LN940 SERIES AT Command
User Guide

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Telit

TELIT TECHNICAL DOCUMENTATION

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APPLICABILITY TABLE

PRODUCTS

	SW Versions	Modules
■ ■ LN940A11 SERIES	T77W676.0.0.3.7	
■ ■ LN940A9 SERIES	T77W676.0.0.3.9	LTE

CONTENTS

1. INTRODUCTION

1.1. Scope

This document covers the more significant standard and proprietary AT commands provided by Telit's modules. Several module features are described and for each one of them the related AT commands are explained through examples. This document is not an exhaustive description of the AT commands implemented on the Telit's modules series, its target is only to give you an entry point to the AT commands world.

1.2. Audience

The present User Guide is addressed to users that need to learn and use quickly standard and proprietary AT commands. The reader can learn the use of the AT commands through simple examples shown in the document, and then deepen the interested AT commands reading the documents [1]/[17] in accordance with the used module.

1.3. Contact Information, Support

For general contact, technical support services, technical questions and report documentation errors contact Telit Technical Support at:

- TS-EMEA@telit.com
- TS-AMERICAS@telit.com
- TS-APAC@telit.com
- TS-SRD@telit.com   (for Short Range Devices)

Alternatively, use:

http://www.telit.com/support

For detailed information about where you can buy the Telit modules or for recommendations on

accessories and components visit:

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Our aim is to make this guide as helpful as possible. Keep us informed of your comments and

suggestions for improvements. Telit appreciates feedback from the users of our information.

2. SYNTAX

1.1. AT Command Syntax

The "AT" or "at" prefix must be set at the beginning of each command line. To terminate command line enter

<CR>.Commands are usually followed by are sponse that includes "<CR> <LF> <response> <CR> <LF>". Throughout this document, only there sponses are presented <CR> <LF> are omitted in tentionally.

Table 1.4: Types of AT command sand responses

AT command type	Syntax	Function
Test command	AT+CXXX=?	The mobile equipment returns the list of parameter sand 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.
Write command	AT+CXXX=<…>	This command sets user-definable parameter values.
Exec (ution) command	AT+CXXX	The execution command reads non-variable parameters deter-mined by internal processes in the UE.

3. BASIC COMMANDS

3.1. Repeat Previous Command Line: A/

Repeat Previous AT command line.

In general, after beginning a command line with character "a" or "A" a second character "t", "T" or "/" has to follow. "/"acts as line terminate character. In case of using a wrong second character, it is necessary to start again with character "a" or "A"

Syntax

Type	Command	Possible Return Result	Instruction
Exec command	A/	OK	

Parameter Description

parameter	Value	Instruction
NULL		

4. ITU-T V.25TER DTE-DCE INTERFACE COMMAND

4.1. ATS3 Command Line Termination

ATS3 determines the character recognized by the device to terminate an incoming command line. It is also generated for result codes and information text, along with character value set via ATS4.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS3?	<n> OK	-
Write Command	ATS3=<n>	OK	-

Parameter Description

parameter	Value	Instruction
<n>	0~127	Default value is 13 (Corresponding ASCII character CR carriage return) Notice: if change this value, it possible to affect the execution of the AT command.

Example

ATS3=32 OK ATS32? 32 OK	In this point, the AT command line terminator has become a space instead of the previous carriage return

4.2. ATS4 Response Formatting

ATS4 determines the character generated by the device for result code and information text, along with the command line termination character set via ATS3.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS4?	<n> OK	-
Write Command	ATS4=<n>	OK	-

Parameter Description

parameter	Value	Instruction
<n>	0~127	Default value is 10 (Corresponding ASCII character LF carriage return) Response formatting character. It is not recommended to change this value.

4.3. ATS5 Command Line Editing

ATS5 determines the character value used by the device to delete the immediately preceding character from the AT command line (i.e. equates backspace key).

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS5?	<n> OK	-
Write Command	ATS5=<n>	OK	-

Parameter Description

parameter	Value	Instruction
<n>	0~127	Default value is 8. Command line editing character. It is not recommended to change this value.

4.4.   ATE AT Command Echo

ATE controls if the device echoes characters received from TE during AT command state..

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATE[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	0	Echo mode off
	1	Echo mode on

4.5.   ATQ Result Code Presentation Mode

ATQ controls if the device transmits any result code to the TE. Other information text transmitted as response is not affected.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATQ[n]	OK	-

Parameter Description

parameter	Value	Instruction

<n>	[0]	UE transmits result code. It is not recommended to change this value.
	1	Result codes are suppressed and not transmitted.

4.6. ATV Result Code Format Mode

This command determines the contents of header and trailer transmitted with AT command result codes and information responses

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATV[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	0	Information response: <text><CR><LF> Short result code format: <numeric code><CR>
	1	Information response: <CR><LF><text><CR><LF> Long result code format: <CR><LF><verbose code><CR><LF>

4.7. ATX Connect Result Code Format

ATX determines whether or not the device transmits particular result codes to the TE.

ATX also controls whether or not the UE verifies the presence of a dial tone when it begins dialing, and if

engagedtone (busy signal) detection is enabled.

The CONNECT result code indicates that the UE has changed from command state to online data state.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATX[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	CONNECT result code returned. Dial tone and busy detection are disabled.
	1	CONNECT <text> result code returned. Dial tone and busy detection are disabled.
	2	CONNECT <text> result code returned. Dial tone detection is enabled, busy detection is disabled.
	3	CONNECT <text> result code returned. Dial tone detection is disabled, busy detection is enabled.
	4	CONNECT <text> result code returned. Dial tone and busy detection are both enabled.

4.8.   AT&W Store AT Command Setting to User Defined Profile

AT&W stores the current AT command settings to a user defined profile in non-volatile memory of device. The AT command settings will automatically be restored from the user defined profile during power-up or if ATZ is used. AT&F restores AT command factory default settings. Hence, until first use of AT&W, ATZ works as AT&F.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT&W[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	User Profile Number

4.9.   AT&E Store AT Command Setting to User Defined Profile

Controls the display of data rate to be either serial rate or wireless connection speed.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT&E[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	Serial/DTE rate
	1	wireless connection speed

4.10. AT+ICF DTE-Modem Character Framing

This set command defines the asynchronous character framing to be used whenautobauding is disabled

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ICF=?	+ICF: (3),(0-3) OK	-
Read Command	AT+ICF?	+ICF: <value>,<parity> OK	-
Write Command	AT+ICF=[<format> , [<parity>]]	OK	-

Parameter Description

parameter	Value	Instruction

<value>	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.	
	[3]	8 data bit, 1 stop bit
<parity>	Determines how the parity bit is generated and checked, if present; this sub parameter has no meaning.	
	0	Odd (not supported)
	1	Even (not supported)
	2	Mark
	[3]	None

4.11. AT+IFC DTE-Modem Local Flow Control

This set command selects the flow control behavior of the serial port in both directions: from DTE to modem (<by_ta> option) and from modem to DTE (<by_te>).

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+IFC=?	+IFC: =(<by_te>list), (<by_ta>list) OK	-
Read Command	AT+IFC?	+IFC: =<by_te>, <by_ta> OK	-
Write Command	AT+IFC=<by_te>, <by_ta>	OK	-

Parameter Description

parameter	Value	Instruction
< by_te >	Flow control option for the data received by DTE	
	0	flow control None

	1	XON/XOFF filtered
	[2]	C105 (RTS) (factory default)
	3	XON/XOFF not filtered
< by_ta >	Flow control option for the data sent by modem	
	0	flow control None
	1	XON/XOFF
	[2]	C106 (CTS) (factory default)

4.12. ATZ Restore AT Command Settings from User Defined Profile

First ATZ resets the AT command settings to their factory default values, similar to AT&F. Afterwards the AT command settings are restored from a user defined profile in non-volatile memory, if one was stored with AT&W before. Any additional AT command on the same command line may be ignored. A delay of 300 ms is required before next AT command is sent.

However, ATZ does not change the current bit rate of asynchronous serial interface (UART).

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATZ[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	User Profile Number

4.13. AT&F Reset AT Command Settings to Factory Default Values

AT&F resets AT command settings to their factory default values.

However, the command does not change the current bit rate of asynchronous serial interface (UART).

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT&F[<value>]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	Reset parameters to their factory default values

4.14. ATI Display Product Identification Information

The ATI execute command delivers a product information text.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATI	Manufacturer: XXX Model: XXX Revision: XXX IMEI: XXX +GCAP: XXX OK	Display production information

Example:

ATI

Manufacturer: QUALCOMM INCORPORATED

Model: 4105

Revision: T77W676.F0.0.0.0.1.DF.003 1 [Aug 30 2016 19:00:00]

IMEI:

+GCAP: +CGSM

OK

4.15. AT+GMI Display Manufacturer Identification

The AT+GMI returns the Manufacturer Identification

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GMI	XXX OK	Display Manufacturer Identification
Test Command	AT+GMI=?	OK	-

Example:

AT+GMI

QUALCOMM INCORPORED

OK

4.16. AT+GMM Display Model Identification
The AT+GMM returns the Model Identification.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GMM	XXX OK	Display Model Identification
Test Command	AT+GMM=?	OK	-

Example:

```
AT+GMM

4105


OK
```

4.17.   AT+GMR Display Revision Identification

The AT+GMR returns the revision identification.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GMR	XXX OK	Display Revision Identification
Test Command	AT+GMR=?	OK	-

Example:

```
AT+GMR

T77W676.F0.0.0.0.1.DF.003  1  [Aug 30 2016 19:00:00]


OK
```

4.18.   AT+GSN Display Serial Number

The AT+GSN returns the serial number. Please enter an IMEI in NV550.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GSN	<sn> OK	-
Test Command	AT+GSN=?	OK	-

Parameter Description

parameter	Value	Instruction
<sn>		The serial number of device.

4.19.   AT+GCAP Display Product Capabilities List

The AT+GCAP returns the Capabilities List.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GCAP	+GCAP: <name> OK	-
Test Command	AT+GCAP=?	OK	-

Parameter Description

parameter	Value	Instruction
<name>		Additional function list, such as +CGSM

Example:

AT+GCAP

+GCAP: +CGSM

OK

4.20. ATS2 Escape Character

The command sets the ASCII character to be used as escape character.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS2?	<value> OK	-
Write Command	ATS2=[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	1-255	43(+) is default value

4.21. ATS7 Connection Completion Time-Out

This set command sets the amount of time, in seconds, that the device shall allow between either answering a call (automatically or by A command) or completion of signaling of call addressing information to network (dialing), and establishment of a connection with the remote device.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS7?	<value> OK	-
Write Command	ATS7=[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	0-[1]-255	Number of rings, 0 is default value, the value shows clearly time out seconds

4.22. ATS8 Comma Dial Pause Time

ATS8 is implemented for compatibility reasons only, and has no effect.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS8?	<value> OK	-
Write Command	ATS8=[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	1-[2]-255	2 is default value

4.23. ATS10 Set Disconnect Delay after Indicating the Absence of Data Carrier

ATS10 determines the amount of time, that the UE remains connected in absence of a data carrier. If the data carrier is detected before disconnect, the UE remains connected.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS10?	<value> OK	-
Write Command	ATS10=[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	1-[14]-255	14 is default value. Number of tenths of seconds to wait before disconnecting after UE has indicated the absence of received line signal

4.24. ATS30 Disconnect Inactivity Timer

Setting of an inactive timer value for disconnection when no user data is exchanged during a data call.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	ATS30?	<value>\n\nOK	-
Write Command	ATS30=[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]-1-255	0 is default value. Number of disconnect inactivity time.

4.25. AT\V Single Line Connect Message

Enables/disables the display of extended result code in response to a data call.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT\V?	OK	-

Write Command	AT\V[value]	OK	-

Parameter Description

parameter	Value	Instruction
<value>	[0]	Off
	1	On

4.26. AT\S Requests AT Command Settings

Prints the AT command settings.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT\S	E1 Q0 V1 X1 &C2 &D2 &S0 &E0 \V0 S000=000 S002=043 S003=013 S004=010 S005=008 S006=002 S007=000 S008=002 S010=014 S030=000 S103=001 S104=001 OK	-

4.27. AT%V Requests Revision Identification

AT%V delivers a product firmware version identification.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT%V	XXX OK	Display product firmware version identification.

5. UMTS GENERAL COMMANDS

5.1. AT+CGMI Request Manufacturer Identification

AT+CGMI returns a manufacturer identification text.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CGMI=?	OK	-
Exec Command	AT+CGMI	xxx	Display manufacturer identification.

5.2. AT+CGMM Request Model Identification

AT+ CGMM returns a product model identification text.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CGMM=?	OK	-
Exec Command	AT+CGMM	xxx	Display product model identification.

5.3. AT+CGMR Request Revision Identification of Software Status

AT+ CGMR delivers a product firmware version identification.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CGMR=?	OK	-
Exec Command	AT+CGMR	xxx	Display product firmware version identification.

5.4. AT+CGSN Request International Mobile Equipment Identity

AT+ CGSN returns the International Mobile Equipment Identity (IMEI). Please enter an IMEI in NV550.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CGSN=?	OK	-
Exec Command	AT+CGSN	xxx	Display IMEI.

5.5. AT+CSCS Character Set

AT+CSCS write command informs the device which character set is used by the TE. This enables the UE to convert character strings correctly between TE and UE character sets.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSCS=?	+CSCS: (<ChSet> value list) OK	List all supported character.
Exec Command	AT+CSCS	OK	Set to default character set(IRA).
Write Command	AT+CSCS=[<ChSet>]	+CSCS: <ChSet> OK	Set TE character which used by the TE.

Parameter Description

parameter	Value	Instruction
<ChSet >	[IRA]	Default character set.International reference alphabet (ITU T T.50).
	GSM	GSM default alphabet (3GPP TS 23.038 [37],subclause 6.2.1).

	UCS2	16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]). UCS2 character strings are converted to hexadecimal numbers in the range 0000 to FFFF; e.g. "004100620063" equates three 16-bit characters with decimal values 65, 98 and 99.

5.6. AT+CIMI Request International Mobile Subscriber Identity

AT+CIMI delivers the International Mobile Subscriber Identity (IMSI). The IMSI permits the TE to identify the individual SIM attached to the UE.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CIMI=?	OK	-
Exec Command	AT+CIMI	XXX OK	Display IMSI. If failed. It maybe that SIM card is not initiated or locked. If locked, need to input PIN code or PUK code.

6. UMTS CALL CONTROL COMMANDS

6.1. AT+WS46 Select Wireless Network

This command may be used when TA is asked to indicate the networks in which it can operate..

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+WS46=?	+ WS46: (<n> value list) OK	-
Read Command	AT+ WS46?	+ WS46: <n> OK	-
Write Command	AT+ WS46=<n>	OK	-

Parameter Description

parameter	Value	Instruction
<n>	12	GSM Digital Cellular Systems (GERAN only)
	22	UTRAN only
	25	3GPP Systems (both GERAN and UTRAN)
	28	LTE
	29	LTE

6.2. AT+CSTA Select Type of Address

This set command selects the type of number for further dialing commands ATD according to 3GPP Technical Specifications. Test command returns values supported a compound value.

Syntax

Type	Command	Possible Return Result	Instruction

Test Command	AT+CSTA=?	+CSTA: (<type> value list)	-
		OK	
Read Command	AT+CSTA?	+CSTA: <type>	-
		OK	
Write Command	AT+CSTA=<type>	OK	-
Exec Command	AT+CSTA	OK	-

Parameter Description

parameter	Value	Instruction
<type>	145	when dialing string includes international access code character "+"
	[129]	Otherwise.Default value.

6.3.   AT+CMOD Set Call Mode

This set command selects the type of call mode. Test command returns values supported a compound value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMOD=?	+CMOD: (<mode> value list)	-
		OK	
Read Command	AT+CMOD?	+CMOD: <mode>	-
		OK	
Write Command	AT+CMOD=[<mode>]	OK	-
Exec Command	AT+CMOD	OK	-

Parameter Description

parameter	Value	Instruction

<mode>	[0]	single mode

6.4. AT+CBST Select Bearer Service Type

AT+CBST write command selects the bearer service <name>, the data rate <speed> and the connection element <ce> to be used when data calls are originated. The settings also apply to mobile terminated data calls. See 3GPP TS 22.002 [26].

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CBST=?	+CBST: (<speed > value list), (<name > value list), (<ce > value list) OK	-
Read Command	AT+CBST?	+CBST: <speed > ,<name>, <ce > OK	-
Write Command	AT+CBST=[<speed>[, <name>[,<ce>]]]	OK	-

Parameter Description

parameter	Value	Instruction
<speed>	[0]	Automatic Speed Selection
	1	On
	14	14400 bps (V.34)
	16	28800 bps (V.34)
	17	32000 bps (V.34)
	43	14400 bps (V.120)
	48	28800 bps (V.120)
	51	56000 bps (V.120)
	75	14400 bps (V.110)
	80	28800 bps (V.110 or X.31 flag stuffing)
	81	38400 bps (V.110 or X.31 flag stuffing)

	83	56000 bps (V.110 or X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI or RDI service in order to get FTM)
	84	64000 bps (X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI service in order to get FTM)
	116	64000 bps (bit transparent)
	134	64000 bps (multimedia)
<name>	0	Asynchronous Modem
	1	Synchronous Modem
	4	Asynchronous Modem (RDI)
<ce>	0	Transparent
	1	Non-transparent

Example:

```
at+cbst=14,0,1

OK

at+cbst=?

+CBST: (0,7,12,14,16,17,39,43,48,51,71,75,80,81,83,84,116,134),(0,1,4),(0,1)


OK
```

6.5. AT+CRLP Configure RLP Parameters for Outgoing Non-Transparent Data Calls

AT+CRLP write command sets radio link protocol (RLP) parameters used when non-transparent data calls are originated. The read command returns the current settings for the supported RLP version 0 till 2.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CRLP=?	+CRLP: (list of supported <iws>s),(list of supported <mws>s), (list of supported <T1>s),(list of supported <N2>s)[,<ver1> [,(list of supported <T4>s)]]	-

		[<CR><LF>+CRLP: (list of supported <iws>s),(list of supported <mws>s),(list of supported <T1>s),(list of supported <N2>s) [,<ver1>[,(list of supported <T4>s)]] [...]] OK	
Read Command	AT+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [<CR><LF>+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]] OK	-
Write Command	AT+CRLP=[<iws>[,<mws>[,<T1> [,<N2>[,<ver>[,<T4>]]]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<iws>	0…61	Interworking window size (IWF to MS)
	0…240…488 for <ver>=2	
<mws>	0…61	Mobile window size (MS to IWF)
	0…240…488 for <ver>=2	
<T1>	38…48…255	Acknowledgement timer (T1 in 10 ms units)
	42…52…255 for <ver>=2	
<N2>	1…6…255	Re-transmission attempts N2
<ver>	0…2	RLP version number

Example:

```
at+crlp?

+CRLP: 61,61,48,6,0

+CRLP: 61,61,48,6,1

+CRLP: 240,240,52,6,2


OK

at+crlp=?

+CRLP: (0-61),(0-61),(38-255),(1-255),0

+CRLP: (0-61),(0-61),(38-255),(1-255),1

+CRLP: (0-488),(0-488),(42-255),(1-255),2


OK

at+crlp=60,60,48,6,1

OK

at+crlp?

+CRLP: 61,61,48,6,0

+CRLP: 60,60,48,6,1

+CRLP: 240,240,52,6,2


OK
```

6.6.   AT+CR Service Reporting Control

AT+CR configures the AHS3-W whether or not to transmit an intermediate result code +CR: <serv> to the TE when a call is being set up. <mode>=1 may lead to connection failure, if the application waits for default result code/URC.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CR=?	+CR: <mode> list OK	-

Read Command	AT+CR?	+CR: <mode>	-
		OK	
Write Command	AT+CR=<mode>	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	[0]	Disable
	1	Enable

6.7.   AT+CEER Service Reporting Control

Execution command causes the TA to return the information text <report>, which should offer the user of the TA an extended report of the reason.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CEER=?	OK	-
Exec Command	AT+CEER?	+CEER: <report>	-
		OK	

Parameter Description

parameter	Value	Instruction
<report>	-	Wrong information which is possibly occurred.

