



AT Command Set

Revision: 2.1.27

Release Date: Feb 21 2013

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Abstract

Targeted reader:

Software programmers of AT command

Type and scope of document:

Detail format and usage of supported AT command

Purpose:

This document is used to describe all AT command supported by MTK including GSM/GPRS commands and also proprietary commands

Layer:

Protocol Stack (Layer 4)

Revision History

Revision	Date	Author	Comments
0.0	2004/03/09	Erica Fu	Draft version
0.0.1	2004/06/01	Erica Fu	Add new commands for Phone suite tool
0.0.2	2004/07/05	Erica Fu	Modify +CLAN language code.
0.0.3	2004/09/1	Erica Fu	+CPBF will support only in module solution
0.0.4	2004/10/21	Erica Fu	Update and add NOTE for +EIMG and +EMDY
0.0.5	2004/11/25	Erica Fu	Add Bluetooth chapter
0.0.6	2004/12/06	Erica Fu	Update +EMBT and +CSDF (w04.50)
0.0.7	2005/07/24	YC Chen	Update BT related AT command
0.0.9	2006/11/11	YC Chen	Update +ECPI command
0.0.10	2006/11/15	YC Chen	Update +ELCM command
0.0.11	2006/12/12	YC Chen	Update +EMBT command
0.0.12	2006/12/15	YC Chen	Update +EFSW read command
0.0.13	2007/2/6	Hogan Hou	Update +EIND command
0.0.14	2007/03/20	YC Chen	Update +CFUN and CPOL command
0.0.15	2007/05/10	Hogan Hou	Update +CRSM command
0.0.16	2007/06/21	Hogan Hou	Update +EBTLB command
2.0.0	2007/09/14	YC Chen	Document revision
2.0.1	2007/10/04	Hogan Hou	Update +EBTLB,+COPS,+VTS command
2.0.2	2007/11/10	Hogan Hou	Update +EMBT command
2.0.3	2007/11/20	YC Chen	Update +EVCLD proprietary command
2.0.4	2008/2/25	Hogan Hou	Update +EMBT command about setting BD address
2.0.5	2008/3/17	Hogan Hou	Add +ERAT command
2.0.6	2008/4/7	Kitty Sung	Update +CFUN command
2.0.7	2008/4/8	Kitty Sung	Update +EMMISTR command about <op> & <len>
2.0.8	2008/4/9	Kitty Sung	Add +WS46 command
2.0.9	2008/4/15	Kitty Sung	Update +EMBT command
2.0.10	2008/5/2	Kitty Sung	Update +ELCD command
2.0.11	2008/6/18	Kitty Sung	Add +ELQT command
2.0.12	2008/7/18	Hogan Hou	Update +EPIN2 command
2.0.13	2008/8/28	Kitty Sung	Remove unsupported BT command
2.0.14	2008/10/18	Kitty Sung	Add +EPIN1 command
2.0.15	2008/12/5	Lexel Yu	Update +EPIN1 command
2.0.16	2008/12/25	Danny Kuo	Update +CPBS command
2.0.17	2009/01/09	Hogan Hou	Update +ECPI/+EIND/ATD memory dial command

Revision	Date	Author	Comments
2.0.18	2009/02/17	Kitty Sung	Update +CSCB command
2.0.19	2009/03/03	Kitty Sung	Add +ESUO command
2.0.20	2009/03/11	Hogan Hou	Update description for ATD with P modifier
2.0.21	2009/03/17	Hogan Hou	Update AT+VTS command / AT+EQUERY command
2.0.22	2009/03/30	Hogan Hou	Update AT+CEER, add AT+EINFO . Update RSAT command
2.0.23	2009/03/31	Hogan Hou	Add proprietary URC +ESMLA,+ESPEECH,+ECFU.
2.0.24	2009/04/2	Hogan Hou	Update AT+CBST
2.0.25	2009/04/2	Lexel Yu	Update AT+CREG
2.0.26	2009/04/6	Hogan Hou	Update AT+DS?, AT+CHLD=? ,AT+CSNS=?
2.0.27	2009/4/6	MT Sun	Update AT+EMBT
2.0.28	2009/4/16	Hong Yu	Update AT+CMEE errors
2.0.29	2009/4/20	Lexel Yu	Update AT+CIND
2.0.30	2009/4/22	Hong Yu	Update AT+CLCK
2.0.31	2009/4/25	Lexel Yu	Update AT+CLCK, Remove AT+EPIN1
2.0.32	2009/4/28	Lexel Yu	Update AT+CSCS
2.0.33	2009/5/13	Lexel Yu	Update AT+COPS
2.0.34	2009/5/20	MT Sun	Update AT+EGMR, AT+EMBT
2.0.35	2009/5/27	Danny Kuo	Revise ATQ
2.0.36	2009/6/13	Lexel Yu	Add +CIEV
2.0.37	2009/7/8	Kitty Sung	Update AT+ELQT
2.0.39	2009/9/2	Lexel Yu	Update AT+CPIN, AT+EPIN1, AT+EPIN2
2.0.40	2009/9/16	Lexel Yu	Update AT+COPS, AT+CIND
2.0.41	2009/9/22	Lexel Yu	Update AT+ERAT
2.0.42	2009/10/14	Hogan Hou	Update AT+VTS
2.0.43	2009/10/28	Hong Yu	Update AT+EADP
2.0.44	2009/11/2	Danny Kuo	Update AT+EMMISTR Add AT+EPBSE Remove AT+CPBSE
2.0.45	2009/11/17	Danny Kuo	Update AT+ESLCD Add usage note about proprietary command in the introduction
2.0.46	2009/12/17	Danny Kuo	Revise the description of AT+EPBSE
2.0.47	2009/12/17	Kitty Sung	Add note and example of AT+CSCB
2.0.48	2009/12/24	Chenhao Gong	Update Phonesuite related AT commands
2.0.49	2009/12/24	Mingtsung Sun	Correct command format of AT+CGDSCONT
2.0.50	2010/01/06	Kitty Sung	Update AT+CSDF

Revision	Date	Author	Comments
2.0.51	2010/01/08	Hong Yu	Update ATD
2.0.52	2010/01/15	Kitty Sung	Add AT+EQUERY=5,6,7
2.0.53	2010/1/16	Kinki Lin	Update AT+CRSM command
2.0.54	2010/1/20	Hogan Hou	Update AT+CASP command
2.0.55	2010/3/1	Kitty Sung	Update AT+EMMSFS and AT+EMMEXE
2.0.56	2010/3/3	Hogan Hou	Add SLIM AT command set section
2.0.57	2010/3/3	Kitty Sung	Update AT+EVCLD
2.0.58	2010/3/8	Kitty Sung	Add AT+CLAC and AT+CMEC
2.0.59	2010/3/9	Hong Yu	Add AT+CBKLT and AT+CMER
2.0.60	2010/3/10	Chenhao Gong	Add AT+EFSC
2.0.61	2010/3/19	Hong Yu	Update AT+CMER
2.0.62	2010/3/22	Hogan Hou	Remove AT+BTFP
2.0.63	2010/3/22	Hogan Hou	Add SLIM AT command list table , seldom use command info
2.0.64	2010/3/23	Lexel Yu	Add AT+COPN
2.0.65	2010/3/24	Kitty Sung	Update AT+ESMSS
2.0.66	2010/3/30	Kitty Sung	Add AT+EQSI
2.0.67	2010/3/31	Hong Yu	Add AT+ECUSD
2.0.68	2010/4/6	Hong Yu	Update ATSO
2.0.69	2010/4/8	Hong Yu	Update AT+CBKLT
2.0.70	2010/4/13	Hogan Hou	Update AT+CMUT usage note
2.0.71	2010/4/16	Kitty Sung	Add AT+EMGR and update AT+CMGW
2.0.72	2010/5/3	Mingtsung Sun	Update AT+CGACT and AT+CGPADDR
2.0.73	2010/5/11	Chenhao Gong	Add AT+CTSA/+CSS/+CSO/+ECSCN, Update AT+CMER/+CALA/+CSGT description
2.0.74	2010/6/25	Hong Yu	Update default <dc> for AT+CUSD
2.0.75	2010/6/29	Kitty Sung	Update AT+ELQT
2.0.76	2010/7/9	Chenhao Gong	Add AT+ECPU/+ERAM/+ELOG/+ELAUNCH
2.0.77	2010/8/9	Chenhao Gong	Update AT+ELAUNCH/+ECSCN/+ELQT/+EVCLD
2.0.78	2010/8/27	Chenhao Gong	Update AT+EFSR +EIMG +EMDY
2.0.79	2010/10/31	Hong Yu	Update +ECPI
2.0.80	2010/11/24	Hogan Hou	Add ULC AT command set information
2.0.90	2010/12/10	Kitty Sung	Update AT+ESUO
2.0.91	2010/12/13	Hong Yu	Update +EGMR for GEMINI+

Revision	Date	Author	Comments
2.0.92	2010/12/20	Hong Yu	Update +VTS and +CSTA.
2.0.93	2010/12/23	Mingtsung Sun	Update AT+EGTP
2.0.94	2011/03/03	Chenhao Gong	Update +ELQT/+EADP Add +EAPS
2.0.95	2011/03/11	Hong Yu	Update +ECPI disconnect cause field
2.0.96	2011/05/04	Danny Kuo	Add design note for ATL
2.0.97	2011/05/20	Hong Yu	Update +CBST test mode
2.0.98	2011/05/25	Hong Yu	Add proprietary command +EAIC
2.0.99	2011/07/15	Mingtsung Sun	Update +CGEQREQ, +CGEQMIN
2.1.0	2011/07/27	Hong Yu	Update ATH and AT+CHUP limitation in non-UCM project Update Gemini 2.0 proprietary command AT+EMPPCH
2.1.1	2011/07/27	Danny Kuo	Update note for SMS related command that they didn't support +CMS ERROR when AT command set is SLIM or ULC AT
2.1.2	2011/09/20	Danny Kuo	Add the note for AT+CPBS to indicate that we don't support to query <used> field for call log
2.1.3	2011/10/12	Lexel Yu	Revise introduction Revise +CREG/+CGREG with <Act> Add +CPLS
2.1.4	2011/10/28	Chenhao Gong	Update AT+CKPD
2.1.5	2011/11/29	Danny Kuo	Add limitation for AT+CPBW
2.1.6	2011/12/05	Kinki Lin	Add AT+CSIM, Update AT+CRSM
2.1.7	2011/12/14	Danny Kuo	Add MMI sync limitation for each AT commands
2.1.8	2011/12/21	Chenhao Gong	Update AT+ECSCN
2.1.9	2012/1/5	Danny Kuo	Revise the response description of the ATQ
2.1.10	2012/2/7	Hong Yu	Fix +EAIC error
2.1.11	2012/2/10	Hong Yu	Add <call_id> parameter for +EAIC
2.1.12	2012/3/23	Hong Yu	Update +ECAL
2.1.13	2012/4/13	Danny Kuo	Add AT+EPBUM, AT+ES3G
2.1.14	2012/4/13	Lexel Yu	Update +ESIMS, AT+ESCRI, AT+EBOOT, AT+ERAT
2.1.15	2012/4/27	Hong Yu	Update +ECPI
2.1.16	2012/05/04	Lexel Yu	Update AT+ERAT

Revision	Date	Author	Comments
2.1.17	2012/6/15	Hong Yu	Update +ETESTSIM
2.1.18	2012/8/21	Jeffery Chen	Update +CME: ERROR <cause> for AT+CGACT
2.1.19	2012/9/6	Hong Yu	Add +EACMT and +ESIMINIT
2.1.20	2012/10/15	Yuming Hsu	Remove Facsimile Support
2.1.21	2012/10/04	Hong Yu	Add +EFD and +COPS=3,3
2.1.22	2012/12/04	Lexel Yu	Add AT+ICCID, AT+EPCT, AT+ECCP, AT+CTMCALL, AT+ECHUP, AT+ECRO
2.1.23	2013/01/18	Hong Yu	Update +ECSQ
2.1.24	2013/01/21	Jeffery Chen	Add +CGPRCO, Update +CGDCONT and +CGDATA
2.1.25	2013/01/22	Jeffery Chen	Add +CGEREP, and +CGEV
2.1.26	2013/2/19	Hong Yu	Add +ECOPS and +EMSR. Update +CFUN
2.1.27	2013/2/21	Xuejing Chen	Add +EOPS and +ECELCK

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1 Introduction

1.1 Overview

This document introduces the supported AT command set of MAUI project.

In our design, AT command result does not sync with MMI by default, except for some commands. For those commands which can sync with MMI, we will specially add a note in that AT command section. Also, please note that this sync only applies to Plutommi and Cosmos MMI. (not apply to Neptune MMI or modem project)

We don't suggest using proprietary command in a multiple command. There might be abnormal situation occurs.

1.2 References

- [1] 3GPP TS 27.007 V3.13.0 (2003-03)
- [2] ETSI TS 27.005 V3.1.0 (2000-01)
- [3] ITU-T V.25 ter (07/1997)

2 V.25ter AT Commands

2.1 ATA

2.1.1 Description

Answers and initiates a connection to an incoming call.

2.1.2 Format

Execution command : ATA

2.1.3 Field

Type	Short name	Parameter/comment
String	text	28800 Connected with data bit rate of 28800 bits/s (HSCSD) 19200 Connected with data bit rate of 19200 bits/s (HSCSD) 14400 Connected with data bit rate of 14400 bits/s (HSCSD) 9600 Connected with data bit rate of 9600 bits/s 4800 Connected with data bit rate of 4800 bits/s 2400 Connected with data bit rate of 2400 bits/s

2.1.4 Response

Execution command : CONNECT
 CONNECT <text>
 NO CARRIER
 ERROR

2.1.5 Note

In UCM project , ATA command will sent to MMI for SYNC

2.2 ATD

2.2.1 Description

Initiates a phone connection, which may be data, or voice (phone number terminated by semicolon). The phone number used to establish the connection will consist of digits and modifiers, or a stored number specification. ATD memory dial can originate call to phone number in entry location <n> (the memory storage of +CPBS setting will be used.). ATDL is used to dial LDN(last dialed number) and it will always dial as voice call.

2.2.2 Format

Execution command : ATD<dial string>

Memory dial command : ATD><n>

2.2.3 Field

Type	Short name	Parameter/comment
String	dial string	. 0 1 2 3 4 5 6 7 8 9 +. Valid characters for origination W The W modifier is ignored but is included for compatibility reasons only , The comma modifier is ignored but is included for compatibility reasons only ; Informs the Infrared Modem that the number is a voice number rather than a data number T The T modifier is ignored but is included only for compatibility purposes P The P modifier is handled (pulse DTMF dialing functionality)

String	text	28800 Connected with data bit rate of 28800 bits/s (HSCSD) 19200 Connected with data bit rate of 19200 bits/s (HSCSD) 14400 Connected with data bit rate of 14400 bits/s (HSCSD) 9600 Connected with data bit rate of 9600 bits/s 4800 Connected with data bit rate of 4800 bits/s 2400 Connected with data bit rate of 2400 bits/s
--------	------	--

2.2.4 Response

Execution command : CONNECT
 CONNECT <text>
 NO CARRIER
 ERROR
 OK

2.2.5 Note

The ATD abortability described in V.25 5.6.1 is implemented, except for the ATD memory dial. Aborting of the command is accomplished by the transmission from the DTE to the DCE of any character before the response. In UCM project , ATD command will sent to MMI for SYNC

2.3 ATE

2.3.1 Description

The setting of this parameter determines whether or not the DCE echoes characters received from the

DTE during command state and online command state.

2.3.2 Format

Execution command : ATE[<value>]

2.3.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	value	<p>0 DCE does not echo characters during command state and online command state.</p> <p>1 DCE echoes characters during command state and online command state.</p>
---------	-------	--

2.3.4 Response

Execution command : OK

2.4 ATH

2.4.1 Description

Terminates a connection.

2.4.2 Format

Execution command : ATH

2.4.3 Response

Execution command : NO CARRIER
OK

2.4.4 Note

In non-UCM projects (excluding Neptune Gemini with BT supported) projects, ATH can only hang up the call from the same source. In UCM project , ATH command will sent to MMI for SYNC

2.5 ATI

2.5.1 Description

Request Identification Information.

2.5.2 Format

Execution command : ATI[<value>]

2.5.3 Field

Type	Short name	Parameter/comment
Integer	value	used to select from among multiple types of identifying information
String	text	product information

2.5.4 Response

Execution command : <text>

2.6 ATL

2.6.1 Description

Set volume of the monitor speaker.

2.6.2 Format

Execution command : ATL[<value>]

2.6.3 Field

Type	Short name	Parameter/comment
Integer	value	0 Low speaker volume 1 Low speaker volume 2 Medium speaker volume 3 High speaker volume

2.6.4 Response

Execution command : OK

2.6.5 Note

- Do not use this command several times in the multiple command in the modem load project because it is not reasonable and might cause unexpected result due to our SW architecture design. Ex. ATLLLLLLLLLLLLLLLLLLLL

2.7 ATO

2.7.1 Description

Switch from on-line command mode to on-line data mode during an active call. Returns ERROR when not in on-line command mode.

2.7.2 Format

Execution command : ATO

2.7.3 Field

Type	Short name	Parameter/comment
String	text	28800 Connected with data bit rate of 28800 bits/s (HSCSD) 19200 Connected with data bit rate of 19200 bits/s (HSCSD) 14400 Connected with data bit rate of 14400 bits/s (HSCSD) 9600 Connected with data bit rate of 9600 bits/s 4800 Connected with data bit rate of 4800 bits/s 2400 Connected with data bit rate of 2400 bits/s

2.7.4 Response

Execution command : CONNECT
 CONNECT <text>
 NO CARRIER
 ERROR

2.8 ATP

2.8.1 Description

Select pulse dialing. (This setting is ignored.)

2.9 ATQ

2.9.1 Description

Set result code suppression mode.

2.9.2 Format

Execution command : ATQ[<value>]

2.9.3 Field

Type	Short name	Parameter/comment
Integer	value	<p>0 DCE transmits result codes.</p> <p>1 Result codes are suppressed and not transmitted.</p>

2.9.4 Response

Execution command :

OK If value is **0**.

(none) If value is **1** (because result codes are suppressed).

ERROR For unsupported values (if previous value was **Q0**).

(none) For unsupported values (if previous value was **Q1**).

2.9.5 Note

2.9.5.1 Change History

N/A

2.9.5.2 Usage Note

- If use input ATQ, it is equal to ATQ1 by default

2.10 ATSO

2.10.1 Description

Automatic answer.

This S-parameter controls the automatic answering feature of the DCE. If set to 0, automatic answering is disabled. If set to a non-zero value, the DCE shall cause the DCE to answer when the incoming call indication (ring) has occurred the number of times indicated by the value.

2.10.2 Format

Execution command : ATSO=<value>

2.10.3 Field

Type	Short name	Parameter/comment
Integer	value	<u>0</u> Automatic answering is disabled..

2.10.4 Response

Execution command : OK

2.10.5 Note

In GEMINI architecture, the setting of ATSO applies both on SIM1 and SIM2.

2.11 AT3

2.11.1 Description

Command line termination character
 This S-parameter represents the decimal IA5 value of the character recognized by the DCE from the DTE to terminate an incoming command line. It is also generated by the DCE as part of the header, trailer, and terminator for result codes and information text, along with the S4 parameter (see the description of the V parameter for usage).

2.11.2 Format

Execution command : AT3=<value>

2.11.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	value	13 Carriage return character (CR, IA5 0/13). 0 to 127 Set command line termination character to this value.
---------	-------	--

2.11.4 Response

Execution command : OK or ERROR

2.12 ATS4

2.12.1 Description

Response formatting character

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

2.12.2 Format

Execution command : ATS4=<value>

2.12.3 Field

Type	Short name	Parameter/comment
Integer	value	10 Line feed character (LF, IA5 0/10).. 0 to 127 Set response formatting character to this value.

2.12.4 Response

Execution command : OK or ERROR

2.13 AT55

2.13.1 Description

Command line editing character.

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

2.13.2 Format

Execution command : AT55=<value>

2.13.3 Field

Type	Short name	Parameter/comment
Integer	value	<u>8</u> Backspace character (BS, IA5 0/8). 0 to 127 Set command line editing character to this value.

2.13.4 Response

Execution command : OK or ERROR

2.14 AT56

2.14.1 Description

Pause before blind dialing.

The command is ignored.

2.15 AT57

2.15.1 Description

Connection completion timeout.

This parameter specifies the amount of time, in seconds, that the DCE shall allow between either

answering a call (automatically or by the A command) or completion of signaling of call addressing information to network (dialing), and establishment of a connection with the remote DCE. If no connection is established during this time, the DCE disconnects from the line and returns a result code indicating the cause of the disconnection.

2.15.2 Format

Execution command : ATS7=<value>

2.15.3 Field

Type	Short name	Parameter/comment
Integer	value	1 to 255 Number of seconds in which connection must be established or call will be disconnected.

2.15.4 Response

Execution command : OK or ERROR

2.16 AT58

2.16.1 Description

Comma dial modifier time.
 This parameter specifies the amount of time, in seconds, that the DCE shall pause, during signaling of call addressing information to the network (dialing), when a "," (comma) dial modifier is encountered in a dial string.

