC1
+CALA: <u>\<text\></u>
..
URC2
+SYSSTART ALARM MODE+CALA: <u>\<text\></u>
..

1.1.34 Parameter

<mode>:

0   PDU mode (default when implemented)

1   text mode

..

1.1.35 Remark

1.1.36 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF=0 *< PDU mode>*	OK
AT+CMGF=1 *<Text mode>*	OK

7.7 AT+CMGL List SMS messages from preferred store

1.1.37 Description

… Execution command returns messages with status value <stat> from message storage <mem1> to the TE.

1.1.38 Syntax

Test command AT+CMGL=? Description ..	Response Success: +CMGL:(list of supported <stat>s) OK Fail: ERROR
Read command Description	Response ..
Set command AT+CMGL[=<stat>] Description ..	Response Success: TEXT mode（+CMGF=1） SMS-SUBMIT： +CMGL:<index>,<stat>,<da>,[<alpha>],<toda>,<length>]<CR><LF><data>[<CR><LF>] [...] SMS-DELIVER： +CMGL:<index>,<stat>,<oa>,[<alpha>],[<scts>] [,<tooa>,<length>]<CR><LF><data>[...]] OK PDU mode（+CMGF=0） SMS-SUBMIT or SMS-DELIVER： +CMGL: <index>,<stat>,[<alpha>],<length><CR><LF><pdu>[<CR><LF>] [...] OK Fail: ERROR
Reference：3GPP TS 27.005 V3.2.0 (2002-06)	

1.1.39 Unsolicited Result Codes

URC1

+CALA: <u><text></u>

..

URC2

+SYSSTART ALARM MODE+CALA: <u><text></u>

..

1.1.40 Parameter

<stat>

integer type in PDU mode (default 0), or string type in text mode (default "REC UNREAD"); indicates the status of

message in memory; defined values:

0 "REC UNREAD" received unread message (i.e. new message)

1 "REC READ" received read message

2 "STO UNSENT" stored unsent message (only applicable to SMs)

3 "STO SENT" stored sent message (only applicable to SMs)

4 "ALL" all messages (only applicable to +CMGL command)

..

1.1.41 Remark

1. <alpha> is not supported now.

2. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

1.1.42 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF=0	
	OK
AT+CMGL=n	
	......
<note1: n=0,1,2,3,4, meaning as description of 11.7.4 parameters definition>	......
<note2: if have no message we specific to list, just return "OK" only>	OK
<note3: don't care about the dcs value with at+csmp setting or charset value with at+cscs setting here, the display is only depending to formats when the message store.>	
AT+CMGF=1	OK
	......
AT+CMGL="string"	......
< note1:string="REC UNREAD", "REC READ", "STO UNSENT", "STO SENT", "ALL", meaning as description of 11.7.4 parameters definition >	OK
<note2: if have no message we specific to list, just	

return "OK" only>

   <note3: don't care about the dcs value

with at+csmp setting or charset value

with at+cscs setting here, the display is

only depending to formats when the

message store.>

7.8 AT+CMGR Read SMS Message

1.1.43 Description

... Execution command returns message with location value <index> from preferred message storage <mem1> to the TE.

1.1.44 Syntax

Test command	Response
AT+CMGR=?	
Description	ok
..	

Read command	Response
Description	
..	

Set command	
AT+CMGR=<index>	
Description	
..	

Response

Success:

    TEXTmode (+CMGF=1)：

    SMS-DELIVER:

+CMGR:\<stat\>,\<oa\>,[\<alpha\>],\<scts\>[,\<tooa\>,\<fo\>,\<pid\>,\<dcs\>,\<sca\>,\<tosca\>,\<length\>]\<CR\>\<LF\>\<data\>

OK

    SMS-SUBMIT:

+CMGR:\<stat\>,\<da\>,[\<alpha\>][,\<toda\>,\<fo\>,\<pid\>,\<dcs\>,[\<vp\>]**,**\<sca\>,\<tosca\>,\<length\>]\<CR\>\<LF\>\<data\>

OK

    PDU mode (+CMGF=0)：

+CMGR: \<stat\>,[\<alpha\>],\<length\>\<CR\>\<LF\>\<pdu\>

OK

Fail:

ERROR

Reference：3GPP TS 27.005 V3.2.0 (2002-06)

1.1.45 Unsolicited Result Codes

URC1

+CALA: \<text\>

..

URC2

+SYSSTART ALARM MODE+CALA: \<text\>

..

1.1.46 Parameter

\<index\>

Indicate which message will be read.

..

1.1.47 Remark

1. <alpha> and <scts> is not supported now.

2. Can′t read short message report now.

3. When DTE character set is "**GSM**" **(set by +CSCS command), the SMS content will be output by an ASCII string form if it is an pure ASCII**

SMS, otherwize it will be output in an UCS2 hex string form. If the DET character set is " **UCS2**" **it will always be output in UCS2 hex string form.**

4. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

1.1.48 Example

The following examples show the typical application for this command.we don′t care about the dcs value with at+csmp setting or charset value with at+cscs setting here, the display is only depending to formats when the message store. Storing of message with 7bit encode, show 7bit charsets. And storing of message with 8bit or 16bit encode, show 8bit or 16bit charsets.

Command	Possible Response
1. AT+CMGF=1	OK
AT+CMGR=1 *(the message store in the mem with 7bit encode of dcs)*	+CMGR: "STO UNSENT","123" testing OK
AT+CMGR=2 *(the message store in the mem with 8bit encode of dcs)*	+CMGR: "STO UNSENT","456" testing OK
AT+CMGR=3	+CMGR: "STO UNSENT","789"

(the message store in the mem with 16bit encode of dcs) *<note1: don't care about the dcs value with at+csmp setting or charset value with at+cscs setting here, the display is only depending to formats when the message store.>* *<note2: all of above examples, if have no message we specific to read, just return "OK" only>*	XXXXXX (Chinese string) OK
2. AT+CMGF=0 AT+CMGR=1 *(the message store in the mem with 7bit encode of dcs)* AT+CMGR=2 *(the message store in the mem with 8bit encode of dcs)* AT+CMGR=3 *(the message store in the mem with 16bit encode of dcs)* *<note1: don't care about the dcs value with at+csmp setting or charset value with at+cscs setting here, the display is only depending to formats when the message store.>* *<note2: all of above examples, if have no*	OK +CMGR: 2,,17 069168311010F13100038121F30000A707F4F29C9E769F01 OK +CMGR: 2,,17 069168311010F13100038154F60004A70774657374696E67 OK +CMGR: 2,,14 069168311010F13100038187F90008A7044E2D56FD OK

message we specific to read, just return "OK" only>

7.9 AT+CMGS Send SMS message

1.1.49 Description

… The write command transmits a short message from TE to network (SMS-SUBMIT).After invoking the write command wait for the prompt

">" and then start to write the message. To send the message simply enter <CTRL-Z>

1.1.50 Syntax

Test command	Response
AT+CMGS=?	OK
Description	
..	

Read command	Response
Description	
..	

Set command	Response
TEXT mode（+CMGF=1）：	Success:
AT+CMGS=<da>[,<toda>]<CR> text is entered	
<ctrl-Z/ESC>	+CMGS:<mr>
PDU mode（+CMGF=0）：	OK
AT+CMGS=<length><CR>	Fail:
pdu is given <ctrl-Z/ESC>	ERROR
Description	

…	

Reference:3GPP TS 27.005 V3.2.0 (2002-06)

1.1.51 Unsolicited Result Codes

URC1

  +CALA: <u><text></u>

  ..

URC2

  +SYSSTART ALARM MODE+CALA: <u><text></u>

  ..

1.1.52 Parameter

<da> 3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet

characters) are converted to characters of the currently selected TE   character set (refer command +CSCS in3G TS 27.007 [9]);

type of address given by <toda>tring type; memory to which writing and sending operations are made

<toda> 3G TS 24.011 [6] 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 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)

PDU is given:

  ■ we can send pdu message depending to the dcs value of oct in the pdu header.

      the PDU shall be hexadecimal format (similarly as specified for <pdu>) and given in one line; ME/TA converts this coding

    into the actual octets of PDU.

text is entered

    - we should care about the dcs of at+csmp setting, if we set 7bit encode of dcs, we can send 7bit encode message with text mode.

If we set 8bit or 16bit encode of dcs, we can send 8bit or 16bit message with text mode.

the entered text should be formatted as follows:

- if <dcs> (set with +CSMP) indicates that 3GPP TS 23.038 [2] GSM 7 bit default alphabet is used and <fo> indicates that 3GPP TS 23.040 [3] TP-User-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 [9]): ME/TA converts the entered text into the GSM 7 bit default alphabet according to rules of Annex A; backspace can be used to delete last character and carriage returns can be used (previously mentioned four character sequence shall be sent to the TE after every carriage return entered by the user);

- if TE character set is "HEX": the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into the GSM 7 bit default alphabet characters. (e.g. 17 (IRA 49 and 55) will be converted to character Π (GSM 7 bit default alphabet 23)).

<mr>

Type: integer type

Meaning: 3GPP TS 23.040 [3] TP-Message-Reference in integer format

..

1.1.53 Remark

1. Not support long short message.

2. <toda>have there values: 161，145，129

3. At PDU mode , wen can′t send MT message.

1.1.54 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF=0	OK
AT+CMGS=17 *(value of "dcs" is getting from dcs oct in the pdu header)*	>0011000B813170862334F20000A70361F118<CTRL Z> +CMGS: 1 OK
AT+CMGF=1	OK
AT+CSMP=17,167,0,0 *(7bit encode of message to store or send in text mode)*	OK
AT+CMGS="13560243602"	>abc<CTRL Z> +CMGS: 5 OK
AT+CSMP=17,167,0,4 *(8bit encode of message to store or send in text mode)*	OK
AT+CMGS="13560243602",129	>abc<CTRL Z> +CMGS:3 OK
AT+CSMP=17,167,0,8 *(16bit encode of message to store or send in text mode)*	OK
AT+CMGS="+13560243602",145	>XXX<CTRL Z> (Chinese string)

+CMGS:4

7.10　AT+CMGW Write SMS message to memory

1.1.55 Description

… Execution command stores message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>. Memory location <index> of

the stored message is returned.

1.1.56 Syntax

Test command AT+CMGW=? Description ..	Response ok
Read command Description ..	Response
Set command TEXT mode（+CMGF=1）： AT+CMGW [=<oa/da>[,<tooa/toda>[,<stat>]]]<CR> text is entered <ctrl-Z/ESC> PDU mode（+CMGF=0）： AT+CMGW=<length>[,<stat>]<CR> pdu is given <ctrl-Z/ESC>	Response 　　Success: 　　　　+CMGW:<index> 　　　　OK 　　Fail: 　　　　ERROR

Description

.. 1.The Execution command is executed successful:

if PDU mode (+CMGF=0):

+CMGW: <index>

if text mode (+CMGF=1):

+CMGW: <index>

2.the Execution command is executed failing:

+CMS ERROR: <err>

Reference

3GPP TS 27.005 V3.2.0 (2002-06)

1.1.57 Unsolicited Result Codes

URC1

+CALA: <u><text></u>

..