6.8.   AT+CRC Set Cellular Result Codes for Incoming Call Indication

AT+CRC controls whether or not to use the extended format of incoming call indication.

<mode>=1 may lead to connection failure, if the application waits for default result code/URC.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CRC?	+CRC: <mode> list OK	-
Read Command	AT+CRC?	+CRC: <mode> OK	-
Write Command	AT+CRC=<mode>	OK	-
Exec Command	AT+CRC	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	[0]	Disable extended format
	1	Enable extended format

6.9. AT+CHSN HSCSD Non-Transparent Call Configuration

This set command controls parameters for originating non-transparent HSCSD calls. Values may also be used during mobile terminated data call setup. In GERAN, changing <topRx> or <codings> value during a call does not affect the current call. In GERAN, changing of <wAiur> or <wRx> affects the current call only if <topRx> was non-zero when call was established textual format.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CHSN=?	+CHSN: (list of supported <wAiur>s), (list of supported <wRx>s),(list of supported <topRx>,(list of supported	-

		<codings>s)	
		OK	
Read Command	AT+CHSN?	+CHSN: <wAiur>,<wRx>,<topRx>,<codings>	-
		OK	
Write Command	AT+CHSN=[<wAiur>[,<wRx>[,<topRx>[,<codings>]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<wAiur>	0	TA shall calculate a proper value from currently selected fixed network user rate(<speed> Sub parameter from +CBST command)
	2	14400(bps)
	4	28800(bps)
	7	57600(bps)
<wRx>	0	TA shall calculate a proper value from currently selected<wAiur> and <codings>
<topRx>	0	TA shall calculate a proper value from currently selected<wAiur> and <codings>
<codings>	0	All supported codings are accepted

6.10. AT+CGPIAF IPV6 Format

Reads IP Address Format, determines what format to print IPV6 address parameters of other AT commands, and reports Mobile Termination Error Change result code to numeric value

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGPIAF =?	+ CGPIAF: (list of supported < Ipv6_AddressFormat >s), (list of supported < Ipv6_SubnetNotation >s),(list of supported < Ipv6_LeadingZeros >,(list of supported < Ipv6_CompressZeros >s) OK	-
Read Command	AT+ CGPIAF?	+ CGPIAF: <Ipv6_AddressFormat>,<Ipv6_SubnetNotation> ,<Ipv6_LeadingZeros>,<Ipv6_CompressZeros> OK	-
Write Command	AT+ CGPIAF = [<Ipv6_AddressFormat>[,<Ipv6_SubnetNotation>[,<Ipv6_LeadingZeros>[,<Ipv6_CompressZeros>]]]]	OK	-

Parameter Description

parameter	Value	Instruction
< Ipv6_AddressFormat >	0	Disable
	1	Enable
< Ipv6_SubnetNotation >	0	Disable
	1	Enable
< Ipv6_LeadingZeros >	0	Disable
	1	Enable
< Ipv6_CompressZeros >	0	Disable
	1	Enable

6.11. AT+CSTF Settings Time Format

This set command sets the time format of the time information presented to the user, which is specified by use of the <mode> parameter. The <mode> affects the time format on the phone display and doesn't affect the time format of the AT command serial interface, so it is not actually used.

Read commands reads the current setting. Test command reads the supported <modes>s.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSTF=?	+CSTF: <mode> list OK	-
Read Command	AT+CSTF?	+CSTF: <mode> OK	-
Write Command	AT+CSTF=<mode>	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	1	HH:MM (24 hour clock)
	2	HH:MM a.m./p.m.

6.12. AT+CSDF Settings Date Format

This command sets the date format via MMI of the date information presented to the user, which is specified by use of the <mode> parameter. The <mode> affects the date format on the phone display and doesn't affect the date format of the AT command serial interface. The command also sets the date format of the TE-TA interface, which is specified by use of the <auxmode> parameter (e.g. the <auxmode> affects the <time> of +CCLK). If

the parameter is omitted ("+CSDF =","+CSDF =<mode>","+CSDF=,<auxmode>"),then this sets the default value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSDF=?	+CSDF: (<mode> list),(<auxmode> list) OK	-
Read Command	AT+CSDF?	+CSDF: <mode>,<auxmode> OK	-
Write Command	AT+CSDF=[[<mode>] [,<auxmode>]]	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	1	NOTE: It is manufacturer specific which modes that are supported. Presentation of MMM is language dependent. DD-MMM-YYYY
	2	DD-MM-YY
	3	MM/DD/YY
	4	DD/MM/YY
	5	DD.MM.YY
	6	YYMMDD
	7	YY-MM-DD
<auxmode>	1	yy/MM/dd
	2	yyyy/MM/dd

Example:

```
at+csdf =7,2

OK

at+cclk?

+cclk: "1980/01/06,01:11:47"


OK
```

6.13.   AT+CUAD UICC Application Discovery

This command asks the MT to discover what applications are available for selection on the UICC. According to TS 102.221 [60], the ME shall access and read the EF_{DIR} file in the UICC and return the values that are stored in its records. Each record contains the AID and optionally application parameters of one of the applications available on the UICC.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+CUAD	+CUAD: <response> OK	-

Parameter Description

parameter	Value	Instruction
<response>	XXX	String type in hexadecimal character format.

Example:

```
AT+CUAD

+CUAD: "611D4F10A0000000871002FF86FFFF89FFFFFFFF5009556E6976657253494DFF"
```

OK

6.14. AT+CEAP EAP authentication

This command allows a TE to exchange EAP packets with the UICC or the ME.

Prior to the execution of this command, the TE shall retrieve the available AIDs using the +CUAD command. The TE shall select one appropriate AID to be addressed. Selection may include asking the user, and considering EAP methods supported by the AIDs. The TE shall set the <dfname> value using the selected AID and shall set the <EAPMethod> value to the requested EAP method. The TE may set the <Dfeap> value to the directory file

identifier that is applicable to the <EAPMethod>; which is derived from the discretionary data returned by +CUAD. The parameter is mandatory for EAP terminated in UICC.

If the targeted application on the UICC does support the requested EAP method, the MT shall use the value provided in <Dfeap>, and it shall transmit the <EAP packet data> to the UICC application using the Authenticate APDU command as defined in ETSI TS 102 310 [66]. The appropriate DF$_{EAP}$ in the ADF must be selected prior to the submission of an EAP Authenticate command with the <EAP packet data>. Then the EAP Response data sent by the UICC application in its response to the Authenticate command shall be provided to the TE in <EAP packet response>.

If the targeted application on the UICC does not support the requested EAP method and if the MT does support this method then the <EAP packet data> shall be handled by the MT. During the handling of the EAP method, the MT shall run the authentication algorithm on the SIM or USIM, respectively.

Also the MT has to allocate an <EAPsessionid> in order to identify an EAP session and its corresponding keys and parameters.

If neither the MT nor the appropriate UICC application supports the requested EAP method, the MT shall respond with CME ERROR: 49 (EAP method not supported).

Syntax

Type	Command	Possible Return Result	Instruction
Write Command	AT+CEAP =<dfname>, <EAPMethod>, <EAP packet data> [,<Dfeap>]	+CEAP: <EAPsessionid>,<EAP parameter response> OK	-

Parameter Description

parameter	Value	Instruction
<dfname>	XXX	<dfname>: string type in hexadecimal character format. All selectable applications are represented in the UICC by an AID coded on 1 to 16 bytes.
<EAPMethod>	XXX	String type in hexadecimal character format. This is the EAP Method Type as defined in RFC 3748 [68] in 1 byte format or 8 bytes expanded format. The value range for 1 byte format and for 8 bytes expanded format is defined in RFC 3748 [68].
<EAP packet data>	XXX	<EAP packet data>: string type in hexadecimal character format. This is the EAP packet data in hexadecimal character as defined in ETSI TS 102 310 [66].
<Dfeap>	XXX	<Dfeap>: string type in hexadecimal character format. Contains the DF(EAP) associated with the specified <EAPMethod> on the SIM/UICC as defined in ETSI TS 102 310 [66] (e.g. "6D34").
<EAPsessionid>	1-4294967295	Integer type. This is the identifier of the EAP session to be used in order to retrieve the EAP parameters with EAP Retreive Parameters +CERP command. Value range is from 1 to 4294967295.
<EAP parameter response>	XXX	String type in hexadecimal character format. Defined in ETSI TS 102 310 [66].

6.15. AT+CERP EAP Retrieve Parameters

This command allows a TE to retrieve EAP session parameters / derived keys after a run of the +CEAP command. If the EAP session is handled by the UICC then the MT shall return the content of the elementary file corresponding to the indicated <EAPparameter>. Those Efs are defined in ETSI TS 102 310 [66].

If the MT handles the EAP session then the MT shall return the corresponding parameter encoded as defined for EAP files, see ETSI TS 102 310 [66].

For example, the keys shall be retrieved in the TLV format described in ETSI TS 102 310 [66].

If neither the MT nor the appropriate UICC application can provide the requested information (e.g. because the requested EAP session ID does not exist), the MT shall respond with CME ERROR: 50 (Incorrect parameters).

Syntax

Type	Command	Possible Return Result	Instruction
Write Command	AT+CERP=<EAPsessionid>,<EAP parameter>	+CERP: <EAP parameter response> OK	-

Parameter Description

parameter	Value	Instruction
<EAPsessionid>	1	Keys
	2	Status
	3	Identity
	4	Pseudonym
<EAPparameter>	1-4294967295	This is the identifier of the EAP session to be used in order to retrieve the EAP parameters corresponding to an active EAP session.
<EAP parameter response>	XXX	String type in hexadecimal character format. The format of the parameter is defined in ETSI TS 102 310 [66]. The <EAP parameter response> depends on the value of the <EAPparameter>.

Example:

```
AT+CUAD

+CUAD: "611D4F10A0000000871002FF86FFFF89FFFFFFFF5009556E6976657253494DFF"


OK

AT+CEAP = "4F10", "12", "0101000BA0000000871002"

+CEAP: 85165636,"020100060312"


OK

AT+CERP=85165636,3

+CERP: "34363030313637373735313136"


OK

AT+CERP =85165636,2

+CERP: "01"


OK
```

7.   ITU-T V.25TER CALL CONTROL COMMANDS

7.1.   ATH Disconnect Existing Data Connection

ATH disconnects circuit switched data calls. For voice calls use AT+CHUP or AT^SHUP.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	ATH[<n>]	OK	-

Parameter Description

parameter	Value	Instruction
<n>	[0]	Disconnect from line and terminate data call.

8. NETWORK SERVICE-RELATED COMMANDS

8.1. AT+CNUM Subscriber Number

Action command returns the MSISDNs related to the subscriber (this information can be stored in the SIM/UICC or in the MT). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active GSM application is present, the information is stored in the EFMSISDN under DFTelecom. If a UICC with an active USIM application is present, the information is stored in the EFMSISDN under ADFUSIM). If subscriber has different MSISDN for different services, each MSISDN is returned in a separate line.

Syntax

Type	Command	Possible Return Result	Instruction
Execute Command	AT+CNUM	<n> OK	-
Test Command	AT+CNUM=?	OK	-

Example

AT+CNUM +CNUM:"test","13012345678",129 OK	Before you first execute this command, you should execute these settings: AT$QCPBMPREF=1 AT+CPBS="ON" AT+CPBW=1,"13012345678",,"test"

8.2. AT+CREG Network Registration Report

Set command controls the presentation of an unsolicited result.

Read command returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the MT.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CREG=?	+CREG: (0-2) OK	-
Read Command	AT+CREG?	+CREG: 0,1 OK	-
Write Command	AT+CREG=<mode>	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	0	Disable network registration unsolicited result code.
	1	Enable network registration unsolicited result code.
	2	Enable network registration and location information unsolicited result code.

Example

AT+CREG=2

OK

+CREG: 1,"FFFE","61F6D15", 7

8.3. AT+COPS PLMN Selection

Set command forces an attempt to select and register the GSM/UMTS network operator.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+COPS=?	+COPS: (2,"CHN-UNICOM","UNICOM","46001",7),(1,"CHN-	-

		UNICOM","UNICOM","46001",2),(3,"CHINA MOBILE","CMCC","46000",7),(1,"CHN-CT","CT","46011",7),,(0,1,2,3,4),(0,1,2) OK	
Read Command	AT+COPS?	+COPS: 0,0,"CHN-UNICOM",7 OK	-
Write Command	AT+COPS=<mode>[,<format>[,<oper>[,<AcT>]]]	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	0	Automatic (<oper> field is ignored).
	1	Manual (<oper> field shall be present, and <AcT> optionally).
	2	Deregister from network.
	3	Set only <format>, do not attempt registration/deregistration.
<format>	0	Long format alphanumeric <oper>, for example, CHN-UNICOM.
	1	Short format alphanumeric <oper>,for example, UNICOM
	2	Numeric, for example, 46001
<oper>	String type	-
<AcT>	0	GSM
	1	GSM Compact
	2	UTRAN
	3	GSM w/EGPRS
	4	UTRAN w/HSDPA
	5	UTRAN w/HSUPA
	6	UTRAN w/HSDPA and HSUPA
	7	E-UTRAN

Example

```
AT+COPS=1,2,"46001",7

OK
```

8.4. AT+CLCK Facility Lock/Unlock

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>. 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.

Test command returns facility values supported as a compound value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CLCK=?	+CLCK: ("AB","AC","AG","AI","AO","IR","OI","OX","SC" ,"FD","PN","PU","PP","PC","PF") OK	-
Write Command	AT+CLCK=<fac>,<mode>[,< passwd>[,<class>]]	OK	-

Parameter Description

parameter	Value	Instruction
<fac>	"AB"	All Barring services (refer 3GPP TS 22.030 [19]) (applicable only for <mode>=0)
	"AC"	All 58uarante barring services (refer 3GPP TS 22.030 [19]) (applicable only for <mode>=0)

	"AG"	All 59uarante barring services (refer 3GPP TS 22.030 [19]) (applicable only for <mode>=0)
	"AI"	BAIC (Barr All Incoming Calls) (refer 3GPP TS 22.088 [6] clause 2)
	"AO"	BAOC (Barr All Outgoing Calls) (refer 3GPP TS 22.088 [6] clause 1)
	"IR"	BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer 3GPP TS 22.088 [6] clause 2)
	"OI"	BOIC (Barr Outgoing International Calls) (refer 3GPP TS 22.088 [6] clause 1)
	"SC"	SIM (lock SIM/UICC card installed in the currently selected card slot) (SIM/UICC asks password in MT power-up and when this lock command issued)
	"FD"	SIM card or active application in the UICC (GSM or USIM) fixed 59uarant memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>)
	"PN"	Network Personalization (refer 3GPP TS 22.022 [33])
	"PU"	Network sUbset Personalization (refer 3GPP TS 22.022 [33])
	"PP"	Service Provider Personalization (refer 3GPP TS 22.022 [33])
	"PC"	Corporate Personalization (refer 3GPP TS 22.022 [33])
	"PF"	Lock Phone to the very First inserted SIM/UICC card (also referred in the present document as PH-FSIM) (MT asks password when other than the first SIM/UICC card is inserted)
<mode>	0	Unlock
	1	Lock
	2	Query status
<passwd>	string type	Shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD
<class>		A sum of integers each representing a class of information (default 7 – voice, data and fax)
	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

Example

```
AT+CLCK="SC",1,"1234"

OK
```

8.5.   AT+CPWD Set New Password

Action command sets a new password for the facility lock function defined by command Facility Lock +CLCK

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CPWD=?	+CPWD: ("AB",4),("AC",4),("AG",4),("AI",4),("AO",4),("IR",4),("OI",4),("OX",4),("SC",8),("P2",8) OK	-
Write Command	AT+ CPWD =<fac>,<oldpwd>,<newpwd>	OK	-

Parameter Description

parameter	Value	Instruction
<fac>	"SC"	RUIM (PIN request)
	"P2"	RUIM PIN2
<oldpwd>	string type	Shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD.
<newpwd>	string type	The new password

8.6.   AT+COPN Read Operator Names

The execute command returns the list of operator names from the MT.

Syntax

Type	Command	Possible Return Result	Instruction
Execute Command	AT+COPN	- OK	-
Test Command	AT+ COPN=?	OK	-

8.7.　AT+CPLS Selection of Preferred PLMN List

This command is used to select one PLMN selector with Access Technology list in the SIM card or active application in the UICC (GSM or USIM), that is used by +CPOL command.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+ CPLS?	+CPLS: 0 OK	-
Test Command	AT+ CPLS =?	+CPLS: 0,1,2 OK	-
Write Command	AT+CPLS=<list>	OK	-

Parameter Description

parameter	Value	Instruction
<list>	0	User controlled PLMN selector with Access Technology EFPLMNwAcT,if not found in the SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC)
	1	Operator controlled PLMN selector with Access Technology EFOPLMNwAcT
	2	HPLMN selector with Access Technology EFHPLMNwAcT

9. MOBILE EQUIPMENT COMMANDS

9.1. AT+CPAS Phone Activity Status

Execution command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone.

Test command returns values supported by the MT as a compound value.

Syntax

Type	Command	Possible Return Result	Instruction
Execute Command	AT+ CPAS	+CPAS: <stat> OK	-
Test Command	AT+ CPAS =?	+CPAS: (0,3,4) OK	-

Parameter Description

parameter	Value	Instruction
<stat>	0	Ready (MT allows commands from TA/TE)
	3	Ringing (MT is ready for commands from TA/TE, but the ringer is active)
	4	Call in progress (MT is ready for commands from TA/TE, but a call is in progress)

9.2. AT+CFUN Set Phone Functionality

This set command selects the level of functionality <fun> in the MT. Level "full functionality" is where the highest level of power is drawn. "Minimum functionality" is where minimum power is drawn. Level of functionality between these may also be specified by manufacturers. When supported by manufacturers, MT resetting with <rst> parameter may be utilized.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+ CFUN?	+CFUN: 1 OK	-
Test Command	AT+ CFUN=?	+CFUN: (0-1,4-7),(0-1) OK	-
Write Command	AT+CFUN=<fun>[,<rst>]	-	-

Parameter Description

parameter	Value	Instruction
<fun>	0	Minimum functionality.
	1	Full functionality.
	4	Disable phone both transmit and receive RF circuits.
	5	Set Factory Test Mode.
	6	Set it Reset.
	7	Set it Offline.
<rst>	0	Do not reset the MT before setting it to <fun> power level.
	1	UE resets and restarts.