2.16.2 Format

Execution command : ATS8=<value>

2.16.3 Field

Type	Short name	Parameter/comment
Integer	value	<p>0 DCE does not pause when ", " encountered in dial string.</p> <p>1 to 255 Number of seconds to pause.</p> <p>Recommended default setting</p> <p>2 DCE pauses two seconds when ", " is encountered.</p>

2.16.4 Response

Execution command : OK or ERROR

2.17 ATS10

2.17.1 Description

Automatic disconnect delay.

This parameter specifies the amount of time, in tenths of a second, that the DCE will remain connected to the line (off-hook) after the DCE has indicated the absence of received line signal. If the received line signal is once again detected before the time specified in S10 expires, the DCE remains connected to the line and the call continues.

2.17.2 Format

Execution command : ATS10=<value>

2.17.3 Field

Type	Short name	Parameter/comment
Integer	value	<p>1 to 254 Number of tenths of a second of delay.</p>

2.17.4 Response

Execution command : OK or ERROR

2.18 ATT

2.18.1 Description

We do not support.
This setting is ignored.

2.19 ATV

2.19.1 Description

Set DCE response format.

2.19.2 Format

Execution command : ATV[<value>]

2.19.3 Field

Type	Short name	Parameter/comment
Integer	value	<p>0 DCE transmits limited headers and trailers and numeric text.</p> <p>1 DCE transmits full headers and trailers and verbose response text.</p>

2.19.4 Response

Execution command : OK

2.20 ATX

2.20.1 Description

The setting of this parameter determines whether or not the DCE transmits particular result codes to

the DTE. It also controls whether or not the DCE verifies the presence of dial tone when it first goes

off-hook to begin dialing, and whether or not engaged tone (busy signal) detection is enabled.

However, this setting has no effect on the operation of the W dial modifier, which always checks for

dial tone regardless of this setting, nor on the busy signal detection capability of the W and @ dial

modifiers. See Table.

2.20.2 Format

Execution command : ATX[<value>]

2.20.3 Field

Type	Short name	Parameter/comment
Integer	value	<p>0 CONNECT result code is given upon entering online data state. Dial tone and busy detection are disabled.</p> <p>1 CONNECT <text> result code is given upon entering online data state. Dial tone and busy detection are disabled.</p> <p>2 CONNECT <text> result code is given upon entering online data state. Dial tone detection is enabled, and busy detection is disabled.</p> <p>3 CONNECT <text> result code is given upon entering online data state. Dial tone detection is disabled, and busy detection is enabled.</p> <p>4 CONNECT <text> result code is given upon entering online data state. Dial tone and busy detection are both enabled.</p>

2.20.4 Response

Execution command : OK or ERROR

2.21 ATZ

2.21.1 Description

Reset to default configuration

2.21.2 Format

Execution command : ATZ[<value>]

2.21.3 Field

Type	Short name	Parameter/comment
Integer	value	0 Set parameters to factory defaults.

2.21.4 Response

Execution command : OK or ERROR

2.22 AT&F

2.22.1 Description

Set to factory-defined configuration

2.22.2 Format

Set command : AT&F[<value>]

2.22.3 Field

Type	Short name	Parameter/comment
Integer	value	0 Set parameters to factory defaults.

2.22.4 Response

Set command: OK | ERROR | +CME ERROR: <err>

2.23 AT+GMI

2.23.1 Description

Same as AT+CGMI

2.24 AT+GMM

2.24.1 Description

Same as AT+CGMM

2.25 AT+GMR

2.25.1 Description

Same as AT+CGMR

2.26 AT+IPR

2.26.1 Description

Specifies the data rate, in addition to 1200 bits/s or 9600 bits/s, at which the DCE will accept commands. May be used to select operation at rates at which the DCE is not capable of automatically detecting the data rate being used by the DTE.

2.26.2 Format

Execution command : AT+IPR=[<rate>]

Read command : AT+IPR? Displays the current <rate> setting.

Test command : AT+IPR=? Shows if the command is supported.

2.26.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	rate	The rate, in bits per second, at which the DTE-DCE interface should operate. Currently, the following rates are supported: 0, 300, 1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, and 115200. If unspecified, or set to zero, automatic detection is selected, and the character format is forced to auto-detect (AT+ICF=0)
---------	------	---

2.26.4 Response

Execution command : OK
Read command : +IPR: <rate>
Test command : +IPR: (list of supported <rate>s)

2.27 AT+ICF

2.27.1 Description

Determines the local serial-port asynchronous character framing.

2.27.2 Format

Execution command : AT+ICF=[<format>[,<parity>]]
Read command : AT+ICF? Displays the current <format>, <parity> settings.
Test command : AT+ICF=? Shows if the command is supported.

2.27.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	parity	0 Auto-detect 1 8 Data bits, 2 Stop bits 2 8 Data bits, 1 Parity bit, 1 Stop bit 3 8 Data bits, 1 Stop bit Default setting 4 7 Data bits, 2 Stop bits 5 7 Data bits, 1 Parity bit, 1 Stop bit 6 7 Data bits, 1 Stop bit
Integer	parity	0 Odd Default setting 1 Even 2 Mark 3 Space

2.27.4 Response

Execution command : OK

Read command : +ICF: <format>,<parity>

Test command : +ICF: (list of supported <format>s), (list of supported <parity>s)

2.28 AT+DS

2.28.1 Description

Controls the V.42 bis data compression function, if provided in the TA.

2.28.2 Format

Execution command :

AT+DS=[<direction>[,<compression_negotiation>[,<max_dict>[,<max-string>]]]]

Read command : AT+DS? Displays the current <direction>, <compression_negotiation>, <max_dict>, and <max_string> settings.

Test command : AT+DS=? Shows if the command is supported.

2.28.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	direction	0 Disable V.42bis 1 Enable V.42bis in transmit direction only 2 Enable V.42bis in receive direction only 3 Enable V.42bis compression in both directions Default setting
Integer	compression_negotiation	0 Accept connection if compression is negotiated according to direction Default setting 1 Disconnect if compression is not negotiated according to direction
Integer	max_dict	512 to 4096 Maximum dictionary size 512 is Default setting
Integer	max_string	6 to 250 Maximum string length 6 is Default setting

2.28.4 Response

Execution command : OK

Read command : +DS: <direction>,<compression_negotiation>,<max-dict>,<max_string>

Test command : +DS: (list of supported <direction>s),(list of supported <compression_negotiation>s),(list of supported <max_dict>s),(list of supported <max_string>s)

2.29 AT+GCAP

2.29.1 Description

Request complete capabilities list.

2.29.2 Format

Execution command : AT+GCAP

Test command : AT+GCAP=? Shows if the command is supported.

2.29.3 Response

Execution command : +GCAP: +CGSM

OK

Test command : OK

3 07.07 AT Commands – General commands

3.1 AT+CGMI – Request manufacturer identification (Sec 5.1)

3.1.1 Description

The command causes the phone to return one or more lines of information text <manufacturer> which is intended to permit the user of the ITAE/ETAE to identify the manufacturer of the phone to which it is connected to.

3.1.2 Format

Command	Possible response(s)
+CGMI	<manufacturer> +CME ERROR: <err>
+CGMI=?	

3.2 AT+CGMM – Request model identification (Sec 5.2)

3.2.1 Description

The command causes the phone to return one or more lines of information text <model> which is intended to permit the user of the ITAE/ETAE to identify the specific model of phone to which it is connected to.

3.2.2 Format

Command	Possible response(s)
+CGMM	<model> +CME ERROR: <err>
+CGMM=?	

3.3 AT+CGMR – Request revision identification (Sec 5.3)

3.3.1 Description

The command causes the phone to return a string containing information regarding SW version.

3.3.2 Format

Command	Possible response(s)
+CGMR	<revision> +CME ERROR: <err>
+CGMR=?	

3.4 AT+CGSN – Request product serial number identification (Sec 5.4)

3.4.1 Description

Returns the IMEI number of the phone.

3.4.2 Format

Command	Possible response(s)
+CGSN	<serial number> <CR><LF> <IMEI> +CME ERROR: <err>
+CGSN=?	

3.5 AT+CSCS – Select TE character set (Sec 5.5)

3.5.1 Description

Set command informs TA which character set <chset> is used by the TE. TA is then able to convert character strings correctly between TE and MT character sets.

3.5.2 Format

Command	Possible response(s)
+CSCS?	+CSCS: <chset>
+CSCS=?	+CSCS: (list of supported <chset>s)

3.5.3 Field

"GSM"	GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily software flow control (XON/XOFF) problems
"HEX"	character strings consist only of hexadecimal numbers from 00 to FF; e.g. "032FE6" equals three 8-bit characters with decimal values 3, 47 and 230; no conversions to the original MT character set shall be done.
"IRA"	international reference alphabet (ITU-T T.50 [13])
"PCCP437"	PC character set Code Page 437
"UCS2"	16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2 character strings are converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit characters with decimal values 65, 98 and 99
"8859-1"	ISO 8859 Latin character set
"UCS2_08X1"	

The supported parameters are subject to change according to different compile directives (options).

3.6 AT+CLAC – List all available AT commands

3.6.1 Description

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

Note: This command only returns the AT commands that are available for the user.

3.6.2 Format

Command	Possible response(s)
+CLAC	<AT Command1> [<CR><LF > <AT Command2> [...]] <i>+CME ERROR: <err></i>
+CLAC=?	<i>+CME ERROR: <err></i>

3.6.3 Field

<AT Command>:

Defines the AT command including the prefix AT. Text shall not contain the sequence 0<CR> or OK<CR>

3.6.4 Note

3.6.4.1 Change History

The command is available from 09B.1009MP

3.6.4.2 Usage Note

The command only supported in projects with `__CLAC_SUPPORT__` option.

3.7 AT+CIMI – Request international mobile subscriber identity (Sec 5.6)

3.7.1 Description

Execution command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual SIM which is attached to ME. Refer [1] 9.2 for possible <err> values.

3.7.2 Format

Command	Possible response(s)
+CIMI	<IMSI> <i>+CME ERROR: <err></i>
+CIMI=?	

4 07.07 AT Commands – Call Control commands

4.1 AT+CSTA – Select type of address (Sec 6.1)

4.1.1 Description

Selects the type of number for further dialing commands (D) according to GSM/UMTS specifications.

4.1.2 Format

Command	Possible response(s)
	+CSTA: (list of supported <type>s)

4.1.3 Field

<type>: type of address octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.7); default 145 when dialing string includes international access code character "+", otherwise 129

4.1.4 Note

If '+' appears at the beginning of <dial string>, the TON to network is set to 145, otherwise we use the setting of +CSTA.

4.2 AT+CMOD – Call mode (Sec 6.4)

4.2.1 Description

Selects the call mode for future dialing commands or for the next answering command.

4.2.2 Format

Command	Possible response(s)
+CMOD?	+CMOD: <mode>

+CMOD=?	+CMOD: (list of supported <mode>s)
---------	------------------------------------

4.2.3 Field

<mode>:

- 0 single mode
- 2 alternating voice/data (bearer service 61)
- 3 voice followed by data (bearer service 81)

4.3 AT+CHUP – Hang up call (Sec 6.5)

4.3.1 Description

Request to hang up the current GSM call.

4.3.2 Format

Command	Possible response(s)
+CHUP	
+CHUP=?	

4.3.3 Note

In non-UCM projects (excluding Neptune Gemini with BT supported) projects, AT+CHUP can only hang up the call from the same source. In UCM project , this command will sent to MMI for SYNC

4.4 AT+CBST – Select bearer service type (Sec 6.7)

4.4.1 Description

Selects the bearer service <name> with the data rate <speed>, and the connection element <ce> to be used when data calls are made. Values may also be used during mobile-terminated data-call setup, especially in the case of single numbering-scheme calls.

4.4.2 Format

Command	Possible response(s)
+CBST= [<speed> [, <name> [, <ce>]]]	
+CBST?	+CBST: <speed>, <name>, <ce>
+CBST=?	+CBST: (list of supported <speed>s) , (list of supported <name>s) , (list of supported <ce>s)

4.4.3 Field

<speed>:

0	auto bauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem and non-transparent service)
4	2400 bps (V.22bis)
5	2400 bps (V.26ter)
6	4800 bps (V.32)
7	9600 bps (V.32)
12	9600 bps (V.34)
14	14400 bps (V.34)
68	2400 bps (V.110 or X.31 flag stuffing)
70	4800 bps (V.110 or X.31 flag stuffing)
71	9600 bps (V.110 or X.31 flag stuffing)
75	14400 bps (V.110 or X.31 flag stuffing)
134	64000 bps(multimedia)

[NOTE] when <speed> = 4,5,6,7,12,14 , line type = **Analog**

when <speed> =68,70,71,75 , line type = **ISDN**

<name>:

0	data circuit asynchronous (UDI or 3.1 kHz modem)
1	data circuit synchronous (UDI or 3.1 kHz modem)
2	PAD Access (asynchronous) (UDI)
3	Packet Access (synchronous) (UDI)
4	data circuit asynchronous (RDI)

<ce>:

- 0 transparent
- 1 non-transparent
- 2 both, transparent preferred
- 3 both, non-transparent preferred

Note: the valid parameter might have some differences due to the capability and the configuration of that project.

4.4.4 Note

<name> = 2 and 3 are not supported

4.5 AT+CRLP – Radio Link Protocol (Sec 6.8)

4.5.1 Description

Sets the radio link protocol parameters.

4.5.2 Format

Command	Possible response(s)
+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]	
+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [<CR><LF>+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]]

+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)]] [. . .]]
---------	---

4.5.3 Field

<ver>, <verx>: RLP version number in integer format; only support version 0.

<iws>, <mws>, <T1>, <N2>, <T4>: IWF to MS window size, MS to IWF window size, acknowledgement timer T1, retransmission attempts N2, re-sequencing period T4 in integer format. T1 and T4 are in units of 10 ms.

<ver> and <T4> in set command are ignored.

4.6 AT+CR – Service reporting control (Sec 6.9)

4.6.1 Description

Service reporting control.

Set command controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE. If enabled, the intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before the intermediate result code CONNECT is transmitted.

4.6.2 Format

Command	Possible response(s)
+CR= [<mode>]	
+CR?	+CR: <mode>

+CR=?	+CR: (list of supported <mode>s)
-------	----------------------------------

4.6.3 Field

<mode>:

0 disables reporting

1 enables reporting

<serv>:

ASYN asynchronous transparent

SYNC synchronous transparent

REL ASYN asynchronous non-transparent

REL SYNC synchronous non-transparent

4.7 AT+CEER – Extended error report (Sec 6.10)

4.7.1 Description

Execution command causes the TA to return one or more lines of information text <report>, which offer the user of the TA an extended report of the reason for

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

4.7.2 Format

Command	Possible response(s)
+CEER	+CEER: <cause>, <report>
+CEER=?	

4.7.3 Field

<cause>: cause value listed in GSM 04.08 annex H.

<report>: string type describes cause value.

Note: For error cause other than those listed in GSM 04.08 annex H.

+CEER: 128, "ERROR_CAUSE_UNKNOWN" will be given.

If there is no error happened, +CEER: 0, "NONE" will be given.

4.8 AT+CRC – Cellular result code (Sec 6.11)

4.8.1 Description

Set command controls whether or not the extended format of incoming call indication or GPRS network request for PDP context activation is used. When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> instead of the normal RING.

4.8.2 Format

Command	Possible response(s)
+CRC= [<mode>]	
+CRC?	+CRC: <mode>
+CRC=?	+CRC: (list of supported <mode>s)

4.8.3 Field

<mode>:

- 0 disables extended format
- 1 enables extended format

<type>:

- ASYNC asynchronous transparent
- SYNC synchronous transparent
- REL ASYNC asynchronous non-transparent
- REL SYNC synchronous non-transparent
- VOICE normal voice (TS 11)
- VOICE/XXX voice followed by data (BS 81)
(XXX is ASYNC, SYNC, REL ASYNC or REL SYNC)
- ALT VOICE/XXX alternating voice/data, voice first (BS 61)
- ALT XXX/VOICE alternating voice/data, data first (BS 61)
- GPRS GPRS network request for PDP context activation

4.9 AT+CSNS – Single Numbering Scheme (Sec 6.19)

4.9.1 Description

Set command selects the bearer or teleservice to be used when mobile terminated single numbering scheme call is established. Parameter values set with +CBST command shall

be used when <mode> equals to a data service.

4.9.2 Format

Command	Possible response(s)
+CSNS= [<mode>]	
+CSNS?	+CSNS : <mode>
+CSNS=?	+CSNS : (list of supported <mode>s)

4.9.3 Field

<mode>:

- 0 voice
- 3 alternating voice/data, voice first (BS 61)
- 4 data
- 6 alternating voice/data, data first (BS 61)
- 7 voice followed by data (BS 81)

4.10 AT+CVHU – Voice Hangup Control (Sec 6.20)

4.10.1 Description

Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not. By voice connection is also meant alternating mode calls that are currently in voice mode.

4.10.2 Format

Command	Possible response(s)
+CVHU= [<mode>]	
+CVHU?	+CVHU : <mode>
+CVHU=?	+CVHU : (list of supported <mode>s)

4.10.3 Field

<mode>: 0 - "Drop DTR" ignored but OK response given. ATH disconnects.

4.11 AT+CSDF – Settings Date Format (Sec 6.22)

4.11.1 Description

Set the date format of the date information presented to the user.

4.11.2 Format

Command	Possible response(s)
+CSDF= [[<mode>] [, <auxmode>]]	+CME ERROR: <err>
+CSDF?	+CSDF:<mode> [, <auxmode>] +CME ERROR: <err>
+CSDF=?	+CSDF: (list of supported <mode>s) [, (list of supported <auxmode>s)] +CME ERROR: <err>

4.11.3 Field

<mode>:

- 1 DD-MMM-YYYY
- 8 DD/MM/YYYY
- 9 MM/DD/YYYY
- 10 YYYY/MM/DD
- 11 YYYY-MM-DD
- 12 MMM DD,YYYY

<auxmode>:

- 1 yy/MM/dd (default)
- 2 yyyy/MM/dd

4.11.4 Note

If execute "AT+CSDF=", we just return OK and keep the previous setting.

EX :

AT+CSDF=12,2

OK

AT+CSDF=

OK

AT+CSDF=12,2

OK

4.12 AT+CSIL – Silence Command (Sec 6.23)

4.12.1 Description

Enable/Disable the silent mode.

4.12.2 Format

Command	Possible response(s)
+CSIL=<mode> >	+CME ERROR: <err>
+CSIL?	+CSIL:<mode> +CME ERROR: <err>
+CSIL=?	+CSIL:(list of supported <mode>s) +CME ERROR: <err>

4.12.3 Field

<mode>:

- 0 Silent mode off
- 1 Silent mode on

4.13 AT+CSTF – Settings Time Format (Sec 6.24)

4.13.1 Description

Set time format of the time information presented to the user.

4.13.2 Format

Command	Possible response(s)
+CSTF=[<mode> >	+CME ERROR: <err>
+CSTF?	+CSTF:<mode> +CME ERROR: <err>
+CSTF=?	+CSTF:(list of supported <mode>s) +CME ERROR: <err>

4.13.3 Field

<mode>:

- 1 HH:MM (24 hour clock)
- 2 HH:MM a.m./p.m.

5 07.07 AT Commands –Network Service related commands

5.1 AT+CNUM – Subscriber Number (Sec 7.1)

5.1.1 Description

returns the MSISDNs related to the subscriber (this information can be stored in the SIM/UICC or in the MT).

5.1.2 Format

Command	Possible response(s)
+CNUM	+CNUM: [<alpha1>], <number1>, <type1> [<CR><LF>+CNUM: [<alpha2>], <number2>, <type2>] [...] +CME ERROR: <err>
+CNUM=?	

5.2 AT+CREG – Network Registration (Sec 7.2)

5.2.1 Description

Set command controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the MT network registration status, or code +CREG: <stat>[, <lac>, <ci>[, <Act>]] when <n>=2 and there is a change of the network cell.

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 <lac>, <ci> and <Act> are returned only when <n>=2 and MT is registered in the network.

5.2.2 Format

Command	Possible response(s)
+CREG=[<n>]	
+CREG?	+CREG: <n>, <stat>[, <lac>, <ci>[, <Act>]] <i>+CME ERROR: <err></i>
+CREG=?	+CREG: (list of supported <n>s)

5.2.3 Field

<n>:

- 0 disable network registration unsolicited result code
- 1 enable network registration unsolicited result code +CREG: <stat>
- 2 enable network registration and location information unsolicited result code
+CREG: <stat>[, <lac>, <ci>, [<Act>]]

<stat>:

- 0 not registered, MT is not currently searching a new operator to register to
- 1 registered, home network
- 2 not registered, but MT is currently searching a new operator to register to
- 3 registration denied
- 4 unknown
- 5 registered, roaming

<lac>: string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)

<ci>: string type; four byte cell ID in hexadecimal format

<Act>:

- 0 GSM
- 2 UTRAN
- 3 GSM w/EGPRS
- 4 UTRAN w/HSDPA
- 5 UTRAN w/HSUPA
- 6 UTRAN w/HSDPA and HSUPA

5.2.4 Note

5.2.4.1 Change History

<Act> is applied from 09A.0920MP

5.2.4.2 Usage Note

N/A

5.3 AT+COPS – Operator Selection (Sec 7.3)

5.3.1 Description

Set command forces an attempt to select and register the GSM/UMTS network operator. If the selected operator is not available, ERROR is returned.
 Read command returns the current mode, the currently selected operator.
 Test command returns operator list present in the network.