URC2

+SYSSTART ALARM MODE+CALA: <u><text></u>

..

1.1.58 Parameter

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

memory

<da>   3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD

numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE   character set (refer command +CSCS in3G TS 27.007 [9]); type of address given by <toda>tring type; memory to which writing and sending operations are made

<toda>   3G TS 24.011 [6] 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 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>   Integer type in PDU mode (default 2 for +CMGW), or string type in text mode (default .STO UNSENT. for +CMGW). Indicates the status of message in memory.

..

1.1.59 Remark

1.not support long message.

2.<toda> have three values: 161, 145 and 129.

3. if pdu mode, each bit meaning of the dcs byte are following:

Dcs byte: bit7……bit0

bit7..bit4 - encode group

bit7 - reserved

bit6 - reserved

bit5 - 0:text uncompress 1: GSM default compress

bit4 - 0: bit0 and bit1 no use 1: bit0 and bit1 useful

bit0: bit1:

0	0	class1
0	1	class2
1	0	class3
1	1	class4

bit2: bit3:

0	0	GSM default 7 bit encode
0	1	8 bit encode
1	0	16bit(UCS2) encode
1	1	reserved

4. At PDU mode ,if we want to write MT message at storage, we must specify the status of UNREAD or READ.

And at PDU mode , wen can′t write MT message which have status of　UNSENT or SENT.

1.1.60 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF=0	OK
AT+CMGW=17 *(value of "dcs" is getting from dcs oct in the pdu header)*	>0011000B813170862334F20000A70361F118<CTRL Z> +CMGW: 1 OK
AT+CMGF=1	OK

AT+CSMP=17,167,0,0 *(7bit encode of message to store or send in text mode)*	OK
AT+CMGW="13560243602"	>abc<CTRL Z> +CMGW: 5 OK
AT+CSMP=17,167,0,4 *(8bit encode of message to store or send in text mode)*	OK
AT+CMGW=″ 13560243602″ ,129	>abc<CTRL Z> +CMGW:3 OK
AT+CSMP=17,167,0,8 *(16bit encode of message to store or send in text mode)*	OK
AT+CMGW=″ 13560243602″	>XXX<CTRL Z> (Chinese string) +CMGW:4 OK

7.11 AT+CNMI New SMS message indications

1.1.61 Description

… Set command selects the procedure, how receiving of new messages from the network is indicated to the TE when TE is active.

1.1.62 Syntax

Test command AT+CNMI=? Description ..	Response Success: +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 Fail: +CMS ERROR:<err>
Read command AT+CNMI? Description ..	Response +CNMI:<mode>,<mt>,<bm>,<ds>,<bfr> OK
Set command AT+CNMI=<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]] Description ..	Response Success: OK Fail:

	ERROR
Reference:3GPP TS 27.005 V3.2.0 (2002-06)	

1.1.63 Unsolicited Result Codes

URC1

　+CALA: <u><text></u>

　..

URC2

　+SYSSTART ALARM MODE+CALA: <u><text></u>

　..

1.1.64 Parameter

<mode> **support one value now : 0**

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.

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

<mt> **support three values now: 0，1，2，and   have no CLASS type.**

0 No SMS-DELIVER indications are routed to the TE.（default value）

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 messages and messages in the message waiting indication group (store message)) 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>

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

coding schemes result in indication as defined in <mt>=1.

<bm> **Broadcast—csw not supported**

0   No CBM indications are routed to the TE.

1   If CBM is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited   result

code:+CBMI: <mem>,<index>

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)   If ME supports data

coding groups which define special routing also for messages other than class 3 (e.g. (U)SIM specific messages), ME may

choose not to route messages of such data coding schemes into TE (indication of a stored CBM may be given as defined in

<bm>=1).

3   Class 3 CBMs are routed directly to TE using unsolicited result codes defined in <bm>=2. If CBM storage is supported,

messages of other classes result in indication as defined in <bm>=1.

<ds>**: message report can't be storaged，the value 2 is not supported now**

0   No SMS-STATUS-REPORTs are routed to the TE. （default value）

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: <mem>,<index>

<bfr>**: not supported**

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.

..

1.1.65 Remark

1. if PDU mode, each bit meaning of DCS byte are reference in chapter 11.10,5, CMGW remark.

1.1.66 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CNMIi=0,1,0,0,0 +CMTI: "SM",7	OK
AT+CMGF=0 AT+CNMI=0,2,0,0,0 +CMT: ,27 0891683110102105F0240D91683120117013F500008070206193930007F4F29C9E769F01	OK OK
AT+CMGF=1	OK
AT+CSDH=1	OK
AT+CNMI=0,2,0,0,0	OK

+CMT: "+8613021107315",,"2008/07/02,16:40:24+00",145,17,0,0,"+8613010112500",145
,8
testing

	OK
AT+CMGF=1	
	OK
AT+CNMI=0,0,0,1,0	
	+CMGS: 12
AT+CMGS="13445555991"	
	OK
+CDS:
2,12,"+8613021107315",145,"2008/07/02,16:42:22+00","2008/07/02,16:42:34+00",0	

7.12 AT+CPMS Preferred SMS message storag

1.1.67 Description

… Set command selects memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc.

1.1.68 Syntax

Test command	Response
AT+CPMS=?	Success:
Description	+CPMS: (list of supported <mem1>s),(list of supported <mem2>s),
..	(list of supported <mem3>s)

	OK
	Fail:
	ERROR
Read command **AT+CPMS?** Description ..	Response Success: +CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>, <used3>,<total3> OK Fail: ERROR
Set command AT+ CPMS =<mem1>[, <mem2>[,<mem3>]] Description ..	Response Success +CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> OK Fail: ERROR
Reference:3GPP TS 27.005 V3.2.0 (2002-06)	

1.1.69 Unsolicited Result Codes

| |
| URC1

+CALA: <u><text></u> |

..

URC2

+SYSSTART ALARM MODE+CALA: <u>\<text\></u>

..

1.1.70 Parameter

<mem1> string type; mmory from which messages are read and deleted

<mem2> string type; memory to which writing and sending operations are made

<mem3> string type; memory to which received SMs are preferred to be stored

<used1> integer type;number of messages currently in <mem1>

<used2> integer type;number of messages currently in <mem2>

<used3> integer type;number of messages currently in <mem3>

<total1> integer type;number of messages storable in <mem1>

<total2> integer type;number of messages storable in <mem2>

<total3> integer type;number of messages storable in <mem3>

..

1.1.71 Remark

Parameters <mem1>，<mem2> and <mem3> have two kinds fo values：" SM″，″ ME″

1.1.72 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CPMS="SM","ME","SM" *< SM″ : SMS message storage in SIM, default>*	+CPMS: 11,40,0,200,11,40 OK

AT+CPMS?	
	+CPMS: 11,40,0,200,11,40
	OK
AT+CPMS="ME","ME","ME"	+CPMS: 0,200,0,200,0,200
	OK
AT+CPMS?	+CPMS: 0,200,0,200,0,200
	OK
AT+CPMS="SM","SM","SM"	+CPMS: 11,40,11,40,11,40
	OK
AT+CPMS?	+CPMS: 11,40,11,40,11,40
	OK

7.13 AT+CSCA SMS service center address

1.1.73 Description

… Set command updates the SMSC address.

1.1.74 Syntax

Test command	Response
AT+CSCA=?	ok
Description	
..	

Read command	Response
AT+CSCA?	Success:
	+CSCA:\<sca\>,\<tosca\>
Description	OK
..	Fail:
	ERROR

Set command	Response
AT+ CSCA =\<sca\>[,\<tosca\>]	Success:
Description	OK
..	Fail:
	ERROR

| Reference:3GPP TS 27.005 V3.2.0 (2002-06) | |

1.1.75 Unsolicited Result Codes

URC1
+CALA: \<text\>
URC2
+SYSSTART ALARM MODE+CALA: \<text\>

1.1.76 Parameter

<sca>
GSM 04.11 RP SC address Address-Value field in string format
<tosca>
GSM 04.11 RP SC address Type-of-Address octet in integer format

1.1.77 Remark

1.1.78 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CSCA=" +8613800100500"	OK
AT+CSCA?	+CSCA: "+8613800100500",145 OK

7.14 +CDS Indicates SMS status report has been received

1.1.79 Description

... Indicates that SMS status report has been received

1.1.80 Syntax

+CDS: <length><CR><LF><pdu> (PDU mode enabled)

+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)

Reference

3GPP TS 27.005 V3.2.0 (2002-06)

1.1.81 Unsolicited Result Codes

1.1.82 Parameter

<pdu>   In the case of SMS: 3G TS 24.011 [6] SC address followed by 3G TS 23.040 [3] 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))

<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)

<fo> depending on the command or result code: first octet of 3G TS 23.040 [3] SMS-DELIVER, SMS-SUBMIT SMS-STATUS-REPORT, or

SMS-COMMAND in integer format

is supported, in enhanced format (hexadecimal coded string with double quotes)

<scts> 3G TS 23.040 [3] TP-Service-Centre-Time-Stamp in time-string format (refer <dt>)

<st>   3G TS 23.040 [3] TP-Status in integer format

<mr>   3G TS 23.040 [3] TP-Message-Reference in integer format

<ra>   3G TS 23.040 [3] TP-Recipient-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are

converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by

<tora>

<dt>   3G TS 23.040 [3] TP-Discharge-Time in time-string format: " yy/MM/dd,hh:mm:ss±zz", where characters indicate year (two last digits),

month, day, hour, minutes, seconds and time zone. E.g. 6th of May 1994, 22:10:00 GMT+2 hours equals to " 94/05/06,22:10:00+08"

<tora> 3G TS 24.011 [6] TP-Recipient-Address Type-of-Address octet in integer format (default refer <toda>)

1.1.83 Remark

Please refer to +CNMI

1.1.84 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CMGF =0	OK
AT+CNMI=0,0,0,1,0	OK
+CDS: 34 91683110102105F006110D91683120117013F580702081201400807 02081207 40000	
AT+CMGF=1	OK
	OK
AT+CNMI=0,0,0,1,0	+CMGS: 12
	OK
AT+CMGS="13466507607"	

+CDS:

2,14,"+8613021107315",145,"2008/07/02,17:30:50+00","2008/07/02,17:30:55+00

",0

8 GPRS Commands

This chapter describes AT Commands that a TE (Terminal Equipment, e.g. an application running on a controlling PC) may use to control the MC55 acting as GPRS Mobile Termination (MT).

8.1 AT+CGATT PS attach or detach

8.1.1 Description

This command is used to attach the MT to, or detach the MT from, the Packet Domain service. After the command has completed, the MT remains in V.25ter command state. If the MT is already in the requested state, the command is ignored and the OK response is returned.