9.3.   AT+CPIN Enter PIN

This set command sends to the MT a password which is necessary before it can be operated (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.

NOTE: SIM PIN, SIM PUK, PH-SIM PIN, PH-FSIM PIN, PH-FSIM PUK, SIM PIN2 and SIM

PUK2 refer to the PIN of the selected application on the UICC. For example, in an UTRAN context, the selected application on a UICC should be a USIM and the SIM PIN then represents the PIN of the selected USIM. See TS 31.101 [65] for further details on application selection on the UICC.

If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, is used to replace the old pin in the SIM.

NOTE: Commands which interact with MT that are accepted when MT is pending SIM PIN, SIM PUK, or PH-SIM are: +CGMI, +CGMM, +CGMR, +CGSN, D112; (emergency call), +CPAS, +CFUN, +CPIN, +CDIS (read and test command only), and +CIND (read and test command only).

Read command returns an alphanumeric string indicating whether some password is required or not.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+CPIN?	+CPIN: READY OK	-
Test Command	AT+ CPIN =?	OK	-
Write Command	AT+ CPIN =<pin>[,<newpin>]	- OK	-

Parameter Description

parameter	Value	Instruction
<pin>	string type values	
<newpin>	string type values	

9.4.   AT+CSQ Signal Quality

Execution command returns received signal strength indication <rssi> and channel bit error rate <ber> from the MT.

Test command returns values supported as compound values.

Syntax

Type	Command	Possible Return Result	Instruction
Execute Command	AT+ CSQ	+CSQ: <rssi>,<ber> OK	-
Test Command	AT+ CSQ =?	+CSQ: (0-31,99),(0-7,99) OK	-

Parameter Description

parameter	Value	Instruction
<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>	0-7	As RXQUAL values in the table in 3GPP TS 45.008 [20] subclause 8.2.4
	99	Not known or not detectable

9.5. AT+CCLK Sets Clock

This set command sets the real-time clock of the MT.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+ CCLK?	+CCLK: "80/01/06,04:40:36" OK	-
Test Command	AT+ CCLK =?	OK	-

| Write Command | AT+ CCLK = <time> | OK | - |

Parameter Description

parameter	Value	Instruction
<time>	string type	Format is "yy/MM/dd,hh:mm:ss±zz"

9.6. AT+CSIM Generic SIM Access

This set command transmits to the MT the <command> it then shall send as it is to the SIM. In the same manner the SIM <response> shall be sent back by the MT to the TA as it is. This command allows a direct control of the SIM by an distant application on the TE. The TE shall then take care of processing SIM information within the frame specified by GSM/UMTS. Need set NV6253 as 1.

NOTE: Compared to Restricted SIM Access command +CRSM, the definition of +CSIM allows TE to take more control over the SIM-MT interface. The locking and unlocking of the interface may be done by a special <command> value or automatically by TA/MT (by interpreting <command> parameter). In case that TE application does not use the unlockcommand (or does not send a <command> causing automatic unlock) in a certain timeout value, MT may release the locking.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CSIM =?	OK	-
Write Command	AT+ CSIM = <length>,<command>	-	-

Parameter Description

parameter	Value	Instruction
<length>	Integer type	length of the characters that are sent to TE in <command> or <response> (two times the actual length of the command or response)

<command>		Command passed on by the MT to the SIM in the format as described in GSM 51.011 [28] (hexadecimal character format; refer +CSCS)

Example

```
AT+CSIM=14,"00A40004023F00"

+CSIM: 4,"6122"

OK
```

9.7.   AT+CRSM Restricted SIM Access

By using this command instead of Generic SIM Access +CSIM TE application has easier but more limited access to the SIM database. Set command transmits to the MT the SIM <command> and its required parameters. MT handles internally all SIM-MT interface locking and file selection routines. As response to the command, MT sends the actual SIM information parameters and response data. MT error result code +CME ERROR may be returned when the command cannot be passed to the SIM, but failure in the execution of the command in the SIM is reported in <sw1> and <sw2> parameters. Coordination of command requests to SIM and the ones issued by GSM/UMTS application inside the MT is implementation dependent. However the TE should be aware of the precedence of the GSM/UMTS application commands to the TE commands.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CRSM =?	OK	-
Write Command	AT+ CRSM = <command>[,<fileid> [,<P1>,<P2>,<P3> [,<data>[,<pathid>]]]]	+CRSM: 144,0,"6232820278218410A0000000871002FF86 FFFF89FFFFFFFF8A01058B062F0601010001C6 0F9001A0950100830111830101830181" OK	-

Parameter Description

parameter	Value	Instruction

<command>		Command passed on by the MT to the SIM; refer GSM 51.011 [28]
	176	READ BINARY
	178	READ RECORD
	192	GET RESPONSE
	214	UPDATE BINARY
	220	UPDATE RECORD
	242	STATUS
	203	RETRIEVE DATA
	219	SET DATA
<fileid>	Integer type	This is the identifier of a elementary datafile on SIM. Mandatory for every command except STATUS
<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 51.011 [28]
<data>	String type	Information which shall be written to the SIM (hexadecimal character format; refer +CSCS)
<pathid>	String type	Contains the path of an elementary file on the SIM/UICC in hexadecimal format as defined in ETSI TS 102 221 [60] (e.g. "7F205F70" in SIM and UICC case). The <pathid> shall only be used in the mode "select by path from MF" as defined in ETSI TS 102 221 [60].

9.8. AT+CLAC Available AT Commands

Execution command causes the MT to return one or more lines of AT Commands.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CLAC =?	OK	-

Execute Command	AT+ CLAC	... ^VERSION ^BodySaron ^VERINFO ^SBFS ... OK	-

9.9. AT+CTZU Automatic Time Zone Update

This set command enables and disables automatic time zone update via NITZ.

Read command returns the current settings in the MT.

Test command returns supported on- and off-values.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CTZU =?	+CTZU: (0-1) OK	-
Read Command	AT+ CTZU?	+CTZU: 1 OK	-
Write Command	AT+CTZU=<onoff>	OK	

Parameter Description

parameter	Value	Instruction
<onoff>	0	Disable automatic time zone update via NITZ (default).
	1	Enable automatic time zone update via NITZ.

9.10. AT+CTZR Time Zone Reporting

This set command enables and disables the time zone change event reporting. If the reporting is enabled the MT returns the unsolicited result code +CTZV: <tz> whenever the time zone is changed.

Read command returns the current reporting settings in the MT.

Test command returns supported <onoff>-values.

NOTE: The Time Zone reporting is not affected by the Automatic Time Zone setting command,+CTZU.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CTZR =?	+CTZR: (0-2) OK	-
Read Command	AT+ CTZR?	+CTZR: 0 OK	-
Write Command	AT+CTZR=<onoff>	OK	

Parameter Description

parameter	Value	Instruction
<onoff>	0	disable time zone change event reporting (default).
	1	Enable time zone change event reporting

9.11. AT+CMEE Report Mobile Termination error

This set command disables or enables the use of result code +CME ERROR: <err> as an indication of an error relating to the functionality of the MT. When enabled, 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.

Test command returns values supported as a compound value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CMEE =?	+CMEE: (0,1,2) OK	-
Read Command	AT+ CMEE?	+CMEE: 2 OK	-
Write Command	AT+ CMEE =<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Disable +CME ERROR: <err> result code and use ERROR instead
	1	Enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)
	2	Enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

10. UMTS-SPECIFIC PACKET DOMAIN COMMANDS

10.1. AT+CGDCONT Define PDP Context

The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined

The read command returns the current settings for each defined context.

The test command returns values supported as a compound value. If the MT supports several PDP types, <PDP_type>, the parameter value ranges for each <PDP_type> are returned on a separate line

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGDCONT =?	+CGDCONT: (1-24),"IP",,,(0-3),(0-4),(0-1),(0-1) +CGDCONT: (1-24),"PPP",,,(0-3),(0-4),(0-1),(0-1) +CGDCONT: (1-24),"IPV6",,,(0-3),(0-4),(0-1),(0-1) +CGDCONT: (1-24),"IPV4V6",,,(0-3),(0-4),(0-1),(0-1) OK	-
Read Command	AT+ CGDCONT?	+CGDCONT: 1,"IPV4V6","","0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0",0,0,0,0 OK	-
Write Command	AT+ CGDCONT =[<cid> [,<PDP_type> [,<APN> [,<PDP_addr> [,<d_comp> [,<h_comp>]]]]]]	-	-

Parameter Description

parameter	Value	Instruction

<cid>	1-24	(PDP Context Identifier) A numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command
<PDP_type>	String type	"IP","IPV6","IPV4V6","PPP"
<APN>	String type	(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_addr>	String type	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 thenull 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 44.065 [61])
	0	off(default if value is omitted)
	1	on (manufacturer preferred compression)
	2	V.42bis
<h_comp>		A numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62])
	0	off (default if value is omitted)
	1	on (manufacturer preferred compression)
	2	RFC1144 (applicable for SNDCP only)
	3	RFC2507
	4	RFC3095 (applicable for PDCP only)

Example

```
AT+CGDCONT=2,"IP"

OK
```

10.2. AT+CGDSCONT Define Secondary PDP Context

The set command specifies PDP context parameter values for a Secondary PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command.

A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined

The read command returns the current settings for each defined context.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGDSCONT =?	+CGDSCONT: (1-24),(),"IP",(0-3),(0-4) +CGDSCONT: (1-24),(),"PPP",(0-3),(0-4) +CGDSCONT: (1-24),(),"IPV6",(0-3),(0-4) +CGDSCONT: (1-24),(),"IPV4V6",(0-3),(0-4) OK	-
Read Command	AT+ CGDSCONT?	+CGDSCONT: OK	-
Write Command	AT+ CGDSCONT =[<cid>, <p_cid>, [,<d_comp> [,<h_comp>]]]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	(PDP Context Identifier) A numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command
<p_cid>	1-24	(Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command.

		The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.
<d_comp>		A numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 44.065 [61])
	0	off(default if value is omitted)
	1	on (manufacturer preferred compression)
	2	V.42bis
<h_comp>		A numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61] and 3GPP TS 25.323 [62])
	0	off (default if value is omitted)
	1	on (manufacturer preferred compression)
	2	RFC1144 (applicable for SNDCP only)
	3	RFC2507
	4	RFC3095 (applicable for PDCP only)

10.3. AT+CGTFT Traffic Flow Template

This command allows the TE to specify a Packet Filter – PF for a Traffic Flow Template – TFT that is used in the GGSN for routing of down-link packets onto different QoS flows towards the TE. The concept is further described in the 3GPP TS 23.060[47]. A TFT consists of from one and up to eight Packet Filters, each identified by a unique <packet filter identifier>. A Packet Filter also has an <evaluation precedence index> that is unique within all TFTs associated with all PDP contexts that are associated with the same PDP address.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGTFT =?	-	-
Read Command	AT+ CGTFT?	+CGTFT: OK	-

| Write Command | AT+ CGTFT =[<cid>, [<packet filter identifier>, <evaluation precedence index> [,<source address and subnet mask> [,<protocol number (ipv4) / next header (ipv6)> [,<destination port range> [,<source port range> [,<ipsec security parameter index (spi)> [,<type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask> [,<flow label (ipv6)>]]]]]]]]] | OK | - |

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).
<packet filter identifier>	1-2	-
<evaluation precedence index>	0-255	-
<source address and subnet mask>	-	0.0.0.0.0.0.0.0 to 255. 255. 255. 255. 255. 255. 255. 255 'a1.a2.a3.a4.m1.m2.m3.m4', for Ipv4, 'a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16. m1.m2.m3.m4.m5.m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16', for Ipv6.
<protocol number (ipv4) / next header (ipv6)>	0-255	-
<destination port range>	-	0.0 to 65535.65535 Consists of dot-separated numeric (0-65535) parameters on the form 'f.t'.
<source port range>	-	0.0 to 65535.65535 Consists of dot-separated numeric (0-65535) parameters on the form 'f.t'.
<ipsec security parameter index (spi)>	-	Hexadecimal parameter, value range from 00000000 to FFFFFFFF.
<type of service (tos) (ipv4) and mask / traffic class (ipv6) and mask>	-	0.0 to 255.255 Dot-separated numeric (0-255) parameters on the form 't.m'.
<flow label (ipv6)>	-	Hexadecimal parameter, value range from 00000 to FFFFF.Valid for Ipv6 only

10.4. AT+CGQREQ Quality Of Service Profile (Requested)

This command allows the TE to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

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 +CGQREQ 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. A special form of the set command, +CGQREQ= <cid> causes the requested profile for context number <cid> to become undefined. The read command returns the current settings for each defined context.

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.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGQREQ =?	+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQREQ: "IPV4V6",(0-3),(0-4),(0-5),(0-9),(0-18,31) OK	-
Read Command	AT+ CGQREQ?	+CGQREQ: OK	-
Write Command	AT+ CGQREQ =[<cid> [,<precedence > [,<delay> [,<reliability> [,<peak> [,<mean>]]]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

<precedence>	1-3	A numeric parameter which specifies the precedence class.
<delay>	1-4	A numeric parameter which specifies the delay class.
<reliability>	1-5	A numeric parameter which specifies the reliability class.
<peak>	1-4	A numeric parameter which specifies the peak throughput class.
<mean>	1-18,31	A numeric parameter which specifies the mean throughput class.

10.5. AT+CGQMIN Quality Of Service Profile (Minimum acceptable)

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.

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.

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.

The read command returns the current settings for each defined context.

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.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGQMIN =?	+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31) +CGQMIN: "IPV4V6",(0-3),(0-4),(0-5),(0-9),(0-18,31) OK	-
Read Command	AT+ CGQMIN?	+CGQMIN: OK	-
Write Command	AT+ CGQMIN =[<cid> [,<precedence > [,<delay>	OK	-

[,<reliability> [,<peak> [,<mean>]]]]]]	

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).
<precedence>	1-3	A numeric parameter which specifies the precedence class.
<delay>	1-4	A numeric parameter which specifies the delay class.
<reliability>	1-5	A numeric parameter which specifies the reliability class.
<peak>	1-4	A numeric parameter which specifies the peak throughput class.
<mean>	1-18,31	A numeric parameter which specifies the mean throughput class.

10.6. AT+CGEQREQ 3G Quality Of Service Profile (Requested)

This command allows the TE to specify a UMTS Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and sent to the network only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQREQ 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.

A special form of the set command, +CGEQREQ= <cid> causes the requested profile for context number <cid> to become undefined.

The read command returns the current settings for each defined context.

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.

Syntax

Type	Command	Possible Return Result	Instruction

Test Command	AT+ CGEQREQ=?	- OK	-
Read Command	AT+ CGEQREQ?	OK	-
Write Command	AT+ CGEQREQ =[<cid> [,<Traffic class>[,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL>[,<Guaranteed bitrate DL> [,<Delivery order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>[,<Source statistics descriptor>[,<Signalling indication>]]]]]]]]]]]]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).
< Traffic class>		A numeric parameter that indicates the type of application for which the UMTS bearer service is 80uarantee.
	0	conversational
	1	streaming
	2	interactive
	3	background
	4	subscribed value
< Maximum bitrate UL>	0-384	A numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Maximum bitrate DL>	0-384	A numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be

		provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Guaranteed bitrate UL>	0-384	A numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Guaranteed bitrate DL>	0-384	A numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Delivery order>		A numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not..
	0	No
	1	Yes
	2	subscribed value
<Maximum SDU size>	0-1520	A numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5)
<SDU error ratio>	String type	A string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of 5•10-3 would be specified as '5E3' (e.g. AT+CGEQREQ=…,'5E3',…). '0E0' means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5). '0E0','1E1','1E2','7E3','1E3','1E4','1E5','1E6'
<Residual bit error ratio>	String type	A string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of 5•10-3 would be specified as '5E3' (e.g. AT+CGEQREQ=…,'5E3',…).

		'0E0' means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
		'0E0','1E2','1E3','1E4','1E5','1E6' ,'4E3', '5E2','5E3','6E8'
<Delivery erroneous SDUs>		A numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
	0	No
	1	Yes
	2	no detect
	3	subscribed value
<Transfer delay>	0, 100-400	A numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Traffic handling priority>	0-3	A numeric parameter that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Source Statistics Descriptor>		Specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
	0	Characteristics of SDUs is unknown
	1	Characteristics of SDUs corresponds to a speech source
<Signalling Indication>		Indicates 82uarantee content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
	0	PDP context is not optimized for signaling.
	1	PDP context is optimized for signaling<PDP_type> (see +CGDCONT and +CGDSCONT commands).

10.7. AT+CGEQMIN 3G Quality Of Service Profile (Minimum acceptable)

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/Modify PDP Context Accept message.

The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and checked against the negotiated profile only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQMIN 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.

A special form of the set command, +CGEQMIN= <cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile.

The read command returns the current settings for each defined context.

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.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGEQMIN=?	-	-
Read Command	AT+ CGEQMIN?	OK	-
Write Command	AT+ CGEQMIN =[<cid> [,<Traffic class>[,<Maximum bitrate UL> [,<Maximum bitrate DL> [,<Guaranteed bitrate UL>[,<Guaranteed bitrate DL> [,<Delivery order> [,<Maximum SDU size> [,<SDU error ratio> [,<Residual bit error ratio> [,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>[,<Source statistics descriptor>[,<Signalling indication>]]]]]]]]]]]]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).
< Traffic class>		A numeric parameter that indicates the type of application for which the UMTS bearer service is 83uarantee.
	0	conversational

	1	streaming
	2	interactive
	3	background
	4	subscribed value
< Maximum bitrate UL>	0-384	A numeric parameter that indicates the maximum number of kbits/s delivered to UMTS (up-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Maximum bitrate DL>	0-384	A numeric parameter that indicates the maximum number of kbits/s delivered by UMTS (down-link traffic) at a SAP. As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Guaranteed bitrate UL>	0-384	A numeric parameter that indicates the guaranteed number of kbits/s delivered to UMTS (up-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
< Guaranteed bitrate DL>	0-384	A numeric parameter that indicates the guaranteed number of kbits/s delivered by UMTS (down-link traffic) at a SAP (provided that there is data to deliver). As an example a bitrate of 32kbit/s would be specified as '32' (e.g. AT+CGEQREQ=…,32, …). If the parameter is set to '0' the subscribed value will be requested. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Delivery order>		A numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not..
	0	No
	1	Yes
	2	subscribed value

<Maximum SDU size>	0-1520	A numeric parameter (1,2,3,…) that indicates the maximum allowed SDU size in octets. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5)
<SDU error ratio>	String type	A string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of 5•10-3 would be specified as '5E3' (e.g. AT+CGEQREQ=…,'5E3',…). '0E0' means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5). '0E0','1E1','1E2','7E3','1E3','1E4','1E5','1E6'
<Residual bit error ratio>	String type	A string parameter that indicates the target value for the fraction of SDUs lost or detected as erroneous. SDU error ratio is defined only for conforming traffic. The value is specified as 'mEe'. As an example a target SDU error ratio of 5•10-3 would be specified as '5E3' (e.g. AT+CGEQREQ=…,'5E3',…). '0E0' means subscribed value (refer 3GPP TS 24.008 [8] subclause 10.5.6.5). '0E0','1E2','1E3','1E4','1E5','1E6' ,'4E3', '5E2','5E3','6E8'
<Delivery erroneous SDUs>		A numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.
	0	No
	1	Yes
	2	no detect
	3	subscribed value
<Transfer delay>	0, 100-400	A numeric parameter (0,1,2,…) that indicates the targeted time between request to transfer an SDU at one SAP to its delivery at the other SAP, in milliseconds. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
<Traffic handling priority>	0-3	A numeric parameter that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers. If the parameter is set to '0' the subscribed value will be requested (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).