5.3.2 Format

Command	Possible response(s)
+COPS=<mode> [, <format>, <oper> [, <Act>]]	+CME ERROR: <err>
+COPS?	+COPS: <mode> [, <format>, <oper>] +CME ERROR: <err>
+COPS=?	+COPS: [list of supported (<stat>, long alphanumeric <oper> , short alphanumeric <oper>, numeric <oper>, [, <Act> [, <lac>]])s] [, , (list of supported <mode>s) , (list of supported <format>s)] +CME ERROR: <err>

5.3.3 Field

<mode>:

- 0 automatic (<oper> field is ignored)
- 1 manual (<oper> field shall be present)
- 2 deregister from network (disable form 05.48)
- 3 set only <format> (for read command +COPS?), do not attempt registration/deregistration

<format>:

- 0 long format alphanumeric <oper>
- 1 short format alphanumeric <oper>
- 2 numeric <oper>
- 3 repot PLMN list result with LAC in <lac>

<oper>: string type

<stat>:

- 0 unknown
- 1 available
- 2 current
- 3 forbidden

<Act>

- 0 GSM
- 2 UTRAN

5.3.4 Note

AT+COPS=3,3 is only support when `__PLMN_LIST_WITH_LAC__` is defined.

5.3.4.1 Change History

N/A

5.3.4.2 Usage Note

- **We DO NOT support full set of alphanumeric format of <oper>, since the code size will become very large. If the customer needs the alphanumeric format, the table can be customized in `mcu\custom\common\customer_operator_names.c`.**

+COPS? response is not alphanumeric format when setting with alphanumeric format
example:

+COPS: 0,0," KG Telecom Co."

If you got +COPS: 0,0,"46688"

This is possibly due to there is no alphanumeric format name mapping to the operator id

 You can define operator name table in the following file under custom folder.

mcu\custom\common\customer_operator_name.c

Please check if there is operator name mapping in the name table.

If not , Please add your operator name and operator id

There is comment information in the file to guide you .

Please read the guide before modification.

After modification .then 'remake custom'

There are two places shall be modified

1. RMMI_PLMN_NAME_ENTRIES

2. rmmi_plmn_table

- <mode>=2 supported in projects with __NW_DETACH_SUPPORT__ option. (available after W1012)

5.4 AT+CLCK – Facility Lock (Sec 7.4)

5.4.1 Description

Execute command is used to lock, unlock or interrogate a ME or a network facility <fac>.

5.4.2 Format

Command	Possible response(s)
+CLCK=<fac>, <mode> [, <passwd> [, <class>]]	+CME ERROR: <err> when <mode>=2 and command successful: +CLCK: <status> [, <class1> [<CR><LF>+CLCK: <status>, <class2> [...]]
+CLCK=?	+CLCK: (list of supported <fac>s) +CME ERROR: <err>

5.4.3 Field

<fac> : “PF”, “SC”, “AO”, “OI”, “OX”, “AI”, “IR”, “AB”, “AG”, “AC”, “PN”, “PU”, “PP”, “PC”

<mode>:

0 unlock

1 lock

2 query status (only "SC", "AO", "OI", "OX", "AI", "IR" support query mode)

<status>:

0 not active

1 active

<passwd>: string type

<classx> is a sum of integers each representing a class of information (default 7):

1 voice (telephony)

2 data (refers to all bearer services)

8 short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128 dedicated PAD access

5.4.4 Note

5.4.4.1 Change History

N/A

5.4.4.2 Usage Note

- The <fac> "AB", "AG" and "AC" are applicable only for <mode>=0

5.5 AT+CPWD – Change Password (Sec 7.5)

5.5.1 Description

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

5.5.2 Format

Command	Possible response(s)
+CPWD=<fac>, <oldpwd>, <n> ewpwd>	+CME ERROR: <err>
+CPWD=?	+CPWD: list of supported (<fac>, <pwdlength>)s +CME ERROR: <err>

5.5.3 Field

<fac>:

"P2" SIM PIN2

refer Facility Lock +CLCK for other values

<oldpwd>, <newpwd>: string type;

<pwdlength>: integer type maximum length of the password for the facility

5.6 AT+CLIP – Calling line identification presentation (Sec 7.6)

5.6.1 Description

Requests calling line identification. Determines if the +CLIP unsolicited result code is activated. When the presentation of the CLI at the TE is enabled (and calling subscriber allows), +CLIP: <number>, <type> [, <subaddr>, <satype>] response is returned after every RING.

5.6.2 Format

Command	Possible response(s)
+CLIP= [<n> <m>]	
+CLIP?	+CLIP: <n>, <m>
+CLIP=?	+CLIP: (list of supported <n>s)

5.6.3 Field

<n> (parameter sets/shows the result code presentation status to the TE):

0 disable

- 1 enable
- <m> (parameter shows the subscriber CLIP service status in the network):
 - 0 CLIP not provisioned
 - 1 CLIP provisioned
 - 2 unknown (e.g. no network, etc.)
- <number>: string type phone number of format specified by <type>
- <type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
- <subaddr>: string type subaddress of format specified by <satype>
- <satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8)

5.7 AT+CLIR – Calling line identification restriction (Sec 7.7)

5.7.1 Description

Requests calling line identification restriction.

5.7.2 Format

Command	Possible response(s)
+CLIR=[<n>]]	
+CLIR?	+CLIR: <n>, <m>
+CLIR=?	+CLIR: (list of supported <n>s)

5.7.3 Field

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

5.8 AT+COLP – Connected line identification presentation (Sec 7.8)

5.8.1 Description

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

When enabled (and called subscriber allows), +COLP :

<number>, <type> [, <subaddr>, <satype> [, <alpha>]] intermediate result code is returned from TA to TE before any +CR or V.250 [14] responses.

5.8.2 Format

Command	Possible response(s)
+COLP=[<n>]]	
+COLP?	+COLP: <n>, <m>
+COLP=?	+COLP: (list of supported <n>s)

5.8.3 Field

<n> (parameter sets/shows the result code presentation status to the TE):

- 0 disable
- 1 enable

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

- 0 COLP not provisioned
- 1 COLP provisioned
- 2 unknown (e.g. no network, etc.)

<number>, <type>, <subaddr>, <satype>, <alpha>: refer +CLIP

5.9 AT+CCUG -- Closed user group (Sec 7.10)

5.9.1 Description

This command allows control of the Closed User Group supplementary service.

Set command enables the served subscriber to select a CUG index, to suppress the Outgoing Access (OA), and to suppress the preferential CUG.

5.9.2 Format

Command	Possible response(s)
+CCUG?	+CCUG: <n>, <index>, <info>
+CCUG=?	

5.9.3 Field

<n>:

- 0 disable CUG temporary mode
- 1 enable CUG temporary mode

<index>:

- 0...9 CUG index
- 10 no index (preferred CUG taken from subscriber data)

<info>:

- 0 no information
- 1 suppress OA
- 2 suppress preferential CUG
- 3 suppress OA and preferential CUG

5.10 AT+CCFC – Call forwarding number and conditions (Sec 7.11)

5.10.1 Description

Sets the call forwarding number and conditions. Registration, erasure, activation, deactivation and status query operations are supported.

5.10.2 Format

Command	Possible response(s)
+CCFC=<reason>,<mode> [,<number>[,<type> > [,<class> [,<subaddr>[,<sat type> [,<time>]]]]]]	+CME ERROR: <err> when <mode>=2 and command successful: +CCFC: <status>,<class1>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]][<CR><LF>+CCFC: <status>,<class2>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]] [...]]
+CCFC=?	+CCFC: (list of supported <reason>s)

5.10.3 Field

<reason>:

- 0 unconditional
- 1 mobile busy
- 2 no reply
- 3 not reachable
- 4 all call forwarding (refer 3GPP TS 22.030 [19])
- 5 all conditional call forwarding (refer 3GPP TS 22.030 [19])

<mode>:

- 0 disable
- 1 enable
- 2 query status
- 3 registration
- 4 erasure

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

<type>: type of address

<subaddr>: string type subaddress of format specified by <satype>

<satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128

<classx> is a sum of integers each representing a class of information (default 7):

- 1 voice (telephony)
- 2 data (refers to all bearer services)
- 8 short message service
- 16 data circuit sync
- 32 data circuit async
- 64 dedicated packet access
- 128 dedicated PAD access

<time>:

1...30 when "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded

<status>:

- 0 not active
- 1 active

5.11 AT+CCWA – Call waiting (Sec 7.12)

5.11.1 Description

This command allows control of the Call Waiting supplementary service. Activation, deactivation and status query are supported. Parameter <n> is used to disable/enable the presentation of an unsolicited result code +CCWA :

<number>, <type>, <class> to the TE when call waiting service is enabled.

5.11.2 Format

Command	Possible response(s)
+CCWA=[<n>[, <mode>[, <class>]]]	+CME ERROR: <err> when <mode>=2 and command successful +CCWA: <status>,<class1> [<CR><LF>+CCWA: <status>,<class2> [...]]
+CCWA?	+CCWA: <n>
+CCWA=?	+CCWA: (list of supported <n>s)

5.11.3 Field

<n> (sets/shows the result code presentation status to the TE):

0 disable

1 enable

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

0 disable

1 enable

2 query status

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

1 voice (telephony)

2 data (refers to all bearer services)

8 short message service

16 data circuit sync

32 data circuit async

64 dedicated packet access

128 dedicated PAD access

<status>:

0 not active

1 active

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

<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

5.12 AT+CHLD – Call related supplementary services (Sec 7.13)

5.12.1 Description

Requests call-related supplementary services. Refers to a service that allows a call to be temporarily disconnected from the ME but the connection to be retained by the network, and to a service that allows multiparty conversation. Calls can be put on hold, recovered, released and added to a conversation.

5.12.2 Format

Command	Possible response(s)
+CHLD=[<n>]	+CME ERROR: <err>
+CHLD=?	[+CHLD: (list of supported <n>s)]

5.12.3 Field

<n> (sets/shows the result code presentation status to the TE):

- 0 Releases all held calls, or sets User-Determined User Busy for a waiting call
- 1 Releases all active calls and accepts the other (waiting or held) call
- 1x Releases the specific active call X
- 2 Places all active calls on hold and accepts the other (held or waiting) call'
- 2x Places all active calls, except call X, on hold
- 3 Adds a held call to the conversation
- 4 Connects two calls and disconnects the subscriber from both calls
- 5 Activate the Completion of Calls to Busy Subscriber Request. (CCBS)

5.13 AT+CTFR – Call deflection (Sec 7.14)

5.13.1 Description

This refers to a service that causes an incoming alerting call to be forwarded to a specified number.

5.13.2 Format

Command	Possible response(s)
+CTFR=<number> [, <type> [, <subaddr> [, <satype>]]]	+CME ERROR: <err>
+CTFR=?	

5.13.3 Field

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

<type>: type of address

<subaddr>: string type subaddress of format specified by <satype>

<satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128

5.14 AT+CUSD – Unstructured supplementary service data (Sec 7.15)

5.14.1 Description

Allows control of the Unstructured Supplementary Service Data (USSD). Both network- and mobile-initiated operations are supported. This command is used to enable the unsolicited result code +CUSD.

5.14.2 Format

Command	Possible response(s)
+CUSD=[<n> [, <str> [, <dcS>]]]	+CME ERROR: <err>
+CUSD?	+CUSD: <n>
+CUSD=?	+CUSD: (list of supported <n>s)

5.14.3 Field

<n>:

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

<str>: string type USSD string

<dcS>: 3GPP TS 23.038 [25] Cell Broadcast Data Coding Scheme in integer format (default 15)

<m>:

- 0 no further user action required
- 1 further user action required
- 2 USSD terminated by network
- 3 other local client has responded
- 4 operation not supported
- 5 network time out

5.15 AT+CAOC – Advice of Charge (Sec 7.16)

5.15.1 Description

Sets the current call meter value in hexadecimal format. Must be supported on the SIM card. Enables/Disables the +CCCM unsolicited result code reporting. The unsolicited result code +CCCM: <ccm> is sent when the CCM value changes, but not more than every 10 seconds.

5.15.2 Format

Command	Possible response(s)
+CAOC [=<mode>]	[+CAOC: <ccm>] +CME ERROR: <err>
+CAOC?	+CAOC: <mode>
+CAOC=?	[+CAOC: (list of supported <mode>s)

5.15.3 Field

<mode>:

- 0 query CCM value
- 1 deactivate the unsolicited reporting of CCM value
- 2 activate the unsolicited reporting of CCM value

<ccm>: string type; three bytes of the current call meter value in hexadecimal format (e.g. "00001E" indicates decimal value 30)

5.16 AT+CSSN – Supplementary service notifications (Sec 7.17)

5.16.1 Description

This command refers to supplementary service related network initiated notifications. The set command enables/disables the presentation of notification result codes from TA to TE.

When <n>=1 and a supplementary service notification is received after a mobile originated call setup, intermediate result code +CSSI: <code1>[, <index>] is sent to TE before any other MO call setup result codes presented in the present document or in V.250 [14]. When several different <code1>s are received from the network, each of them shall have its own +CSSI result code.

When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, or when a forward check supplementary service notification is received, unsolicited result code +CSSU :

<code2> [, <index> [, <number> , <type> [, <subaddr> , <stype>]]] is sent to TE. In case of MT call setup, result code is sent after every +CLIP result code (refer command "Calling line identification presentation +CLIP") and when several different <code2>s are received from the network, each of them shall have its own +CSSU result code.

5.16.2 Format

Command	Possible response(s)
+CSSN= [<n> [, <m>]]	
+CSSN?	+CSSN: <n> , <m>
+CSSN=?	+CSSN: (list of supported <n>s) , (list of supported <m>s)

5.16.3 Field

<n> (parameter sets/shows the +CSSI result code presentation status to the TE):

- 0 disable
- 1 enable

<m> (parameter sets/shows the +CSSU result code presentation status to the TE):

- 0 disable
- 1 enable

<code1> (it is manufacturer specific, which of these codes are supported):

- 0 unconditional call forwarding is active
- 1 some of the conditional call forwardings are active
- 2 call has been forwarded
- 3 call is waiting
- 4 this is a CUG call (also <index> present)
- 5 outgoing calls are barred
- 6 incoming calls are barred
- 7 CLIR suppression rejected
- 8 call has been deflected

<index>: refer "Closed user group +CCUG"

<code2> (it is manufacturer specific, which of these codes are supported):

- 0 this is a forwarded call (MT call setup)
- 1 this is a CUG call (also <index> present) (MT call setup)
- 2 call has been put on hold (during a voice call)
- 3 call has been retrieved (during a voice call)
- 4 multiparty call entered (during a voice call)
- 5 call on hold has been released (this is not a SS notification) (during a voice call)
- 6 forward check SS message received (can be received whenever)
- 7 call is being connected (alerting) with the remote party in alerting state
in explicit call transfer operation (during a voice call)
- 8 call has been connected with the other remote party in explicit call transfer
operation (also number
and subaddress parameters may be present) (during a voice call or MT call
setup)
- 9 this is a deflected call (MT call setup)
- 10 additional incoming call forwarded

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

<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

<subaddr>: string type subaddress of format specified by <satype>

<satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8)

5.17 AT+CLCC – List current calls (Sec 7.18)

5.17.1 Description

Returns list of current calls of ME. If command succeeds but no calls are available, no information response is sent to TE.

5.17.2 Format

Command	Possible response(s)
+CLCC	[+CLCC: <id1>, <dir>, <stat>, <mode>, <mpty> [, <number>, <type>] [[<CR><LF>+CLCC: <id2>, <dir>, <stat>, <mode>, <mpty> [, <number>, <type>] [...]]] +CME ERROR: <err>
+CLCC=?	

5.17.3 Field

<idx>: integer type; call identification number as described in 3GPP TS 22.030 [19] subclause 4.5.5.1;

 this number can be used in +CHLD command operations

<dir>:

- 0 mobile originated (MO) call
- 1 mobile terminated (MT) call

<stat> (state of the call):

- 0 active
- 1 held
- 2 dialing (MO call)
- 3 alerting (MO call)
- 4 incoming (MT call)
- 5 waiting (MT call)

<mode> (bearer/teleservice):

- 0 voice
- 1 data
- 3 voice followed by data, voice mode
- 4 alternating voice/data, voice mode
- 6 voice followed by data, data mode
- 7 alternating voice/data, data mode
- 9 unknown

<mpty>:

- 0 call is not one of multiparty (conference) call parties
- 1 call is one of multiparty (conference) call parties

<number>: string type phone number in format specified by <type>
 <type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

5.18 AT+CPOL – Preferred operator list (Sec 7.19)

5.18.1 Description

This command is used to edit the SIM preferred list of networks. Execute command writes an entry in the SIM list of preferred operators (EFPLMNsel). If <index> is given but <oper> is left out, entry is deleted. If <oper> is given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the <oper> in the read command is changed.

5.18.2 Format

Command	Possible response(s)
+CPOL=[<index>] [, <format> [, <oper> [<GSM_Act>, <GSM_compact_Act>, <UTRAN_Act>]]]	+CME ERROR: <err>
+CPOL?	+CPOL: <index1>, <format>, <oper1> [, <GSM_Act1>, <GSM_Compact_Act1>, <UTRAN_Act1>] [<CR><LF>+CPOL: <index2>, <format>, <oper2> [, <GSM_Act2>, <GSM_Compact_Act2>, <UTRAN_Act2>] [...]] +CME ERROR: <err>
+CPOL=?	+CPOL: (list of supported <index>s) , (list of supported <format>s) +CME ERROR: <err>

5.18.3 Field

<indexn>: integer type; the order number of operator in the SIM/USIM preferred operator list

<format>:

- 0 long format alphanumeric <oper>
- 1 short format alphanumeric <oper>
- 2 numeric <oper>

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

<GSM_AcTn>: GSM access technology:

- 0 access technology not selected
- 1 access technology selected

<GSM_Compact_AcTn>: GSM access technology:

- 0 access technology not selected
- 1 access technology selected

<UTRAN_AcTn>: GSM access technology:

- 0 access technology not selected
- 1 access technology selected

5.19 AT+CPLS – Selection of preferred PLMN list (Sec 7.20)

5.19.1 Description

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. Execute command selects a list in the SIM/USIM. Read command returns the selected PLMN selector list from the SIM/USIM. Test command returns the whole index range supported lists by the SIM/USIM

5.19.2 Format

Command	Possible Response(s)
+CPLS=<list>	+CME ERROR: <err>
+CPLS?	+CPLS: <list>
+CPLS=?	+CPLS: <list of supported<lis>s> +CME ERROR: <err>

5.19.3 Field

<list>: integer type

- 0 User controlled PLMN selector with Access Technology EF_{PLMNwAcT}, if not found in the SIM/UICC then PLMN preferred list EF_{PLMNsel} (this file is only available in SIM card or GSM application selected in UICC)
- 1 Operator controlled PLMN selector with Access Technology EF_{OPLMNwAcT}
- 2 HPLMN selector with Access Technology EF_{HPLMNwAcT}

5.20 AT+COPN – Read operator name (Sec 7.21)

5.20.1 Description

Execute command returns the list of operator names from the MT. Each operator code <numeric> that has an alphanumeric equivalent <alphan> in the MT memory shall be returned.

5.20.2 Format

Command	Possible Response(s)
+COPN	+COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] +CME ERROR: <err>
+COPN=?	

5.20.3 Field

<numeric>: string type; operator in numeric format (see +COPS)

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

5.21 AT+CAEMLPP – eMLPP priority Registration and Interrogation (Sec 7.22)

5.21.1 Description

The execute command is used to change the default priority level of the user in the network. The requested priority level is checked against the eMLPP subscription of the user stored on the SIM card or in the active application in the UICC (GSM or USIM) EF_{eMLPP}. If the user doesn't have subscription for the requested priority level an ERROR or +CMEE ERROR result code is returned.

The read command triggers an interrogation of the provision of the maximum priority level which the service subscriber is allowed to use and default priority level activated by the user.

If the service is not provisioned, a result code including the SS-Status (?) parameter is returned.

5.21.2 Format

Command	Possible Response(s)
+CAEMLPP=<priority>	+CME ERROR: <err>
+CAEMLPP?	+CAEMLPP: <default_priority>, <max_priority> +CME ERROR: <err>
+CAEMLPP=?	

5.21.3 Field

<priority>: integer type parameter which identifies the default priority level to be activated in the network,

values specified in 3GPP TS 22.067 [54]

<default_priority>: integer type parameter which identifies the default priority level which is activated in the network, values specified in 3GPP TS 22.067 [54]

<max_priority>: integer type parameter which identifies the maximum priority level for which the service subscriber has a subscription in the network, values specified in 3GPP TS 22.067 [54].

5.22 AT+WS46 – Select wireless network (Sec 5.9)

5.22.1 Description

Select the cellular network (Wireless Data Service; WDS) to operate with the TA. This command may be used when TA is asked to indicate the networks in which it can operate.