Any active PDP contexts will be automatically deactivated when the attachment state changes to detached

8.1.2 Syntax

Test command AT+CGATT=? Description ..	Success: +CGATT: (list of supported <state>s) OK Fail: ERROR
Read command AT+CGATT? Description ..	Response(s) Success: +CGATT: <state> OK Fail:

	ERROR
Set command AT+CGATT= \<state\> Description ..	Response(s) Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.13.0 (2003-03)	

8.1.3   Unsolicited Result Codes

8.1.4   Parameter

\< state \>

indicates the state of PS attachment
 	
    0 −   detached
 	
    1 −   attached
 	
Other values are reserved and will result in an ERROR response to the execution command.

8.1.5   Remark

8.1.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGATT=?	+CGATT: (0-1) OK
AT+CGATT=1	OK
AT+CGATT?	+CGATT: 1 OK

8.2 AT+CGDCONT Define PDP Context

8.2.1 Description

This command be used to defined PDP context

8.2.2 Syntax

Test command   AT+CGDCONT=?   Description   ..
Response(s)   Success: +CGDCONT: (range of supported <cid>s), <PDP_type>,(list of supported<d_comp>s), (list of supported <h_comp>s) [<CR><LF>   [+CGDCONT: (range of supported <cid>s), <PDP_type>,(list of supported <d_comp>s), (list of supported <h_comp>s) [...]]   OK   Fail: ERROR

Read command

AT+CGDCONT?

Description

..

Response(s)

Success:

+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>,

<d_comp>,<h_comp>[<CR><LF>

+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>

OK

Fail:

ERROR

Set command

AT+CGDCONT=

<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp>]]]]]

Description

..

Response(s)

Success:

OK

Fail:

ERROR

Reference

3GPP TS 27.007 V3.13.0

SIEMENS GPRS AT Module

8.2.3 Unsolicited Result Codes

8.2.4 Parameter

< 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, maximum value =7) is returned by the test form of the command.

< 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 (IETF RFC 2460)

PPP   Point to Point Protocol (IETF STD 51)

< APN >

(Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

< PDP_address >

a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

< d_comp >

a numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 04.65 [59])

0 - off   (default if value is omitted)

1 - on (manufacturer preferred compression)

2 - V.42bis

3 - V.44bis

Other values are reserved.

< h_comp >

a numeric parameter that controls PDP header compression (refer 3GPP TS 04.65 [59])

0 — off (default if value is omitted)

1 — on (manufacturer preferred compression)

2 — RFC1144

3 — RFC2507

4 — RFC3095

Other values are reserved.

8.2.5 Remark

8.2.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGDCONT=?	+CGDCONT: (1..7), (IP,IPV6,PPP),(0..3),(0..4) OK
AT+CGDCONT=1, "IP","cmnet"	OK

	+CGDCONT:1,″IP″, ″cmnet ″, ,0,0
AT+CGDCONT?	OK

8.3 AT+CGACT PDP context activate or deactivate

8.3.1 Description

This command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.25ter command state. If any PDP context is already in the requested state, the state for that context remains unchanged. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and then attempts to activate the specified contexts. If no <cid>s are specified the activation form of the command activates all defined contexts or deactivates all active contexts.

8.3.2 Syntax

Test command AT+ CGACT =? Description The test command is used for requesting information on the supported PDP context activation states.	Response(s) Success: +CGACT: (list of supported <state>s) OK Fail: ERROR
Read command AT+ CGACT? Description The read command returns the current activation states for all the defined PDP contexts.	Response(s) Success: +CGACT: (<cid>, <state>) OK Fail: ERROR

Set command AT+ CGACT=<state> [,<cid>[,<cid>[,…]]] Description See 22.1.1	Response(s) Success: OK Fail: ERROR
Reference:3GPP TS 27.007 V3.13.0 (2003-03)	

8.3.3 Unsolicited Result Codes

8.3.4 Parameter

< state >

State indicates the state of PS attachment
 	
    0 − deactivated
 	
    1 − activated
 	
Other values are reserved and will result in an ERROR response to the execution command.

< cid >
A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and   +CGDSCONT commands). Range from 1 to 7.

8.3.5 Remark

1. Before activating, use command AT+CGATT=1 first to attach to the network.

2. Currently，only 3 active PDP contexts are allowed to exist simultaneity. So the number of cid in this command is limited to 3. And if you have defined more than 3 cids with command AT+CGDCONT, only the first 3 will be acted on when you use AT+CGACT=1 to activate all cids.

8.3.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGACT=? <Note : ..>	+CGACT: (0,1) OK
AT+CGACT=1,1	<Note :...> OK
AT+CGACT?	+CGACT: (1,1) OK

8.4 AT+CRC Cellular result codes

8.4.1 Description

This command is to control whether or not the extended format of incoming call indication or GPRS network request for PDP context activation or notification for VBS/VGCS calls is used. When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING.

8.4.2 Syntax

Test command	Response(s)
AT+ CRC =?	Success:

Description	+CRC: (list of supported <mode>s)
..	OK
	Fail:
	ERROR

	Response(s)
Read command	Success:
AT+ CRC?	+CRC: <mode>
Description	OK
..	Fail:
	ERROR

	Response(s)
Set command	Success:
AT+CRC=<mode>	OK
Description	Fail:
..	ERROR

Reference

3GPP TS 27.007 V3.13.0 (2003-03)

SIEMENS GPRS ATModem

8.4.3 Unsolicited Result Codes

URC1

+CRING: <type>

<type>:

VOICE normal voice (TS 11)

8.4.4　Parameter

<mode>

0　disables extended format (default)

1　enables extended format

8.4.5　Remark

8.4.6　Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CRC=?	+CRC: (0,1)
	OK
<Note : ..>	<Note :..>
AT+CRC=1	OK
AT+CRC?	+CRC: 1
	OK

8.5　AT+CGQMIN Quality of Service Profile (Minimum acceptable)

8.5.1　Description

This command allows the TE to specify a minimum acceptable profile which is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message. A special form of the set command, +CGQMIN= <cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile.

8.5.2 Syntax

Test command

AT+CGQMIN=?

Description

The test command returns values supported as a compound value. If the MT supports several

PDP types, the parameter value ranges for each PDP type are returned on a separate line.

Response(s)

Success:

+CGQMIN: <PDP_type>, (list of supported <precedence>s),

(list of supported <delay>s),

(list of supported <reliability>s) ,

(list of supported <peak>s),

(list of supported <mean>s)

[<CR><LF>

+CGQMIN: <PDP_type>,

(list of supported <precedence>s),

(list of supported <delay>s),

(list of supported <reliability>s) ,

(list of supported <peak>s),

(list of supported <mean>s)

[…]]

OK

Fail:

ERROR

Read command

AT+CGQMIN?

Description

The read command returns the current settings for each defined context.

Success:

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

+CGQMIN: <cid>, <precedence>, <delay>, <reliability.>, <peak>, <mean>[…]]

OK

Fail:

ERROR

Set command

AT+CGQMIN=<cid> [,<precedence > [,<delay> [,<reliability.>

[,<peak> [,<mean>]]]]]

Description

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGQMIN command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value

Response(s)

Success:

OK

Fail:

ERROR

Reference

3GPP TS 27.007 V3.13.0 (2003-03)

8.5.3 Unsolicited Result Codes

8.5.4 Parameter

< cid >
a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and   +CGDSCONT commands).
< precedence >
Specifies the precedence class 0   network subscribed value 1   High Priority. Service commitments shall be maintained ahead of precedence classes 2 and 3 2   Normal priority. Service commitments shall be maintained ahead of precedence class 3 3   Low priority. Service commitments shall be maintained ahead of precedence classes 1 and 2
< delay >
Specifies the delay class. 0   network subscribed value 1   < 0.5 2   < 5 3   < 50 4   Unspecified (Best Effort)
< reliability >
Specify the reliability class. 0   network subscribed value 1   Non real-time traffic, error-sensitive application that cannot cope with data loss 2   Non real-time traffic, error-sensitive application that can cope with infrequent data loss 3   Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and SMS 4   Real-time traffic, error-sensitive application that can cope with data loss 5   Real-time traffic, error non-sensitive application that can cope with data loss

< peak >

Specify the peak throughput class.

Class Peak Throughput(in octets per second)

0   network subscribed value

1   Up to 1 000 (8 kbit/s)

2   Up to 2 000 (16 kbit/s).

3   Up to 4 000 (32 kbit/s)

4   Up to 8 000 (64 kbit/s)

5   Up to 16 000 (128 kbit/s)

6   Up to 32 000 (256 kbit/s)

7   Up to 64 000 (512 kbit/s)

8   Up to 128 000 (1 024 kbit/s)

9   Up to 256 000 (2 048 kbit/s)

< mean >

Class Peak Throughput(in octets per second)

0 network subscribed value

1 (in octets per hour) 100 (~0.22 bit/s)

2 200 (~0.44 bit/s)

3 500 (~1.11 bit/s)

4 1 000 (~2.2 bit/s)

5 2 000 (~4.4 bit/s)

6 5 000 (~11.1 bit/s)

7 10 000 (~22 bit/s)

8 20 000 (~44 bit/s)

9 50 000 (~111 bit/s)

10 100 000 (~0.22 kbit/s)

11 200 000 (~0.44 kbit/s)

12 500 000 (~1.11 kbit/s)

13 1 000 000 (~2.2 kbit/s)

14 2 000 000 (~4.4 kbit/s)

15 5 000 000 (~11.1 kbit/s)

16 10 000 000 (~22 kbit/s)

17 20 000 000 (~44 kbit/s)

18 50 000 000 (~111 kbit/s)

31 best effort

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 (IETF RFC 2460)	
PPP	Point to Point Protocol (IETF STD 51)	

8.5.5　Remark

8.5.6　Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGQMIN=?	+CGQMIN: (IP,PPP,IPV6), (0..3), (0..4), (0..5) , (0..9), (0..18,31)
AT+CGQMIN=1,1,1,1,1,1	OK
AT+CGQMIN?	+CGQMIN: 1,1,1,1,1,1 +CGQMIN: 2,0,0,0,0,0 +CGQMIN: 3,0,0,0,0,0 OK

8.6 AT+CGPADDR Show PDP address

8.6.1 Description

The execution command returns a list of PDP addresses for the specified context identifiers.

8.6.2 Syntax

Test command AT+CGPADDR=? Description The test command returns a list of defined <cid>s	Response(s) Success: +CGPADDR: (list of defined <cid>s) OK Fail: ERROR
Set command AT+CGPADDR= <cid> [,<cid> [,…]] Description	Response(s) Success: +CGPADDR: <cid>,<PDP_addr>[<CR><LF> +CGPADDR: <cid>,<PDP_addr>[...]] OK Fail: ERROR

Reference:3GPP TS 27.007 V3.13.0 (2003-03)

8.6.3 Unsolicited Result Codes

8.6.4 Parameter

< cid >

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands). If no <cid> is specified, the addresses for all defined contexts are returned.