<Source Statistics Descriptor>		Specifies characteristics of the source of the submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
	0	Characteristics of SDUs is unknown
	1	Characteristics of SDUs corresponds to a speech source
<Signalling Indication>		Indicates 86uarantee content of submitted SDUs for a PDP context. This parameter should be provided if the Traffic class is specified as interactive (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
	0	PDP context is not optimized for signaling.
	1	PDP context is optimized for signaling<PDP_type> (see +CGDCONT and +CGDSCONT commands).

10.8. AT+CGATT PS Attach Or Detach

The execution 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.250 command state. If the MT is already in the requested state, the command is ignored and the OK response is returned. If the requested state cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

Any active PDP contexts will be automatically deactivated when the attachment state changes to detached

The read command returns the current Packet Domain service state.

The test command is used for requesting information on the supported Packet Domain service states.

NOTE: This command has the characteristics of both the V.250 action and parameter commands. Hence it has the read form in addition to the execution/set and test forms.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGATT=?	+CGATT: (0,1) OK	-
Read Command	AT+ CGATT?	+CGATT: 1 OK	-

| Write Command | AT+ CGATT =<state> | OK | - |

Parameter Description

parameter	Value	Instruction
<state>		Indicates the state of PS attachment
	0	Detached
	1	Attached

10.9. AT+CGACT Activates or Deactivates Specified PDP

The execution command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.250 command state. If any PDP context is already in the requested state, the state for that context remains unchanged. If the requested state for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and them attempts to activate the specified contexts. If the attach fails then the MT responds with ERROR or, if extended error responses are enabled, with the appropriate failure-to-attach error message.

If no <cid>s are specified the activation form of the command activates all defined contexts.

If no <cid>s are specified the deactivation form of the command deactivates all active contexts.

The read command returns the current activation states for all the defined PDP contexts.

The test command is used for requesting information on the supported PDP context activation states.

NOTE. This command has the characteristics of both the V.250 action and parameter commands. Hence it has the read form in addition to the execution/set and test forms.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGACT=?	+CGACT: (0,1) OK	-

Read Command	AT+ CGACT?	+CGACT: 1,0	-
		+CGACT: 2,0	
		OK	
Write Command	AT+ CGACT = [<state>[,<cid>[,<cid>[,…]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<state>		Indicates the state of PDP context activation
	0	Deactivated
	1	Activated
<cid>	1-24	Specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

10.10. AT+CGDATA Enter Data State

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.250 online data state.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGDATA=?	CGDATA: ("PPP") OK	-
Write Command	AT+ CGDATA = [<L2P> ,[<cid> [,<cid> [,…]]]]	CONNECT 150000000	-

Parameter Description

parameter	Value	Instruction
<L2P>		A string parameter that indicates the layer 2 protocol to be used between the TE and MT
	NULL	none, for PDP type OSP:IHOSS (Obsolete)
	PPP	Point-to-point protocol for a PDP such as IP
	PAD	character stream for X.25 character (triple X PAD) mode (Obsolete)
	X25	X.25 L2 (LAPB) for X.25 packet mode (Obsolete).
	M-xxx	manufacturer-specific protocol (xxxx is an alphanumeric string).
<cid>	1-24	Specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

10.11. AT+CGPADDR Show PDP Address

The execution command returns a list of PDP addresses for the specified context identifiers.

The test command returns a list of defined <cid>s.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGPADDR=?	+CGPADDR: (1) OK	-
Write Command	AT+ CGPADDR = [<cid> [,<cid> [,…]]]	+CGPADDR: 1,10.226.85.88 OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	Specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

10.12. AT+CGEREP Packet Domain Event Reporting

The set command 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. <mode> controls the processing of unsolicited result codes specified within this command. <bfr> controls the effect on buffered codes when <mode> 1 or 2 is entered. If a setting is not supported by the MT, ERROR or +CME ERROR: is returned.

The read command returns the current mode and buffer settings.

The test command returns the modes and buffer settings supported by the MT as compound values.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGEREP=?	+CGEREP: (0-2),(0-1) OK	-
Read Command	AT+ CGEREP?	+CGEREP: 0,0 OK	-
Write Command	AT+ CGEREP=[<mode>[,<bfr>]]	OK	-

Parameter Description

parameter	Value	Instruction
<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).

10.13. AT+CGSMS Select Service for MO SMS Messages

The set command is used to specify the service or service preference that the MT will use to send MO SMS messages.

The read command returns the currently selected service or service preference.

The test command is used for requesting information on the currently available services and service preferences.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGSMS =?	+CGSMS: (0-3) OK	-
Read Command	AT+CGSMS?	+CGSMS: 1 OK	-
Write Command	AT+CGSMS=[<service>]	OK	-

Parameter Description

parameter	Value	Instruction
<service>	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).

10.14. AT+QCGEQMIN 3G Quality of Service Profile(Minimum Acceptable)

This command is the same as command"+CGEQMIN" for EPC profiles.

10.15. AT+QCGEQOS Define EPS Quality of Service

This command is the same as command"+CGEQOS" for EPC profiles.

10.16. AT+QCGEQREQ 3G Quality of Service Profile (Requested)

This command is the same as command"+CGEQREQ" for EPC profiles.

10.17. AT+QCGQMIN Quality of Service Profile (Minimum Acceptable)

This command is the same as command"+CGQMIN" for EPC profiles.

10.18. AT+QCGQREQ Quality of Service Profile (Requested)

This command is the same as command"+CGQREQ" for EPC profiles.

10.19. AT+QCGTFT Taffic Flow Template

This command is the same as command"+CGTFT" for EPC profiles.

11. LTE-SPECIFIC PACKET DOMAIN MODEM COMPATIBILITY COMMANDS

11.1. AT+CEREGEPS Network Registration Status

The set command controls the presentation of an unsolicited result code +CEREG: <stat> when <n>=1 and there is a change in the MT's EPS network registration status in E-UTRAN, or unsolicited result code +CEREG: <stat>[,<tac>,<ci>[,<AcT>]] when <n>=2 and there is a change of the network cell in E-UTRAN.

NOTE 1:   If the EPS MT in GERAN/UTRAN/E-UTRAN also supports circuit mode services and/or GPRS services, the +CREG command and +CREG: result codes and/or the +CGREG command and +CGREG: result codes apply to the registration status and location information for those services.

The read command returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the MT. Location information elements <tac>, <ci> and <AcT> are returned only when <n>=2 and MT is registered in the network.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CEREG=?	+CEREG: (0-2) OK	-
Read Command	AT+CEREG?	+CEREG: 0,1 OK	-
Write Command	AT+CEREG =[<n>]	OK	-

Parameter Description

parameter	Value	Instruction
<n>	0	Disable network registration unsolicited result code
	1	Enable network registration unsolicited result code

	2	Enable network registration and location information unsolicited result code

11.2. AT+CGEQOS Define EPS Quality of Service

The set command allows the TE to specify the EPS Quality of Service parameters <cid>, <QCI>, [<DL_GBR> and <UL_GBR>] and [<DL_MBR> and <UL_MBR>] for a PDP context or Traffic Flows. When in UMTS/GPRS the MT applies a mapping function to UTMS/GPRS Quality of Service. Refer subclause 9.2 for <err> values.

A special form of the set command, +CGEQOS= <cid> causes the values for context number <cid> to become undefined.

The read command returns the current settings for each defined QoS.

The test command returns the ranges of the supported parameters.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGEQOS=?	+CGEQOS: (1-24),(0-9),(0-150000),(0-50000),(0-150000),(0-50000) OK	-
Read Command	AT+CGEQOS?	OK	-
Write Command	AT+CGEQOS=[<cid>[,<QCI>[,<DL_GBR>, <UL_GBR>[,<DL_MBR>,<UL_MBR]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular EPS Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS (see the +CGDCONT and +CGDSCONT commands).
<QCI>		A numeric parameter that specifies a class of EPS QoS. (see 3GPP TS 23.203 [85])

	0	QCI is selected by network
	1-4	Value range for 95uaranteed bit rate Traffic Flows
	5-9	Value range for non-guarenteed bit rate Traffic Flows
<DL_GBR>	-	A numeric parameter which indicates DL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])
<UL_GBR>	-	A numeric parameter which indicates UL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])
<DL_MBR>	-	A numeric parameter which indicates DL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])
<UL_MBR>	-	A numeric parameter which indicates UL MBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])

11.3. AT+CGCONTRDP PDP Context Read Dynamic Parameters

The execution command returns the relevant information <bearer_id>, <apn>, <ip_addr>, <subnet_mask>, <gw_addr>, <DNS_prim_addr>, <DNS_sec_addr>, <P-CSCF_prim_addr>, <P-CSCF_sec_addr> and <IM_CN_Signalling_Flag> for a non secondary PDP Context established by the network with the primary context identifier <cid>. If the context cannot be found an ERROR response is returned.

If the MT has dual stack capabilities, two lines of information are returned per <cid>. First one line with the Ipv4 parameters followed by one line with the Ipv6 parameters.

If the parameter <cid> is omitted, the relevant information for all established PDP contexts are returned.

NOTE: The dynamic part of the PDP context will only exist if established by the network.

The test command returns a list of <cid>s associated with active contexts.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGCONTRDP=?	+CGCONTRDP: (1) OK	-
Write Command	AT+ CGCONTRDP =[<cid>]	+CGCONTRDP: 1,5,3gnet,10.227.12.5,,210.21. 196.6,221.5.88.88 OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular non secondary PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands(see the +CGDCONT and +CGDSCONT commands.).

11.4. AT+CGSCONTRDP Secondary PDP Context Read Dynamic Parameters

The execution command returns <p_cid>, <bearer_id> and <IM_CN_Signalling_Flag> for a given <cid>. If the context cannot be found an ERROR response is returned.

If the parameter <cid> is omitted, the <cid>, <p_cid>, <bearer_id> an<IM_CN_Signalling_Flag> are returned for all established PDP contexts.In EPS, the Traffic Flow parameters are returned.

NOTE: Parameters for network initiated PDP contexts are returned as well. The dynamic part of the PDP context will only exist if established by the network.

The test command returns a list of <cid>s associated with active contexts.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGSCONTRDP=?	OK	-
Write Command	AT+ CGSCONTRDP =[<cid>]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	A numeric parameter which specifies a particular PDP context or Traffic Flows definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands (see the +CGDCONT and +CGDSCONT commands.

11.5. AT+CGTFTRDP Traffic Flow Template Read Dynamic Parameters

The execution command returns the relevant information about Traffic Flow Template of <cid> together with the additional network assigned values when established by the network. If the context cannot be found an ERROR response is returned.

If the parameter <cid> is omitted, the Traffic Flow Templates for all established PDP contexts are returned.Parameters of both network and MT/TA initiated PDP contexts will be returned.

The test command returns a list of <cid>s associated with active contexts.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGTFTRDP=?	OK	-
Write Command	AT+ CGTFTRDP =[<cid>]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	Specifies a particular secondary or non secondary PDP context definition or Traffic Flows definition (see +CGDCONT and +CGDSCONT commands).

11.6. AT+CGEQOSRDPEPS Quality of Service Read Dynamic Parameters

The execution command returns the Quality of Service parameters <QCI>, [<DL_GBR> and <UL_GBR>] and [<DL_MBR> and <UL_MBR>]of the established PDP Context associated to the provided context identifier <cid>. If the context cannot be found an ERROR response is returned.

If the parameter <cid> is omitted, the Quality of Service parameters for all established PDP contexts are returned.

The test command returns a list of <cid>s associated with active contexts.

Parameters of both network and MT/TA initiated PDP contexts will be returned.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CGEQOSRDP=?	OK	-
Write Command	AT+ CGEQOSRDP =[<cid>]	OK	-

Parameter Description

parameter	Value	Instruction
<cid>	1-24	Specifies a particular Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS (see the +CGDCONT and +CGDSCONT commands).

11.7. AT+CNMPSD No More PS Data

This command indicates that no application on the MT is expected to exchange data.

When in UTRAN, if further conditions defined in 3GPP TS 25.331 [74] are met, this can cause transmission of a SIGNALLING CONNECTION RELEASE INDICATION message with the cause "UE Requested PS Data session end".

When in E-UTRAN, if further conditions defined in 3GPP TS 36.331 [86] are met, this can cause transmission of a UEAssistanceInformation message with powerPrefIndicationset to "lowPowerConsumption"to the network. Only WCDMA or TD-SCDMA are supported.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ CNMPSD=?	OK	-
Execute Command	AT+CNMPSD	OK	-

12. SMS TEXT AND PDU MODE COMMANDS

12.1. AT+CSMS Select Message Service

This set command selects messaging service <service>. It returns the types of messages supported by the ME

Read command reports current service setting along with supported message.

Test command reports the supported value of the parameter <service>.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSMS=?	+CSMS: (<service> list) OK	0,1
Read command	AT+CSMS?	+CSMS:<service>,<mt>,<mo>,<bm> > OK	-
Write Command	AT+CSMS=<service>	+CSMS:<mt>,<mo>,<bm> OK	TA return ME support service type

Parameter Description

parameter	Value	Instruction
<service>	0	The syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2 version 4.7.0
	1	The syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2+ version.
<mt>	0	Mobile terminated messages support, Type not supported
	1	Mobile terminated messages support, Type supported
<mo>	0	Mobile originated messages support, Type not supported
	1	Mobile originated messages support, Type supported
<bm>	0	Broadcast type messages support, Type not supported. Default: 0.

| | 1 | | Broadcast type messages support, Type supported. |

Example

AT+CSMS=0	Set the syntax of SMS AT commands is compatible with 3GPP
+CSMS: 1,1,1	TS 27.005 Phase 2 version 4.7.0
OK	
AT+CSMS?	
+CSMS: 0,1,1,1	
OK	
AT+CSMS=?	
+CSMS: (0-1)	
OK	

12.2.   AT+CPMS Preferred SMS Message Storage

The write command selects memory storages <mem1>,<mem2>, <mem3> to be used for reading, writing, etc.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CPMS=?	+CPMS:	-
		(list of supported <mem1>s),	
		(list of supported <mem2>s),	
		(list of supported <mem3>s)	
		OK	
Read command	AT+CPMS?	+CPMS:	-
		<mem1>,<used1>,<total1>,	

		<mem2>,<used2>,<total2>, <mem3>,<used3>,<total3> OK	
Write Command	AT+CPMS=<mem1>[, <mem2>[, <mem3>]]	+CPMS: <used1>,<total1>,<used2> ,<total2>,<used3>,<total3>	-

Parameter Description

parameter	Value	Instruction
<mem1> Reading and deleting messages storage	"ME","MT","SM","SR"	"SM": SIM card messages storage "ME": messages storage
<mem2> saving and sending messages storage	"ME","MT","SM","SR"	"SM": SIM card messages storage "ME": messages storage
<mem3> Receiving messages storage	"ME","MT","SM","SR"	"SM": SIM card messages storage "ME": messages storage
<usedX>	-	Number of SMS stored in <memX>
<totalX>	-	Number of SMS that <memX> can contain

Example

AT+CPMS="ME","ME","SM" +CPMS: 0,23,0,23,45,50 OK AT+CPMS? +CPMS: "ME",0,23,"ME",0,23,"SM",45,50 OK AT+CPMS=?	Set the messages storage is "ME","ME","SM" 0 SMS stored in <mem1>, 23 <mem1> can contain and so on

```
+CPMS:
(“ME”,”MT”,”SM”,”SR”),(“ME”,”MT”,”SM”,”SR”),(“ME”,”MT”,”SM”,”SR”)


OK
```

12.3. AT+CMGF Select SMS Message Format

The AT+CMGF command specifies the input and output format of the short messages.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGF=?	+CMGF: (list of supported <mode>s)	0,1
Read Command	AT+CMGF?	+CMGF: <mode> OK	-
Write Command	AT+CMGF=[<mode>]	OK	-

Parameter Description

parameter	Value	Instruction
<mode>	0	PDU mode, as defined in GSM 3.40 and GSM 3.41. Default: 0.
	1	Text mode

12.4. AT+CSCA SMS Service Centre Address

The command is used to update the SMSC address, through which mobile originated SMS are transmitted.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSCA=?	OK	

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

Parameter Description

parameter	Value	Instruction
<sca>	-	Service Center 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 to command AT+CSCS), type of address given by <tosca>
<tosca>	-	SC address Type-of-Address octet in integer format, when first character of <sca> is + (IRA 43) default is 145, otherwise default is 129.

Example

AT+CSCA="+8613010888500",145 OK AT+CSCA? +CSCA: "+8613010888500",145 OK	Set the Service Center Address is 8613010888500 and SC address Type-of-Address is 145 CMCC : ShenZhen City 8613800755500 CUCC : ShenZhen City 8613010888500

12.5. AT+CSMP Set Text Mode Parameters

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

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSMP=?	OK	
Read Command	AT+CSMP?	+CSMP:<fo>,<vp>,<pid>,<dcs> OK	-
Write Command	AT+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]	OK	-

Parameter Description

parameter	Value	Instruction
<fo>	-	Depending on the Command or result code: first octet of GSM 03.40 SMS-DELIVER,SMS-SUBMIT (default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format. SMS status report is supported under text mode if <fo> is set to 49.
<vp>	-	Depending on SMS-SUBMIT <fo> setting: GSM 03.40,TP-Validity-Period either in integer format (default 167), in time-string format, or if is supported, in enhanced format (hexadecimal coded string with quotes), (<vp> is in range 0… 255).
<pid>	-	GSM 03.40 TP-Protocol-Identifier in integer format (default 0).
<dcs>	-	GSM 03.38 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format depending on the command or result code

Example

AT+CSMP=17,167,0,0 OK AT+CSMP? +CSMP: 17,167,0,0 OK	Set SMS effective time is one day (167-166) *1 day

12.6. AT+CSDH Show Text Mode Parameters

The command is used to control whether detailed header information is shown in text mode result codes.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSDH=?	+CSDH: (list of supported <show>s)	
Read Command	AT+CSDH?	+CSDH: <show>	
Write Command	AT+CSDH=[<show>]	OK	

Parameter Description

parameter	Value	Instruction
<show>	0	Do not show header values defined in commands AT+CSCA and AT+CSMP (<sca>,<tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or <tooa> in+CMT, AT+CMGL, AT+CMGR result codes for SMS-DELIVERs and SMS-SUBMITs intext mode; for SMS-COMMANDs in AT+CMGR result code, do not show <pid>, <mn>, <da>, <toda>, <length> or <data>
	1	Show the values in result codes

Example

at+cmgw="18576408172"	In index 0, restore a message
> rose hello	
+CMGW: 0	
OK	
at+cmgl="all"	Show this message
+CMGL: 0,"STO UNSENT","18576408172",,,129,10	
rose hello	
at+csdh=1	Set Text Mode Parameters

OK	
at+cmgr=0	Read the index 0 message
+CMGR: "STO UNSENT","18576408172",,129,17,0,0,167,"+861380075500",145,10	
rose hello	
at+csdh=0	Set Text Mode Parameters
OK	
at+cmgr=0	
+CMGR: "STO UNSENT","18576408172",	
rose hello	

12.7. AT+CSCB Select Cell Broadcast Message Indication

The test command returns the supported <operation>s as a compound value.