5.22.2 Format

Command	Possible response(s)
+WS46=[<n>]	
+WS46?	<n>
+WS46=?	(list of supported <n>s)

5.22.3 Field

<n>:

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6 07.07 AT Commands –MT control and status command

6.1 AT+CPAS – Phone activity status (Sec 8.1)

6.1.1 Description

Returns the activity status <pas> of the ME. It can be used to interrogate the ME before requesting action from the phone. If the command is executed without the <mode> parameter, only <pas> values from 0 to 128 are returned. If the <mode> parameter is included in the execution command, <pas> values from 129 to 255 may also be returned.

6.1.2 Format

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

6.1.3 Field

<pas>:

- 0 ready (MT allows commands from TA/TE)
- 1 unavailable (MT does not allow commands from TA/TE)
- 2 unknown (MT is not guaranteed to respond to instructions)
- 3 ringing (MT is ready for commands from TA/TE, but the ringer is active)
- 4 call in progress (MT is ready for commands from TA/TE, but a call is in progress)
- 5 asleep (MT is unable to process commands from TA/TE because it is in a low functionality state)

6.2 AT+CFUN – Set Phone Functionality (Sec 8.2)

6.2.1 Description

AT+CFUN = 0 turn off radio and SIM power. (supported only for feature phone with feature option)

AT+CFUN = 1, 1 or AT+CFUN=4,1 can reset the target.

AT+CFUN = 1 can enter normal mode. (supported only for module solution)

AT+CFUN = 4 can enter flight mode. (supported only for module solution)

6.2.2 Format

Command	Possible response(s)
+CFUN=[<fun> [, <rst>]]	+CME ERROR: <err>
+CFUN=?	+CFUN: (list of supported <fun>s) , (list of supported <rst>s) +CME ERROR: <err>

6.2.3 Field

- <fun> :1 full functionality
- 4 disable phone both transmit and receive RF circuits (supported only for module solution)
- 0 minimal functionality, turn off radio and SIM power.

- <rst> : 0 do not reset the MT before setting it to <fun> power level
- 1 reset the MT before setting it to <fun> power level

6.2.4 Note

AT+CFUN=1, 1 and AT+CFUN=4,1 have the same functionality as AT+EPON.

6.2.4.1 Change History

Before 11AW1128, <rst> is only supported for feature phone.
After MAUI_02971170, both feature phone and modem projects support <rst>.

6.2.4.2 Usage Note

- The supported parameters are subject to change according to different compile directives (options).
- AT+CFUN=1,1 or AT+CFUN=4,1 can only reset the target, not fully compliable with 27.007
- <fun> = 0,1,4 only supported in projects with __ATCFUN_FLIGHTMODE_SUPPORT__ option.

6.3 AT+CPIN – Enter PIN (Sec 8.3)

6.3.1 Description

Set command sends to the ME 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 ME and an error message, +CME ERROR, is returned to TE. Refer [1] 9.2 for possible <err> values.

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.

6.3.2 Format

Command	Possible response(s)
+CPIN=<pin>[, <newpin>]	+CME ERROR: <err>
+CPIN?	+CPIN: <code> +CME ERROR: <err>
+CPIN=?	

6.3.3 Field

<pin>, <newpin>: string type values

<code> values reserved by the present document:

- READY MT is not pending for any password
- SIM PIN MT is waiting SIM PIN to be given
- SIM PUK MT is waiting SIM PUK to be given
- PH-SIM PIN MT is waiting phone to SIM card password to be given
- PH-FSIM PIN MT is waiting phone-to-very first SIM card password to be given
- PH-FSIM PUK MT is waiting phone-to-very first SIM card unblocking password to be given
- SIM PIN2 MT is waiting SIM PIN2 to be given
- SIM PUK2 MT is waiting SIM PUK2 to be given
- PH-NET PIN MT is waiting network personalization password to be given
- PH-NET PUK MT is waiting network personalization unblocking password to be given
- PH-NETSUB PIN MT is waiting network subset personalization password to be given

PH-NETSUB PUK MT is waiting network subset personalization unblocking password to be given

PH-SP PIN MT is waiting service provider personalization password to be given

PH-SP PUK MT is waiting service provider personalization unblocking password to be given

PH-CORP PIN MT is waiting corporate personalization password to be given

PH-CORP PUK MT is waiting corporate personalization unblocking password to be given

6.4 AT+CBC – Battery Charge (Sec 8.4)

6.4.1 Description

Execution and read command returns battery connection status <bcs> and battery level <bcl> of the ME.

6.4.2 Format

Command	Possible response(s)
+CBC	+CBC: <bcs>, <bcl> +CME ERROR: <err>
+CBC=?	+CBC: (list of supported <bcs>s) , (list of supported <bcl>s)

6.4.3 Field

<bcs>:

- 0 MT is powered by the battery
- 1 MT has a battery connected, but is not powered by it
- 2 MT does not have a battery connected
- 3 Recognized power fault, calls inhibited

<bcl>:

- 0 battery is exhausted, or MT does not have a battery connected
- 1...100 battery has 1 100 percent of capacity remaining

6.5 AT+CSQ – Signal Quality (Sec 8.5)

6.5.1 Description

The command returns received signal strength indication <rss> and channel bit error rate <ber> from the ME.

6.5.2 Format

Command	Possible response(s)
+CSQ	+CSQ: <rss>, <ber> +CME ERROR: <err>
+CSQ=?	+CSQ: (list of supported <rss>s) , (list of supported <ber>s)

6.5.3 Field

<rss>:

- 0 113 dBm or less
- 1 111 dBm
- 2...30 109... 53 dBm
- 31 51 dBm or greater
- 99 not known or not detectable

<ber> (in percent):

- 0...7 as RXQUAL values in the table in TS 45.008 [20] subclause 8.2.4
- not known or not detectable

6.6 AT+CMEC – Mobile Termination control mode (Sec 8.6)

6.6.1 Description

Set command selects the equipment, which operates MT keypad, writes to MT display and sets MT indicators. If

operation mode is not allowed by the MT, +CME ERROR: <err> is returned.

Test command returns the modes supported as compound values.

6.6.2 Format

Command	Possible response(s)
+CMEC=[<keyp>[, <disp>[, <ind>]]]	+CME ERROR: <err>

+CMEC?	+CMEC: <keyp>, <disp>, <ind>
+CMEC=?	+CMEC: (list of supported <keyp>s), (list of supported <disp>s), (list of supported <ind>s)

6.6.3 Field

<keyp>:

- 0 MT can be operated only through its keypad (execute command of +CKPD cannot be used)
- 1 MT can be operated only from TE (with command +CKPD)
- 2 MT can be operated from both MT keypad and TE

<disp>:

- 0 only MT can write to its display (command +CDIS can only be used to read the display)
- 1 only TE can write to MT display (with command +CDIS)
- 2 MT display can be written by both MT and TE

<ind>:

- 0 only MT can set the status of its indicators (command +CIND can only be used to read the indicators)
- 1 only TE can set the status of MT indicators (with command +CIND)
- 2 MT indicators can be set by both MT and TE

6.6.4 Note

6.6.4.1 Change History

The command is available from 09B.1009MP

6.6.4.2 Usage Note

N/A

6.7 AT+CKPD – Keypad control (Sec 8.7)

6.7.1 Description

Emulates ME keypad by setting each keystroke as a character in a string <keys>.

Note:

- 1. Any command following AT+CKPD in multiple command is not allowed
- 2. This command can be used only when UART owner is UART1

6.7.2 Format

Command	Possible response(s)
+CKPD=<keys> [, <time> [, <pause>]]	+CME ERROR: <err>
+CKPD=?	

6.7.3 Field

<keys>: string of characters representing keys as listed in the following table

Char	IRA (dec)	Comment (+ some known key symbols)
#	35	hash (number sign)
%	37	percent sign (P)
*	42	star (*)
0... 9	48... 57	number keys
:	58	escape character for manufacturer specific keys [NOTE 1]
;	59	escape character for string entering
<	60	left arrow
>	62	right arrow
@	64	alpha key (α/ABC)
A/a	65/97	channel A (A)
B/b	66/98	channel B (B)
C/c	67/99	clear display (C/CLR)
D/d	68/100	volume down
E/e	69/101	connection end (END)
F/f	70/102	function (FCN)
L/l	76/108	phone lock (LOCK)
M/m	77/109	menu (MENU)
P/p	80/112	power (PWR)
Q/q	81/113	quiet/mute (MUTE)
R/r	82/114	recall last number (R/RCL/MR)
S/s	83/115	connection start (SEND)
T/t	84/116	store/ memory (STO/M/M+)
U/u	85/117	volume up
V/v	86/118	down arrow
W/w	87/119	pause character
X/x	88/120	auxiliary (AUX)
Y/y	89/121	delete last character (C)

Char	IRA (dec)	Comment (+ some known key symbols)
[91	soft key 1
]	93	soft key 2
^	94	up arrow

<time>, <pause>:

0...255 0... 25.5 seconds

6.7.4 Note

1. For COSMOS project, There are BACK and HOME keys. These two new defined key value use the escape character as prefix, and their value is “:B” for BACK, “:H” for HOME, and it’s case sensitive.

6.7.4.1 Change History

N/A

6.7.4.2 Usage Note

- Any command following AT+CKPD in multiple command is not allowed
- This command can be used only when UART owner is UART1 unless that the SIM is test SIM

6.8 AT+CIND – Indicator control (Sec 8.9)

6.8.1 Description

Displays the value of ME indicators.

6.8.2 Format

Command	Possible response(s)
+CIND=[<ind>[,<ind>[,. . .]]]	+CME ERROR: <err>
+CIND?	+CIND: <ind>[,<ind>[,...]] +CME ERROR: <err>
+CIND=?	+CIND: (<descr>, (list of supported <ind>s)) [, (<descr>, (list of supported <ind>s)) [, ...]] +CME ERROR: <err>

6.8.3 Field

<ind>: integer type value, which shall be in range of corresponding <descr>

<descr> values reserved by the present document and their <ind> ranges:

- "battchg" battery charge level (0 5)
- "signal" signal quality (0 5)
- "service" service availability (0 1)
- "message" message received (0 1)
- "call" call in progress (0 1)
- "roam" roaming indicator (0 1)
- "call setup" call setup indicator(0 3)
- "smsfull" a short message memory storage in the MT has become full(1) or
memory locations are available (0)

6.8.4 Note

6.8.4.1 Change History

N/A

6.8.4.2 Usage Note

- "call setup" is proprietary defined in MTK solution and only used when BT supported.

6.9 Unsolicited Result Code : +CIEV

6.9.1 Description

This URC is the result code of an indicator event.

6.9.2 Format

Unsolicited result code
+CIEV: <ind>, <value1> [, <value2>, ...]

6.9.3 Field

<ind>: integer type value

- 9: NITZ date/time/timezone information
+CIEV: 9,<UT>,<TZ>[,<DST>]

<UT> , Universal Time , String type
 "YY/MM/DD,HH:MM:SS"

<TZ>: Local Time Zone, Integer type
 ex: +4 or -4

<DST>: Daylight Saving Time , Integer type
 1: Summer time
 0: Winter time

ex: +CIEV: 9,"09/05/16,16:56:00",-28,1

6.9.4 Note

Available after W09.24

6.10 AT+CMER – Mobile Termination event reporting (Sec 8.10)

6.10.1 Description

Set command enables or disables sending of unsolicited result codes from TA to TE in the case of key pressings, display changes, and indicator state changes.
 Test command returns the modes supported as compound values.

6.10.2 Format

Command	Possible response(s)
+CMER=[<mode> [,<key> [,<disp> [,<ind> [,<bfr>] [,<tscrn>]]]]]	+CME ERROR: <err>
+CMER?	+CMER: <mode> , <key> , <disp> , <ind> , <bfr>

+CMER=?	+CMER: (list of supported <mode>s) , (list of supported <key>s) , (list of supported <disp>s) , (list of supported <ind>s) , (list of supported <bfr>s) , (list of supported <tscrn>s)
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6.10.3 Field

<mode>: integer type

- 0 buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded
- 1 discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE
- 2 buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE
- 3 forward unsolicited result codes directly to the TE; TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode

<keyp>: integer type

- 0 no keypad event reporting
- 1 keypad event reporting using result code +CKEV: <key>, <press>, <key> indicates the key (refer IRA values defined in table in subclause “Keypad control +CKPD”) and <press> if the key is pressed or released (1 for pressing and 0 for releasing). Only those key pressing, which are not caused by +CKPD shall be indicated by the TA to the TE.

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

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

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

<disp>: integer type

- 0 no display event reporting

<ind>: integer type

- 0 no indicator event reporting
- 1 indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator events, which are not caused by +CIND shall be indicated by the TA to TE
- 2 indicator event reporting using result code +CIEV: <ind>,<value>. All indicator events shall be directed from TA to TE

<bfr>:

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

<tscrn>:

- 0 no touch screen event reporting
- 1 touch screen event reporting using result code +CTEV: <action>,<x>,<y>. The <x>,<y> parameters indicate the x, y coordinates on the touch screen device (as specified for +CTSA), and <action> indicates the action performed on the screen (0 for screen released, 1 for screen depressed, 2 for single tap, and 3 for double tap). Only those touch screen events, which are not caused by +CTSA shall be indicated by the TA to the TE.

NOTE 3: When this mode is enabled, corresponding result codes of all touch screen actions should be flushed to the TA regardless of <bfr> setting.

- 2 touch screen event reporting using result code +CTEV: <action>, <x>, <y>. All touch screen events shall be directed from the TA to the TE.

NOTE 4: When this mode is enabled, corresponding result codes of all touch screen actions should be flushed to the TA regardless of <bfr> setting.

- 3 Verbose mode. Touch screen event reporting using +CTEV: <action>,<x>,<y>. This is a special mode where intermediate depressed result codes (+CTEV: <x>,<y>,depressed) are generated for each new <x>,<y> coordinate detected while a user is dragging a touch to a new location. All other touch screen actions

shall be directed from the TA to the TE normally. Only those touch screen events which are not caused by +CTSA shall be indicated by the TA to the TE.

NOTE 5: When this mode is enabled, corresponding result codes of all touch screen actions should be flushed to the TA regardless of <bfr> setting.

6.10.4 Note

We don't support set command of +CIND to set the values of MT indicators. So behaviors of <ind> 1 and 2 are currently the same.

The +CKEV URC which set by <key> parameter only reports when UART setting is SIM1. <tscrn> parameter take effect after W1021.

6.11 AT+CPBS – Select Phonebook Memory Storage (Sec 8.11)

6.11.1 Description

Selects the phonebook memory storage <storage> that is used by other phonebook commands.

6.11.2 Format

Command	Possible response(s)
+CPBS=<storage>	+CME ERROR: <err>
+CPBS?	+CPBS: <storage>[,<used>,<total>] +CME ERROR: <err>
+CPBS=?	+CPBS: (list of supported <storage>s)

6.11.3 Field

- "ME" MT phonebook
- "SM" SIM/UICC phonebook
- "LD" last-dialling phonebook
- "MC" MT missed calls list
- "RC" MT received calls list.
- "DC" MT dialled calls list
- "FD" SIM/USIM fixdialling-phonebook
- "ON" SIM own numbers (MSISDNs) list

6.11.4 Note

1. Before 10A, We don't support query <used> field for the storage "LD", "MC", "RC", "DC". It would be always 0.
2. After 10A(include 10A), We don't support query <used> field for the storage "LD", "MC", "RC", "DC" in the module(modem) project or NeptuneMMI project. It would be always 0.
- 3.

6.12 AT+CPBR – Read phonebook entries (Sec 8.12)

6.12.1 Description

Returns phone book entries in location number range <index1>...<index2> from the current phonebook memory storage selected by AT+CPBS. If <index2> is omitted, only location <index1> is returned. Entry fields returned are location number <indexn>, phone number <number> in <indexn>, and text <text> associated with the number.

6.12.2 Format

Command	Possible response(s)
+CPBR=<index1> [,<index2>]	[+CPBR: <index1>,<number>,<type>,<text>[,<hidden>]][[...] <CR><LF>+CPBR: <index2>,<number>,<type>,<text>[,<hidden>]]] <i>+CME ERROR: <err></i>
+CPBR=?	+CPBR: (list of supported <index>s), [<nlength>], [<tlength>] <i>+CME ERROR: <err></i>

6.12.3 Field

<index1>, <index2>, <index>: integer type values in the range of location numbers of phonebook memory

<number>: string type phone number of format <type>

<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

<text>: string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS

- <nlength>: integer type value indicating the maximum length of field <number>
- <tlength>: integer type value indicating the maximum length of field <text>
- <hidden>: indicates if the entry is hidden or not
- 0: phonebook entry not hidden
- 1: phonebook entry hidden

6.13 AT+CPBF – Find Phonebook entries (Sec 8.13) [only support for module products]

6.13.1 Description

Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) which alphanumeric field start with string <findtext>(Prefix match). Entry fields returned are location number <indexn>, phone number stored there <number> (of format <type>) and text <text> associated with the number.

6.13.2 Format

Command	Possible response(s)
+CPBF=<findtext>	[+CPBF: <index1>, <number>, <type>, <text> [...] <CR><LF>+CPBF: <index2>, <number>, <type>, <text>]] <i>+CME ERROR: <err></i>
+CPBF=?	+CPBF: [<nlength>], [<tlength>] <i>+CME ERROR: <err></i>

6.13.3 Field

- <index1>, <index2>: integer type values in the range of location numbers of phonebook memory
- <number>: string type phone number of format <type>
- <type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
- <findtext>, <text>: string type field of maximum length <tlength>. Only support "IRA"
- <nlength>: integer type value indicating the maximum length of field <number>
- <tlength>: integer type value indicating the maximum length of field <text>

6.14 AT+CPBW – Write Phonebook entries (Sec 8.14)

6.14.1 Description

Writes phonebook entry in location number <index> in the current phonebook memory storage area, selected with AT+CPBS. If the <number> and <text> parameters are omitted, the entry is deleted. If <index> is omitted but <number> is included, the entry is written to the first free location in the phonebook.

6.14.2 Format

Command	Possible response(s)
+CPBW=[<index>] [, <number> [, <type> [, <text>]]]	+CME ERROR: <err>
+CPBW=?	+CPBW: (list of supported <index>s) , [<nlength>] , (list of supported <type>s) , [<tlength>] +CME ERROR: <err>

6.14.3 Field

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

<number>: string type phone number of format <type>

<type>: type of address

<text>: string type field of maximum length <tlength>;

character set as specified by command Select TE Character Set +CSCS.

“UCS2”, and “IRA” are supported.