< PDP_address >

a string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT and +CGDSCONT commands when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_address> is omitted if none is available

8.6.5 Remark

8.6.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGPADDR=?	+CGPADDR: (1,2,3) OK
<Note : ..>	<Note :..>

AT+CGPADDR=1	+CGPADDR: 1,"10.14.57.241" OK

8.7 AT+CGAUTO Automatic response to a network request for PDP context activation

8.7.1 Description

The set command disables or enables an automatic positive response (auto-answer) to the receipt of a Request PDP Context Activation message from the network. It also provides control over the use of the V.25ter basic commands 'S0', 'A and 'H' for handling network requests for PDP context activation. The setting does not affect the issuing of the unsolicited result code RING or +CRING

8.7.2 Syntax

	Response(s)
Test command AT+ CGAUTO =? Description The test command returns the values of <n> supported by the MT as a compound value	Success: +CGAUTO: (list of supported <n>s) OK Fail: ERROR
Read command AT+ CGAUTO? Description ..	Response(s) Success: +CGAUTO: <n> OK Fail: ERROR

Set command	Response(s)
AT+ CGAUTO =	Success:
<n>	OK
Description	Fail:
..	ERROR
Reference:3GPP TS 27.007 V3.13.0 (2003-03)	

8.7.3 Unsolicited Result Codes

8.7.4 Parameter

< n >

   0   turn off automatic response for Packet Domain only

1   turn on automatic response for Packet Domain only

2   modem compatibility mode, Packet Domain only

3   modem compatibility mode, Packet Domain and circuit switched calls (default)

  For <n> = 0 Packet DomainS network requests are manually accepted or rejected by the +CGANS command.

  For <n> = 1 Packet Domain network requests are automatically accepted according to the description above.

  For <n> = 2, automatic acceptance of Packet Domain network requests is controlled by the 'S0' command. Manual control uses the 'A' and 'H' commands, respectively, to accept and reject Packet Domain requests. (+CGANS may also be used.) Incoming circuit switched calls can be neither manually nor automatically answered.

  For <n> = 3, automatic acceptance of both Packet Domain network requests and incoming circuit switched calls is controlled by the 'S0' command. Manual control uses the 'A' and 'H' commands, respectively, to accept and reject Packet Domain requests. (+CGANS may also be

used.) Circuit switched calls are handled as described elsewhere in this specification.

8.7.5 Remark

When the +CGAUTO=0 command is received, the MT shall not perform a PS detach if it is attached. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING, the TE may manually accept or reject the request by issuing the +CGANS command or may simply ignore the network request.

When the +CGAUTO=1 command is received, the MT shall attempt to perform a PS attach if it is not already attached. Failure will result in ERROR or, if enabled, +CME ERROR being returned to the TE. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING to the TE, this is followed by the intermediate result code CONNECT. The MT then enters V.25ter online data state and follows the same procedure as it would after having received a +CGANS=1 with no <L2P> or <cid> values specified.

8.7.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGAUTO=? \<Note : ..\>	+CGAUTO: (0-3) OK
AT+CGAUTO=0	\<Note :..\> OK
AT+CGAUTO?	+CGAUTO: 0 OK

8.8 AT+CGQREQ Quality of Service Profile (Requested)

8.8.1 Description

This AT command be used to set the parameters of the QoS when MT send the PDP context message for activation

8.8.2 Syntax

Test command	
AT+CGQREQ=?	
Description	
..	
Response(s)	
Success:	
+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s)[<CR><LF>	
[+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s) , (list of supported <peak>s), (list of supported <mean>s) [...]]	
OK	
Fail:	
ERROR	

Read command	Response(s)
AT+CGQREQ?	Success:
Description	+CGQREQ: <cid>, <precedence >, <delay>, <reliability>, <peak>,
..	<mean>[<CR><LF>

+CGQREQ: <cid>, <precedence >, <delay>, <reliability.>, <peak>,

<mean>[…]]

OK

Fail:

ERROR

Set command AT+CGQREQ=<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]] Description ..	Response(s) Success: OK Fail: ERROR
Reference 3GPP TS 27.007 V3.13.0 SIEMENS GPRS AT Module	

8.8.3 Unsolicited Result Codes

8.8.4 Parameter

< cid > a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and   +CGDSCONT commands)
< precedence > Specifies the precedence class 0 network subscribed value

1 High Priority. Service commitments shall be maintained ahead of precedence classes 2 and 3

2 Normal priority. Service commitments shall be maintained ahead of precedence class 3

3   Low priority. Service commitments shall be maintained ahead of precedence classes 1 and

2

< delay >
Specifies the delay class
0 network subscribed value
1 < 0.5
2 < 5
3 < 50
4 Unspecified (Best Effort)

< reliability >
Specify the reliability class
0 network subscribed value
1 Non real-time traffic, error-sensitive application that cannot cope with data loss
2 Non real-time traffic, error-sensitive application that can cope with infrequent data loss
3 Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and SMS
4 Real-time traffic, error-sensitive application that can cope with data loss
5 Real-time traffic, error non-sensitive application that can cope with data loss

< peak >
Specify the peak throughput class
0 network subscribed value
1 Up to 1 000 (8 kbit/s).
2 Up to 2 000 (16 kbit/s)
3 Up to 4 000 (32 kbit/s).

4 Up to 8 000 (64 kbit/s)

5 Up to 16 000 (128 kbit/s)

6 Up to 32 000 (256 kbit/s)

7 Up to 64 000 (512 kbit/s)

8 Up to 128 000 (1 024 kbit/s)

9 Up to 256 000 (2 048 kbit/s)

< mean >

Specify the mean throughout class.

0 network subscribed value

1 (in octets per hour) 100 (~0.22 bit/s)

2 200 (~0.44 bit/s)

3 500 (~1.11 bit/s)

4 1 000 (~2.2 bit/s)

5 2 000 (~4.4 bit/s)

6 5 000 (~11.1 bit/s)

7 10 000 (~22 bit/s)

8 20 000 (~44 bit/s)

9 50 000 (~111 bit/s)

10 100 000 (~0.22 kbit/s)

11 200 000 (~0.44 kbit/s)

12 500 000 (~1.11 kbit/s)

13 1 000 000 (~2.2 kbit/s)

14 2 000 000 (~4.4 kbit/s)

15 5 000 000 (~11.1 kbit/s)

16 10 000 000 (~22 kbit/s)

17 20 000 000 (~44 kbit/s)

18 50 000 000 (~111 kbit/s)

31 best effort

< 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 (IETF RFC 2460)
PPP	Point to Point Protocol (IETF STD 51)

8.8.5 Remark

All parameters omitted will be set to 0.

8.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGQREQ=?	+CGQREQ: IP, (0..3), (0..4), (0..5) , (0..9), (0..18,31) OK
AT+CGQREQ=1,1,1,1,1,1	OK
AT+CGQREQ?	+CGQREQ: 1,1,1,1,1,1 +CGQREQ: 2,0,0,0,0,0 +CGQREQ: 3,0,0,0,0,0 OK

8.9 AT+CGREG GPRS network registration status

8.9.1 Description

This AT command be used to set and show the register information of MT and the position information of the MT.

8.9.2 Syntax

	Response(s)
Test command	Success:
AT+CGREG=?	+CGREG: (list of supported <n>s)
Description	OK
..	Fail:
	ERROR

	Response(s)
Read command	Success:
AT+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>]
Description	OK
..	Fail:
	ERROR

	Response(s)
Set command	Success:
AT+CGREG =<n>	OK
Description	Fail:
..	ERROR

Reference	
3GPP TS 27.007 V3.13.0	

SIEMENS GPRS AT Module

8.9.3   Unsolicited Result Codes

8.9.4   Parameter

< n >
0   disable network registration unsolicited result code
1   enable network registration unsolicited result code +CGREG: <stat>
2   enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>]

< stat >
0   not registered, MT is not currently searching an operator to register to
The UE is in GMM state GMM-NULL or GMM-DEREGISTERED-INITIATED. The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user.
1   registered, home network
The UE is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED INITIATED on the home PLMN.
2   not registered, but MT is currently trying to attach or searching an operator to register to
The UE is in GMM state GMM-DEREGISTERED or GMM-REGISTERED-INITIATED. 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 UE is in GMM state GMM-NULL. The GPRS service is disabled, the UE is not allowed to attach for GPRS if requested by the user.

4 unknown

5 registered, roaming

The UE is in GMM state GMM-REGISTERED or

GMM-ROUTING-AREA-UPDATING-INITIATED on a visited PLMN.

< lac >
string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)
< ci >
string type; two byte cell ID in hexadecimal format

8.9.5 Remark

8.9.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGREG=?	+CGREG: (0-2) OK
AT+CGREG=2	OK
AT+CGREG?	+CGREG: 2,1,"10DC","0D2B" OK

8.10   ATD*99***1# Request GPRS service

8.10.1 Description

Login the server, the IP of it be provided by DHCP of GGSN.

This command causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.

The V.25ter 'D' (Dial) command causes the MT to enter the V.25ter online data state and, with the TE, to start the specified layer 2 protocols. The MT shall return CONNECT to confirm acceptance of the command prior to entering the V.25ter online data state. No further commands may follow on the AT command line.

8.10.2 Syntax

Exe command
D*<GPRS_SC_IP>[*<cid>[,<cid>[,…]]]#
..
Response(s)
Success:
CONNECT
OK
Fail:
ERROR
Reference

8.10.3 Unsolicited Result Codes

8.10.4 Parameter

< called_address >
It′s a string that identifies the called party in the address space applicable to the PDP. For communications software that does not support arbitrary characters in the dial string, a numeric equivalent may be used. Also, the character comma ',' may be used as a substitute for the character period '.'.
< L2P >
It′s a string which indicates the layer 2 protocol to be used (see +CGDATA command). For communications software that does not support arbitrary characters in the dial string, the following numeric equivalents shall be used: ″PPP″
< cid >
It′s a digit string which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

8.10.5 Remark

8.10.6 Example

The following examples show the typical application for this command.

Command	Possible Response
ATD*99***1#	CONNECT

| <Note : ..> | <Note :. dial GPRS service code and start up connecting.> |

8.11 AT+CGSMS Select service for MO SMS messages

8.11.1 Description

The set command is used to specify the service or service preference that the MT will use to send MO SMS messages.

8.11.2 Syntax

Test command	Response(s)
AT+ CGSMS =?	Success:
Description	+ CGSMS: (list of supported <service>s)
The test command is used for requesting information on the currently available services and service preferences	OK
	Fail:
	ERROR

Read command	Response(s)
	Success:
AT+ CGSMS?	+ CGSMS: <service>
Description	OK
The read command returns the currently selected service or service preference	Fail:
	ERROR

Set command	Response(s)
AT+ CGSMS=<service>	Success:
Description	OK
	Fail:
	ERROR
Reference:3GPP TS 27.007 V3.13.0 (2003-03)	

8.11.3 Unsolicited Result Codes

8.11.4 Parameter

< service >

a numeric parameter which indicates the service or service preference to be used

0   Packet Domain

1   circuit switched

2   Packet Domain preferred (use circuit switched if GPRS   not available)

3   circuit switched preferred (use Packet Domain if circuit switched not available)

8.11.5 Remark

This command is NOT available now

8.11.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGSMS=?	+CGSMS: (0-3) OK
AT+CGSMS=0	OK
AT+CGSMS?	+CGSMS: 0 OK

8.12 AT+CGANS PDP Manual response to a NW REQ for PDP context activation

8.12.1 Description

The execution command requests the MT to respond to a network request for Packet Domain PDP context activation which has been signaled to the TE by the RING or +CRING: unsolicited result code. The <response> parameter allows the TE to accept or reject the request.