The read command displays the accepted message types.

Depending on the <operation> parameter, the write command adds or deletes the message types accepted.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSCB=?	+CSCB: (list of supported <mode>s) OK	
Read Command	AT+CSCB?	+CSCB:<mode>,<mids>,<dcss> OK	
Write Command	AT+CSCB=[<mode>[,<mids>[,<dcss>]]]	OK	

Parameter Description

parameter	Value	Instruction

<mode>	[0]	message types specified in <mids> and <dcss> are accepted.
	1	message types specified in <mids> and <dcss> are not accepted.
<mids>	-	String type, all different possible combinations of CBM message identifiers.
<dcss>	-	String type; all different possible combinations of CBM data coding schemes(default is empty string)

12.8. AT+CNMI New Message Indications to TE

The command is used to select the procedure how receiving of new messages from the network is indicated to the TE when TE is active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF). If set <mt>＝2, <mt>＝3 or <ds>＝1, make sure <mode>＝1, otherwise it will return error.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CNMI=?	+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)	
Read Command	AT+CNMI?	+CNMI:<mode>,<mt>,<bm>, <ds>,<bfr> OK	
Write Command	AT+CNMI=[<mode>[,<mt >[,<bm>[,<ds>[,<bfr>]]]]]	OK	

Parameter Description

parameter	Value	Instruction

<mode>	[0]	buffer unsolicited result codes in the modem. When the buffer is full,indications may be discarded.
	1	Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.
	2	Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.
<mt> The rules for storing received SMS depend on its data coding scheme, preferred memory storage (AT+CPMS) setting and this value:	[0]	No SMS-DELIVER indications are routed to the TE.
	1	If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem3>,<index>.
	2	SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the DTE using unsolicited result code +CMT: class 2 messages and messages in the message waiting indication group (store message) result in indication as defined in <mt>=1
	3	class 3 SMS-DELIVERs are routed directly to DTE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1
<bm> The rules for storing received CBMs depend on its data coding scheme, the setting of Select CBM Types (AT+CSCB) and this value:	[0]	no CBM indications are routed to the DTE
	2	New CBMs are routed directly to the TE using unsolicited result code: +CBM: <length><CR><LF><pdu> (PDU mode enabled); or +CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled)
<ds>	[0]	No SMS-STATUS-REPORTs are routed to the TE.
	1	SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: +CDS: <length><CR><LF><pdu> (PDU mode enabled); or

		+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)
<bfr>	[0]	modem buffer of unsolicited result codes defined within this command is flushed to the DTE when <mode> 1 – 3 is entered (OK response shall be given before flushing the codes)
	1	modem buffer of unsolicited result codes defined within this command is cleared when <mode> 1 – 3 is entered

Example

AT+CPMS="SM","SM","SM" +CPMS: 42,50,42,50,42,50 OK AT+CNMI=1,2 OK +CMT: "+8618576408172",,"16/10/10,11:21:05+32" test cnmi	 New message indications to TE Sand a message to SIM Receive a message and show the message content

12.9.   AT+CMGL List SMS Messages from Preferred Store

This command is used to return messages with status value <stat> from message storage <mem1> to the TE. If the status of the message is not received unread', the status in the storage changes to 'received read'.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGL=?	+CMGL: (list of supported <stat>s)	
Write Command	AT+CMGL[=<stat>]	SMS-DELIVERs; +CMGL: <index>,<stat>,<oa/da>,[<alpha>],[	

| | | <scts>][,<tooa/toda>,<length>]<cr><lf><data>[<cr><lf>

+CMGL: <index>,<stat>,<da/oa>,[<alpha>],[<scts>][,<tooa/toda>,<length>]<cr><lf><data>[…]]

If PDU mode, command successful;

+CMGL: <index>,<stat>,[<alpha>],<length><cr><lf><pdu>[<cr><lf>

+CMGL:<index>,<stat>,[<alpha>],<length><cr><lf><pdu>[…]] | |

Parameter Description

parameter	Value	Instruction
<stat> Text Mode	"REC UNREAD"	Received unread message (i.e. new message)
	"REC READ"	Received read message
	"STO UNSENT"	Stored unsent message
	"STO SENT"	Stored sent message
	"ALL"	All messages
<stat> PDU Mode	0	Received unread message (i.e. new message)
	1	Received read message
	2	Stored unsent message
	3	Stored sent message
	4	All messages

12.10. AT+CMGS Send Message

The command is used to send message from a TE to the network (SMS-SUBMIT).

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGS=?	OK	-
Write Command	If text mode; AT+CMGS=<da>[,<toda>]<cr> text is entered <ctrl+z/esc> If PDU mode; AT+CMGS=<length><cr> PDU mode is given <ctrl+z/esc>	If text mode and sending successful; +CMGS: <mr> If PDU mode and sending successful; +CMGS: <mr>	

Parameter Description

parameter	Value	Instruction
<da>	-	Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit defaultalphabetcharacters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<toda>	-	TP-Destination-Address, Type-of-Address octet in integer format.(when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.

Example

AT+CMGS="18576408172" > hellow rose +CMGS: 37 OK	Sends message Input message content

12.11. AT+CMSS Send Message from Storage

The command is used to send message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND).

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMSS=?	OK	-
Write Command	AT+CMSS=<index>[,<da>[,<toda>]]	If text mode and sending successful; +CMSS: <mr> If PDU mode and sending successful; +CMSS: <mr>	

Parameter Description

parameter	Value	Instruction
<index>	-	In the message storage <memw>, the location value of the message to send.
<da>		Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<toda>	-	TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.

12.12. AT+CMGW Write Message to Memory

The command is used to store message (either SMS-DELIVER or SMS-SUBMIT) to memory storage <mem2>.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGW=?	OK	-
Write Command	If text mode; AT+CMGW[=<oa/da>[,<tooa/toda>[,<stat>]]]<cr> text is entered<ctrl+z> If PDU mode; AT+CMGW=<length>[,<stat>]<cr> PDU is given<ctrl+z>	+CMGW: <index>	

Parameter Description

parameter	Value	Instruction
<oa>	-	Originating-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <tooa>.
<da>		Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.
<toda>	-	TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.
<stat> Text Mode	"STO UNSENT"	stored unsent message
	"STO SENT"	stored sent message
<stat> PDU Mode	2	stored unsent message
	3	stored sent message

Example

AT+CMGW="18576408172"	Writes message to memory, the index is 0

> Rose	
+CMGW: 0	
OK	
AT+CMGL="all"	Lists all message
+CMGL: 0,"STO UNSENT","18576408172",,	
Rose	
OK	
AT+CMSS=0	Send a message from memory index 0
+CMSS: 36	
OK	

12.13. AT+CMGD Delete Message

The command is used to delete 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.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGD=?	+CMGD☺0-255),(0-4) OK	-
Write Command	AT+CMGD=<index>[,<del flag>]	OK	

Parameter Description

parameter	Value	Instruction
<index>	-	Integer type; value in the range of location numbers supported by the associated memory and start with zero
<delflag>	0	If 0 or value omitted, delete message specified in <index>.

	1	Delete all read messages from <memr> storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched.
	2	Delete all read messages from <memr> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched.
	3	Delete all read messages from <memr> storage, sent and unsent mobile originated messages, leaving unread messages untouched.
	4	Delete all messages from <memr> storage.

Example

AT+CMGL="all"	Lists all message
+CMGL: 1,"STO UNSENT","18576408172",,	Index 1 message
P!AA	
+CMGL: 0,"STO SENT","18576408172",,	Index 0 message
Rose	
OK	
AT+CMGD=1	Delete Index1 message
OK	
AT+CMGL ="all"	The index1 message have been delete
+CMGL: 0,"STO SENT","18576408172",,	
Rose	

12.14. AT+CMGC Send An SMS Command

This command used to send an SMS command.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMGC=?	OK	-

Write Command	PDU mode; AT+CMGC=<length><CR> > PDU is given<ctrl-z/esc>	+CMGC: <mr>[,<ackpdu>]	

Parameter Description

parameter	Value	Instruction
<length>	-	Integer type, 8 bit TP data unit length

Example

AT+CPMS="ME","ME","ME" +CPMS: 0,23,0,23,0,23 OK AT+CMGF=1 OK AT+CMGW= "18576408172" > test cnma test5 +CMGW: 0 OK AT+CSCS ="IRA" OK AT+CSDH=1 OK AT+CMGF =0 OK AT+CMGR=0 +CMGR: 2,,28 0891683108705505F011640B818175468071F20000A70FF4F2 9C0E1ABBDB6110BD3CA7D700 OK	 Create an SMS message with AT+CMGW Set the TE character set to IRA Set to show text mode parameter headers Set to PDU mode Reads message for PDU mode and message length Send an SMS command

```
AT+CMGC=28

>

0891683108705505F011640B818175468071F20000A70FF4F2

9C0E1ABBDB6110BD3CA7D700

+CMGC: 51

OK
```

12.15. AT+CMMS More Messages to Send

Set command controls the continuity of SMS relay protocol link. When feature is enabled (and supportedby network) multiple messages can be sent much faster as link is kept open.

Test command returns supported values as a compound value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CMMS=?	<n>	
Read Command	AT+CMGC?	OK	-
Write Command	AT+CMMS=<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Disable
	1	Keep enabled until the time between the response of the latest message send command (+CMGS,+CMSS, etc.) and the next send command exceeds 1-5 seconds (the exact value is up to Meimplementation), then ME shall close the link and TA switches <n> automatically back to 0
	2	Enable (if the time between the response of the latest message send command and the nextsendcommand exceeds 1-5 seconds (the exact value is up to ME implementation), ME shall close the linkbut TA shall not switch automatically back to <n>=0)

12.16. AT+CSAS Save Settings

Execution command saves active message service settings to a non-volatile memory. A TA can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are saved. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and therefore can not besaved.

Test command shall display the supported profile numbers for reading and writing of settings.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+CSAS=?	+CSAS: 0 OK	-
Write Command	AT+CSAS=[<profile>]	OK	

Parameter Description

parameter	Value	Instruction
<profile>	0	0…255 manufacturer specific profile number where settings are to be stored. Currently only one profile (0) is supported

12.17. AT+CRES Restore Settings

Execution command restores message service settings from non-volatile memory to active memory. A TA can contain several profiles of settings. Settings specified in commands Service Centre Address +CSCA, Set Message Parameters +CSMP and Select Cell Broadcast Message Types +CSCB (if implemented) are restored. Certain settings may not be supported by the storage (e.g. SIM SMS parameters) and there for ecan not be restored.

Syntax

Type	Command	Possible Return Result	Instruction
Write Command	AT+CRES=[<profile>]	OK	
Test Command	AT+CRES=?	+CRES: 0 OK	-

Parameter Description

parameter	Value	Instruction
<profile>	0	0…255 manufacturer specific profile number where settings are to be stored. Currently only one profile (0) is supported

13. VENDOR-SPECIFIC COMMANDS

13.1. AT$QCCLR Clear Mobile Error Log

AT$QCCLR is used to clear mobile error log.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT$QCCLR	OK	

Parameter Description

parameter	Value	Instruction
Null		

13.2. AT&V Display Dumps Configuration Para.

AT&V command is used to display dumps configuration parameters.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT&V	Dumps the status of all AT parameters applicable to the current operating mode, including the single-letter parameters not otherwise readable. Accepts no arguments.	

Parameter Description

parameter	Value	Instruction

Null			

13.3. AT$QCTER Set TE-DCE Baud Rate

AT$QCTER command is used to set TE-DCE baud rate. Sets the TE-DCE rate at which DCE will accept commands; this data rate also becomes the default and is stored in NV RAM, changing the +IPR command default rate. Test command, i.e., $QCTER=?, returns the rates supported and query command, i.e., $QCTER?, returns the rate last issued by the $QCTER command or the default rate.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCTER=?	$QCTER: (),(list of supported <rate>)	
Read Command	AT$QCTER?	$QCTER: <rate> OK	
Write Command	AT$QCTER=<rate>	OK	

Parameter Description

parameter	Value	Instruction
<rate>	300,600,1200,2400,4800,9600,19200,38400,57600,115200,230400,921600,2000000,2900000,3000000,3200000,3686400,4000000	

13.4. AT$QCDNSP Set Primary DNS IP ADDR

AT$QCDNSP command is used to set primary DNS IP address.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCDNSP=?	$QCDNSP: OK	
Read Command	AT$QCDNSP?	$QCDNSP: <address> OK	
Write Command	AT$QCDNSP=<address>	OK	

Parameter Description

parameter	Value	Instruction
<address>	<0-254>.<0-254>.<0-254>.<0-254>	

13.5. AT$QCDNSS Set Second DNS IP ADDR

AT$QCDNSS command is used to set secondary DNS IP address.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$ QCDNSS =?	$ QCDNSS: OK	
Read Command	AT$ QCDNSS?	$ QCDNSS: <address> OK	
Write Command	AT$ QCDNSS =<address>	OK	

Parameter Description

parameter	Value	Instruction

<address>	<0-254>.<0-254>.<0-254>.<0-254>		

13.6. AT$QCPDPP Set Authentication for PDP-IP

AT$QCPDPP command is used to set authentication for PDP-IP packet data calls.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPP=?	$QCPDPP: (1-24),(0-3),, OK	
Read Command	AT$QCPDPP?	$QCPDPP: <cid>,<auth_type> OK	
Write Command	AT$QCPDPP=<cid>,<auth_type>,<password>,<username>	OK	

Parameter Description

parameter	Value	Instruction
<cid>	1 to 24	Parameter specifies a particular PDP context definition. This is also used in other PDP context-related commands.
<auth_type>	0	None
	1	PAP
	2	CHAP
<password>		Parameter specifies the password used for authentication. It is required for the authentication types PAP and CHAP.
<username>		Parameter specifies the user name used for authentication. It is required for the authentication types PAP.

13.7. AT$QCPWRDN Power-down the UE

AT$QCPWRDN command is used to power-down the UE.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPWRDN=?	OK	
Exec Command	AT$QCPWRDN	OK	

Parameter Description

parameter	Value	Instruction
Null		

13.8. AT$QCDGEN Generate Data

AT$QCDGEN is used to generate data over +CGACT activated PDP context.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCDGEN=?	OK	
Write Command	AT$QCDGEN=<cid>,<data length>	OK	

Parameter Description

parameter	Value	Instruction
<cid>	1-24	Parameter specifies a particular PDP context definition. This is also used in other PDP context-related commands
<data length>	greater than 21	

Example

AT+CGACT=1,1 OK AT$QCDGEN=1,1000 OK	Activated PDP context

13.9. AT$QCSIMSTAT Display the Status of SIM

AT$QCSIMSTAT is used to disable/enable the display of the status of the SIM.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCSIMSTAT=?	$QCSIMSTAT: (0-2) OK	
Read Command	AT$QCSIMSTAT?	$QCSIMSTAT: <n>,SIM INIT COMPLETED OK	
Write Command	AT$QCSIMSTAT=<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Disables the feature
	1	Enables the feature

13.10. AT$QCCNMI New Message Indication

This is a special case of [S2] CNMI. The behavior is exactly same for all the parameters except for <mt>=2 where the route configuration will be set as similar to <mt>=0; it does not change the NV-830 settings.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCCNMI=?	$QCCNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s)	
Read Command	AT$QCCNMI?	$QCCNMI:<mode>,<mt>,<bm>, <ds>,<bfr> OK	
Write Command	AT$QCCNMI =[<mode>[,<mt >[,<bm>[,<ds>[,<bfr>]]]]]	OK	

Parameter Description

parameter	Value	Instruction
<mode>	0 to 2	please refer to the command +CNMI
<mt>	0 to 3	
<bm>	0, 2	
<ds>	0, 2	
<bfr>	0, 1	

13.11. AT$QCPINSTAT Retrieve All PIN

AT$QCPINSTAT is used to retrieve all PIN.

Syntax

Type	Command	Possible Return Result	Instruction

Read Command	AT$QCPINSTAT?	$QCPINSTAT: READY,READY,READY,READY,R EADY,READY,SIM PIN2 OK	

Parameter Description

parameter	Value	Instruction
Null		

13.12. AT$QCPDPLT Control Delays

AT$QCPDPLT is used to enable/disable tolerance for long delays is PDP call setup..