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

<tlength>: integer type value indicating the maximum bytes of field <text> after encoding

6.14.4 Note

1. From 09B branch, since PlutoMMI will always using UCS2 coding to store the field <text> of the entry in the storage “ME” while the returned value <tlength> of AT+CPBW=? indicates the maximum bytes of field <text> after encoding, users should notice that the maximum length of <text> is <tlength>/2 because of UCS2 encoding.
2. In the low cost MMI project, i.e. NeptuneMMI, We don’t sync with MMI after using this command. For PlutoMMI, we will sync with MMI after using this command

6.15 AT+EPBUM – USIM Phonebook Manager

6.15.1 Description

This command is used to query/read/write/delete USIM Phonebook related files:
EF_ANR, EF_SNE, EF_EMAIL, EF_AAS, EF_GAS, EF_GRP

6.15.2 Format

Command	Possible response(s)
+EPBUM=<op>,<type>,<INDEX1>[,<INDEX2>[,<number/email/text/grp_list>]]	<op> = 0 (QUERY) <type>=0 (EF_ANR) +EPBUM: <type>, <INDEX1>, <M_NUM>, <A_NUM>, <L_ANR> <type>=1 (EF_EMAIL) +EPBUM: <type>, <INDEX1>, <M_NUM>, <A_NUM>, <L_EMAIL> <type>=2 (EF_SNE) +EPBUM: <type>, <INDEX1>, <M_NUM>, <A_NUM>, <L_SNE> <op> = 1 (READ) +EPBUM:<type>,<INDEX1>,<INDEX2>, <number/email/text/grp_list> +CME ERROR: <err>
+EPBUM=?	+EPBUM: <N_ANR>,<N_EMAIL>,<N_SNE>,<N_AAS>,<L_AAS>,<N_GAS>,<L_GAS>,<N_GRP> +CME ERROR: <err>

6.15.3 Field

<op>:

- 0: query EF files information. In this <op>, the valid types are EF_ANR, EF_SNE, and EF_EMAIL
- 1: read EF files
- 2: write EF files
- 3: delete EF files

<type>: the type of USIM phonebook related EF files

- 0: EF_ANR
- 1: EF_EMAIL
- 2: EF_SNE

3: EF_AAS

4: EF_GAS

5: EF_GRP

<M_NUM>: max number of entries in the queried EF files

<A_NUM>: max number of available entries in the queried EF files

<L_ANR>: max supported number length of an entry in the queried EF_ANR file

<L_EMAIL>: max supported email length of an entry in the queried EF_EMAIL file

<L_SNE>: max supported second name length of an entry in the queried EF_SNE file

<INDEX1>, <INDEX2>: has different meaning according to the <op> and <type>

<op>=0 (Query) : only <INDEX1> is needed

<INDEX1> : Assume <index1> is N, N-th EF file associated with an EF_ADN

<op>=1 or 2 or 3: (Read/Write/Delete)

<type>=0 or 1 or 2 (EF_ANR/EF_EMAIL/EF_SNE)

<INDEX1>: the index of ADN entry to be accessed

<INDEX2>: Assume <INDEX2> is N, N-th EF entry associated with the ADN entry

<type>=3 or 4 (EF_AAS or EF_GAS)

<INDEX1>: the index of EF entry to be accessed

<INDEX2>: ignore

<type>=5 (EF_GRP)

<INDEX1>: the index of EF GRP associated with the ADN entry to be accessed

<INDEX2>: ignore

<number/email/text/grp_list>: the format is different according to the <type>

<type>=0 (EF_ANR)

<number>, <ton>, <ass_id>

<number>: the telephony number

<ton>: the type of <number>, valid value: 129(normal) or 145(international)

<aas_id>: the associated EF_AAS entry index

<type>=1 (EF_EMAIL)

<email> : the email, must be IRA encode

<type>=2 or 3 or 4(EF_SNE/EF_AAS/EF_GAS)

<text>, <encode>

<text>: the alpha string, the encoding is according to the <encode>

```

<encode>:
    0: IRA
    1: UCS2 0x80
    2: UCS2 0x81
<type>=5 (EF_GRP)
    <GRP1>, <GRP2>, ..., <GRP_n>
    The valid value of each <GRPx> is 0 ~ 255, n is <N_GRP>
    
```

<N_ANR>: maximum number of entries associated with an EF_ADN
 <N_EMAIL>: maximum number of entries associated with an EF_EMAIL
 <N_SNE>: maximum number of entries associated with an EF_SNE
 <N_AAS>: maximum number of entries in the EF_AAS
 <L_AAS>: maximum alpha string length of an EF_AAS entry
 <N_GAS>: maximum number of entries in the EF_GAS
 <L_GAS>: maximum alpha string length of an EF_GAS entry
 <N_GRP>: maximum number of groups in an entry of EF_GRP

6.15.4 Example

Assume we insert a SIM card with the following configuration

500 phonebook entries. each one has maximum 3 ANRs, and 1 email with the maximum length 38, 1 SNE with the maximum length 12, and 4 GRP IDs

1 EF_AAS with 5 entries, the maximum length of an AAS entry is 12

1 EF_GAS with 10 entries, the maximum length of a GAS entry is 12

Test Mode

```

AT+EPBUM=?
+EPBUM: 3,1,1,5,12,10,12,4
OK
    
```

Access EF_ANR

```

QUERY
    // query the 2nd EF_ANR where the available number of entries is 95
    AT+EPBUM=0,0,2
    +EPBUM: 0,2,100,95,40
    
```

```
OK
READ
// read the first ANR of the 500th ADN entry with number(0123456789) and
AAS_id(10)
AT+EPBUM=1,0,500,1
+EPBUM: 0,500,1,"0123456789",129,10
OK
// read the 2nd ANR of the 500th ADN entry which is an empty entry
AT+EPBUM=1,0,500,2
OK
WRITE
// Write the 2nd ANR of the 123th ADN entry with number(+0123456789) and
AAS_id(10)
AT+EPBUM=2,0,123,2,"0123456789",145,10
OK
AT+EPBUM=1,0,123,2
+EPBUM: 0,123,2,"0123456789",145,10
OK
DELETE
// Delete the 3rd ANR of the 200th ADN entry
AT+EPBUM=3,0,200,3
OK
// Delete the empty one again
AT+EPBUM=3,0,200,3
OK
```

Access EF_EMAIL

```
QUERY
// query the first EF_EMAIL where the available number of entries is 450
AT+EPBUM=0,1,1
+EPBUM: 1,1,500,450,38
OK
READ
// read the first email of the 500th ADN entry with the email "abc@mediatek.com"
AT+EPBUM=1,1,500,1
```


+EPBUM: 1,500,1,"abc@mediatek.com"

OK

// read the first email of the 300th ADN entry which is an empty entry

AT+EPBUM=1,1,300,1

OK

WRITE

// Write the first ANR of the 123th ADN entry with the email

"abcdefghijkl@mediatek.com"

AT+EPBUM=2,1,123,1,"abcdefghijkl@mediatek.com"

OK

AT+EPBUM=1,1,123,1

+EPBUM: 1,123,1,"abcdefghijkl@mediatek.com"

OK

DELETE

// Delete the first email of the 200th ADN entry

AT+EPBUM=3,1,200,1

OK

// Delete the empty one again

AT+EPBUM=3,1,200,1

OK

Access EF_SNE

QUERY

// query the first EF_SNE where the available number of entries is 333

AT+EPBUM=0,2,1

+EPBUM: 2,1,500,333,12

OK

READ

// read the first SNE of the 500th ADN entry with the alpha string "abc"

AT+EPBUM=1,2,500,1

+EPBUM: 2,500,1,"abc",0

OK

// read the first SNE of the 300th ADN entry which is an empty entry

AT+EPBUM=1,2,300,1

OK

WRITE

// Write the first SNE of the 123th ADN entry with the name "abcdefghijkl"

AT+EPBUM=2,2,123,1,"abcdefghijkl",0

OK

AT+EPBUM=1,2,123,1

+EPBUM: 2,123,1,"abcdefghijkl",0

OK

DELETE

// Delete the first SNE of the 200th ADN entry

AT+EPBUM=3,2,200,1

OK

// Delete the empty one again

AT+EPBUM=3,2,200,1

OK

Access EF_AAS

READ

// read the 3rd AAS entry with the alpha string "聯@發"

AT+EPBUM=1,3,3,100

+EPBUM: 3,3,100,"806F0040767C", 1

OK

// read the first AAS entry which is an empty entry

AT+EPBUM=1,3,3,1

OK

WRITE

// Write the first AAS entry with the alpha string "聯@發"

AT+EPBUM=2,3,1,5,"806F0040767C",1

OK

AT+EPBUM=1,3,1,10

+EPBUM: 3,1,10,"806F0040767C",1

OK

DELETE

// Delete the 2nd AAS entry

AT+EPBUM=3,3,2,1

OK

```
// Delete the empty one again
AT+EPBUM=3,3,2,5
OK
```

Access EF_GAS

READ

```
// read the 3rd GAS entry with the alpha string "ÇØβæçø"
AT+EPBUM=1,4,3,100
+EPBUM: 4,3,100,"00C700D800DF00E600E700F8", 1
OK
// read the first GAS entry which is an empty entry
AT+EPBUM=1,4,3,1
OK
```

WRITE

```
// Write the first GAS entry with the alpha string "ÇØβæçø"
AT+EPBUM=2,4,1,5,"810601090B1E1DE70C",2
OK
AT+EPBUM=1,4,1,10
+EPBUM: 4,1,10," 00C700D800DF00E600E700F8",1
OK
```

DELETE

```
// Delete the 2nd GAS entry
AT+EPBUM=3,4,2,1
OK
// Delete the empty one again
AT+EPBUM=3,4,2,5
OK
```

Access EF_GRP

READ

```
// read the GRP of the 500th ADN entry with group ID, 1,2,3,4
AT+EPBUM=1,5,500,0
+EPBUM: 5,500,0,1,2,3,4
OK
// read the GRP of the 300th ADN entry which is an empty entry
```

```

AT+EPBUM=1,5,300,10
+EPBUM: 5,300,10,255,255,255,255
OK
WRITE
// Write the GRP of the 123th ADN entry with group ID, 10,11,12,13,14
AT+EPBUM=2,5,123,1,10,11,12,13,14
ERROR
AT+EPBUM=2,5,123,1,10,11,12,13
OK
AT+EPBUM=1,5,123,1
+EPBUM: 5,123,1,10,11,12,13
OK
DELETE
// Delete the GRP of the 200th ADN entry
AT+EPBUM=3,5,200,1
OK
// Delete the empty one again
AT+EPBUM=3,5,200,1
OK
    
```

6.15.5 Note

1. Need to define the compile option `__AT_EPBUM_SUPPORT__`
2. Need to set the feature option `PHB_ADDITIONAL_SUPPORT=TRUE`
3. This command could be used on the modem project only

6.16 AT+CCLK – Clock (Sec 8.15)

6.16.1 Description

Set command sets the real-time clock of the MT.
 Read command returns the current setting of the clock.

6.16.2 Format

Command	Possible response(s)
<code>+CCLK=<time></code>	<code>+CME ERROR: <err></code>

+CCLK?	+CCLK: <time> +CME ERROR: <err>
+CCLK=?	

6.16.3 Field

<time>: string type value; format is "yy/MM/dd,hh:mm:ss", where characters indicate year (two last digits), month, day, hour, minutes, seconds.

6.17 AT+CALA – Alarm (Sec 8.16)

6.17.1 Description

Sets an alarm time in the ME.

6.17.2 Format

Command	Possible response(s)
+CALA=<time>[, <n>[, <type>[, <text>[, <recur>]]]]	+CME ERROR: <err>
+CALA?	[+CALA: <time>,<n1>,,, <recur> [<CR><LF>+CALA: <time>,<n2>,,, <recur> [...]]] +CME ERROR: <err>
+CALA=?	OK

6.17.3 Field

<time>: refer +CCLK,+CSDF

<n>: integer type value indicating the index of the alarm.

<type>: integer type. But we don't care about type value.

<text>: string type. But we don't care about text content. MMI doesn't support.

<recur>: string type value indicating day of weeks for the alarm in one of the following format:

"<1..7>[,<1..7>[...]]" – Sets a recurrent alarm for one or more days in the week. The digits 1 to 7 corresponds to the days in the week, Monday (1), ..., Sunday (7).

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

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

6.18 AT+CSIM – Generic SIM Access (Sec 8.17)

6.18.1 Description

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. Refer subclause 9.2 for <err> values.

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.

6.18.2 Format

Command	Possible response(s)
+CSIM=<length>,<command> >	+CSIM: <length>,<response> +CME ERROR: <err>
+CSIM=?	

6.18.3 Field

<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 3GPP TS 51.011 [28] (hexadecimal character format; refer +CSCS)

<response> : response to the command passed on by the SIM to the MT in the format as described in 3GPP TS 51.011 [28] (hexadecimal character format; refer +CSCS)

6.18.4 Note

1. The command only support when __CSIM__ is defined
2. We support AT+CSIM with limitation:
 - We only support SELECT, STATUS, READ BINARY, UPDATE BINARY, READ RECORD, UPDATE RECORD, GET RESPONSE commands.
 - We don't allow the AT users to select another application, send termination indication or initialization indication. If the user send SELECT by AID, STATUS by initialization or termination, he will get ERROR in return.
3. We support AT+CSIM with GSM CLA, and UICC CLA, but we don't support logical channels other than the default channel.

6.18.5 Example

1. SELECT

(1) (P1 = SELECT MF by file id)
 AT+CSIM=14,"00A4000C023F00"
 +CSIM: 4, "9000"

OK

2. SELECT

(1) (P1 = SELECT by DF name)
 AT+CSIM=42,"00A4040C10A0000000871002FF47700189000001FF"
 ERROR

3. READ BINARY

(1) (Pre-condition: SELECT EF_IMSI (P1 = SELECT by path from MF, P2 = return with FCP))
 AT+CSIM=20,"00A40804047FFF6F0700"
 +CSIM: 64,
 "621C8202412183026F07A5038001718A01058B036F0605800200098801389000"

OK

(2) READ BINARY

AT+CSIM=10,"00B0000009"
 +CSIM: 22, "0849667914305241049000"

OK

4. UPDATE BINARY

(1) (Pre-condition: SELECT EF_PLMNwAcT(P1 = SELECT by path from MF, P2 = return with FCP))

AT+CSIM=20,"00A40804047FFF6F6000"

+CSIM: 64,

"621C8202412183026F60A5038001718A01058B036F0606800200878801509000"

OK

(2) READ BINARY

AT+CSIM=10,"00B0000087"

+CSIM: 18,

"888888008854F400808025F510808005F221808015F001808005F520808015F52080

8004F401808004F454808004F429808004F430808004F494808004F404808054F050808025

F01080

8054F5108080FFFFFF0000FFFFFF0000FFFFFF0000FFFFFF0000FFFFFF0000FFFFFF

F00

00FFFFFF0000FFFFFF0000FFFFFF0000FFFFFF00009000"

OK

(3) UPDATE BINARY

AT+CSIM=20,"00D600000521F3548080"

+CSIM: 4, "9000"

OK

6.19 AT+CRSM -- Restricted SIM access (Sec 8.18)

6.19.1 Description

Set command transmits to the MT the SIM <command> and its required parameters.

6.19.2 Format

Command	Possible response(s)
+CRSM=<command>[,<fileid> > [,<P1>,<P2>,<P3> [,<data>[,<pathid>]]]]	+CRSM: <sw1>,<sw2>[,<response>] +CME ERROR: <err>
+CRSM=?	

6.19.3 Field

<command> (command passed on by the MT to the SIM; refer 3GPP TS11.11):

- 176 READ BINARY
- 178 READ RECORD
- 192 GET RESPONSE
- 214 UPDATE BINARY
- 220 UPDATE RECORD
- 242 STATUS

<fileid>: integer type; this is the identifier of a elementary data file on SIM.

<P1>, <P2>, <P3>: integer type; parameters passed on by the MT to the SIM.

(For detailed information , please refer 3GPP TS11.11 Section 9.2)

<data>: 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].

NOTE: Since valid elementary file identifiers may not be unique over all valid dedicated file identifiers the <pathid> indicates the targeted UICC/SIM directory path in case of ambiguous file identifiers. For earlier versions of this specification or if <pathid> is omitted, it could be implementation specific which one will be selected.

<sw1>, <sw2>: integer type; information from the SIM about the execution of the actual command.

<response>: response of a successful completion of the command previously issued
(hexadecimal character format)

[Note1]: READ BINARY command is used for **transparent** EF. READ RECORD is used for **linear fixed or cyclic** EF

[Note2]: Before using READ BINARY, READ RECORD, UPDATE BINARY, UPDATE RECORD, please use command **GET RESPONSE** to get the exact length information first.

6.19.4 Note

- <pathid> + <fileid> can be a unique identifier on the SIM/UICC.
- In USIM, the response of STATUS and GET RESPONSE is TLV format, and length is not fixed. So the P3 should be assigned as "00" as 256 bytes, which is the maximum value of response data.

6.19.5 Example

1. Read EF_{SST} (file_idx= 0x6F38 , structure: transparent)

(1) Get RESPONSE first , 3~4 byte is the file size information.(e.g. 000A=10)

at+crsm=192,28472

+CRSM: 144, 0, "0000**000A**6F38040015005501010000"

OK

at+crsm=176,28472,0,0,10

+CRSM: 144, 0, "FF3FFFFFF00003C03000C"

OK

2. Read a EF_{ADN} (file_idx= 0x6F3A , structure: Linear fixed)

(1)GET RESPONSE first , No.15 byte represents the record length (e.g 1E =30)

at+crsm=192,28474

+CRSM: 144, 0, "00001D4C6F3A0400110022050201**1E**"

OK

(2) READ RECORD

at+crsm=178,28474,1,4,30

```
+CRSM: 144, 0,
"6F776E6572FFFFFFFFFFFFFFFFFFFFFFFF06819078303326FFFFFFFFFFFFFFF"
OK
```

3. READ EF_{ImageInstaceDataFiles} (with <pathid>) (file_idx = 0x4F20(File id would be different if you use other SIM cards), structure: Transparent)

(1) GET RESPONSE first (without AT command example)

(2) READ BINARY

```
AT+CRSM=176,20256,0,0,1,, "7F105F50"
```

```
+CRSM: 144, 0, "00"
```

OK

6.20 AT+CRSL – Ringer Sound Level (Sec 8.21)

6.20.1 Description

Set the incoming call ringer sound level.

6.20.2 Format

Command	Possible response(s)
+CRSL=<level>	+CME ERROR: <err>
+CRSL?	+CRSL: <level> +CME ERROR: <err>
+CRSL=?	+CRSL: (list of supported <level>s) +CME ERROR: <err>

6.20.3 Field

<level>: integer type value with manufacturer specific range

6.20.4 Note

6.20.4.1 Change History

6.20.4.2 Usage Note

This command can't be used when UART setting is SIM2

6.21 AT+CVIB – Vibrator mode (Sec 8.22)

6.21.1 Description

Enables and disables the vibrator alert function of the ME.

6.21.2 Format

Command	Possible response(s)
+CVIB=<mode>	+CME ERROR: <err>
+CVIB?	+CVIB: <mode> +CME ERROR: <err>
+CVIB=?	+CVIB: (list of supported <mode>s) +CME ERROR: <err>

6.21.3 Field

<mode>:

- 0 disable
- 1 enable

6.22 AT+CLVL – Loudspeaker volume level (Sec 8.23)

6.22.1 Description

Sets the volume of the internal speaker in the ME

6.22.2 Format

Command	Possible response(s)
+CLVL=<level>	+CME ERROR: <err>
+CLVL?	+CLVL: <level> +CME ERROR: <err>
+CLVL=?	+CLVL: (list of supported <level>s) +CME ERROR: <err>

6.22.3 Field

<level>: integer type value with manufacturer specific range.

6.22.4 Usage Note

- This command can't be used when UART setting is SIM2

6.23 AT+CMUT – Mute Control (Sec 8.24)

6.23.1 Description

Enable/Disable the uplink voice muting during a voice call.

6.23.2 Format

Command	Possible response(s)
+CMUT=<n>	+CME ERROR: <err>
+CMUT?	+CMUT: <n> +CME ERROR: <err>
+CMUT=?	+CMUT: (list of supported <n>s)

6.23.3 Field

<n>:

- 0 mute off
- 1 mute on

6.23.4 Usage Note

- This command can't be used when UART setting is SIM2

6.24 AT+CACM – Accumulated call meter (Sec 8.25)

6.24.1 Description

Resets the Advice-of-Charge related accumulated call meter value in the SIM file EFACM.

6.24.2 Format

Command	Possible response(s)
+CACM=[<passwd>]	+CME ERROR: <err>
+CACM?	+CACM: <acm> +CME ERROR: <err>
+CACM=?	

6.24.3 Field

<passwd>: string type; SIM PIN2
 <acm>: string type; accumulated call meter value similarly coded as <ccm> under +CAOC

6.25 AT+CAMM – Accumulated call meter maximum (Sec 8.26)

6.25.1 Description

Sets the maximum Advice-of-Charge related accumulated call meter value in the SIM file EFACMmax.

6.25.2 Format

Command	Possible response(s)
+CAMM= [<acmmax> [, <passwd>]]	+CME ERROR: <err>
+CAMM?	+CAMM: <acmmax> +CME ERROR: <err>
+CAMM=?	

6.25.3 Field

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

6.26 AT+CPUC – Price per unit and currency table (Sec 8.27)

6.26.1 Description

Sets the parameters of Advice-of-Charge related price per unit and currency in SIM file EF_{PUCT}. PUCT information can be used to convert the home units (as used in AT+CAOC, AT+CACM, and AT+CAMM) into currency units.

6.26.2 Format

Command	Possible response(s)
+CPUC=<currency>, <ppu> [, <passwd>]	+CME ERROR: <err>
+CPUC?	+CPUC: <currency>, <ppu> +CME ERROR: <err>
+CPUC=?	

6.26.3 Field

<currency>: string type; three-character currency code (e.g. "GBP", "DEM"); character set as specified by command Select TE Character Set +CSCS

<ppu>: string type; price per unit; dot is used as a decimal separator (e.g. "2.66")

<passwd>: string type; SIM PIN2

6.27 AT+CCWE – Call Meter maximum event (Sec 8.28)

6.27.1 Description

Shortly before the ACM (Accumulated Call Meter) maximum value is reached, an unsolicited result code +CCWV will be sent, if enabled by this command. The warning is issued approximately when 30 seconds call time remains. It is also issued when starting a call if less than 30 s call time remains.

6.27.2 Format

Command	Possible response(s)
+CCWE=<mode>	+CME ERROR: <err>
+CCWE?	+CCWE: <mode> +CME ERROR: <err>
+CCWE=?	+CCWE: (list of supported <mode>s) +CME ERROR: <err>

6.27.3 Field

<mode>:

- 0 Disable the call meter warning event
- 1 Enable the call meter warning event

6.28 AT+CLAN – Set Language (Sec 8.30)

6.28.1 Description

Sets the language in the ME. If the language has been set to .AUTO., the read command returns the current language set from the SIM card. Hence, the .AUTO. code is never returned by the read command.

6.28.2 Format

Command	Possible response(s)
+CLAN=<code> >	+CME ERROR: <err>
+CLAN?	+CLAN: <code> +CME ERROR: <err>
+CLAN=?	+CLAN: (list of supported <code>s) +CME ERROR: <err>

6.28.3 Field

<code>:

“AUTO” – Read language from the active application in the SIM card.

“AUTO” is not returned by the read-command.

Note: When the preferred language from SIM card is not recognized or supported by our MMI, AT+CLAN=“AUTO” will remain current ME setting.

"en" -- English.

"zh-TW" – traditional Chinese. (old version: “TW”)

"zh-CN" – simplified Chinese. (old version: “ZH”)

6.29 AT+CLAE – Language Event (Sec 8.31)

6.29.1 Description

to enable/disable unsolicited result code +CLAV: <code>. If <mode>=1, +CLAV: <code> is sent from the ME when the language in the ME is changed.