Commands following the +CGANS command in the AT command line shall not be processed by the MT

8.12.2 Syntax

	Response(s)
Test command	Success:
AT+CGANS=?	+CGANS: (list of supported <response>s),
Description	(list of supported <L2P>s)
..	OK
	Fail:
	ERROR

Read command

..

Set command AT+CGANS=[<response>, [<L2P> ,[<cid>]]] Description ..	Response(s) Success: CONNECT ……..(data transfer) OK Fail: ERROR

Reference

3GPP TS 27.007 V3.13.0 (2003-03)

8.12.3 Unsolicited Result Codes

8.12.4 Parameter

< response >

Response is a numeric parameter which specifies how the request should be responded to.

> 0   reject the request (default value)

> 1   accept and request that the PDP context be activated

< L2P >

a string parameter which indicates the layer 2 protocol to be used (see +CGDATA command).

< cid >

a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

<>
..

8.12.5 Remark

This command is not available now.

8.12.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGANS=?	+CGANS: (0-1)
<Note : ..>	OK <Note :..>

8.13   AT+CGEREP Packet Domain event reporting

8.13.1 Description

This command is to enables or disables sending of unsolicited result codes, +CGEV: XXX from MT to TE in the case of certain events occurring in the Packet Domain MT or the network

8.13.2 Syntax

Test command	Response(s)
AT+ CGEREP =?	Success:
Description	+CGEREP: (list of supported
..	<mode>s),(list of supported <bfr>s)

	OK
	Fail:
	ERROR
Read command AT+ CGEREP? Description ..	Response(s) Success: +CGEREP: <mode>,<bfr> OK Fail: ERROR
Set command AT+CGEREP= [<mode> [,<bfr>]] Description ..	Response(s) Success: OK Fail: ERROR
Reference:3GPP TS 27.007 V3.13.0 (2003-03)	

8.13.3 Unsolicited Result Codes

URC1

+CGEV: REJECT <PDP_type>, <PDP_addr>

A network request for PDP context activation occurred when the MT was unable to report it to the TE with a +CRING unsolicited result code

and was automatically rejected...

URC2

+CGEV: NW REACT   <PDP_type>, <PDP_addr>, [<cid>]

The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to the MT...

URC3

+CGEV: NW DEACT   <PDP_type>, <PDP_addr>, [<cid>]

The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT.

URC4

+CGEV: ME DEACT   <PDP_type>, <PDP_addr>, [<cid>]

The mobile termination has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT...

URC5

+CGEV: NW DETACH

The network has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately...

URC6

+CGEV: ME DETACH

The mobile termination has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately...

URC7

+CGEV: NW CLASS <class>

The network has forced a change of UE class. The highest available class is reported (see +CGCLASS)...

URC8

+CGEV: ME CLASS <class>

The mobile termination has forced a change of UE class. The highest available class is reported (see +CGCLASS)...

8.13.4 Parameter

< mode >

0   buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can   be discarded. No codes are forwarded to the TE.

1   discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE

2   buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them   directly to the TE

< bfr >

      0   MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is entered

      1   MT buffer of unsolicited result codes defined within this command is flushed to the TE when   <mode> 1 or 2 is entered (OK response shall be given before flushing the codes)

8.13.5 Remark

This command is NOT available now

8.13.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGEREP=?	+CGEREP: (0,2),(0) OK
<Note : ..>	<Note :..>
AT+CGEREP=2,0	OK
AT+CGEREP?	+CGEREP: 2,0 OK

8.14 AT+CGDATA Enter data state

8.14.1 Description

The execution command causes the MT to perform whatever actions are necessary to establish

communication between the TE and the network using one or more Packet Domain PDP types. This may include performing a PS attach and one or more PDP context activations. If the <L2P> parameter value is unacceptable to the MT, the MT shall return an ERROR or +CME ERROR response. Otherwise, the MT issues the intermediate result code CONNECT and enters V.25ter online data state.

Commands following +CGDATA command in the AT command line shall not be processed by the MT.

The context shall be activated using the matched value for PDP type and a static PDP address if available, together with the other information found in the PDP context definition. If a static PDP address is not available then a dynamic address is requested.

If no <cid> is given or if there is no matching context definition, the MT shall attempt to activate the context with whatever information is available to the MT. The other context parameters shall be set to their default values.

If the activation is successful, data transfer may proceed.

After data transfer is complete, and the layer 2 protocol termination procedure has completed successfully, the V.25ter command state is re-entered and the MT returns the final result code OK.

In the event of an erroneous termination or a failure to start up, the V.25ter command state is re-entered and the MT returns the final result code NO CARRIER or, if enabled, +CME ERROR. Attach, activate and other errors may be reported.

8.14.2 Syntax

Test command	Response(s)
AT+CGDATA=?	Success:
Description	+CGDATA: (list of supported <L2P>s)
The test command is used for requesting	OK
information on the supported layer 2 protocols	Fail:

	ERROR

Set command
 	
AT+CGDATA=
 	
<L2P>,
 	
<cid>
 	
[,<cid>
 	
[,…]]
 	
Description
 	
..
	Response(s)
	
	Success:
	
	    CONNECT
	
	……………..(data transfer)
	
	    OK
	
	Fail:
	
	    ERROR

Reference:3GPP TS 27.007 V3.13.0 (2003-03)	

8.14.3 Unsolicited Result Codes

8.14.4 Parameter

< L2P >
a string parameter that indicates the layer 2 protocol to be used between the TE and MT PPP   Point-to-point protocol for a PDP such as IP

< cid >
a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

8.14.5 Remark

This command may be used in both normal and modem compatibility modes.

This command is NOT available now

8.14.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGDATA=? <Note : ..>	+CGDATA: OK <Note :..> CONNECT 115200
AT+CGDATA=1,1	

8.15 AT+CGCLASS GPRS mobile station class

8.15.1 Description

The set command is used to set the MT to operate according to the specified mode of operation, see TS 23.060 [47]. If the requested mode of operation is not supported, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

8.15.2 Syntax

Test command	Response(s)
AT+CGCLASS =?	Success:
Description	+ CGCLASS: (list of supported <class>s)
The test command is used for requesting	OK
information on the supported MT mode of	Fail:
operation	ERROR

Read command

AT+CGCLASS?

Description

The read command returns the mode of operation set by the TE, independent of the current serving cell capability and independent of the current serving cell Access Technology. If no value has been set by the TE previously, the return value shall be the highest mode of operation that can be supported by the MT.

Response(s)

Success:

+ CGCLASS: <class>

OK

Fail:

ERROR

Set command

AT+ CGCLASS = [<class>]

Description

..

Response(s)

Success:

OK

Fail:

ERROR

Reference:3GPP TS 27.007 V3.13.0 (2003-03)

8.15.3 Unsolicited Result Codes

8.15.4 Parameter

< class >

a string parameter which indicates the mode of operation

A　Class-A mode of operation (A/Gb mode), or CS/PS mode of operation (Iu mode) (highest mode of operation)

B　Class-B mode of operation (A/Gb mode), (not applicable in Iu mode)

CG Class-C mode of operation in PS only mode (A/Gb mode), or PS mode of operation (Iu mode)

CC Class-C mode of operation in CS only mode (A/Gb mode), or CS (Iu mode) (lowest mode of operation)

NOTE: <class> A means that the MT would operate simultaneous PS and CS service

<class> B means that the MT would operate PS and CS services but not simultaneously

<class> CG means that the MT would only operate PS services

<class> CC means that the MT would only operate CS services

Other values are reserved and will result in an ERROR response to the set command.

If the MT is attached to the PS domain when the set command is issued with a <class> = CC specified, a PS detach shall be performed by the MT.

8.15.5 Remark

This command is NOT available now

8.15.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CGCLASS=?	+CGCLASS: ("CG","CC","B") OK
<Note : ..>	<Note :..>
AT+CGCLASS="B"	OK
AT+CGCLASS?	+CGCLASS: "B" OK

9 TCP/IP Commands

The AT Commands described in this chapter are related to the Ai-Thinker AT Module's

TCP/IP application toolkit interface.

9.1 AT+CIPSTART Start up TCP or UDP connection

9.1.1 Description

This command is to start up TCP or UDP connection.

1.1.85 Syntax

	Response(s)
Test command AT+CIPSTART=?	Success: 　　+CIPSTART: (list of supported <mode>),(IP address range),(port range) 　　+CIPSTART: (list of supported <mode>),(domain name),(port range) 　　　OK Fail: 　　ERROR
Set command 　AT+ CIPSTART =<mode>,<IP address>,<port> 　AT+ CIPSTART	Response(s) 　Success: OK 　Fail: 　　ERROR

=<mode>,<domain name>,<port>	
Reference	

1.1.86 Unsolicited Result Codes

If connect successfully response CONNECT OK
Otherwise
STATE:<state>
CONNECT FAIL

1.1.87 Parameter

< mode>
A string parameter which indicates the connection type
＂TCP＂   Establish a TCP connection
＂UDP＂   Establish a UDP connection
< IP address>
Remote server IP address
< port>
Remote server port
< domain name>
Remote server domain name
<state>
A string parameter which indicates the progress of connecting
0   IP INITIAL

1   IP START

2   IP CONFIG

3   IP IND

4   IP GPRSACT

5   IP STATUS

6   TCP/UDP CONNECTING

7   IP CLOSE

8   CONNECT OK

1.1.88 Remark

1. " UDP"   connection is not support yet.

2. * main name resolution is not support, so you can only connect with IP address.

1.1.89 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CIPSTART="TCP","124.42.0. 80",7	CONNECT OK OK

9.2 AT+CIPSEND Send data through TCP or UDP connection

1.1.90 Description

This command is to send data through TCP or UDP connection.

1.1.91 Syntax

Test command AT+ CIPSEND =?	Response(s) Success: OK
Execution command AT+ CIPSEND Description Response ″>″, then type data for send, tap CTRL+Z to send.	Response(s) Success: OK Fail: ERROR
Reference	

9.2.1 Unsolicited Result Codes

If sending successfully: SEND OK If sending fail: SEND FAIL

9.2.2 Parameter

< data_length>
A numeric parameter which indicates the length of sending data, it must less than 1024.
..

9.2.3 Remark

This command is used to send data on the TCP or UDP connection that has been established already. Ctrl－Z is used as a termination symbol. There are at most 1024 bytes that can be sent at a time.

Set the time that send data automatically with the command of AT+CIPATS.

Only send data at the status of established connection, otherwise response ERROR.

9.2.4 Example

The following examples show the typical application for this command.