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPLT=?	$QCPDPLT: (0-1) OK	
Read Command	AT$QCPDPLT?	$QCPDPLT: <n> OK	
Write Command	AT$QCPDPLT=<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Disables waiting
	1	Enables waiting

13.13. AT$QCSYSMODE Current System Mode

AT$QCSYSMODE is used to return current system mode of ME.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$QCSYSMODE?	<mode> OK	

Parameter Description

parameter	Value	Instruction
<mode>	LTE/HSUPA/ HSDPA	Provides details about the support of LTE/HSUPA/ HSDPA; only the Read command is valid; 3GPP2 support added for MPSS NI 3.0 and later

13.14. AT$QCPDPCFGE Set PDN Teardown Time Interval

AT$QCPDPCFGE is used to set PDN teardown time interval.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPCFGE=?	$QCPDPCFGE: (1-24),(0-1),(0-122820),(0-16),(1-15,255),(0-1023),(0-3600),(0-1023),(0-1),(65280-65535),(0-999),(0-999) OK	
Read Command	AT$QCPDPCFGE?	$QCPDPCFGE: 1,0,0,0,255,20,300,0,0,0,0,0 OK	
Write Command	AT $QCPDPCFGE =<profile_id>, < APN disable flag>, <timer_value>, < APN class>, <APN bearer >,	OK	

	<max_pdn_conn_per_block>,<max_pdn_conn_timer>, <pdn_req_wait_timer>, <emergency_calls_supported>,<operator_reserved_pco>, <mcc>, <mnc>		

Parameter Description

parameter	Value	Instruction
<profile_id>	1 to 24	
< APN disable flag>	0	Enable
	1	Disable
<timer_value>	0 – 122820	
< APN class>	0 – 5	
<APN bearer>	0x1	GSM type
	0x2	UMTS type
	0x4	LTE type
	0x8	TDS type
	FF	All types
<max_pdn_conn_per_block>	0 – 1023	
<max_pdn_conn_timer>	0 – 3600	
<pdn_req_wait_timer>	0 – 1023	
<emergency_calls_supported>	0 – 1	
<operator_reserved_pco>	65280 – 65535	
<mcc>	0 – 999	
<mnc>	0 – 999	

13.15. AT$QCCTM Network Selection Menu Availability

This command used to Enable/disable cellular text telephone modem support:

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCCTM=?	$QCCTM: (0-1) OK	
Read Command	AT$ QCCTM?	$QCCTM: <n> OK	
Write Command	AT$QCCTM=<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Disable
	1	Enable

13.16. AT$QCBANDPREF Provide the Ability to Band Preferences

AT$QCBANDPREF is used to provide the ability to set/get the band preferences.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCBANDPREF =?	$QCBANDPREF: (0-1)," list of all support <pref_term > and <band_pref>" OK	
Read Command	AT$QCBANDPREF?	$QCBANDPREF: (list of set support <pref_term > and <band_pref>) OK	
Write Command	AT$QCBANDPREF= <pref_term >,	OK	

	<band_pref>		

Parameter Description

parameter	Value	Instruction
<pref_term >	0	Until a power cycle
	1	Permanent mode change
<band_pref>	"1,2,3.."	Band

Example

AT$QCBANDPREF=1,"27,28,30,31,34" OK AT$ QCBANDPREF? $QCBANDPREF: "27.WCDMA_I_IMT_2000" "28.WCDMA_II_PCS_1900" "30.WCDMA_IV_1700" "31.WCDMA_V_850" "34.WCDMA_VIII_900" OK AT$QCBANDPREF =? $QCBANDPREF: (0-1), "1.BC0_A" "2.BC0_B" …..... "46.Any" OK	Set the band pref

13.17. AT*CNTI Controls the Listing of the Technologies UE

AT*CNTI is used to Controls the listing of the technologies UE is capable of <n>: 0,1,2

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT*CNTI =?	*CNTI: (0-2) OK	
Read Command	AT*CNTI?	*CNTI: <n>,<tech> OK	
Write Command	AT*CNTI=<n>	OK	

Parameter Description

parameter	Value	Instruction
<n>	0	Technology currently in use to access the network
	1	The available technologies on the current network.
	2	All technologies supported by the device.
<tech>	GSM/GPRS/EDGE/UMTS/HSDPA/HSUPA	

13.18. AT$QCDEFPROF Set Profile Number

AT$QCDEFPROF is used to set the default profile number for specific subscription and family.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCDEFPROF=?	$QCDEFPROF: (0-1),(1-2),(1-16) OK	
Read Command	AT$QCDEFPROF?	$QCDEFPROF: 0,1,1 $QCDEFPROF: 1,1,1 OK	

Write Command	AT$QCDEFPROF= < family > < subs id > < profile id >	OK	

Parameter Description

parameter	Value	Instruction
< family >	1 to 16	
< subs id >	1 to 3	For non-DSDS target SUBS ID is limited to 1.
< profile id >	1 to 16	

13.19. AT$QCMRUE Edit MRU Database

AT$QCMRUE is used to edit MRU database.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCMRUE=?	$QCMRUE: (list of support <index>, <rat>,<band>,<channel>)	
Read Command	AT$QCMRUE?	$QCMRUE: <index> ,<rat>,<band>,<channel> OK	
Write Command	AT $QCMRUE=<index> ,<rat>,<band>,<channel> or <PLMN>	OK	

Parameter Description

parameter	Value	Instruction
<index>	0 to 11	

<rat>	0	CDMA
	1	HDR
	2	GSM
	3	WCDMA
	4	LTE
<band>	CDMA/ HDR – 0 to 19 (except 2)	
	GSM – 0 to 8	
	UMTS – 0 to 9	
	LTE – 0 to 26	
<channel>	0 to 2047	
<PLMN>	String type PLMN ID	

Example

AT$QCMRUE=0,4,17,"46000" OK AT$QCMRUE? $QCMRUE: 0,4,"17","46000"	LTE,BC17, CNCC

Note

- This command edits the MRU database on the UE. When <rat> is not CDMA/HDR then fourth argument is PLMN id. For entering automatic 3GPP MRU entries, PLMN ID should be a NULL string.
- For CDMA/HDR mode, the write cmd is: AT$QCMRUE=<0-11>,<0-1>,<0,1,10>,<0-2047>
  For the rest: AT$QCMRUE=<0-11>,<2-4>,<BAND_VALUE>,<PLMN ID>. Remember takes a quotes in the PLMN id, for example, China Unicom, AT$QCMRUE=0,2,8,"46001" .

13.20. AT$QCMRUC Clear/Delete MRU Database

AT$QCMRUC is used to clear/delete MRU database

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT$QCMRUC	OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.21. AT$QCAPNE Edit APN VALUE

AT$QCAPNE is used to edit APN values in APN table.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCMRUE=?	$QCAPNE: (1-24),(0-16),,(IPV6 and IPV4V6), LTE,(0-1),(0-122820) OK	
Read Command	AT$QCAPNE?	$QCAPNE: <Profile ID> ,<APN Class>,<APN Name>,<PDP Type>,<APN Bearer type> ,<APN Flag>,< APN Timer> OK	
Write Command	AT$QCAPNE=<Profile ID> ,<APN Class>,<APN Name>,<PDP Type> ,<APN Bearer type> ,<APN Flag>,< APN Timer>	OK	

Parameter Description

parameter	Value	Instruction
<Profile ID>	1 to 24	
<APN Class>	0 to 4	
<APN Name>	String type, maximum length is 100	
<PDP Type>	String type, maximum length is 8	
<APN Bearer type>	String type, maximum length is 3	
<APN Flag>	0 to 1	
< APN Timer>	0 to 122820	

13.22. AT$QCPDPIMSCFGE Edit PDP Profile Registry

AT$QCPDPIMSCFGE is used to edit PDP profile registry.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPIMSCFGE=?	$QCPDPIMSCFGE: (1-24),(0-1),(0-1),(0-1) OK	
Read Command	AT$QCPDPIMSCFGE?	$QCPDPIMSCFGE: <Profile ID>, <P-CSCF Address Flag>, <DHCP Flag>, <CN Flag> OK	
Write Command	AT$QCPDPIMSCFGE= <Profile ID>, <P-CSCF Address Flag>, <DHCP Flag>, <CN Flag>	OK	

Parameter Description

parameter	Value	Instruction
<Profile ID>	1 to 24	
<P-CSCF Address Flag>	0,1	Disable, enable
<DHCP Flag>	0,1	Disable, enable
<CN Flag>	0,1	Disable, enable

13.23. AT$QCCLAC List Available AT Commands

AT$QCCLAC is used to list all available AT commands.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT$QCCLAC	List all available AT commands	

Parameter Description

parameter	Value	Instruction
NULL		

13.24. AT^SPN Display the Brand Information

AT^SPN is used to display the brand information from EF-SPN.

Syntax

Type	Command	Possible Return Result	Instruction

| Exec Command | AT^SPN | ^SPN:<disp_rplmn>,<coding>,<spn _name> | |
| | | OK | |

Parameter Description

parameter	Value	Instruction
<disp_rplmn>	0	RPLMN will not be displayed
	1	RPLMN is required to be displayed
	9	this field is noneffective, and there 挞 no need for reading spn_name field again
<coding>	0	GSM 7 bit Default Alphabet
	1	USC2 mode
<spn_name>		character string, the length will not exceed 16 bytes

13.25. AT$QCRMCALL Trigger A RmNet Call

AT$QCRMCALL is used to trigger a RmNet call via AT command.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCRMCALL=?	$QCRMCALL: (0-1),(1,2,3,4,5,6,7,8),(1-3),(1-2),(1-24),, OK	
Read Command	AT$QCRMCALL?	OK	
Write Command	AT $QCRMCALL =<Action>, <Instance> [,<IP Type> [,<Tech Pref > [,<umts profile number>	$QCRMCALL:<Instance>, <V4> $QCRMCALL:<Instance>, <V6> OK	

[,<cdma profile number > [,<APN>]]]]]			2018-07-02

Parameter Description

parameter	Value	Instruction
<Action>	0	
	1	
<Instance>	1 to 12	
<IP Type>	1	IPV4
	2	IPV6
	3	IPV4V6
<Tech Pref >	1	3GPP2
	2	3GPP
<umts profile number>	1-16	
<APN>		String type, maximum length is 100

Example

AT$QCRMCALL= 1,1,1,2,1 $QCRMCALL: 1, V4 OK	

Note

- AT$QCRMCALL=1,1(For CDMA, set NV910,906)

13.26. AT$QCDRX Provide the Ability to DRX Coefficient

AT$QCDRX is used to provide the ability to set/get the DRX coefficient.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCDRX=?	$QCDRX: (0,6-9) OK	
Read Command	AT$QCDRX?	$QCDRX: <drx coefficient> OK	
Write Command	AT$QCDRX= <drx coefficient>	OK	

Parameter Description

parameter	Value	Instruction
<drx coefficient>	6	CN = 6, T = 32
	7	CN = 7, T = 64
	8	CN = 8, T = 128
	9	CN = 9, T = 256

13.27. AT^DSCI Control Call Event

AT^DSCI is used to enables/disables ^DSCI URC(call event).

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT^DSCI =?	^DSCI: (0-1) OK	
Read Command	AT^DSCI?	^DSCI: <dsci_val> OK	
Write Command	AT^DSCI=<dsci_val >	OK	

Parameter Description

parameter	Value	Instruction
<dsci_val >	0,1	

13.28. AT^CARDMODE Return Card Mode

AT^CARDMODE is used to return the mode of the card amongst SIM or USIM.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT^CARDMODE	OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.29. AT^SYSCONFIG Set System Configuration

AT^SYSCONFIG is used to set system configuration.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^SYSCONFIG?	^SYSCONFIG:<mode>,<acqorder>, <roam>,<srvdomain>	
Write Command	AT^SYSCONFIG=<mode>,<acqorder>,<roam>,<srvdomain>	OK	

Parameter Description

parameter	Value	Instruction
<mode>	2	Automatically select
	13	GSM ONLY
	14	WCDMA ONLY
	15	TDSCDMA ONLY
	16	no change
<acqorder>	0	Automatically
	1	GSM first, UTRAN second
	2	UTRAN first, GSM second
	3	No change
<roam>	0	not support
	1	can roam
	2	No change
<srvdomain>	0	CS_ONLY
	1	PS_ONLY
	2	CS_PS
	3	ANY
	4	No change

13.30. AT^SYSINFO Inquire Current Message

AT^SYSINFO is used to inquire current system message.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT^SYSINFO	^SYSINFO: <srv_status>, <srv_domain>, <roam_status>, <sys_mode>, <sim_stat>	

Parameter Description

parameter	Value	Instruction
<srv_status>	0	no service
	1	limited service
	2	service available
	3	limited area service
	4	power saving and dormancy status.
<srv_domain>	0	no service
	1	only CS service
	2	only PS service
	3	PS+CS service
	4	CS and PS don't register and are in the status of serching
	255	CDMA doesn't support
<roam_status>	0	non-roaming status.
	1	roaming status
<sys_mode>	0	no service
	1	AMPS mode (not use provisionally)
	2	CDMA mode
	3	GSM/GPRS mode
	4	HDR mode
	5	WCDMA mode
	6	GPS mode
	7	GSM/WCDMA
	8	CDMA/HDR HYBRID
<sim_stat>	1	UIM card status available
	240	ROMSIM version
	255	UIM card doesn't exist

13.31. AT$QCSQ Return RSCP

AT$QCSQ is used to return RSCP, ECIO, SIR, PATHLOSS, and RSSI if present.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCSQ=?	AT$QCSQ=? $QCSQ: (-121 - -25),(-31 – 0),(-10 – 20),(46 – 148),(-121 - -25) OK	
Exec Command	AT$QCSQ	$QCSQ: <rscp>,<ecio>,<sir>,<pathloss>,<rssi> OK	

Parameter Description

parameter	Value	Instruction
<rscp>	-121 - -25	
<ecio>	-31 – 0	
<sir>	-10 – 20	
<pathloss>	46 – 14	
<rssi>	-121 - -25	

13.32. AT$QCRPW Report the Received Radio Signal Power

AT$QCRPW is used to report the received radio signal power in a scale of 0 to 75.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCRPW=?	$QCRPW: (0-75) OK	

Exec Command	AT$QCRPW	$QCRPW: 75 OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.33. AT$QCANTE Report Number of Antenna

AT$QCANTE is used to report number of antenna bars in a scale of 0 to 4 based on RSSI value.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCANTE=?	AT$QCANTE=? $QCANTE: (0-4) OK	
Exec Command	AT$QCANTE	$QCANTE: 4 OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.34. AT$QCSIMAPP Select Active Subscription

AT$QCSIMAPP is applicable only for Multi SIM target. User can select Active subscription.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCSIMAPP=?	$QCSIMAPP: 0,"SUB1","L" OK	
Write Command	AT$QCSIMAPP=<QCSIMAPPVAL>	OK	

Parameter Description

parameter	Value	Instruction
<QCSIMAPPVAL>	0	SIM slot 1
	1	SIM slot 2
	2	SIM slot 3

13.35. AT$QCPBMPREF Choose the Application

AT$QCPBMPREF is used to choose the application and local or global phonebook type.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPBMPREF=?	$QCPBMPREF☺0-4) 0 – Slot 1 Global Phone Book 1 – Apps 1 Local Phone Book 2 – Slot 2 Global Phone Book 3 – Apps 2 Local Phone Book OK	
Read Command	AT$QCPBMPREF?	$QCPBMPREF: <Preference> <Preference> -- Slot n Global Phone Book <Preference> -- Apps 1 Local Phone Book	

Write Command	AT$QCPBMPREF= <Preference>	OK	

Parameter Description

parameter	Value	Instruction
<Preference>	0	Slot 1 Global Phone Book
	1	Apps 1 Local Phone Book
	2	Slot 2 Global Phone Book
	3	Apps 2 Local Phone Book

13.36. AT$QCRSRP Display the Cell Info

 AT$QCRSRP is used to display neighbor cell information cell ID, EARFCN, RSRP.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$QCRSRP?	$QCRSRP: cell ID, EARFCN, RSRP OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.37. AT$QCRSRQ Display the Cell Info

AT$QCRSRQ is used to display neighbor cell information cell ID, EARFCN, RSRQ.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$QCRSRQ?	$QCRSRQ: Cell id, EARFCN, RSRQ OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.38. AT$QCACQDBC Clear ACQ Database

AT$QCACQDBC is used to clear ACQ database..

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT$QCACQDBC	OK	

Parameter Description

parameter	Value	Instruction
NULL		

13.39. AT$QCATMOD Indicate the SIOLIB AT Command Processing State

AT$QCATMOD is used indicate the SIOLIB AT Command Processing State.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCATMOD=?	$QCATMOD☺0 – 12),(0 – 3) OK	

Read Command	AT$QCCOPS	$QCATMOD: <port_e_type>,< at_state >	
		OK	

Parameter Description

parameter	Value	Instruction
<port_e_type>	0 – 12	
< at_state >	0 – 3	

13.40. AT$QCCOPS Operator Selection

AT$QCCOPS same as +COPS command and only exception is that PLMN can be specified in automatic PLMN selection mode as well.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCCOPS =?	$QCCOPS: (list all current operator)	
		OK	
Read Command	AT$QCCOPS	$QCCOPS:[<mode>[,<format>[,<oper>[,<AcT>]]]]	
		OK	

Parameter Description

parameter	Value	Instruction
<mode>	0 – 12	
<format>	0 – 3	

13.41. AT^MODE Executes Parameter Register

AT^MODE is Controls the presentation of ^MODE unsolicited result code

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT^MODE=?	^MODE: (0-1) OK	
Read Command	AT^MODE?	^MODE: <present> OK	
Write Command	AT^MODE= <present>	OK	

Parameter Description

parameter	Value	Instruction
<present>	0	Disable
	1	Enable

13.42. AT$QCSIMT Indicate SIM Type

AT$QCSIMT is used to indicate SIM type

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$QCSIMT AT$QCSIMT?	$QCSIMT: <SIM type> OK	

Parameter Description

parameter	Value	Instruction
<SIM type>	RUIM	
	USIM	

	SIM	

13.43. AT$QCNSP Network Selection

AT$QCSIMT is used to Configures the network selection preferences

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCNSP=?	$QCNSP: (list of support <mode_pref>,<net_sel_pref>,<acq_order_pref>) OK	
Read Command	AT$QCNSP?	$QCNSP:<mode_pref>,<net_sel_pref>,<acq_order_pref> OK	
Write Command	AT$QCNSP=<mode_pref>,<net_sel_pref>,<acq_order_pref>	OK	

Parameter Description

parameter	Value	Instruction
<mode_pref>	0	Automatic
	1	GSM
	2	WCDMA
	6	LTE
<net_sel_pref>	0	Automatic
	1	Manual
	2	Limited
<acq_order_pref>	0	Automatic
	1	GSM

	2	WCDMA	
	3	LTE	

13.44. AT$QCRCIND Remote Call Indications

AT$QCRCIND is used to controls the presentation of unsolicited remote call indications

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCRCIND=?	$QCRCIND: (0-1) OK	
Read Command	AT$QCRCIND?	$QCRCIND: \<present> OK	
Write Command	AT$QCRCIND= \<present>	OK	

Parameter Description

parameter	Value	Instruction
\<present>	0	Disable
	1	Enable

13.45. AT$QCPDPCFGEXT Set and Get MBIM Context Type

AT$QCPDPCFGEXT is used to set and get MBIM context type

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPCFGEXT=?	$QCRCIND: (list of <\cid>,\<mbim_context>,\<roaming	

		disable flag value>,<roaming disable timer value>)	
		OK	
Read Command	AT$QCPDPCFGEXT?	$QCRCIND:<cid>,<mbim_context>, <roaming disable flag value>,<roaming disable timer value>	
		OK	
Write Command	AT$QCPDPCFGEXT =<cid>,<mbim_context>,< roaming disable flag value>,<roaming disable timer value>	OK	

Parameter Description

parameter	Value	Instruction
<cid>	1-24	
<mbim_context>	4	
<roaming disable flag value>	0-1	
<roaming disable timer value>	0-255	

13.46. AT$QCPRFCRT Create or Delete Any 3GPP2/EPC Profile

AT$QCPDPCFGEXT is used to used to create or delete any 3GPP2/EPC profile. This command uses

tag:<value> syntax for all the parameters which allows users to specify these parameters in any order.

OPRT, PERSIST, TECH, PID, APNNAME and PDPTYPE are tags defined for parameters in this command.