6.29.2 Format

Command	Possible response(s)
+CLAE=<mode>	+CME ERROR: <err>
+CLAE?	+CLAE: <mode> +CME ERROR: <err>
+CLAE=?	+CLAE: (list of supported <mode>s) +CME ERROR: <err>

6.29.3 Field

<mode>:

0 Disable unsolicited result code +CLAE

1 Enable unsolicited result code +CLAE

<code>: For description see +CLAN.

6.30 AT+CSGT – Set Greeting Text (Sec 8.32)

6.30.1 Description

Set the greeting text when power on.

6.30.2 Format

Command	Possible response(s)
+CSGT=<mode>[,<text>]	+CME ERROR: <err>
+CSGT?	+CSGT: <text>, <mode> +CME ERROR: <err>
+CSGT=?	+CSGT: (list of supported <mode>s), <lttext> +CME ERROR: <err>

6.30.3 Field

<text>: string type; A free text that shall be displayed. The text can not include <CR>

<mode>:

0 Turn off greeting text.

1 Turn on greeting text

<lttext>: maximum characters in <text>.

6.31 AT+CALD –Delete alarm (Sec 8.37)

6.31.1 Description

Action command deletes an alarm in the MT.

6.31.2 Format

Command	Possible response(s)
+CALD=<n>	+CME ERROR: <err>
+CALD=?	+CALD: (list of supported <n>s) +CME ERROR: <err>

6.31.3 Field

<n>: integer type value indicating the index of the alarm; default is manufacturer specific.

6.32 AT+CTZR – Time Zone Reporting (Sec 8.40)

6.32.1 Description

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.

6.32.2 Format

Command	Possible response(s)
+CTZR=<onoff>	+CME ERROR: <err>
+CTZR?	+CTZR: <onoff> +CME ERROR: <err>
+CTZR=?	+CTZR: (list of supported <onoff>s) +CME ERROR: <err>

6.32.3 Field

<onoff>: integer type value indicating:

0 – Disable automatic time zone update via NITZ (default).

1 – Enable automatic time zone update via NITZ.

6.33 AT+CBKLT – Backlight (Sec 8.51)

6.33.1 Description

Enables or disables the backlight of the MT’s main display. The backlight can be enabled indefinitely or the duration shall be indicated as a specified period of time (in seconds).

6.33.2 Format

Command	Possible response(s)
+CBKLT=<state>[,<duration>]	+CME ERROR: <err>
+CBKLT?	+CBKLT: <state>[,<duration>] +CME ERROR: <err>
+CBKLT=?	+CBKLT: (list of supported <state>s) +CME ERROR: <err>

6.33.3 Field

<state>: integer type

- 0 disable
- 1 enable for the duration specified
- 2 enable indefinitely
- 3 enable for a duration specified by the UE manufacturer (default)

<duration>: integer type
xxxx in seconds (0~9999)

6.33.4 Change History

This command is available from 09B.W10.10

6.33.5 Usage Note

- This command can be used only when UART owner is SIM1
- This command is supported only in feature phone with PlutoMMI. If <state> is 3, the default <duration> is specified by PlutoMMI.
- When AT+CBKLT=2 is performed, following execution of <state> 1 or 3 may fail before <state> 0 is entered. Because PlutoMMI would check requests order to prevent

unexpectedly turn off backlight. It is suggested to execute <state> 0 just after <state> 2 and don't execute other <state> between this duration.

6.34 AT+CTSA – Touch Screen Action (Sec 8.52)(After W1021)

6.34.1 Description

This command is used to emulate a touch screen action on the mobile equipment (ME). This command should be accepted (OK returned) before actually emulating the touch screen action.

Test command returns the list of supported actions for the mobile equipment. The top left corner of the screen is defined as the 0, 0 point. This coordinate does not change regardless of the display mode (portrait or landscape). All coordinate values are non-negative integers.

6.34.2 Format

Command	Possible response(s)
+CTSA=<action>, <x>, <y> >	OK ERROR
+CTSA=?	+CTSA: (list of supported <action>s)

6.34.3 Field

<action>:

0 Release. Emulates the user releasing the touch screen at the <x>, <y> coordinates.

1 Depress. Emulates the user depressing the touch screen at location <x>, <y>.

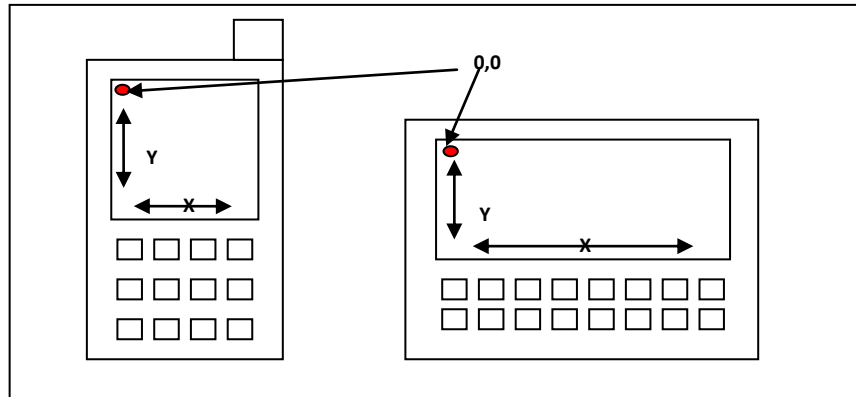
NOTE: Consecutive Depress actions will emulate dragging a stylus on the touch device to the new location.

2 Single Tap. Emulates the user performing a single tap action at the <x>, <y> location. The timing required to emulate a single tap shall be handled by the mobile equipment.

3 Double Tap. Emulates the user performing a double tap action at the <x>, <y> location. The timing required to emulate a double tap shall be handled by the mobile equipment.

<x>: The horizontal x coordinate location of the action performed on the touch screen.

<y>: The vertical y coordinate location of the action performed on the touch screen.



6.34.4 Examples

User Action	Syntax	Description
Depress	AT+CTSA=1,25,45	This will emulate a user pressing down on the ME touch screen at the 25, 45 coordinates.
Release	AT+CTSA=0,25,45	This will emulate a user releasing the touch screen at the 25, 45 coordinates.
Single Tap	AT+CTSA=2,25,45	This will emulate a user single tapping the touch screen at the 25, 45 coordinates.
Double Tap	AT+CTSA=3,25,45	This will emulate a user double tapping the touch screen at the 25, 45 coordinates.
Drag	AT+CTSA=1,10,10; +CTSA=0,50,50	This will emulate a user touching at 10,10, dragging to 50,50, and releasing.
Draw	AT+CTSA=1,10,10; +CTSA=1,50,50; +CTSA=0,100,100	This will emulate a user touching at 10,10, then dragging to 50,50, then dragging to 100,100 and finally releasing the touch screen at 100,100.

6.35 AT+CSO – Screen Orientation(Sec 8.53)(After W1021)

6.35.1 Description

This command is used to set/read back the orientation of the screen on the mobile equipment (ME).

6.35.2 Format

Command	Possible response(s)
+CSO?	+CSO: <orientation>
+CSO=<orientation>	OK ERROR
+CSO=?	OK ERROR

6.35.3 Field

<orientation>:

- 0 Portrait. The device is in portrait mode.
- 1 Landscape. The device is in landscape mode.

6.35.4 Usage Note

Currently ,this command is supported only in feature phone PlutoMMI based project

6.36 AT+CSS –Screen Size(Sec 8.54)(After W1021)

6.36.1 Description

The execution of this command will get the size (in pixels) of the ME screen.

The x-axis and y-axis will be based on a single normal operating mode of the ME. The 0,0 point will always be located at the top left corner of the screen in the normal operating mode. Changing the phone’s mode from portrait to landscape does not change the physical location of 0,0 or how the x and y axes are interpreted.

6.36.2 Format

Command	Possible response(s)
+CSS	+CSS: <Max X>, <Max Y>
+CSS=?	OK ERROR

6.36.3 Field

<Max_X>: Must be a positive integer representing the maximum width of the screen.

<Max_Y>: Must be a positive integer representing the maximum height of the screen

6.36.4 Usage Note

Currently ,this command is supported only in feature phone PlutoMMI based project

7 07.07 AT Commands – GPRS commands

7.1 AT+CGDCONT – Define PDP Context (Sec 10.1.1)

7.1.1 Description

Specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>.

7.1.2 Format

Command	Possible response(s)
+CGDCONT=[<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<IPv4AddrAlloc>]]]]]]]	OK ERROR
+CGDCONT?	[+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<IPv4AddrAlloc>]] [<CR><LF>+CGDCONT: <cid>,<PDP_type>,<APN>,<PDP_addr>,<d_comp>,<h_comp>[,<IPv4AddrAlloc>] [...]]
+CGDCONT=?	+CGDCONT: (range of supported <cid>s) , <PDP_type> , , , (list of supported <d_comp>s) , (list of supported <h_comp>s) , (list of supported <IPv4AddrAlloc>s) [<CR><LF>+CGDCONT: (range of supported <cid>s) , <PDP_type> , , , (list of supported <d_comp>s) , (list of supported <h_comp>s) , (list of supported <IPv4AddrAlloc>s) [...]]

7.1.3 Field

<cid>:

(PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter.

IP Internet Protocol (IETF STD 5)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.

If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.

If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.

The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDCP only)

0 - off (default if value is omitted)

<h_comp>: a numeric parameter that controls PDP header compression

0 - off (default if value is omitted)

<IPv4AddrAlloc>: a numeric parameter that controls how the MT/TA requests to get the IPv4 address information

0 IPv4 Address Allocation through NAS Signalling

1 IPv4 Address Allocated through DHCP

7.2 AT+CGDSCONT – Define Secondary PDP Context (Sec 10.1.2)

7.2.1 Description

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.

7.2.2 Format

Command	Possible response(s)
+CGDSCONT=[<cid> ,<p_cid> [<d_comp> [,<h_comp>]]]	OK ERROR
+CGDSCONT?	+CGDSCONT: <cid>, <p_cid>, <d_comp>, <h_comp> [<CR><LF>+CGDSCONT: <cid>, <p_cid>, <d_comp>, <h_comp> [...]]
+CGDSCONT=?	+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary contexts), (list of supported <d_comp>s), (list of supported <h_comp>s)

7.2.3 Field

<cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. The range of permitted values (minimum value = 1) is returned by the test form of the command.

<p_cid>: (Primary PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDSCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.

<PDP_type>: (Packet Data Protocol type) a string parameter which specifies the type of packet data protocol

IP Internet Protocol (IETF STD 5)

<d_comp>: a numeric parameter that controls PDP data compression
 0 - off (default if value is omitted)

<h_comp>: a numeric parameter that controls PDP header compression
 0 - off (default if value is omitted)

7.3 AT+CGQREQ – Quality of Service Profile (Requested) (Sec 10.1.4)

7.3.1 Description

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.

7.3.2 Format

Command	Possible Response(s)
+CGQREQ=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]]	OK ERROR
+CGQREQ?	+CGQREQ: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [<CR><LF>+CGQREQ: <cid>, <precedence >, <delay>, <reliability.>, <peak>, <mean> [...]]
+CGQREQ=?	+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s) [<CR><LF>+CGQREQ: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s) [...]]

7.3.3 Field

- <cid>: a numeric parameter which specifies a particular PDP context definition
- <precedence>: a numeric parameter which specifies the precedence class
- <delay>: a numeric parameter which specifies the delay class
- <reliability>: a numeric parameter which specifies the reliability class

<peak>: a numeric parameter which specifies the peak throughput class
 <mean>: a numeric parameter which specifies the mean throughput class

7.4 AT+CGQMIN – Quality of Service Profile (Minimum acceptable) (Sec 10.1.5)

7.4.1 Description

This command allows the TE to specify a minimum acceptable profile which is checked by the MT against the negotiated profile returned in the Activate PDP Context Accept message.

7.4.2 Format

Command	Possible Response(s)
+CGQMIN=[<cid> [,<precedence > [,<delay> [,<reliability.> [,<peak> [,<mean>]]]]]]	OK ERROR
+CGQMIN?	+CGQMIN: <cid>, <precedence >, <delay>, <reliability>, <peak>, <mean> [[<CR><LF>+CGQMIN: <cid>, <precedence >, <delay>, <reliability.>, <peak>, <mean> [...]]
+CGQMIN=?	+CGQMIN: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s) [[<CR><LF>+CGQMIN: <PDP_type>, (list of supported <precedence>s), (list of supported <delay>s), (list of supported <reliability>s), (list of supported <peak>s), (list of supported <mean>s) [...]]

7.4.3 Field

<cid>: a numeric parameter which specifies a particular PDP context definition
 <precedence>: a numeric parameter which specifies the precedence class
 <delay>: a numeric parameter which specifies the delay class
 <reliability>: a numeric parameter which specifies the reliability class
 <peak>: a numeric parameter which specifies the peak throughput class
 <mean>: a numeric parameter which specifies the mean throughput class

7.5 AT+CGATT – PS attach or detach (Sec 10.1.9)

7.5.1 Description

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.

7.5.2 Format

Command	Possible Response(s)
+CGATT= [<state>]	OK ERROR
+CGATT?	+CGATT: <state>
+CGATT=?	+CGATT: (list of supported <state>s)

7.5.3 Field

<state>: indicates the state of PS attachment
 0 - detached
 1 - attached

7.6 AT+CGACT – PDP context activate or deactivate (Sec 10.1.10)

7.6.1 Description

To activate or deactivate the specified PDP context (s).

7.6.2 Format

Command	Possible Response(s)
+CGACT=[<state> [, <cid>]]	OK ERROR +CME: ERROR <cause>
+CGACT?	+CGACT: <cid>, <state> [<CR><LF>+CGACT: <cid>, <state> [...]]
+CGACT=?	+CGACT: (list of supported <state>s)

7.6.3 Field

<state>: indicates the state of PDP context activation

0 - deactivated

1 - activated

Other values are reserved and will result in an ERROR response to the execution command.

<cid>: a numeric parameter which specifies a particular PDP context definition. If no <cid> is specified, then UE assumes it as 1. The usage of omitted <cid> to activate/deactivate all is not supported.

<cause>: indicate the PDP context activation failure cause, including:

SM reject cause = 3072 + <sm cause>

which <sm cause> is specified at 3GPP 24.008 clause 10.5.6.6(Annex I)

TCM reject cause = 3372 + <tcm cause>

Which <tcm cause> is a enum specified as:

TCM_L4C_INVALID_PARAMETER = 0x00 + TCM_CAUSE_START,
 TCM_L4C_NSAPI_NOT_IN_USE,
 TCM_L4C_CID_ALREADY_IN_USE,
 TCM_L4C_CID_UNEXPECTED,
 TCM_L4C_CID_PRIMARY_IS_NOT_ACTIVATED,
 TCM_ACL_ACTION_NOT_ALLOWED,
 TCM_ACL_SIM_FILE_FULL,
 TCM_ACL_ADD_ENTRY_FAILED,
 TCM_ACL_DEL_ENTRY_FAILED,
 TCM_ACL_SET_ENTRY_FAILED,
 TCM_ACL_SIM_READ_FAILED,
 TCM_ACL_SIM_WRITE_FAILED,
 L4C_CMD_CONFLICT = 3472

7.7 AT +CGCMOD –PDP Context Modify (Sec 10.1.11)

7.7.1 Description

The execution command is used to modify the specified PDP context (s) with respect to QoS profiles and TFTs.

7.7.2 Format

Command	Possible Response(s)
+CGCMOD=<cid>	OK ERROR
+CGCMOD=?	+CGCMOD: (list of <cid>s associated with active contexts)

7.7.3 Field

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

7.8 AT+CGDATA –Enter data state (Sec 10.1.12)

7.8.1 Description

The execution command causes the MT to perform whatever actions are necessary to establish communication between the TE and the network using one or more Packet Domain PDP types.

7.8.2 Format

Command	Possible Response(s)
+CGDATA=[<L2P>[, <cid>[, <chid>]]]	CONNECT ERROR
+CGDATA=?	+CGDATA: (list of supported <L2P>s)

7.8.3 Field

<L2P>: a string parameter that indicates the layer 2 protocol to be used between the TE and MT

M-UPS	manufacturer-specific protocol for Network Driver Interface Specification (NDIS)
M-MBIM	manufacturer-specific protocol for Mobile Broadband Interface Model (MBIM)
M-IPCORE	manufacturer-specific protocol if and only if for LTE project

Other values will result in an ERROR response.

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).

<chid>: channel id, a.k.a network interface, a numeric parameter used to specify which channel to be binded.

Default chid is the same as cid. In the case of IPv4v6 fallback to IPv4 and IPv6 two PDP context, these two context will be assigned to the same network interface via this AT command.

7.9 AT+CGPADDR –Show PDP address (Sec 10.1.14)

7.9.1 Description

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

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

7.9.2 Format

Command	Possible response(s)
+CGPADDR=<cid>	+CGPADDR: <cid>, <PDP_addr>
+CGPADDR=?	+CGPADDR: (list of defined <cid>s)

7.9.3 Field

<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands). If no <cid> is specified, an ERROR result code will be returned. Multiple <cid> field is not supported.

<PDP_address>: a string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT and +CGDSCONT commands when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>. <PDP_address> is omitted if none is available.

7.10 AT+CGAUTO – Automatic response to network request PDP context activation

(Sec 10.1.15)

7.10.1 Description

The set command disables or enables an automatic positive response (auto-answer) to the receipt of a Request PDP Context Activation message from the network.

When the +CGAUTO=0 command is received, the MT shall not perform a PS detach if it is attached. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING, the TE may manually accept or reject the request by issuing the +CGANS command or may simply ignore the network request.

When the +CGAUTO=1 command is received, the MT shall attempt to perform a PS attach if it is not already attached. Failure will result in ERROR or, if enabled, +CME ERROR being returned to the TE. Subsequently, when the MT announces a network request for PDP context activation by issuing the unsolicited result code RING or +CRING to the TE, this is followed by the intermediate result code CONNECT. The MT then enters V.250 online data state and follows the same procedure as it would after having received a +CGANS=1 with no <L2P> or <cid> values specified.

7.10.2 Format

Command	Possible response(s)
+CGAUTO=<n>	OK ERROR
+CGAUTO?	+CGAUTO: <n>

7.10.3 Field

<n>:

- 0 turn off automatic response for Packet Domain only
- 1 turn on automatic response for Packet Domain only

For <n> = 0 Packet Domain network requests are manually accepted or rejected by the +CGANS command.

For <n> = 1 Packet Domain network requests are automatically accepted according to the description above.

7.11 AT+CGANS –Manual response to a network request for PDP context activation

(Sec 10.1.16)

7.11.1 Description

The execution command requests the MT to respond to a network request for Packet Domain PDP context activation which has been signaled to the TE by the RING or +CRING: unsolicited result code. The <response> parameter allows the TE to accept or reject the request.

7.11.2 Format

Command	Possible response(s)
+CGANS=[<response>, [<L2P> , [<cid>]]]	OK ERROR
+CGANS=?	+CGANS: (list of supported <response>s), (list of supported <L2P>s)

7.11.3 Field

<response>: is a numeric parameter which specifies how the request should be responded to.

0 reject the request

1 accept and request that the PDP context be activated

<L2P>: a string parameter which indicates the layer 2 protocol to be used (see +CGDATA command).

<cid>: a numeric parameter which specifies a particular PDP context definition

7.12 AT+CGCLASS –GPRS mobile station class(Sec 10.1.17)

7.12.1 Description

The set command is used to set the MT to operate according to the specified GPRS mobile class. If the requested class is not supported, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

The read command returns the current GPRS mobile class.

The test command is used for requesting information on the supported GPRS mobile classes.

7.12.2 Format

Command	Possible response(s)
+CGCLASS=[<class>]	OK ERROR
+CGCLASS?	+CGCLASS:<class>
+CGCLASS=?	+CGCLASS: (list of supported <class>s)

7.12.3 Field

<class>: a string parameter which indicates the GPRS mobile class (in descending order of functionality)

A class A (highest)

B classB

CG class C in GPRS only mode

CC class C in circuit switched only mode (lowest)

Other values are reserved and will result in an ERROR response to the set command.

If the MT is GPRS attached when the set command is issued with a <class> = CC specified, a detach request shall be sent to the network.

7.12.4 Support Note

On MAUI and 09A branches, after W0918, the test command and the query command can be used while a normal SIM card is inserted. Before this, the +CGCLASS command can be only used while a test SIM is inserted.

7.13 AT+CGEREP – Packet Domain event reporting (Sec 10.1.19)

7.13.1 Description

Set command enables or disables sending of unsolicited result codes(URC),
+CGEV: XXX from MT to TE in the case of certain events occurring in the Packet Domain MT or the network.

7.13.2 Format

Command	Possible response(s)
+CGEREP=[<mode> [, <bfr>]]	OK ERROR
+CGEREP?	+CGEREP: <mode>, <bfr>
+CGEREP=?	+CGEREP: (list of supported <mode>s) , (list of supported <bfr>s)

7.13.3 Field

<mode>: a numeric parameter

0 disables sending of URC, +CGEV. No codes are forwarded to the TE.