Command	Possible Response
at+cipsend > shengnshghshghgshghshgsghg	OK
at+cipsend=?	OK

9.3 AT+CIPCLOSE Close TCP or UDP Connection

9.3.1 Description

The command only close connection at the status of TCP/UDP CONNECTING or CONNECT OK, Otherwise response error. After close the connection, the status is IP CLOSE.

9.3.2 Syntax

Test command	Response(s)
AT+ CIPCLOSE =?	Success:
	+ CIPCLOSE:
	OK
Exe command	Response(s)
AT+ CIPCLOSE	Success:
Description	CLOSE OK
..	Fail:
	ERROR
Reference	

9.3.3 Unsolicited Result Codes

9.3.4 Parameter

9.3.5 Remark

9.3.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CIPSTART="TCP","124.42.0.80",7	CONNECT OK
	OK
at+cipclose	OK

9.4 AT+CIPSHUT Disconnect wireless connection

9.4.1 Description

The command disconnects the wireless connection, except at the status of IP INITIAL. You

can close moving   scene by AT+CIPSHUT. After closed, the status is IP

INITIAL.

9.4.2　Syntax

Test command AT+ CIPSHUT =?	Response(s) Success: 　+ CIPSHUT: OK
Exe command AT+ CIPSHUT Description ..	Response(s) Success: 　SHUT OK Fail: 　ERROR
Reference	

9.4.3　Unsolicited Result Codes

9.4.4　Parameter

9.4.5   Remark

9.4.6   Example

The following examples show the typical application for this command.

Command	Possible Response
AT+CIPSTART="TCP","124.42.0.80",7	CONNECT OK OK
at+cipshut	OK

9.5   AT+CSTT Start task and Set APN, USER ID, PASSWORD

9.5.1   Description

The command starts task and Set APN, USER ID, PASSWORD.

9.5.2   Syntax

Test command	Response(s)
AT+ CSTT =?	Success: + CSTT:＂APN＂,＂USER＂,

	"PWD" OK
Read command AT+ CSTT?	Response(s) Success: + CSTT: \<apn\>, \<user id\>, \<password\> OK
Set command AT+ CSTT=\<apn\>, \<user id\>, \<password\>	Response(s) Success: OK Fail: ERROR
Reference	

9.5.3 Unsolicited Result Codes

9.5.4 Parameter

\<apn\>
A string parameter which indicates the GPRS access point name.
\<user id\>
A string parameter which indicates the GPRS user name.

A string parameter which indicates the GPRS password.

9.5.5 Remark

9.5.6 Example

The following examples show the typical application for this command.

Command	Possible Response

9.6 AT+CIICR Bring up wireless connection with GPRS

9.6.1 Description

The command only activate moving scene at the status of IP START, after operate this command, the state changed to IP CONFIG. If module accept the activate operation, the state changed to IP IND; after module accept the operation, if activate successfully, the state changed to IP GPRSACT, response OK, otherwise response ERROR.

9.6.2 Syntax

Test command	Response(s)
AT+ CIICR =?	Success:
	OK

Exe command
 	
AT+ CIICR
 	
Description
 	
..
	Response(s)
	
	Success:
	
	  OK
	
	Fail:
	
	  ERROR

Reference	

9.6.3   Unsolicited Result Codes

9.6.4   Parameter

<state>
Referred to AT+CIPSTART

9.6.5   Remark

9.6.6   Example

The following examples show the typical application for this command.

Command	Possible Response

9.7 AT+CIFSR Get local IP address

9.7.1 Description

The command only at the status of activated the moving scene: IP GPRSACT, TCP/UDP CONNECTING, CONNECT OK, IP CLOSE can get local IP Address by AT+CIFSR, otherwise response ERROR.

9.7.2 Syntax

Test command AT+ CIFSR =?	Response(s) Success: + CIFSR: OK
Read command AT+ CIFSR?	Response(s) Success: + CIFSR: OK

Exe command
AT+ CIFSR
	Response(s)
	Success:
	   <IP address>
	   OK
	Fail:
	   ERROR

Reference	

9.7.3 Unsolicited Result Codes

9.7.4 Parameter

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

9.7.5 Remark

9.7.6 Example

The following examples show the typical application for this command.

Command	Possible Response
at+cifsr 10.8.18.69 OK	

9.8 AT+CIPSTATUS Query current connection status

9.8.1 Description

The command query current connection status.

9.8.2   Syntax

Test command	Response(s)
AT+ CIPSTATUS =?	Success:
	+ CIPSTATUS:
	OK
Read command	Response(s)
AT+ CIPSTATUS?	Success:
	+ CIPSTATUS:
	OK
Exe command	Response(s)
AT+ CIPSTATUS	Success:
	STATE:\<state\>
	OK
	Fail:
	ERROR
Reference	

9.8.3   Unsolicited Result Codes

9.8.4   Parameter

\<state\>

Referred to AT+CIPSTART

9.8.5 Remark

9.8.6 Example

The following examples show the typical application for this command.

Command	Possible Response
at+cipstatus	+IPSTATUS: IP INITIAL OK
AT+CIPSTART="TCP","124.42.0.80",7	CONNECT OK OK
at+cipstatus	+IPSTATUS: CONNECT OK OK
at+cipclose	OK
at+cipstatus	+IPSTATUS: IP CLOSE

OK

9.9 AT+CIPSCONT save TCP/IP application context

9.9.1 Description

The command saves TCP/IP application context which consist of following AT command parameters. and system is rebooted, the parameters will be loaded automatically.

9.9.2 Syntax

Read command	Response(s)
AT+ CIPSCONT?	Success:
	+ CIPSCONT:
	OK
Exe command	Response(s)
AT+ CIPSCONT	Success:
Description	OK
..	Fail:
	ERROR
Reference	

9.9.3 Unsolicited Result Codes

9.9.4 Parameter

9.9.5 Remark

Currently no parameter is saved.

9.9.6 Example

The following examples show the typical application for this command.

Command	Possible Response

9.10 AT+CDNSGIP Query the IP address of given domain name

9.10.1 Description

The command query the IP address of given domain name.

9.10.2 Syntax

Test command AT+ CDNSGIP =?	Response(s) Success: + CDNSGIP: DOMAIN NAME LENGTH(0,100) OK
Read command AT+ CDNSGIP?	Response(s) Success: + CDNSGIP: ("DOMAIN NAME") OK
Set command AT+ CDNSGIP=<domain name>	Response(s) Success: <IP address> OK Fail: ERROR
Reference	

9.10.3 Unsolicited Result Codes

9.10.4 Parameter

<domain name>
A string parameter which indicates the domain name
<IP address>
A string parameter which indicates the IP address corresponding to the domain name.

9.10.5 Remark

If set command fail, a numeric parameter which indicates the error.

- DNS not Authorization

- invalid parameter

- network error

- no server

- time out

- no configuration

- no memory

9.10.6 Example

The following examples show the typical application for this command.

Command	Possible Response

9.11 AT^FTPOPEN Connect to FTP server

9.11.1 Description

This command is used to open a connection with FTP server.

9.11.2 Syntax

Test command	Response(s)
AT^FTPOPEN=?	Success:
Description	^FTPOPEN:<url>,<username>,<
..	password>,<mode>,<tout>,<type>
	OK
	Fail:
	ERROR
Read command	Response(s)
AT^FTPOPEN?	Success:
Description	^FTPOPEN: <status>
Get current ftp status:	OK
0 no connect FTP server	Fail:
1 have connect FTP server	ERROR
Set command	Response(s)
AT^FTPOPEN=<url>,<username>,<password>,<mode>,<tout>,<type>	Success:
	OK
	Fail:
	ERROR
Reference	

9.11.3 Unsolicited Result Codes

^URCFTP: 0
The control socket is disconnected

9.11.4 Parameter

<url>

The string which indicates the FTP server address. The url can be IP or URL, default port is
21, you can set up the port with " URL/IP:<port>"

<username>

The string indicate FTP server username. less than 255

< password >

The string indicate FTP server password less than 255

<mode>

   0   active mode

   1   passive mode

numerical parameter which indicates transfer mode

<Tout>

5-180   second

FTP operator have finish after <Tout> seconds, close the FTP connect.

<type>

   0   Binary format

   1   ASCII format
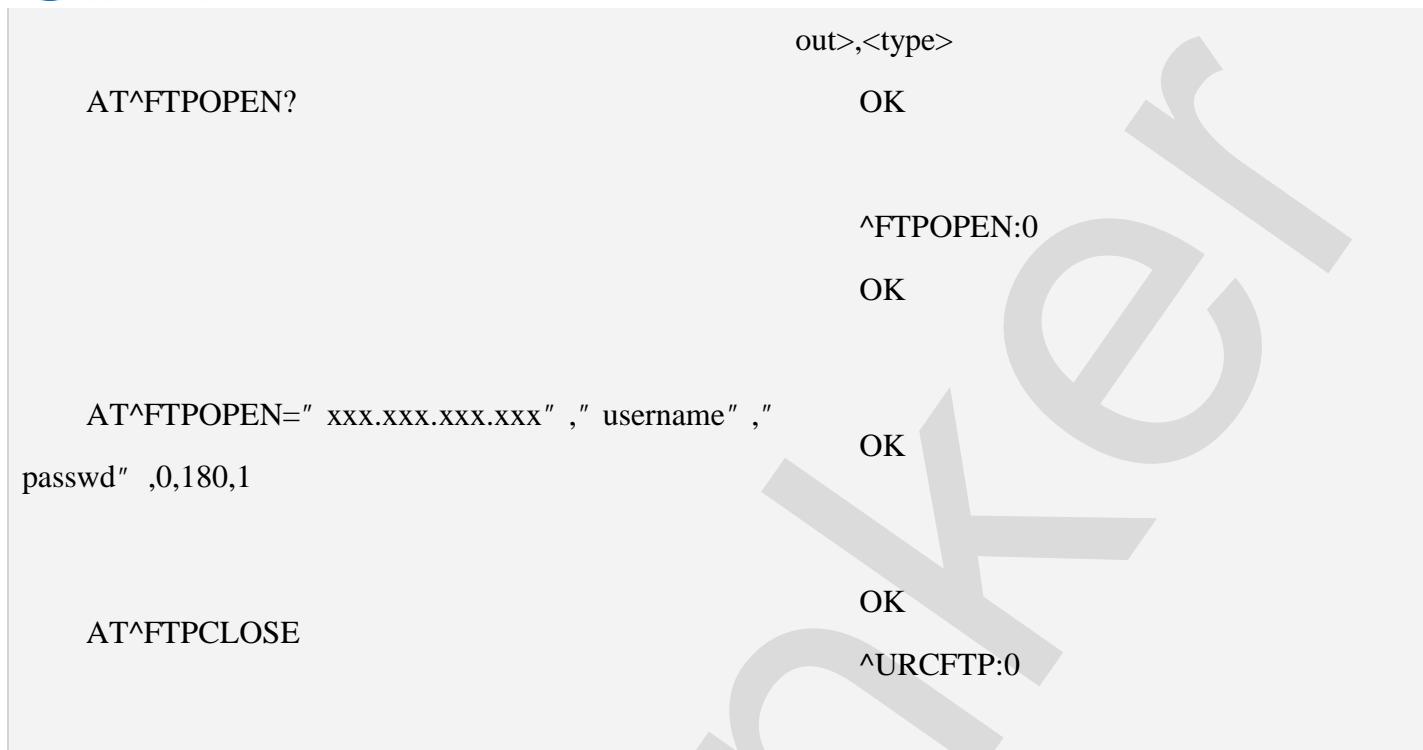
FTP data transfer format. Reference FTP portocal

9.11.5 Remark

9.11.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^FTPOPEN=?	^FTPOPEN:<url>,<username>,<password>,<

	out>,<type>
AT^FTPOPEN?	OK
	^FTPOPEN:0 OK
AT^FTPOPEN=″xxx.xxx.xxx.xxx″,″username″,″passwd″,0,180,1	OK
AT^FTPCLOSE	OK ^URCFTP:0

9.12 AT^FTPCLOSE Close the connect between local and FTP server

9.12.1 Description

This command is used to terminate a connection with FTP server.