Syntax

Type	Command	Possible Return Result	Instruction

Test Command	AT$QCPRFCRT=?	$QCPRFCRT: OPRT☺1,2),TECH☺1,2),PERSIST ☺0,1),PID☺100,179),APNNAME:"", PDPTYPE:"" OK	
Read Command	AT$QCPRFCRT?	$QCPRFCRT: PID: <Value>,TECH: <Value>,PERSIST: <Value>,APNNAME:" <Value>",PDPTYPE:" <Value>" OK	
Write Command	AT$QCPRFCRT=OPRT: <Value>,PERSIST:<Valu e>,TECH:<Value>,PID: <Value>,APNNAME:<Val ue>,PDP TYPE:<Value>	OK	

Parameter Description

parameter	Value	Instruction
OPRT:<Value>	1	Create profile
	2	Delete profile
TECH:<Value>	1	3GPP2
	2	EPC (Not recommended)
PERSIST:<Value>	1	Non persistent
	2	Persistent Mandatory in case of creation
PID:<Value>		100 to 178 range of allowed profile numbers
APNNAME:<Value>	String type	
PDPTYPE:<Value>	String type	

13.47. AT$QCPRFMOD Configure Parameters for 3GPP2/EPC Profile

AT$QCPRFMOD is used to configure parameters for 3GPP2/EPC profile, This command uses tag:<value> syntax for all the parameters which allows users to specify these parameters in any order except for first parameter. PID and various ParamName tags defined for parameters in this command. First parameter of this command must be PID.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT$QCPDPCFGEXT=?	$QCRCIND: (list of PID:<Value>,Param Name:<ParamValue>) OK	
Read Command	AT$QCPRFMOD?	$QCPRFMOD: PID:<Value>,Param Name:<ParamValue> OK	There can be 15 profile parameters with syntax ParamName:<ParamValue>
Write Command	AT$QCPRFMOD=PID:<Value>,Param Name:<ParamValue>	OK	

Parameter Description

parameter	Value	Instruction
PID:<Value>		100 to 178 range of allowed profile numbers

14.   ITU-T V.80TER SYNCHRONOUS DATA MODE COMMANDS

14.1.   AT+ES Enable Synchronous Mode
AT+ES command is used to enable synchronous mode. Support in 3GPP.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ES=?	+ES: (6),,(8)	

		OK	
Read Command	AT+ES?	+ES:<orig_rqst>,<orig_fbk>,<ans_fbk> OK	
Write Command	AT+ES=<orig_rqst>,<orig_fbk>,<ans_fbk>	OK	

Parameter Description

parameter	Value	Instruction
<orig_rqst>	6	
<orig_fbk>	Undefined	
<ans_fbk>	8	

14.2.   AT+ESA Store Preferred Message
AT+ES command is used to store preferred message. Support in 3GPP.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+ESA=?	AT+ESA=? +ESA: (0),,,,(0),(0),(0-255), OK	
Read Command	AT+ESA?	+ESA: <trans_idle>, <framed_idle>, <framed_un_ov>, <hd_auto>,<crc_type>, <nrzi_en>, <sync1>, <sync2> OK	
Write Command	AT+ESA=<trans_idle>, <framed_idle>, <framed_un_ov>,	OK	

	<hd_auto>,<crc_type>, <nrzi_en>, <sync1>, <sync2>		

Parameter Description

parameter	Value	Instruction
<trans_idle>	0	
<framed_idle>	Undefined	
<framed_un_ov>	Undefined	
<hd_auto>	Undefined	
<crc_type>	0	
<nrzi_en>	0	
<sync1>	0 to 255	
<sync2>	Undefined	

15. VENDOR EXTENDED AT COMMANDS

15.1. AT+RESET Reset the Target

AT+ RESET command is used to reset the target.

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+RESET	OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT+RESET	Reset the target

OK	

15.2. AT^SBFS Set and Get SIM Base Status

AT^SBFS command is used to set and get SIM base status in module.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^SBFS?	SIM base status: Enable/Disable OK	
Write Command	AT^SBFS=<mode>	Successfully setting SIM base status as: Enable/Disable OK	
Test Command	AT^SBFS=?	^SBFS: (0,1) OK	

Parameter Description

parameter	Value	Instruction
<mode>	0	Disable
	1	Enable

Example

AT^SBFS=1 Successfully setting SIM base status as:Enable OK AT^SBFS? SIM base status: Enable	Set SIM base status

OK	

15.3. AT^DEBUG Get Debug Info

AT^DEBUG command is used to get debug info, this command only for LTE

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^DEBUG?	Debug info	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT^DEBUG?	
EARFCN(DL/UL): 38950/38950	
BAND: 40	
BW: 20.0 MHz	
PLMN: 460 00	
TAC: 9752	
eNB ID(PCI): 181864(324)	
ESM CAUSE: 0	
DRX: 1280ms	
RSRP: -63.6dBm	
RSRQ: -6.8dB	
RSSI: -36.8dBm	
L2W: -	
RI: 2	
CQI: -	
RS-SINR: 30dB	

STATUS: SRV/REGISTERED

SUB STATUS: NORMAL_SERVICE

RRC Status: CONNECTED

SVC: CS_PS

Tx Pwr: -28.0dB

TMSI: 80183197200

IP: 10.157.141.124

AVG RSRP: -63.6dBm

OK

15.4. AT+GPSCN Get the GPS SNR

AT+GPSCN command is used to get the GPS SNR

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+GPSCN	+GPSCN:<snr> OK	

Parameter Description

parameter	Value	Instruction
<snr>	-	The SNR of first searched satellite

Example

AT+GPSCN +GPSCN:0.000000 OK	

15.5. AT+SKUID Get HW and SW Version Info

AT+SKUID command is used to get HW and SW version info

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT+SKUID	HW Revision: <HW vision> SW Revision: <SW vision> OK	

Parameter Description

parameter	Value	Instruction
<HW vision>	-	Current HW vision
<SW vision>	-	Current SW vision

Example

AT+SKUID HW Revision: V000 SW Revision: T77W676.F0.0.0.0.1.GC.001 OK	Current HW vision Current SW vision

15.6. AT^GETIMEI Get the IMEI Value

AT^GETIMEI command is used to get the IMEI value

Syntax

Type	Command	Possible Return Result	Instruction
Exec Command	AT^GETIMEI	<IMEI> OK	Success
		+CME ERROR: memory failure	Get IMEI failure

Parameter Description

parameter	Value	Instruction

<IMEI>	-	Current IMEI

Example

AT^GETIMEI +CME ERROR: memory failure	Get IMEI failure
AT^GETIMEI 358894060069758 OK	Current IMEI

15.7. AT^VERSION Get the Firmware Version.

AT^VERSION command is use to get get the firmware version, including AP version

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^VERSION?	^VERSION: <ver> OK	All version
Write Command	AT^VERSION= <ver>	^VERSION: <ver> OK	

Parameter Description

parameter	Value	Instruction
<ver>	1	All version
	2	MP version
	3	AP version

Example

AT^VERSION=1 ^VERSION: T77W676.F0.0.0.0.1.GC.006.001	

```
OK


AT^VERSION=2

^VERSION: T77W676.F0.0.0.0.1.GC.006


OK


AT^VERSION=3

^VERSION: 001


OK


AT^VERSION?

^VERSION: T77W676.F0.0.0.0.1.GC.006.001


OK
```

15.8.   AT^BODYSARON Get SAR State

AT^BODYSARON command is used to get the current SAR state.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^BODYSARON?	^BodySaron:<state> OK	

Parameter Description

parameter	Value	Instruction
<state>	0	RF_SAR_STATE_1
	1	RF_SAR_STATE_3
	2	RF_SAR_STATE_DEFAULT

15.9. AT+DPR_ENABLE Set Status of DPR

AT+ DPR_ENABLE command is used to set the status of DPR.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+DPR_ENABLE?	+DPR_ENABLE: Have not set DPR_enable, DPR is disable.	Disable
		+DPR_ENABLE: Get DPR enable State success. DPR_enable= <mode>	Success
Write Command	AT+DPR_ENABLE=<mode>	+DPR_ENABLE: set DPR enable/disable success.DPR_enable =<mode> OK	

Parameter Description

parameter	Value	Instruction
<mode>	0	Disable
	1	Enable

Example

AT+DPR_ENABLE=0 +DPR_ENABLE: set DPR disable success.DPR_enable = 0 OK AT+DPR_ENABLE? +DPR_ENABLE: Get DPR state success. DPR_enable= 0. OK	Disable DPR

AT+DPR_ENABLE=1 +DPR_ENABLE: set DPR enable DPR_enable = 1 OK AT+DPR_ENABLE? +DPR_ENABLE: Get DPR state success. DPR_enable= 1. OK	Enable DPR

Note

This command would write the value to the EFS file, you can check the path"/nv/item_files/fx/DPR_enable" for confirming.

• This command always used before "AT+DPR".

15.10. AT+DPR Set DPR Value
AT+ DPR command is used to set DPR value.

Syntax

Type	Command	Possible Return Result	Instruction
Write Command	+DPR=<tech>,<band>,< DSI1>,<DSI3>	+DPR: set <tech> Band< band >: DSI1=<DSI1>, DSI3=<DSI3> OK	

Parameter Description

parameter	Value	Instruction
<tech>	LTE, UMTS	
<band>	List of <band> value	LTE:1,2,3,4,5,7,8,12,13,17,18,19,20,21,25,26,28,29,30,38,39 ,40,41,66 WCDMA: 1,2,4,5,6,8,19

<DSI1>		High power
<DSI3>		Low power

Example

AT+DPR=LTE,1,28,32	
+DPR: set LTE Band1: DSI1=28.0, DSI3=32.0	

Note

- Need to enable the DPR by using "AT+DPR_ENABLE".

15.11. AT$GTAC Get Tunable Antenna Information

AT$GTAC command is used to get tunable antenna information

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$GTAC?	TA(tunable antenna) information OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT$GTAC?	
Show the TA(tunable antenna) information	
Band name | ANTCTL3 | ANTCTL2 | ANTCTL1 | ANTCTL0	
LTE BAND:	
LTE_B1: 1 | 1 | 1 | 1	
LTE_B2: 1 | 1 | 1 | 1	
LTE_B3: 1 | 1 | 1 | 1	
LTE_B4: 1 | 1 | 1 | 1	

LTE_B5: 1 | 1 | 1 | 1

LTE_B7: 1 | 1 | 1 | 1

LTE_B8: 1 | 1 | 1 | 1

LTE_B12: 1 | 1 | 1 | 1

LTE_B13: 1 | 1 | 1 | 1

LTE_B17: 1 | 1 | 1 | 1

LTE_B18: 1 | 1 | 1 | 1

LTE_B19: 1 | 1 | 1 | 1

LTE_B20: 1 | 1 | 1 | 1

LTE_B21: 1 | 1 | 1 | 1

LTE_B25: 1 | 1 | 1 | 1

LTE_B26: 1 | 1 | 1 | 1

LTE_B28: 1 | 1 | 1 | 1

LTE_B29: 1 | 1 | 1 | 1

LTE_B30: 1 | 1 | 1 | 1

LTE_B38: 1 | 1 | 1 | 1

LTE_B39: 1 | 1 | 1 | 1

LTE_B40: 1 | 1 | 1 | 1

LTE_B41: 1 | 1 | 1 | 1

LTE_B66: 1 | 1 | 1 | 1

WCMDA BAND:

WCDMA_B1: 1 | 1 | 1 | 1

WCDMA_B2: 1 | 1 | 1 | 1

WCDMA_B4: 1 | 1 | 1 | 1

WCDMA_B5: 1 | 1 | 1 | 1

WCDMA_B6: 1 | 1 | 1 | 1

WCDMA_B8: 1 | 1 | 1 | 1

WCDMA_B19: 1 | 1 | 1 | 1

OK

15.12. AT$STAC Set Tunable Antenna Information
AT$STAC command is used to set tunable antenna information

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT$STAC=<band>,< antenna_cfg>	OK	

Parameter Description

parameter	Value	Instruction
<band>	lte_b1, wcdma_b1…..	Band list: "lte_b1", "lte_b2", "lte_b3", "lte_b4", "lte_b5", "lte_b7", "lte_b8","lte_b12", "lte_b13", "lte_b17","lte_b18", "lte_b19", "lte_b20", "lte_b21","lte_b25", "lte_b26", "lte_b28","lte_b29", "lte_b30","lte_b38", "lte_b39","lte_b40", "lte_b41","lte_b66","wcdma_b1","wcdma_b2", "wcdma_b4", "wcdma_b5", "wcdma_b6", "wcdma_b8", "wcdma_b19",
<antenna_cfg>	0000-1111	16 values, from 0000 to 1111 in binary

Example

AT$STAC=lte_b1,0000 OK	

15.13. AT+ERI Get Roaming Status
AT+ERI command is used to get roaming status

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+ERI?	+ERI: <value>	

Parameter Description

parameter	Value	Instruction
<value>	0	Roaming indicator off

1		Roaming indicator on

Example

AT+ERI?	
+ERI: 0	Roaming indicator off
OK	

15.14. AT^SLMODE Select Preference Mode for More Choice

AT^SLMODE command is used to select preference mode and recover the current carrier default configuration.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT^SLMODE=?	^SLMODE: (0,1),(4,14, 30,35)	
Read Command	AT^SLMODE?	^SLMODE: <resp>	
Write Command	AT^SLMODE=<pref_term>,<pref_mode>	OK	
Exec command	AT^ SLMODE	OK	Recover the current carrier default configuration.

Parameter Description

parameter	Value	Instruction
<pref_term>	0	NON-PERMANENT
	1	for PERMANENT
<pref_mode>	4	Determine Mode Automatically
	14	WCDMA Only
	30	LTE Only
	35	WCDMA And LTE Only

Example

AT^SLMODE=1,4

OK

AT^SLMODE?

^SLMODE:1,4-Determine Mode Automatically

OK

AT^SLMODE=?

^SLMODE☺0,1),(4 ,14 ,30 ,35)

OK

AT^SLMODE

OK

Note

- You should set the target at ONLINE mode (AT+CFUN=1).
- When the PREF_TERM equals to 0, it won't work after RESET.

15.15. AT+FTM Set the Operating Mode

AT+ FTM command is used to set the operating mode of module. The operating mode include ONLINE and FTM mode.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+FTM?	Device is in: <oper_mode> OK	
Write Command	AT+FTM=<oper_mode>	OK	

Parameter Description

parameter	Value	Instruction

<oper_mode>	0	ONLINE mode
	1	FTM mode

Example

AT+FTM=1 OK AT+FTM? Device is in: 1, FTM OK AT+FTM=0 OK AT+FTM? Device is in: 0, ONLINE OK	

15.16. AT+AGC Set RF RSSI

AT+ AGC command is used to set specified configuration of RF RSSI. Before send this command, must be sure the device is in FTM mode.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+AGC?	<mode>, main RSSI: <value>	
Write Command	AT+AGC=<tech>,<band>,<channel>,<lna>,<path>[,<tx_bandwidth>,<rx_bandwidth>]	OK	

Parameter Description

parameter	Value	Instruction
<tech>	1	WCDMA
	3	LTE
<band>	List of <band>	WCDMA: 1,2,4,5,6,8,19 LTE:1,2,3,4,5,7,8,12,13,17,18,19,20,21,25,26,28,29,30,38,39,40,41,66
<channel>	List of <channel>	WCDMA: UL Band1: 9612-9888 UL Band2: 9262-9538 UL Band4: 1312-1513 UL Band5: 4132-4233 UL Band6: 811-838 UL Band8: 2712-2863 UL Band19: 312-363 LTE: UL Band1: 18000-18599 UL Band2: 18600-19199 UL Band3: 19200-19949 UL Band4: 19950-20399 UL Band5: 20400-20649 UL Band7: 20750-21449 UL Band8: 21450-21799 UL Band9: 21800-22149 UL Band12: 23010-23179 UL Band13: 23180-23279 UL Band17: 23730-23849 UL Band18: 23850-23999 UL Band19: 24000-24149 UL Band20: 24150-24449 UL Band21: 24450-24599

		UL Band25: 26040-26689
		UL Band26: 26690-27039
		UL Band28: 27210-27659
		UL Band29: 9660-9769
		UL Band30: 27660-27759
		UL Band38: 37750-38249
		UL Band39: 38250-38649
		UL Band40: 38650-39649
		UL Band41: 39650-41589
		UL Band66: 131972-132671
<LNA>	0-5	LNA gain state
<path>	0	0:main antenna RSSI
	1	1:aux antenna RSSI
<tx_bandwidth>	0-5	Just for LTE: 0 = 1.4MHz 1 = 3MHz 2 = 5MHz 3 = 10MHz 4 = 15MHz 5 = 20MHz
<rx_bandwidth>	0-5	Just for LTE: 0 = 1.4MHz 1 = 3MHz 2 = 5MHz 3 = 10MHz 4 = 15MHz 5 = 20MHz

Example

AT+FTM=1 OK	

AT+AGC=1,1,9612,0,0	set the WCDMA band1, UL channel 9612, LNA 0, path 0
OK	
AT+AGC?	
WCDMA, main RSSI: -65	
OK	
AT+AGC=3,2,19000,3,0,1,1	set the LTE, band 2, UL channel 19000, LNA 3, path 0, tx bandwidth 1(1.4MHz), tx bandwidth(1.4MHz)
OK	
AT+AGC?	
LTE, main RSSI: -79	
OK	

15.17. AT^SMTP Set Max Tx Power

AT^SMTP command is used to set max TX power.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^SMTP=<tech>	^SMTP: <tech> ,< max_tx_power >	
Write Command	AT^SMTP=<tech>,<band>,<max_tx_power>	^SMTP: <tech> ,<band>,<max_tx_power> OK	

Parameter Description

parameter	Value	Instruction

<tech>	LTE,WCDMA	
<band>		LTE and WCDMA band
<max_tx_power>		Max TX power, the unit is 0.1db.

Example

AT^SMTP=WCDMA ^SMTP: WCDMA: 1:240 2:240 4:240 5:240 6:240 8:240 19:240 OK AT^SMTP=LTE,40,240 ^SMTP: LTE,40,240 OK	

15.18. AT^SLBAND Enable/Disable Band(s)

AT^SLBAND is used to enable/disable band(s) and recover the current carrier default configuration.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT^SLBAND=?	^SLBAND: <tech>,<band> OK	
Read Command	AT^SLBAND?	^SLBAND: <tech>,<band> OK	

Write Command	AT^SLBAND=<tech>,<band1> [,<band2>[,<band3>…]]	OK	
Exec Command	AT^SLBAND	OK	Recover the current carrier default configuration.

Parameter Description

parameter	Value	Instruction
<tech>	WCDMA, LTE	
<band>	List of <band>	WCDMA: 1,2,4,5,6,8,19 LTE:1,2,3,4,5,7,8,12,13,17,18,19,20,21,25,26,28,29,30,38,39,40,41,66

Example

AT^SLBAND=LTE,1 OK AT^SLBAND? ^SLBAND: WCDMA,1,2,4,5,8 ^SLBAND: LTE,1 OK AT^SLBAND=LTE,1,2,3,4,5 OK AT^SLBAND? ^SLBAND: WCDMA,1,2,4,5,8 ^SLBAND: LTE,1,2,3,4,5 OK AT^SLBAND OK	

AT^SLBAND? ^SLBAND: WCDMA,1,2,4,5,6,8,19 ^SLBAND: LTE,1,2,3,4,8,18,19,21,26,28,41,66 OK	

15.19. AT^SETMODE Switch Firmware Mode

AT^SETMODE command is used to switch firmware mode, you can switch firmware mode to normal, extension or legacy mode.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT^SETMODE=?	^SETMODE: (0, 1, 2)	
Write Command	AT^SETMODE=<value>	OK	
Read Command	AT^SETMODE?	^SETMODE: 0 ^SETMODE:1 ^SETMODE:2	Normal mode Extension mode Legacy mode

Parameter Description

parameter	Value	Instruction
< value >	0	Normal mode
	1	Extension mode
	2	Legacy mode

Example

AT^SETMODE=? ^SETMODE: (0, 1, 2) OK	
AT^SETMODE=0 OK	Normal mode

AT^SETMODE? ^SETMODE: 0 OK	
AT^SETMODE=1 OK	Extension mode
AT^SETMODE? ^SETMODE:1 OK	
AT^SETMODE=2 OK	Legacy mode
AT^SETMODE? ^SETMODE:2 OK	

15.20. AT+USBSWITCH Select USB Composition

AT+USBSWITCH command is used to set the default USB composition that you want and then reboot

device. It means you can switch USB composition to normal，extension or legacy mode.