1 enables sending of URC, +CGEV. forward them directly to the TE.

<bfr>: a numeric parameter

0 MT will not buffer any URC. 0 is default value if omitted, and it's the only supported setting.

+CGEV:

For network attachment, the following unsolicited result codes and the corresponding events are defined:

- +CGEV: NW DETACH
The network has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately.
- +CGEV: ME DETACH
The mobile termination has forced a PS detach. This implies that all active contexts have been deactivated. These are not reported separately.

For PDP context deactivation, the following unsolicited result codes and the corresponding events are defined:

- +CGEV: NW DEACT <PDP_type>, <PDP_addr>, <cid>
The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT. The format of the parameters <PDP_type>, <PDP_addr> and <cid> are found in command +CGDCONT.
- +CGEV: ME DEACT <PDP_type>, <PDP_addr>, <cid>

The mobile termination has forced a context deactivation. The <cid> that was used to activate the context is provided if known to the MT. The format of the parameters <PDP_type>, <PDP_addr> and <cid> are found in command +CGDCONT. For PDP context activation, the following unsolicited result codes and the corresponding events are defined:

- +CGEV: ME PDN ACT <cid>

The mobile termination has activated a context. The <cid> for this context is provided to the TE. The format of the parameters <cid> are found in command +CGDCONT.

For other PDP context handling, the following unsolicited result codes and the corresponding events are defined:

- +CGEV: REJECT <PDP_type>, <PDP_addr>

A network request for context activation occurred when the MT was unable to report it to the TE with a +CRING unsolicited result code and was automatically rejected. The format of the parameters <PDP_type> and <PDP_addr> are found in command +CGDCONT.

- +CGEV: NW REACT <PDP_type>, <PDP_addr>, [<cid>]

The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to the MT. The format of the parameters <PDP_type>, <PDP_addr> and <cid> are found in command +CGDCONT.

7.14 AT+CGREG – GPRS network registration status (Sec 10.1.20)

7.14.1 Description

The set command controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the MT's GPRS network registration status, or code +CGREG: <stat>[,<lac>,<ci>[,<Act>]] when <n>=2 and there is a change of the network cell.

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 <lac>,<ci> and <Act> are returned only when <n>=2 and MT is registered in the network.

7.14.2 Format

Command	Possible response(s)
+CGREG= [<n>]	
+CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>[,<Act>]] <i>+CME ERROR: <err></i>

7.14.3 Field

<n>:

- 0 disable network registration unsolicited result code
- 1 enable network registration unsolicited result code +CGREG: <stat>
- 2 enable network registration and location information unsolicited result code

+CGREG:

<stat>:

- 0 not registered, MT is not currently searching an operator to register to
- 1 registered, home network
- 2 not registered, but MT is currently trying to attach or searching an operator to register to
- 3 registration denied
- 4 unknown
- 5 registered, roaming

<lac>: string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)

<ci>: string type; four byte cell ID in hexadecimal format

<Act>:

- 0 GSM
- 2 UTRAN
- 3 GSM w/EGPRS
- 4 UTRAN w/HSDPA
- 5 UTRAN w/HSUPA
- 6 UTRAN w/HSDPA and HSUPA

7.15 AT+CGSMS – Select service for MO SMS messages (Sec 10.1.21)

7.15.1 Description

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.

7.15.2 Format

Command	Possible Response(s)
+CGSMS= <service>	OK ERROR
+CGSMS?	+CGSMS: <service>

7.15.3 Field

<service>: a numeric parameter which indicates the service or service preference to be used

- 0 Packet Domain
- 1 circuit switched
- 2 Packet Domain preferred (use circuit switched if GPRS not available)
- 3 circuit switched preferred (use Packet Domain if circuit switched not available)

7.16 AT+EGTP – GPRS Transfer Preference (Proprietary Command)

7.16.1 Description

This command is to set or to get GPRS transfer preference. It is only available when `__MONITOR_PAGE_DURING_TRASFER__` is defined

7.16.2 Format

Command	Possible Response(s)
+EGTP=<state>	OK ERROR
+EGTP?	+EGTP: <state> <CR><LF>OK
+EGTP=?	+EGTP: (list of supported <state>s)

7.16.3 Field

<state>: indicates the state of GPRS transfer preference

0 – DATA PREFER

1 – CALL PREFER

Other values are reserved and will result in an ERROR response to the execution command.

7.16.4 Support Note

This command goes along with the feature option: MONITOR_PAGE_DURING_TRANSFER.

For feature phone projects, this command is only used for test purposes. The synchronization and simultaneous access from AT and MMI interfaces are not supported. It is only supported in full AT command set.

7.17 AT+CGEQREQ – 3G Quality of Service Profile (Requested)

7.17.1 Description

This command allows the TE to specify a UMTS QoS Profile that is used when the MT sends and Activate PDP Context Request message to the network.

7.17.2 Format

Command	Possible Response(s)
+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>]]]]]]]]]]]]]	OK ERROR
+CGEQREQ?	+CGEQREQ: <cid>, <Traffic class> ,<Maximum bitrate UL> ,<Maximum bitrate DL> ,<Guaranteed bitrate UL>

	<pre>,<Guaranteed bitrate DL> ,<Delivery order> ,<Maximum SDU size> ,<SDU error ratio> ,<Residual bit error ratio> ,<Delivery of erroneous SDUs> ,<Transfer delay> ,<Traffic handling priority> [<CR><LF>+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> [...]]</pre>
<pre>+CGEQREQ=?</pre>	<pre>+CGEQREQ: <PDP type>, (list of supported <Traffic class>s) , (list of supported <Maximum bitrate UL>s) , (list of supported <Maximum bitrate DL>s) , (list of supported <Guaranteed bitrate UL>s) , (list of supported <Guaranteed bitrate DL>s) , (list of supported <Delivery order>s) , (list of supported <Maximum SDU size>s) , (list of supported <SDU error ratio>s) , (list of supported <Residual bit error ratio>s) , (list of supported <Delivery of erroneous SDUs>s) , (list of supported <Transfer delay>s) , (list of supported <Traffic handling priority>s) [<CR><LF>+CGEQREQ: <PDP_type>, (list of supported <Traffic class>s) , (list of supported <Maximum bitrate UL>s) , (list of supported <Maximum bitrate DL>s) , (list of supported <Guaranteed bitrate</pre>

	UL>s), (list of supported <Guaranteed bitrate DL>s), (list of supported <Delivery order>s) , (list of supported <Maximum SDU size>s) , (list of supported <SDU error ratio>s) , (list of supported <Residual bit error ratio>s) , (list of supported <Delivery of erroneous SDUs>s) , (list of supported <Transfer delay>s) , (list of supported <Traffic handling priority>s) [...]
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7.17.3 Field

<cid>: (see +CGDCONT and _CGDSCONT commands) A special form of the set command, +CGEQREQ=<cid> causes the requested profile for context number <cid> to become undefined.

<Traffic class>: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.

0 - conversational

1 - streaming

2 - interactive

3 - background

4 - subscribed value

Other values are reserved.

<Maximum bitrate UL>: 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, ...).

<Maximum bitrate DL>: 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.

<Guaranteed bitrate UL>: 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.

<Guaranteed bitrate DL>: 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.

<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.

Other values are reserved.

<Maximum SDU size>: 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.

<SDU error ratio>: 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 $5 \cdot 10^{-3}$

would be specified as '5E3' (e.g. AT+CGEQREQ=..., '5E3', ...). '0E0'

means subscribed value.

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio

in the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$

would be specified as '5E3' (e.g. AT+CGEQREQ=..., '5E3', ...). '0E0' means subscribed value.

<Delivery of 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

Other values are reserved.

<Transfer delay>: 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.

<Traffic handling priority>: a numeric parameter (1,2,3,...) 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.

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

7.17.4 Support Note

1. It is only supported in R99 or later projects.
2. For the set/execute mode, all parameters must be entered. Part of parameters omitted will be treated as an undefined operation.

7.18 AT+CGEQREQ – 3G Quality of Service Profile (Minimum acceptable)

7.18.1 Description

This command allows the TE to specify a minimum acceptable profile, which is checked by the MT against the negotiated profile returned in the Activate/Modify PDP Context Accept message.

7.18.2 Format

Command	Possible Response(s)
<pre>+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>]]]]]]]]]]]]]]]]]</pre>	<pre>OK ERROR</pre>
<pre>+CGEQMIN?</pre>	<pre>+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> [<CR><LF>+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> [...]]</pre>
<pre>+CGEQMIN=?</pre>	<pre>+CGEQMIN: <PDP type>, (list of supported <Traffic class>s) , (list of supported <Maximum bitrate UL>s) , (list of supported <Maximum bitrate DL>s), (list of supported <Guaranteed bitrate UL>s), (list of supported</pre>

	<pre> <Guaranteed bitrate DL>s) , (list of supported <Delivery order>s) , (list of supported <Maximum SDU size>s) , (list of supported <SDU error ratio>s) , (list of supported <Residual bit error ratio>s) , (list of supported <Delivery of erroneous SDUs>s) , (list of supported <Transfer delay>s) , (list of supported <Traffic handling priority>s) [<CR><LF>+CGEQMIN: <PDP_type>, (list of supported <Traffic class>s) , (list of supported <Maximum bitrate UL>s), (list of supported <Maximum bitrate DL>s) , (list of supported <Guaranteed bitrate UL >s) , (list of supported <Guaranteed bitrate DL >s) , (list of supported supported <Delivery order>s) , (list of supported <Maximum SDU size>s) , (list of supported <SDU error ratio>s) , (list of supported <Residual bit error ratio>s) , (list of supported <Delivery of erroneous SDUs>s) , (list of supported <Transfer delay>s) , (list of supported supported <Traffic handling priority>s) [...]] </pre>
--	--

7.18.3 Field

<cid>: (see +CGDCONT and _CGDSCONT commands) A special form of the set command, +CGEQMIN=<cid> causes the requested profile for context number <cid> to become undefined.

<Traffic class>: a numeric parameter that indicates the type of application for which the UMTS bearer service is optimised.

0 - conversational

1 - streaming

2 - interactive

3 - background

Other values are reserved.

<Maximum bitrate UL>: 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+CGEQMIN=...,32, ...).

<Maximum bitrate DL>: 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+CGEQMIN=...,32, ...).

<Guaranteed bitrate UL>: 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+CGEQMIN=...,32, ...).

<Guaranteed bitrate DL>: 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+CGEQMIN=...,32, ...).

<Delivery order>: a numeric parameter that indicates whether the UMTS bearer shall provide in-sequence SDU delivery or not.

0 - no

1 - yes

Other values are reserved.

<Maximum SDU size>: a numeric parameter (1,2,3,...) that indicates the maximum allowed SDU size in octets.

<SDU error ratio>: 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 $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=..., '5E3', ...).

<Residual bit error ratio>: a string parameter that indicates the target value for the undetected bit error ratio in the delivered SDUs. If no error detection is requested, Residual bit error ratio indicates the bit error ratio in

the delivered SDUs. The value is specified as 'mEe'. As an example a target residual bit error ratio of $5 \cdot 10^{-3}$ would be specified as '5E3' (e.g. AT+CGEQMIN=...,'5E3',...).

<Delivery of erroneous SDUs>: a numeric parameter that indicates whether SDUs detected as erroneous shall be delivered or not.

0 - no

1 - yes

2 - no detect

Other values are reserved.

<Transfer delay>: 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. <Traffic handling priority>: a numeric parameter (1,2,3,...) that specifies the relative importance for handling of all SDUs belonging to the UMTS bearer compared to the SDUs of other bearers.

<PDP_type>: (see +CGDCONT and +CGDSCONT commands).

7.18.4 Support Note

1. It is only supported in R99 or later projects.
2. For the set/execute mode, all parameters must be entered. Part of parameters omitted will be treated as an undefined operation.

7.19 AT+EMPPCH – Monitor Peer PCH (Proprietary Command)

7.19.1 Description

This command is to set or to get the setting of GEMINI 2.0 feature “Monitor Peer PCH”. It is only available when `__MONITOR_PAGE_DURING_TRASFER__` is defined.

When one SIM is in data transfer state, to monitor PCH of other SIM would improve the MT call successful rate. However, this would decrease the throughput of data transfer. The user shall be aware of the compromise caused by this setting.

7.19.2 Format

Command	Possible Response(s)
+EMPPCH=<mode>	OK

	ERROR
+EMPPCH?	+EMPPCH:<mode> <CR><LF>OK
+EMPPCH=?	+EMPPCH:(0,1) OK

7.19.3 Field

<mode>: indicates the setting of Monitor Peer PCH

0 – DON'T monitor PCH of other SIM when this SIM is in data transfer

1 – monitor PCH of other SIM when this SIM in data transfer

Other values are reserved and will result in an ERROR response to the execution command.

7.19.4 Support Note

This command goes along with the feature option:

MONITOR_PAGE_DURING_TRANSFER.

For feature phone projects, this command is only used for test purposes. The synchronization and simultaneous access from AT and MMI interfaces are not supported. It is only supported in full AT command set.

8 07.07 Mobile Termination Errors

8.1 AT+CMEE (Sec 9.1)

8.1.1 Description

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.

8.1.2 Format

Command	Possible response(s)
+CMEE= [<n>]	
+CMEE?	+CMEE: <n>
+CMEE=?	+CMEE: (list of supported <n>s)

8.1.3 Field

<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)

<err> values (numeric format followed by verbose format):

9.2.1 General errors

- 0 phone failure
- 1 no connection to phone
- 2 phone adaptor link reserved
- 3 operation not allowed
- 4 operation not supported

- 5 PH SIM PIN required
- 6 PH-FSIM PIN required
- 7 PH-FSIM PUK required
- 10 SIM not inserted
- 11 SIM PIN required
- 12 SIM PUK required
- 13 SIM failure
- 14 SIM busy
- 15 SIM wrong
- 16 incorrect password
- 17 SIM PIN2 required
- 18 SIM PUK2 required
- 20 memory full
- 21 invalid index
- 22 not found
- 23 memory failure
- 24 text string too long
- 25 invalid characters in text string
- 26 dial string too long
- 27 invalid characters in dial string
- 30 no network service
- 31 network timeout
- 32 network not allowed - emergency calls only
- 40 network personalization PIN required
- 41 network personalization PUK required
- 42 network subset personalization PIN required
- 43 network subset personalization PUK required
- 44 service provider personalization PIN required
- 45 service provider personalization PUK required
- 46 corporate personalization PIN required
- 47 corporate personalization PUK required
- 48 hidden key required (NOTE: This key is required when accessing hidden phonebook entries.)
- 100 unknown

9.2.2 GPRS-related errors

9.2.2.1 Errors related to a failure to perform an Attach

103 Illegal MS (#3)

106 Illegal ME (#6)

107 GPRS service not allowed (#7)

111 PLMN not allowed (#11)

112 Location area not allowed (#12)

113 Roaming not allowed in this location area (#13)

(Values in parentheses are TS 24.008 cause codes.)

9.2.2.2 Errors related to a failure to Activate a Context

132 service option not supported (#32)

133 requested service option not subscribed (#33)

134 service option temporarily out of order (#34)

149 PDP authentication failure

(Values in parentheses are TS 24.008 cause codes.)

9.2.2.3 Other GPRS errors

150 invalid mobile class

148 unspecified GPRS error

Other values in the range 101-150 are reserved for use by GPRS

9 07.07 Annex C

9.1 AT+VTS (Sec C.2.11)

9.1.1 Description

Allows the transmission of DTMF tones. The command is write-only.

Note: The command is used only during voice calls.

9.1.2 Format

Command	Return
+VTS=<dtmf>	
+VTS=?	(list of supported <tone1>s) , (list of supported <tone2>s) , (list of supported <duration>s)

9.1.3 Field

<DTMF>. A single ASCII character in the set .0-9, #, *, A-D.

For example: AT+VTS = 9 or AT+VTS = A

You can use multiple command to achieve continuous DTMF tones.

For example : AT+VTS=6;+VTS=2;+VTS=8;+VTS=2

9.1.4 Note

When modem work with application (ex: WM smart phone RIL or ECMT tool) , the application expect the result of AT+VTS is returned immediately . Since user might press keypad to send DTMF very fast, so application would like to send DTMF before the previous DTMF is actually processed in NW (modem shall help to queue the DTMF request if previous is not finished yet). So we will response the result code immediately to prevent blocking the application’s DTMF keypad handling.

Currently, we only check if the digit is valid and if there is any call ongoing(ex: dialing , active exist). If yes,

then we will return “OK”. But please notice the “OK” doesn’t imply that the DTMF is really processed successfully in

NW. ex: it might fail due to MS doesn’t have user connection yet. Or it might be fail due to there is no response from

NW. Or it might be fail due to there is no speech channel (ex: data call)

If `__VTS_LATE_RESPONSE__` is turned on, "OK" is printed when SEND DTMF is acknowledged by network

10 07.05 SMS AT Commands

Please refer to 27.005 Sec 3.1 Parameter Definition to see more details of the parameter fields in each command.

10.1 AT+CSMS – Select Message Service (Sec 3.2.1)

10.1.1 Description

Selects the message service and returns the type of messages supported by the ME. If chosen service is not supported by the ME (but supported by the TA), +CME ERROR is returned.

10.1.2 Format

Command	Possible response(s)
+CSMS=<service>	+CSMS: <mt>, <mo>, <bm> +CMS ERROR: <err>
+CSMS?	+CSMS: <service>, <mt>, <mo>, <bm>
+CSMS=?	+CSMS: (list of supported <service>s)

10.1.3 Field

<service>:

0 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4]

1 3GPP TS 23.040 [3] and 3GPP TS 23.041 [4]

the requirement of <service> setting 1 is mentioned under corresponding command descriptions)

<mt>, <mo>, <bm>:

0 type not supported

1 type supported

10.1.4 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT.

10.2 AT+CPMS – Preferred Message Storage (Sec 3.2.2)

10.2.1 Description

Selects memory storage spaces to be used for reading, writing, etc. If chosen storage is not appropriate for the ME (but is supported by the TA), +CME ERROR is returned.

10.2.2 Format

Command	Possible response(s)
+CPMS=<mem1>	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> +CMS ERROR: <err>
+CPMS?	+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> +CMS ERROR: <err>
+CPMS=?	+CPMS: (list of supported <mem1>s) , (list of supported <mem2>s) , (list of supported <mem3>s)

10.2.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.3 AT+CMGF – Message Format (Sec 3.2.3)

10.3.1 Description

Sets the input and output format to be used by the TA.

10.3.2 Format

Command	Possible response(s)
+CMGF=[<mode>]]	
+CMGF?	+CMGF: <mode>
+CMGF=?	+CMGF: (list of supported <mode>s)

10.3.3 Field

<mode>:

- 0 PDU mode (default when implemented)
- 1 text mode

10.3.4 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.4 AT+CSCA – Service Center Address (Sec 3.3.1)

10.4.1 Description

Updates the SMCS address, through which mobile-originated SMSs are transmitted. In text mode, the setting is used by send (AT+CMGS) and write (AT+CMGW) commands. In PDU mode, the setting is used by the same commands, but only when the length of the SMCS address (coded into <pdu> parameter) equals zero.

10.4.2 Format

Command	Possible response(s)
+CSCA=<sca> [, <tosca>]	
+CSCA?	+CSCA: <sca>, <tosca>
+CSCA=?	

10.4.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.5 AT+CSMP – Set Text Mode Parameters (Sec 3.3.2)

10.5.1 Description

Setting Text Mode Parameters. Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected. It is possible to set the validity period starting from

when the SM is received by the SMSC (<vp> is in range 0... 255) or define the absolute time of the validity period termination (<vp> is a string). The format of <vp> is given by <fo>.

10.5.2 Format

Command	Possible response(s)
+CSMP= [<fo> [, <vp> [, <pid> [, <dcs>]]]]	
+CSMP?	+CSMP : <fo>, <vp>, <pid>, <dcs>
+CSMP=?	

10.5.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.6 AT+CSDH – Show Text Mode Parameters (Sec 3.3.3)

10.6.1 Description

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

Test command returns supported values as a compound value.

10.6.2 Format

Command	Possible response(s)
+CSDH= [<show>]	
+CSDH?	+CSDH: <show>
+CSDH=?	+CSDH: (list of supported <show>s)

10.6.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.7 AT+CSCB – Select Cell Broadcast Message Types (Sec 3.3.4)

10.7.1 Description

Selects which types of CBMs are to be received by the ME.

10.7.2 Format

Command	Possible response(s)
+CSCB=[<mode>[, <mids>]]	
+CSCB?	+CSCB: <mode>, <mids>
+CSCB=?	+CSCB: (list of supported <mode>s)

10.7.3 Field

<mode>:

0 message types specified in <mids> and <dcss> are accepted

1 message types specified in <mids> and <dcss> are not accepted

<mids>: We support **10** message identifiers at most.

string type: all different possible combinations of CBM message identifiers (refer <mid>)

(default is empty string);

e.g. "0,1,5,320-478,922"

<dcss>: string type; all different possible combinations of CBM data coding schemes (refer <dc>) (default is empty string);e.g. "0-3,5"

10.7.4 Note1

For <mids> of <mode>=0, our design is to open the <mids> from user input and close other <mids>.