9.12.2 Syntax

Exec command	Response(s)
AT^FTPCLOSE	Success:
	OK
	^URCFTP:0
Description	
If the connect not established, return ERROR	Fail:

	ERROR
Reference	

9.12.3 Unsolicited Result Codes

^URCFTP: 0
The control socket disconnected

9.12.4 Parameter

None

9.12.5 Remark

None

9.12.6 Example

None

9.13 AT^FTPSIZE Get the size of file that in the FTP server

9.13.1 Description

This command is used to get the size of file that in the FTP server.

9.13.2 Syntax

	Response(s)
Test command AT^FTPSIZE=? Description ..	Success: ^FTPSIZE:\<filename> OK Fail:

	ERROR
Set command AT^FTPSIZE=<filename> Get the size of file which in the ftp server. n is bytes of file	Response(s) Success: ^FTPSIZE:<n> OK Fail: ERROR
Reference	

9.13.3 Unsolicited Result Codes

None

9.13.4 Parameter

< filename>
A string which indicates the filename in the FTP server

9.13.5 Remark

9.13.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^FTPOPEN="xxx.xxx.xxx.xxx","username","passwd",0,180,1	OK
AT^FTPSIZE="/tmp/test.txt"	^FTPOPEN:1024

OK

9.14 AT^FTPGET Get the file from FTP server

9.14.1 Description

This command is used to copy one file from the FTP server to the local machine.

9.14.2 Syntax

	Response(s)
Test command AT^FTPGET=? Description ..	Success: ^FTPGET=<filename >[,<offset>,<length>] OK Fail: ERROR
	Response(s)
Set command AT^FTPGET=:<filename >[,<offset>,<length>]	Success: CONNECT ABCDEF// Download file data OK Fail: ERROR
Reference	

9.14.3 Unsolicited Result Codes

^URCFTP: 1

The socket of data transfer is closed

9.14.4 Parameter

< filename >
The string which indicates the filename on the FTP server.
If file is not exist, return ERROR
<offset>
integer type. If this parameter set, the file transfer start from the offset of the file.
< length >
integer type. If this parameter set, the file transfer start from the offset till offset+length

9.14.5 Remark

If no parameter offset and length, will transfer entire file from FTP server.

If you want stop transfer please input "+++"

9.14.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^FTPOPEN="xxx.xxx.xxx.xxx","username","passwd",0,180,1	OK
AT^FTPGET="/tmp/test.txt"	CONNECT ABCDEF// Download file data OK ^URCFTP:1

9.15 AT^FTPPUT Put file to FTP server

9.15.1 Description

This command is used to copy one file from the local machine to the FTP server.

9.15.2 Syntax

	Response(s)
Test command AT^FTPPUT=? Description ..	Success: ^FTPPUT:<filename>, <length>, <eof> OK Fail: ERROR
Set command AT^FTPPUT=<filename>, <length>, <eof>	Response(s) Success: CONNECT ABCDEF// Send file data OK ^URCFTP:1 Fail: ERROR
Reference	

9.15.3 Unsolicited Result Codes

^URCFTP: 1
The data transfer socket is closed

9.15.4 Parameter

\<filename\>	
The string which indicates the file will store in FTP server.	
If the file exist, overwrite it, else create the file on server	
\< length \>	
integer type. Indicates transfer packet size this time. Range from 1－3072	
\< eof \>	
0 file transfer not completed. The data socket not close	
1 file transfer completed. The data socket will close.	
End of file flag, indicates whether this packet is last or not	

9.15.5 Remark

9.15.6 Example

The following examples show the typical application for this command.

Command	Possible Response
AT^FTPOPEN=″xxx.xxx.xxx.xxx″,″username″,″passwd″,0,180,1	OK
AT^FTPPUT=″/tmp/test.txt″,1024,1	CONNECT
	// Send file data
	OK
	^URCFTP:1

Appendix A

Summary of CME ERRORS

Code of <err> Meaning

0	PHONE_FAILURE
1	NO_CONNECT_PHONE
2	PHONE_ADAPTER_LINK_RESERVED
3	OPERATION_NOT_ALLOWED
4	OPERATION_NOT_SUPPORTED
5	PHSIM_PIN_REQUIRED
6	PHFSIM_PIN_REQUIRED
7	PHFSIM_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_LONG
25	INVALID_CHAR_INTEXT
26	DAIL_STR_LONG

27	INVALID_CHAR_INDIAL
30	NO_NET_SERVICE
31	NETWORK_TIMOUT
32	NOT_ALLOW_EMERGENCY
40	NET_PER_PIN_REQUIRED
41	NET_PER_PUK_REQUIRED
42	NET_SUB_PER_PIN_REQ
43	NET_SUB_PER_PUK_REQ
44	SERVICE_PROV_PER_PIN_REQ
45	SERVICE_PROV_PER_PUK_REQ
46	CORPORATE_PER_PIN_REQ
47	CORPORATE_PER_PUK_REQ
48	PHSIM_PBK_REQUIRED
49	EXE_NOT_SURPORT
50	EXE_FAIL
51	NO_MEMORY
52	OPTION_NOT_SURPORT
53	PARAM_INVALID
54	EXT_REG_NOT_EXIT
55	EXT_SMS_NOT_EXIT
56	EXT_PBK_NOT_EXIT
57	EXT_FFS_NOT_EXIT
103	GPRS_ILLEGAL_MS_3
106	GPRS_ILLEGAL_MS_6
107	GPRS_SVR_NOT_ALLOWED
111	GPRS_PLMN_NOT_ALLOWED
112	GPRS_LOCATION_AREA_NOT_ALLOWED
113	GPRS_ROAMING_NOT_ALLOWED
132	GPRS_OPTION_NOT_SUPPORTED
133	GPRS_OPTION_NOT_SUBSCRIBED

134	GPRS_OPTION_TEMP_ORDER_OUT
149	GPRS_PDP_AUTHENTICATION_FAILURE
150	GPRS_INVALID_MOBILE_CLASS
148	GPRS_UNSPECIFIED_GPRS_ERROR
264	SIM_VERIFY_FAIL
265	SIM_UNBLOCK_FAIL
266	SIM_CONDITION_NO_FULLFILLED
267	SIM_UNBLOCK_FAIL_NO_LEFT
268	SIM_VERIFY_FAIL_NO_LEFT
269	SIM_INVALID_PARAMETER
270	SIM_UNKNOW_COMMAND
271	SIM_WRONG_CLASS
272	SIM_TECHNICAL_PROBLEM
273	SIM_CHV_NEED_UNBLOCK
274	SIM_NOEF_SELECTED
275	SIM_FILE_UNMATCH_COMMAND
276	SIM_CONTRADICTION_CHV
277	SIM_CONTRADICTION_INVALIDATION
278	SIM_MAXVALUE_REACHED
279	SIM_PATTERN_NOT_FOUND
280	SIM_FILEID_NOT_FOUND
281	SIM_STK_BUSY
282	SIM_UNKNOW
283	SIM_PROFILE_ERROR

Summary of CMS ERRORS

Code of <err> Meaning

1	UNASSIGNED_NUM
8	OPER_DETERM_BARR
10	CALL_BARRED

21	SM_TRANS_REJE
27	DEST_OOS
28	UNINDENT_SUB
29	FACILIT_REJE
30	UNKONWN_SUB
38	NW_OOO
41	TMEP_FAIL
42	CONGESTION
47	RES_UNAVAILABLE
50	REQ_FAC_NOT_SUB
69	RFQ_FAC_NOT_IMP
81	INVALID_SM_TRV
95	INVALID_MSG
96	INVALID_MAND_INFO
97	MSG_TYPE_ERROR
98	MSG_NOT_COMP
99	INFO_ELEMENT_ERROR
111	PROT_ERROR
127	IW_UNSPEC
128	TEL_IW_NOT_SUPP
129	SMS_TYPE0_NOT_SUPP
130	CANNOT_REP_SMS
143	UNSPEC_TP_ERROR
144	DCS_NOT_SUPP
145	MSG_CLASS_NOT_SUPP
159	UNSPEC_TD_ERROR
160	CMD_CANNOT_ACT
161	CMD_UNSUPP
175	UNSPEC_TC_ERROR
176	TPDU_NOT_SUPP

192	SC_BUSY
193	NO_SC_SUB
194	SC_SYS_FAIL
195	INVALID_SME_ADDR
196	DEST_SME_BARR
197	SM_RD_SM
198	TP_VPF_NOT_SUPP
199	TP_VP_NOT_SUPP
208	D0_SIM_SMS_STO_FULL
209	NO_SMS_STO_IN_SIM
210	ERR_IN_MS
211	MEM_CAP_EXCCEEDED
212	SIM_APP_TK_BUSY
213	SIM_DATA_DL_ERROR
255	UNSPEC_ERRO_CAUSE
300	ME_FAIL
301	SMS_SERVIEC_RESERVED
302	OPER_NOT_ALLOWED
303	OPER_NOT_SUPP
304	INVALID_PDU_PARAM
305	INVALID_TXT_PARAM
310	SIM_NOT_INSERT
311	SIM_PIN_REQUIRED
312	PH_SIM_PIN_REQUIRED
313	SIM_FAIL
314	SIM_BUSY
315	SIM_WRONG
316	SIM_PUK_REQUIRED
317	SIM_PIN2_REQUIRED
318	SIM_PUK2_REQUIRED

320   MEM_FAIL

321   INVALID_MEM_INDEX

322   MEM_FULL

330   SCA_ADDR_UNKNOWN

331   NO_NW_SERVICE

332   NW_TIMEOUT

340   NO_CNMA_ACK_EXPECTED

500   UNKNOWN_ERROR

512   USER_ABORT

513   UNABLE_TO_STORE

514   INVALID_STATUS

515   INVALID_ADDR_CHAR

516   INVALID_LEN

517   INVALID_PDU_CHAR

518   INVALID_PARA

519   INVALID_LEN_OR_CHAR

520   INVALID_TXT_CHAR

512   TIMER_EXPIRED

Summary of DCE Codes

Index	string
0	"OK"
1	"CONNECT"
2	"RING/CRING"
3	"NO CARRIER"
4	"ERROR"
5	"NO DIALTONE"
6	"BUSY"
7	"NO ANSWER"
8	"NOT SUPPORT"