This command is same as AT^SETMODE.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+USBSWITCH=?	+ USBSWITCH: (0, 1, 2)	
Write Command	AT+ USBSWITCH =<value>	OK	
Read Command	AT+ USBSWITCH?	+ USBSWITCH: 0 + USBSWITCH:1 + USBSWITCH:2	Normal mode Extension mode Legacy mode

Parameter Description

parameter	Value	Instruction
< value >	0	Normal mode
	1	Extension mode
	2	Legacy mode

Example

AT+ USBSWITCH=? + USBSWITCH:(0, 1, 2) OK	
AT+ USBSWITCH=0 OK	Normal mode
AT+ USBSWITCH? + USBSWITCH: 0 OK	
AT+ USBSWITCH=1 OK	Extension mode
AT+ USBSWITCH? + USBSWITCH:1 OK	
AT+ USBSWITCH=2 OK	Legacy mode
AT+ USBSWITCH? + USBSWITCH:2	

OK

15.21. AT^UART_ENABLE Enable/Disable UART

AT^UART_ENABLE is used to enable/disable UART.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^UART_ENABLE?	UART_FLAG: <mode> OK	
Write Command	AT^UART_ENABLE =<mode>	You have success Enable/Disable the UART login function, and the system would reboot right now OK	

Parameter Description

parameter	Value	Instruction
<mode>	1	Enable
	0	Disable

Example

AT^UART_ENABLE=1 You have success Enable the UART login function, and the system would reboot right now OK AT^UART_ENABLE? UART_FLAG: 1 OK	

15.22. AT+BUILDTIME Check the Build Time

AT+BUILDTIME is used to check the AP and MP build time

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+BUILDTIME ?	<build time> OK	

Parameter Description

parameter	Value	Instruction
<build time>	module build time	

Example

AT+BUILDTIME? MP: Jan 12 2017, 05:23:36 AP: Jan 12 2017, 06:06:34 OK	

15.23. AT^CA_ENABLE Enable/Disable CA

AT^CA_ENABLE is used to enable/disable CA function.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^CA_ENABLE?	CA_FLAG: DISABLE OK	
Write Command	AT^CA_ENABLE =<mode>	You have succeeded to ENABLE/DISABLE the CA function! OK	
Test Command	AT^CA_ENABLE=?	0:Enable 1-255:Disable OK	

Parameter Description

parameter	Value	Instruction
<mode>	0	Enable
	1-255	Disable

Example

AT^CA_ENABLE=1 You have succeeded to DISABLE the CA function! OK AT^CA_ENABLE? CA_FLAG: DISABLE OK AT^CA_ENABLE=? 0:Enable 1-255:Disable OK	

15.24. AT^RFSTS Read current network Status

AT^RFSTS is used to read current network status.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^RFSTS?	^RFSTS: <PLMN>,<EARFCN>,<RSRP>,<RSSI>,<RSRQ>,<TAC>, [<TXPWR>],<DRX>,<MM>,<LTERRC>,<LTECID>, <IMSI>,[<NetNameAsc>],<SD>,<LTEABND>,<SINR> OK	LTE network
		^RFSTS:	WCDMA network

		<PLMN>,<UARFCN>,<PSC>,<Ec/Io>,<RSCP>,<RSSI>, <LAC>,<RAC>,[<TXPWR>],<DRX>,<MM>, <WCDMARRC>,<NOM>,[<BLER>],<WCDMACID>, <IMSI>,[<NetNameAsc>],<SD>,[<CsAccess>], [<PsAccess>],<Nast>[,<Nuarfcn><Npsc>,<nEc/Io>,,,,], <WCDMAABND> OK	
Test Command	AT^RFSTS =?	^RFSTS: <PLMN>,(0…65535),(-44…-140),(-120…-25), (-20…-3),(0…65535),(-50…33),(0,6…9), (0,3,5…10,13…15,17…23,25),(0,1),(0…503), <IMSI>,[<NetNameAsc>],(0…3),(1…63),(0…250) OK	LTE network
		^RFSTS: <PLMN>,(0…16383),(0…511),(-31…0),(-120…-25),(-120…-25),(0…65535),(0…255),(-50…33),(0,6…9),(0,3,5…10,13…15,17…23,25),(0…7),(0…3), (0…100%),(0…65535),<IMSI>,[<NetNameAsc>], (0…3),(0…3),(0…3),(0…6)[,(0…16383),(0…511), (-31…0),,,,],(0…8) OK	WCDMA network

Parameter Description

parameter	Value	Instruction
< PLMN >	"262 25"	Country code and operator code(MCC, MNC)
<EARFCN>	0…65535	E-UTRA Assigned Radio Channel
<RSRP>	-44…-140	Reference Signal Received Power
<RSSI>	-120…-25	Received Signal Strength Indication
<RSRQ>	-20…-3	Reference Signal Received Quality
<TAC>	0…65535	Tracking Area Code
<TXPWR>	-50…33	Tx Power (In traffic only)
<DRX>	0	Discontinuous reception cycle Length(cycle length :display using ms)
	6	CN = 6, T = 32

	7	CN = 7, T = 64
	8	CN = 8, T = 128
	9	CN = 9, T = 256
<MM>	0	Mobility Management
	3	LOCATION_UPDATE_INITIATED
	5	WAIT_FOR_OUTGOING_MM_CONNECTION
	6	CONNECTION_ACTIVE
	7	IMSI_DETACH_INITIATED
	8	PROCESS_CM_SERVICE_PROMPT
	9	WAIT_FOR_NETWORK_COMMAND
	10	LOCATION_UPDATE_REJECTED
	13	WAIT_FOR_RR_CONNECTION_LU
	14	WAIT_FOR_RR_CONNECTION_MM
	15	WAIT_FOR_RR_CONNECTION_IMSI_DETACH
	17	REESTABLISHMENT_INITIATED
	18	WAIT_FOR_RR_ACTIVE
	19	IDLE
	20	WAIT_FOR_ADDITIONAL_OUTGOING_MM_CONNECTION
	21	WAIT_FOR_RR_CONNECTION_REESTABLISHMENT
	22	WAIT_FOR_REESTABLISH_DECISION
	23	LOCATION_UPDATING_PENDING
	25	CONNECTION_RELEASE_NOT_ALLOWED
< LTERRC >	0	RRC_IDLE
	1	RRC_CONNECTED
<LTECID>	0…503	Cell ID
<IMSI>	"262011242110776"	International Mobile Station ID
<NetNameAsc>	" Telekom.de "	Operation Name, Quoted string type or "" if network name is unknown
<SD>	0	No Service
	1	CS only
	2	PS only

	3	CS+PS
< LTEABND >	1…63	Active Band (1..63) 3GPP TS 36.101
<SINR>	0…250	Signal-to-Interface plus Noise Ratio
<UARFCN>	0…16383	UMTS Assigned Radio Channel
<PSC>	0…511	Active PSC(Primary Synchronization Code)
<Ec/Io>	-31…0	Active Ec/Io(chip energy per total wideband power in dBm)
<RSCP>	-120…-25	Active RSCP (Received Signal Code Power in dBm)
<LAC>	0…65535	Localization Area Code
<RAC>	0…255	Routing Area Code
<WCDMARRC>	0	RRC_STATE_DISCONNECTED
	1	RRC_STATE_CONNECTING
	2	RRC_STATE_CELL_FACH
	3	RRC_STATE_CELL_DCH
	4	RRC_STATE_CELL_PCH
	5	RRC_STATE_URA_PCH
	6	RRC_STATE_WILDCARD
	7	RRC_INVALID
<NOM>	0	SYS_NETWORK_OP_MODE_1
	1	SYS_NETWORK_OP_MODE_2
	2	SYS_NETWORK_OP_MODE_3
	3	SYS_PS_DOMAIN_SYS_INFO_UNAVAILABLE
<BLER>	0…100%	Block Error Rate (005 means 0.5 %)
< WCDMACID >	0…65535	Cell ID (IN HEX)
<CsAccess>	0	Normal calls only
	1	Emergency calls only
	2	No calls
	3	All calls
<PsAccess>	0	Normal calls only
	1	Emergency calls only
	2	No calls

	3	All calls
<Nast>	0…6	Number of Active Set(Maximum 6)
<Nuarfcn>	0…16383	UARFCN of n-th active set
<Npsc>	0…511	PSC of n-th active set
<nEc/Io>	-31…0	Ec/Io of n-th active Set
<WCDMAABND>	0	QMI_NAS_BC_WCDMA_2100
	1	QMI_NAS_BC_WCDMA_PCS_1900
	2	QMI_NAS_BC_WCDMA_DCS_1800
	3	QMI_NAS_BC_WCDMA_1700_US
	4	QMI_NAS_BC_WCDMA_850 and QMI_NAS_BC_WCDMA_800
	5	QMI_NAS_BC_WCDMA_900
	6	QMI_NAS_BC_WCDMA_1700_JAPAN
	7	QMI_NAS_BC_WCDMA_1500
	8	QMI_NAS_BC_WCDMA_850_JAPAN

Example

```
AT^RFSTS?

^RFSTS:

"46001",10713,193,-10,-82,-72,42307,0,0,0,19,0,1,255,18721,"460018984003083","UNICOM",3,3,3,0,,0

OK


AT^RFSTS =?

^RFSTS:

<PLMN>,(0…16383),(0…511),(-31…0),(-120…-25),(-120…-25),(0…65535),(0…255),(-50…33),(0,6…9),
(0,3,5…10,13…15,17…23,25),(0…7),(0…3),(0…100%),(0…65535),<IMSI>,[<NetNameAsc>],(0…3),(0…3),(0
…3), (0…6) [,(0…16383),(0…511), (-31…0),,,,],(0…8)

OK
```

15.25. AT+VZWRSRP Display Neighbor Cell Info

AT+VZWRSRP is used to display neighbor cell info like Cell id, EARFCN, RSRP. RSRP – Reference Signal Received Power

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+VZWRSRP?	+VZWRSRP: Cell ID, EARFCN, RSRP OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT+VZWRSRP? +VZWRSRP: 347,1650,"-1027" 346,1650,"-1004" 319,1650,"-1021" OK	

15.26. AT+VZWRSRQ Display Neighbor Cell Info

AT+VZWRSRP is used to display neighbor cell info like Cell id, EARFCN, RSRQ. RSRQ – Reference Signal Received Quality

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+VZWRSRQ?	+VZWRSRQ: Cell ID, EARFCN, RSRQ OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT+VZWRSRQ? +VZWRSRQ: 346,1650,"-149",319,1650,"-176",098,1650,"-200",386,1650,"-158" OK	

15.27. AT+VZWAPNE Edit APN Value

AT+VZWAPNE is used to edit APN values in APN table.

Syntax

Type	Command	Possible Return Result	Instruction
Test Command	AT+VZWAPNE=?	+VZWAPNE: (1-24),(0-16),,(IPV6 and IPV4V6), LTE,(0-1),(0-122820) OK	
Read Command	AT+VZWAPNE?	+VZWAPNE: <Profile ID> ,<APN Class>,<APN Name>,<PDP Type>,<APN Bearer type> ,<APN Flag>,< APN Timer> OK	
Write Command	AT+VZWAPNE =<Profile ID> ,<APN Class>,<APN Name>,<PDP Type> ,<APN Bearer type> ,<APN Flag>,< APN Timer>	OK	

Parameter Description

parameter	Value	Instruction
<Profile ID>	1 to 24	
<APN Class>	0 to 4	
<APN Name>	String type, maximum length is 100	
<PDP Type>	String type, maximum length is 8	
<APN Bearer type>	String type, maximum length is 3	
<APN Flag>	0 to 1	
< APN Timer>	0 to 122820	

Example

AT+VZWAPNE=? +VZWAPNE: (1-24),(0-16),,(IPV6 and IPV4V6), LTE,(0-1),(0-122820) OK AT+VZWAPNE? +VZWAPNE: 1 , 0 ,"","IPV4V6","LTE", 0, 0 +VZWAPNE: 2 , 0 ,"ims","IPV4V6","LTE", 0, 0 OK AT+VZWAPNE=1,0,"ims","IPV6","LTE",0,0 OK AT+VZWAPNE? +VZWAPNE: 1 , 0 ,"ims","IPV6","LTE", 0, 0 +VZWAPNE: 2 , 0 ,"ims","IPV4V6","LTE", 0, 0 OK	 Modify APN values in APN table

15.28. AT^IMSTESTMODE Enable/Disable IMS Test Mode

AT^IMSTESTMODE is used to enable/disable IMS(IP Multimedia Subsystem) test mode, if IMS test mode is enabled, IMS registration attempts will not occur and SMS is not supported.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^IMSTESTMODE?	^IMSTESTMODE : IMS Test Mode Enabled /Disabled OK	
Write Command	AT^IMSTESTMODE =<mode>	^IMSTESTMODE : Enable /Disable IMS Test Mode OK	

Parameter Description

parameter	Value	Instruction
<mode>	0	Disable
	1	Enable

Example

AT^IMSTESTMODE? ^IMSTESTMODE : IMS Test Mode Enabled OK AT^IMSTESTMODE=0 ^IMSTESTMODE : Disable IMS Test Mode OK AT^IMSTESTMODE? ^IMSTESTMODE : IMS Test Mode Disabled OK	

15.29. AT^GETLTECAT Get LTE Category

AT^GETLTECAT is used to get the category of LTE.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^GETLTECAT ?	^GETLTECAT: 09 OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT^GETLTECAT? ^GETLTECAT: 09 OK	

15.30. AT^ABAND Get Active Band and channel Info

AT^ABAND is used to get the active band and channel information.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^ABAND?	Radio interface: LTE Active band: LTE_BAND_40 Active channel: 39148 OK	

Parameter Description

parameter	Value	Instruction

NULL		

Example

AT^ABAND?	
Radio interface: LTE	
Active band: LTE_BAND_40	
Active channel: 39148	
OK	

15.31. AT^CA_INFO Get Band Information of CA Combination

AT^CA_INFO is used to get the PCC info and SCC1/SCC2 info.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^CA_INFO?	PCC info: Band is xxx, Band_width is xxx SCC1 info: Band is xxx, Band_width is xxx SCC2 info: Band is xxx, Band_width is xxx OK	

Parameter Description

parameter	Value	Instruction
NULL		

Example

AT^CA_INFO?	No CA
PCC info: Band is LTE_B40, Band_width is 10.0 MHz	
OK	

AT^CA_INFO? PCC info: Band is LTE_B1, Band_width is 10.0 MHz SCC1 info: Band is LTE_B8, Band_width is 10.0 MHz OK	2CA
AT^CA_INFO? PCC info: Band is LTE_B2, Band_width is 10.0 MHz SCC1 info: Band is LTE_B4, Band_width is 10.0 MHz SCC2 info: Band is LTE_B5, Band_width is 10.0 MHz OK	3CA

15.32. AT^BAND_PRI Set Band Attach Priority

AT^BAND_PRI is used to set LTE band attach priority.

Syntax

Type	Command	Possible Return Result	Instruction
Write Command	AT^BAND_PRI=<band>	OK	
Read Command	AT^BAND_PRI?	^BAND_PRI: <band>	

Parameter Description

parameter	Value	Instruction
<band>	(1,2,3,4,5,7,8,12,13,17,18,19,20,21,25,26,28,29,30,38,39,40,41,66)	

Example

AT^BAND_PRI=1,2,3 OK	

AT^BAND_PRI?
^BAND_PRI:1,2,3
OK

Note：Need do at+reset to take effect when do AT^BAND_PRI Write Command

Band priority means, band scan is done based on priority you set by at^band_pri command and at + reset. But band priority does not guarantee which is the serving band.

15.33. AT^USBTYPE Query USB Type

AT^USBTYPE is used to query USB type is USB3.0 or USB2.0.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT^USBTYPE?	^ USBTYPE: <type>	

Parameter Description

parameter	Value	Instruction
< type >	USB2.0	High speed USB
	USB3.0	Super speed USB

Example

AT^USBTYPE?
^USBTYPE: USB2.0
OK

15.34. AT+GPS Enable/Disable GPS

AT+GPS is used to enable/disable GPS.

Syntax

Type	Command	Possible Return Result	Instruction
Read Command	AT+GPS?	AT+GPS? : GPS is Enable/Disable	

		OK	
Write Command	AT+GPS =<mode>	AT+GPS: Setting success! Module would reboot for setting GPS Enable/Disable OK	

Parameter Description

parameter	Value	Instruction
<mode>	0	Disable
	1	Enable

Example

AT+GPS? AT+GPS? : GPS is Enable OK AT+GPS=0 AT+GPS: Setting success! Module would reboot for setting GPS Disable	

2.   GLOSSARY AND ACRONYMS

APN   Access Point Name

BCCH   Broadcast Control Channel

CSD   Circuit Switched Data

CTM   Cellular Text Telephone Modems

CTS   Clear To Send

DCE   Data Circuit-Terminating Equipment (refer to [14])

DRX   Discontinuous Reception

DTE   Data Terminal Equipment (refer to [14])

DTMF   Dual Tone Multiple Frequency

DTR   Data Terminal Ready

GBR   Guaranteed Bit Rate

GERAN   GSM EDGE Radio Access Network

GPIO   General Purpose Input/Output

GUI   Graphic User Interface

HF   Hands Free (old terminology)

HS   Hand Set (old terminology)

HSPA   High Speed Packet Access

IMS   IP Multimedia Subsystem

IRA   International Reference Alphabet

ME   Mobile Equipment

MSISDN   Mobile Station International Subscriber Directory Number

NMEA   National Marine Electronics Association

NVM   Non-Volatile Memory

PDN   Public Data Network

PDP   Packet Data Protocol

PDU   Protocol Data Unit

PIN   Personal Identification Number

PPP   Point to Point Protocol

QoS   Quality of Service

SIM   Subscriber Identification Module

SMS	Short Message Service
SMSC	Short Message Service Center
TCP/IP	Transmission Control Protocol / Internet Protocol
TTY	Text Telephone Typewriter
UART	Universal Asynchronous Receiver Transmitter
UE	User Equipment
URC	Unsolicited Result Code
USIM	Universal Subscriber Identification Module
UTRAN	Universal Terrestrial Radio Access Network

3. DOCUMENT HISTORY

Revision	Date	Changes
0	2017-02-14	Intial version
1	2017-05-08	AT^SETMODE, AT^CA_ENABLE, AT^RFSTS, AT+VZWRSRP, AT+VZWRSRQ, AT+VZWAPNE, AT^IMSTESTMODE, AT^GETLTECAT, and AT^ABAND added
1.2	2017-07-21	AT^BAND_PRI, AT^CA_INFO added, AT^DEBUG updated
1.3	2017-10-31	Information updated for AT^BAND_PRI, new AT+GPS, new at^USBTYPE?
1.4	2018-04-08	Full update of all the doc
2	2018-07-02	Template revised

SUPPORT INQUIRIES

Link to **www.telit.com** and contact our technical support team for any questions related to technical issues.

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