9	"INVALID COMMAND LINE"

Summary of Unsolicited Result Codes (URC)

AT Command	Description	How to activate URC	Example
RING(CC)	Incoming calls		<拨本测试号码> RING +CLIP: "02085563192",129,,,,0
+CALA(HW)	Reminder message set with AT+CALA command. Executed while ME is in normal operation. Do not confuse with Alarm mode.		<参考AT+CALA>
+CIEV(CC/SMS/ Battery/……)	Reports changes from indicators listed in the AT+CIND command specification.		<参考AT+CMER>
+CREG(NW)	Registration to ME network changed		<参考AT+CREG>
+CLIP (SS)	Telephone number of caller		<参考AT+CLIP，RING>
+CMTI(SMS)	Indication of a new short message (PDU mode)		**AT+CNMI=1,1,2** OK +CMTI: "SM", 6 **AT+CMGR=6** +CMGR: 0,, 35 0891683108200005F0240D916 83165203406F20008400172909 552000676848BDD8BF4 OK <参考AT+CNMI>
+CMT(SMS)	Short message is output directly to the TE (in PDU mode)		**AT+CNMI=1,2,2** OK +CMT: 35 0891683108200005F0240D916 83165203406F20008400172013 033000676848BDD8BF4 <参考AT+CNMI>

			AT+CSSN=1,1 OK **ATD1861;** OK <拨本测试号码> +CSSI: 3 +CCWA: "02085563410",129,1,,0 **AT+CHLD=2** OK <对方挂机> NO CARRIER +CSSU: 5 <参考AT+CSSN>
+CSSI (SS) **+CSSU**	Supplementary service intermediate/unsolicited result code		
+CUSD (SS)	USSD response from the network after a mobile originated or network initiated action.		**ATD#222#;** OK +CUSD: 2,"UNKNOWN APPLICATION",15 <参考AT+CUSD>
^SBC: (HW) **Undervoltage**	Under voltage of battery detected. ME will be switched off within a minute.	AT^CBCM=1	**^ SBC:UNDERVOLTAGE**
^STN(SS)	Remote-SAT Notification		
^CBCI(BATTERY)	Battery charge level indication	AT^CBCM=1	AT^CBCM=1 OK ^CBCI: 0,100,0,4487
+CCWA	Call waiting indication	AT+CCWA=1	

Appendix B

Configuration table

命　令　名	说　　明
ATQ	result code present control
ATV	Format of response and result code
ATE	UART echo control
ATS0	Auto answer

ATS3	Specify Carriage return character
ATS4	Specify Linefeed character
ATS5	Command line editing character
AT+CMEE	Format of errcode
AT+CMER	Indicator reporting way
AT+VTD	Duration of the DTMF tone
AT+COPS	Operator format Network register mode
AT+CPOL	Preferred operator format
AT+CPBS	Phonebook storage
AT^STA	Alphabet
AT+CCWA	Parameter \<n>
AT+CUSD	Parameter \<n>
AT+CLIP	Parameter \<n>
AT+CLIR	Parameter \<n>
AT+COLP	Parameter \<n>
AT+CSSN	Parameter \<n> Parameter\<m>
AT^MONI	Parameter \<n>
AT^NONPP	Parameter \<n>
AT^CBCM	Indicator controller
AT+VGR	Receiver gain
AT+VGT	Transmit gain
AT+CMUT	Mute control in a voice call
AT+CGAUTO	Parameter \<n>
AT+IPR	Parameter \<rate>

Appendix C   AT Commands Application Notes

AT commands application samples

Notes: There will be omitted <CR> in AT commands line samples, and the <CR><LF> characters are also omitted in commands response as well.

MO Call

AT Commands and Response	Description
ATD10086;	MO call
OK	Call connect success
CONNECT	Call success
ATH	Disconnect existing call
OK	
AT+CCWA=1,1,1	Set call waiting control
OK	
ATD10086;	MO call
OK	Call connect success
AT+CLCC	List current calls of ME
+CLCC: 1,0,0,0,0,"10086",129	Show call number
OK	
CONNECT	Call success
ATH	Disconnect existing call
OK	
ATD10086;	MO call
RING	
+CCWA: "13501275915",161,1,,255	Input a MT call
AT+CHLD=2	Hold one call connect
OK	Success

AT+CLCC	List current calls
+CLCC: 1,0,1,0,0,"10086",129	
+CLCC: 2,1,0,0,0,"13501275915",161	Show all of the call number
OK	OK
AT+CHUP	Hang up all existing connected calls
OK	Success

Send Message

Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value is returned to the TE on successful message delivery. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned.

AT Commands and Response	Description
AT+CMGF=1	Text mode
OK	
AT+CSDH=1	Show the values in result codes
OK	
AT+CMGS=″13021105632″	
	Send message″Test″ to 13021105632
>Test <ctrl-Z>	
+CMSS: 4	Send success and return <mr>
OK	
AT+CMGS=″13021107315″	
	Send message″Test1″ to 13021107315
>Test1<ctrl-Z>	
+CMSS: 4	Send success and return <mr>
OK	

AT+CMGR=1	Read message from record 1
+CMGR: 1,,61	
Hello	Show in message ″Hello″
OK	

List Unread Message

Execution command 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'. If listing fails, final result code +CMS ERROR: <err> is returned.

As for the status value <stat> which indicates the status of message in memory, defined values:

0   "REC UNREAD"   received unread message

1   "REC READ"   received read message

2   "STO UNSENT"   stored unsent message

3   "STO SENT"   stored sent message

4   "ALL"   all messages

AT Commands and Response	Description
AT+CMGF=1	Text mode
OK	
AT+CSDH=1	Show the values in result codes
OK	
AT+CMGL=″REC UNREAD″	Receive unread message

+CMGL: 15,"REC

UNREAD","10658223",,"2008/4/1,10:53:4+   List unread message

32"

   OK

   AT+CMGL="ALL"   All message

   +CMGL: 2,"STO

UNSENT","1365125588"

   testing

   +CMGL: 3,"STO

UNSENT","1365125588"

   testing

   +CMGL: 4,"STO

UNSENT","1365125588"

   testing

   +CMGL: 5,"STO

UNSENT","1365125588"

   testing   Show all of message

   +CMGL: 13,"REC

READ","13800138000",,"2008/3/28,16:17:1

8+32"

   +CMGL: 14,"REC

READ","13800138000",,"2008/3/28,16:17:1

7+32"

   +CMGL: 15,"REC

UNREAD","10658223",,"2008/4/1,10:53:4+

32"

   OK

   AT+CMGD=1   Delete record 1 message

OK	Delete success
AT+CMGD=0	Delete all message
OK	

Change PIN & ActivePIN1

Change PIN+CPWD command which is used to change password [pin/pin2…]

AT+CLCK command which is used to lock,unlock or interrogate a MT or a network facility. Password is normally needed to do such actions. When querying the status of a network service the response line for 'not active' case should be returned only if service is not active. This command should be abortable when network facilities are set or interrogated.

Call barring facilities are based on GSM/UMTS supplementary services (refer 3GPP TS 22.088). The interaction of these with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standard.

AT Commands and Response	Description
AT+CPIN?	Indicating whether some password is required or not
+CPIN:READY	MT is not pending for any password
AT+CLCK="SC",1,"1234"	Active PIN
OK	
AT+CLCK="SC",2	Query PIN status
+CLCK:1	Active status
OK	
Restart System …	
AT+CPIN?	Query PIN status
+CPIN: SIM PIN	ME request SIM PIN

OK	
AT+CPIN="1234"	Input SIM PIN
OK	Success
AT+CLCK="SC",0,"1234"	Return to not active status
OK	
Restart System …	
AT+CPIN?	Query PIN status
+CPIN:READY	MT is not pending for any password
OK	
AT+CLCK="SC",1,"1234"	Active PIN
OK	
AT+CPWD="SC","1234","2345"	Change PIN " 1234″ to " 2345″
OK	Success
AT+CPWD="SC","2345","1234"	Change PIN " 2345″ to " 1234″
OK	Success
AT+CPWD="SC","7890","1234"	Change PIN "7890" to "1234"
+CME ERROR: 16	Incorrect PIN number
AT+CPINC	Query the remaining times of access the sim card
+CPINC: 2	Two times
OK	
AT+CPWD="SC","1111","1234"	Change PIN "1111" to "1234"
+CME ERROR: 16	Incorrect PIN number
AT+CPWD="SC","2222","1234"	Change PIN "2222" to "1234"
+CME ERROR: 16	Incorrect PIN number
AT+CPIN?	Query PIN status
+CPIN: SIM PUK	ME request SIM PUK
OK	
AT+CPWD="SC"," 12345678","1234"	Input PUK "12345678" and new PIN "1234"
OK	Success
AT+CPIN?	Query PIN status

+CPIN:READY	MT is not pending for any password
OK	
AT+CLCK="SC",0,"1234"	Return to not active status
OK	

GPRS operation

AT Commands and Response	Description
AT+CGATT=1	Attach to the GPRS network, can also use parameter 0 to detach.
OK	Response, attach successful
AT+CGDCONT=?	Input test command for help information.
+CGDCONT: (1..7), (IP,IPV6,PPP),(0..3),(0..4) OK	Response, show the helpful information.
AT+CGDCONT=1, "IP", "cmnet"	Before active, use this command to set PDP context.
OK	Response. Set context OK.
AT+CGACT=1,1	Active command is used to active the specified PDP context.
OK	Response, active successful.
ATD*99***1#	This command is to start PPP translation.
CONNECT	Response, when get this, the module has been set to data state. PPP data should be transferred after this response and anything input is treated as data.
+++	This command is to change the status to

	online data state. Notice that before input this command, you need to wait for a three seconds′ break, and it should also be followed by 3 seconds′ break, otherwise " +++" will be treated as data.
ATH	Use this command to return COMMAND state
ok	Response

TCP/IP operation

AT Commands and Response	Description
at+cipstatus	Check the status of TCP/IP
+IPSTATUS: IP INITIAL OK	Response, in the state of INITIAL
AT+CIPSTART="TCP","124.42.0.80",7	Start TCP/IP, if the MS hadn′t attached to the GPRS network, this command will fulfill all the prepare task and make ready for TCP/IP data transfer.
CONNECT OK OK	Response
at+cipstatus	Check the status of TCP/IP

+IPSTATUS: CONNECT OK OK	Response, in the state of CONNECT
at+cipsend > this is a test<ctl+z>	Send data " this is a test" ended with ctrl+z
OK	Response
at+cifsr	Check IP
10.8.18.69 OK	Response
at+cipclose	Close a TCP/IP translation
OK	Response
at+cipstatus	Check status
+IPSTATUS: IP CLOSE OK	In the state of IP CLOSE
AT+CIPSHUT	Disconnect the wireless connection
OK	
at+cipstatus	Check status
+IPSTATUS: IP INITIAL OK	Return to the initial status

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