In the following case, user input <mode>=0 and <mids>=2. So open channel 2 and close other channel (channel 1).

AT+CSCB?

+CSCB: 0,"1","1"

OK

AT+CSCB=0,"2","2"

OK

AT+CSCB?

+CSCB: 0,"2","1,2"

OK

In the following case, user input <mode>=0 without <mids>. So don't open any channel and close other channel (channel 1).

AT+CSCB?

+CSCB: 0,"1","1"

OK

AT+CSCB=0

OK

AT+CSCB?

+CSCB: 0,"","1"

OK

For <dcss> of <mode>=0, our design is to **increase** the <dcss> from user input.

In the following case, user input <mode>=0 and <dcss>=2. So **increase** language 2.

AT+CSCB?

+CSCB: 0,"1","1"

OK

AT+CSCB=0,"2","2"

OK

AT+CSCB?

+CSCB: 0,"2","1,2"

OK

In the following case, user input <mode>=0 without <dcss>. So don't **increase** any language.

AT+CSCB?

+CSCB: 0,"1","1"

OK
 AT+CSCB=0
 OK
 AT+CSCB?
 +CSCB: 0,"","1"

OK

10.7.5 Note2

For <mids> of <mode>=1, our design is to close all <mids> no matter with <mids> or not.
 In the following case, user input <mode>=1. So close all channel.

AT+CSCB?
 +CSCB: 0,"2","1,2"

OK
 AT+CSCB=1,"2","2"
 OK
 AT+CSCB?
 +CSCB: 1,"","1"

OK

In the following case, user input <mode>=1 without <mids>. Also close all channel.

AT+CSCB?
 +CSCB: 0,"1","1"

OK
 AT+CSCB=1
 OK
 AT+CSCB?
 +CSCB: 1,"","1"

OK

For <dcss> of <mode>=1, our design is to **decrease** the <dcss> from user input.

In the following case, user input <mode>=1 and <dcss>=2. So **decrease** language 2.

AT+CSCB?

+CSCB: 0,"2","1,2"

OK

AT+CSCB=1,"2","2"

OK

AT+CSCB?

+CSCB: 1,"","1"

OK

In the following case, user input <mode>=1 without <dcss>. So don't **decrease** any language.

AT+CSCB?

+CSCB: 0,"1","1"

OK

AT+CSCB=1

OK

AT+CSCB?

+CSCB: 1,"","1"

OK

10.7.5.1 Change History

N/A

10.7.5.2 Usage Note

- <mid> 3GPP TS 23.041 CBM Message Identifier in integer format
- <dcs> depending on the command or result code: 3GPP TS 23.038 SM Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format
- We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT
- We will sync with MMI after using this command

10.8 AT+CSAS – Save Settings (Sec 3.3.5)

10.8.1 Description

Execution command saves active message service settings to a non-volatile memory. 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. (U)SIM SMS parameters) and therefore can not be saved.

10.8.2 Format

Command	Possible response(s)
+CSAS [=<profile >]	+CMS ERROR: <err>
+CSAS=?	+CSAS: (list of supported <profile>s)

10.8.3 Field

<profile>:
0...255 manufacturer specific profile number where settings are to be stored

10.8.4 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.9 AT+CRES – Restore Settings (Sec 3.3.6)

10.9.1 Description

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. (U)SIM SMS parameters) and therefore can not be restored.

10.9.2 Format

Command	Possible response(s)
+CRES [=<profile >]	+CMS ERROR: <err>
+CRES=?	+CRES: (list of supported <profile>s)

10.9.3 Field

<profile>:

0...255 manufacturer specific profile number where settings are to be stored

10.9.4 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.10 AT+CNMI – New Message Indications to TE (Sec 3.4.1)

10.10.1 Description

Selects the procedure how the reception of new messages from the network is indicated to the TE when TE is active (DTR signal is ON). IF TE is inactive (DTR signal OFF), message reception is carried out as specified in GSM 03.38. This command enables the unsolicited result codes +CMT, +CMTI, +CBM, and +CDS. (Please refer to 07.07 for more detail)

10.10.2 Format

Command	Possible response(s)
+CNMI=[<mode> [, <mt> [, <bm> [, <ds> [, <bfr>]]]]]	+CMS ERROR: <err>
+CNMI?	+CNMI: <mode>, <mt>, <bm>, <ds>, <bfr>
+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)

10.10.3 Field

<mode>

- 0 disable unsolicited result code
- 1 Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode). Otherwise forward them directly to the TE.
- 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE.
- 3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode.

<mt>

- 0 No SMS-DELIVER indications are routed to the TE.
- 1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index>
- 2 SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled); or +CMT: <oa>, [<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>] <CR><LF> <data> (text mode enabled; about parameters in italics, refer command Show Text Mode Parameters +CSDH)
- 3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1.

<bm>

- 0 No CBM indications are routed to the TE.
- 2 New CBMs are routed directly to the TE using unsolicited result code: +CBM: <length><CR><LF><pdu> (PDU mode enabled); or +CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled)

If ME supports data coding groups which define special routing also for messages other than class 3 (e.g. (U)SIM specific messages), ME may choose not to route messages of such data coding schemes into TE (indication of a stored CBM may be given as defined in <bm>=1).

- 3 Class 3 CBMs are routed directly to TE using unsolicited result codes defined in <bm>=2. If CBM storage is supported, messages of other classes result in indication as defined in <bm>=1.

<ds>:

- 0 No SMS-STATUS-REPORTs are routed to the TE.
- 1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code:
 - +CDS: <length><CR><LF><pdu> (PDU mode enabled); or
 - +CDS: <fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st> (text mode enabled)

<bfr>:

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

10.10.4 Note

- 1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.11 AT+CMGL(Text mode) – List Message (Sec 3.4.2)

10.11.1 Description

Returns messages with status value <stat> from returned message in preferred storage to the TE.

10.11.2 Format

Command	Possible response(s)
+CMGL [=<stat>] >]	<p>if text mode (+CMGF=1), command successful and SMS-SUBMITs and/or SMS-DELIVERs:</p> <p>+CMGL: <index>, <stat>, <oa/da>, [<alpha>], [<scts>] [, <tooa/oda>, <length>]<CR><LF><data> [<CR><LF> +CMGL: <index>, <stat>, <da/oa>, [<alpha>], [<scts>] [, <tooa/oda>, <length>]<CR><LF><data> [...]]</p> <p>if text mode (+CMGF=1), command successful and SMS-STATUS-REPORTs:</p> <p>+CMGL: <index>, <stat>, <fo>, <mr>, [<ra>], [<tora>], <scts>, <dt>, <st> [<CR><LF> +CMGL: <index>, <stat>, <fo>, <mr>, [<ra>], [<tora>], <scts>, <dt>, <st> [...]]</p> <p>if text mode (+CMGF=1), command successful and SMS-COMMANDs:</p> <p>+CMGL: <index>, <stat>, <fo>, <ct> [<CR><LF> +CMGL: <index>, <stat>, <fo>, <ct> [...]]</p> <p>if text mode (+CMGF=1), command successful and CBM storage:</p> <p>+CMGL: <index>, <stat>, <sn>, <mid>, <page>, <pages> <CR><LF><data> [<CR><LF> +CMGL: <index>, <stat>, <sn>, <mid>, <page>, <pages> <CR><LF><data> [...]]</p> <p>otherwise: +CMS ERROR: <err></p>
+CMGL=?	+CMGL: (list of supported <stat>s)

10.11.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.12 AT+CMGL(PDU mode) – List Message (Sec 4.1)

10.12.1 Description

Returns messages with status value <stat> from returned message in preferred storage to the TE.

10.12.2 Format

Command	Possible response(s)
+CMGL [=<stat>]	<p>if PDU mode (+CMGF=0) and command successful: +CMGL: <index>, <stat>, [<alpha>], <length><CR><LF><pdu> [<CR><LF>+CMGL:<index>, <stat>, [<alpha>], <length><CR><LF><pdu> [...]]</p> <p>otherwise: +CMS ERROR: <err></p>
+CMGL=?	+CMGL: (list of supported <stat>s)

10.12.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.13 AT+CMGR(Text mode) – Read Message (Sec 3.4.3)

10.13.1 Description

Returns messages with location value <index> from preferred message storage <mem1> to the TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned.

10.13.2 Format

Command	Possible response(s)
+CMGR=<index>	<p>if text mode (+CMGF=1), command successful and SMS-DELIVER: +CMGR: <stat>,<oa>,[<alpha>],<scts>[,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length>]<CR><LF><data></p> <p>if text mode (+CMGF=1), command successful and SMS-SUBMIT: +CMGR: <stat>,<da>,[<alpha>] [,<toda>,<fo>,<pid>,<dcsc>,<vp>],<sca>,<tosca>,<length>]<CR><LF><data></p> <p>if text mode (+CMGF=1), command successful and SMS-STATUS-REPORT: +CMGR: <stat>,<fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st></p> <p>if text mode (+CMGF=1), command successful and SMS-COMMAND: +CMGR: <stat>,<fo>,<ct>[,<pid>,[<mn>],[<da>],[<toda>],<length>]<CR><LF><cdata>]</p> <p>if text mode (+CMGF=1), command successful and CBM storage: +CMGR: <stat>,<sn>,<mid>,<dcsc>,<page>,<pages><CR><LF><data></p> <p>otherwise: +CMS ERROR: <err></p>
+CMGR=?	

10.13.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.14 AT+CMGR(PDU mode) – Read Message (Sec 4.2)

10.14.1 Description

Returns messages with location value <index> from preferred message storage <mem1> to the TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned.

10.14.2 Format

Command	Possible response(s)
+CMGR=<index> >	if PDU mode (+CMGF=0) and command successful: +CMGR: <stat>, [<alpha>], <length><CR><LF><pdu> otherwise: <i>+CMS ERROR: <err></i>
+CMGR=?	

10.14.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.15 AT+CNMA(Text mode) – New Message Acknowledgement to ME/TA (Sec 3.4.4)

10.15.1 Description

Execution command confirms correct reception of a new message (SMS-DELIVER or SMS-STATUS-REPORT) which is routed directly to the TE. This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service> equals 1.

10.15.2 Format

Command	Possible response(s)
if text mode (+CMGF=1): +CNMA	<i>+CMS ERROR:</i> <i><err></i>
+CNMA=?	

10.15.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.16 AT+CNMA(PDU mode) – New Message Acknowledgement to ME/TA (Sec 4.6)

10.16.1 Description

Execution command confirms correct reception of a new message (SMS-DELIVER or SMS-STATUS-REPORT) which is routed directly to the TE This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service> equals 1.

10.16.2 Format

Command	Possible response(s)
if PDU mode (+CMGF=0): +CNMA [=<n> [, <length> [<CR> PDU is given <ctrl-Z/ESC>]]]	+CMS ERROR: <err>
+CNMA=?	if PDU mode (+CMGF=0): +CNMA: (list of supported <n>s)

10.16.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.17 AT+CMGS(Text mode) – Send Message (Sec 3.5.1)

10.17.1 Description

Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery.

10.17.2 Format

Command	Possible response(s)
if text mode (+CMGF=1): +CMGS=<da> [, <tda>] <CR> > text is entered <ctrl-Z/ESC>	if text mode (+CMGF=1) and sending successful: +CMGS: <mr> [, <scts>] if sending fails: +CMS ERROR: <err>
+CMGS=?	

10.17.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.18 AT+CMGS(PDU mode) – Send Message (Sec 4.3)

10.18.1 Description

Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery.

10.18.2 Format

Command	Possible response(s)
if PDU mode (+CMGF=0): +CMGS=<length><CR> <i>PDU is given</i> <ctrl-Z/ESC>	if PDU mode (+CMGF=0) and sending successful: +CMGS: <mr> [, <ackpdu>] if sending fails: +CMS ERROR: <err>
+CMGS=?	

10.18.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.19 AT+CMSS(Text mode) – Send Message from Storage(Sec 3.5.2)

10.19.1 Description

Execution command sends message with location value <index> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da> is given for SMS-SUBMIT, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery.

10.19.2 Format

Command	Possible response(s)
+CMSS=<index> [, <da> [, <to da>]]	if text mode (+CMGF=1) and sending successful: +CMSS: <mr> [, <scts>] if sending fails: +CMS ERROR: <err>
+CMSS=?	

10.19.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.20 AT+CMSS(PDU mode) – Send Message from Storage(Sec 4.7)

10.20.1 Description

Execution command sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da> is given for SMS-SUBMIT, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery.

10.20.2 Format

Command	Possible response(s)
+CMSS=<index> [, <da> [, <to da>]]	if PDU mode (+CMGF=0) and sending successful: +CMSS: <mr> [, <ackpdu>] if sending fails: +CMS ERROR: <err>
+CMSS=?	

10.20.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.21 AT+CMGW(Text mode) – Write Message to Memory (Sec 3.5.3)

10.21.1 Description

Execution command stores a message to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <stat> allows also other status values to be given, support 'stored unsent' and "stored sent"

10.21.2 Format

Command	Possible response(s)
if text mode (+CMGF=1): +CMGW[=<oa/da>[, <tooa/toda>[, <stat>]]]<CR> text is entered <ctrl-Z/ESC>	+CMGW: <index> +CMS ERROR: <err>
+CMGW=?	

10.21.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.22 AT+CMGW(PDU mode) – Write Message to Memory (Sec 4.4)

10.22.1 Description

Execution command stores a message to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <stat> allows also other status values to be given, support 'stored unsent' and "stored sent"

10.22.2 Format

Command	Possible response(s)
if PDU mode (+CMGF=0): +CMGW=<length>[, <stat>]<CR> PDU is given <ctrl-Z/ESC>	+CMGW: <index> +CMS ERROR: <err>

+CMGW=?	
---------	--

10.22.3 Field

<stat> integer type in PDU mode (default 0), or string type in text mode (default "REC UNREAD"); indicates the status of message in memory; defined values:

- 0 "REC UNREAD" received unread message (i.e. new message)
- 1 "REC READ" received read message
- 2 "STO UNSENT" stored unsent message (only applicable to SMS)
- 3 "STO SENT" stored sent message (only applicable to SMS)
- 4 "ALL" all messages (only applicable to +CMGL command)
- 7 "DRAFT"

10.22.4 Note

10.22.4.1 Change History

7 "DRAFT" of <stat> is available from 09B.1017MP

10.22.4.2 Usage Note

- 7 "DRAFT" of <stat> is only supported for phone suite. Others can't use this command to do test.
- We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.23 AT+CMGD – Delete Message (Sec 3.5.4)

10.23.1 Description

Deletes message from preferred message <mem1> (see AT+CPMS) storage location <index>. If deletion fails, +CMS ERROR is returned.

10.23.2 Format

Command	Possible response(s)
+CMGD=<index>[,<delflag>]	+CMS ERROR: <err>
+CMGD=?	+CMGD: (list of supported <index>s) [, (list of supported <delflag>s)]

10.23.3 Field

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

- 0 (or omitted) Delete the message specified in <index>
- 1 Delete all read messages from preferred message storage,
leaving unread messages and stored mobile originated messages (whether sent or not) untouched
- 2 Delete all read messages from preferred message storage and sent mobile originated messages,
leaving unread messages and unsent mobile originated messages untouched
- 3 Delete all read messages from preferred message storage, sent and unsent mobile originated messages
leaving unread messages untouched.
- 4 Delete all messages from preferred message storage including unread messages.

10.23.4 Note

- 1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.24 AT+CMGC(Text mode) – Send Command (Sec 3.5.5)

10.24.1 Description

Execution command sends a command message from a TE to the network (SMS-COMMAND).

10.24.2 Format

Command	Possible response(s)
if text mode (+CMGF=1): +CMGC=<fo>,<ct>[,<pid>[,<mn>[,<da>[,<toda>]]]]<CR> text is entered <ctrl-Z/ESC>	if text mode (+CMGF=1) and sending successful: +CMGC: <mr>[,<scts>] if sending fails: +CMS ERROR: <err>
+CMGC=?	

10.24.3 Note

- 1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.25 AT+CMGC(PDU mode) – Send Command (Sec 4.5)

10.25.1 Description

Execution command sends a command message from a TE to the network (SMS-COMMAND).

10.25.2 Format

Command	Possible response(s)
if PDU mode (+CMGF=0): +CMGC=<length><CR> <i>PDU is given</i> <ctrl-Z/ESC>	if PDU mode (+CMGF=0) and sending successful: +CMGC: <mr> [, <ackpdu>] if sending fails: +CMS ERROR: <err>
+CMGC=?	

10.25.3 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.26 AT+CMMS – More Message to Send (Sec 3.5.6)

10.26.1 Description

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

Test command returns supported values as a compound value.

10.26.2 Format

Command	Possible response(s)
+CMMS= [<n>]	
+CMMS?	+CMMS : <n>
+CMMS=?	+CMMS : (list of supported <n>s)

10.26.3 Field

<n>:

0 disable

2 enable (if the time between the response of the latest message send command and the next send command exceeds 1-5 seconds (the exact value is up to ME implementation), ME shall close the link but TA shall not switch automatically back to <n>=0)

10.26.4 Note

1. We don't support "+CMS ERROR" when AT command set is SLIM_AT or ULC_AT

10.27 AT +EQSI – Query storage index

10.27.1 Description

To query storage index.

10.27.2 Format

Command	Possible Response(s)
+EQSI=<storage>	+EQSI: <storage>, <begin>, <end>, <used> OK/ERROR
+EQSI=?	+ESUO: (list of supported <storage>s)

10.27.3 Field

<storage>: string type; SM or ME

<begin>: beginning of index

<end>: ending of index

<used>: number of messages in <storage>

10.27.4 Note

10.27.4.1 Change History

10.27.4.2 Usage Note

- This command is only supported for phone suite. Others can't use this command to do test.

10.28 AT+EMGR(PDU mode) – Read Message (for phone suite)

10.28.1 Description

Returns messages with location value <index> from preferred message storage <mem1> to the TE. If the status of the message is .received unread., the status in the storage changes to .received read.. If reading fails, +CMS ERROR is returned. It is similar with AT+CMGR (PDU mode). <stat> is different.

10.28.2 Format

Command	Possible response(s)
+EMGR=<index>	<p>if PDU mode (+CMGF=0) and command successful: +EMGR: <stat>, [<alpha>], <length><CR><LF><pdu></p> <p>otherwise: +CMS ERROR: <err></p>
+EMGR=?	

10.28.3 Field

<stat> integer type in PDU mode (default 0), or string type in text mode (default "REC UNREAD"); indicates the status of message in memory; defined values:

- 0 "REC UNREAD" received unread message (i.e. new message)
- 1 "REC READ" received read message
- 2 "STO UNSENT" stored unsent message (only applicable to SMs)
- 3 "STO SENT" stored sent message (only applicable to SMs)
- 4 "ALL" all messages (only applicable to +CMGL command)
- 7 "DRAFT"

10.28.4 Note

The command is available from 09B.1017MP

10.28.4.1 Change History

10.28.4.2 Usage Note

- This command is only supported for phone suite. Others can't use this command to do test.

11 Proprietary Hardware Testing AT Commands

These AT commands are designed for tools to do factory hardware testing and should be tested **exclusively**. Test only one command/item at the same time.

11.1 AT+CASP – Audio Sound Playback

11.1.1 Description

This command handles the Audio Sound Play operation. We use this command to playback one exist audio ring sound. The sound id should refer to the existing ring sound number. You have to make sure the source ID is correct, otherwise it won't have any response.

11.1.2 Format

Execution command : AT+CASP = <op>,<sound_id>[,<style> [, <timeout>]]

Test command : AT+CASP =? Show if the command is supported

11.1.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	2	Stop one audio ring sound
			1	Play one audio ring sound
Integer	id	Sound id		
integer	style	Play back style (When op= 1 required)	0	CRESCENDO
			1	INFINITE
			2	ONCE
			3	DESCENDO (NS)
Integer	Timeout	Timeout timer	1-25	Seconds (Apply to all style. no default value: if not given, it will keep playing)

11.1.4 Response

Test command : +CASP: <op>,<sound_id>[,<style>,<timeout>]

Execution command : OK | ERROR | +CME ERROR: <err>

Example1:

```

at+casp=?
+CASP: <1-2>,<id>[,<0-3>[,<1-25>]]

OK
at+casp=1,151,0,3 (撥放 3 秒會停止)
OK
at+casp=1,152,2 (撥一輪 once)
OK
at+casp=1,153,3,10 (撥放 10 秒會停止)
OK
at+casp=1,5,1 (tone 會一直持續)
OK
at+casp=2,5 (stop the tone)
OK
    
```

Note: From W10.05 , we don't support playing ringtone (sound id > 80)

11.2 AT+CEMS – Engineer Mode

11.2.1 Description

This Command is used to command to turn on the engineer mode so that any indication will pass to as unsolicited result code to TA.

11.2.2 Format

Execution command : AT+ CEMS = <mode>

Read command : AT+ CEMS? Return the item id list

Test command : AT+ CEMS =? Show if the command is supported

11.2.3 Field

Type	Short name	Long name	Parameter/comment
Integer	mode	mode	Off
			on
			MMI Factory mode - Off
			MMI Factory mode - On

11.2.4 Response

Read command : + CEMS: <mode>

OK

It only reflects AT's setting (+CEMS: 0 and +CEMS: 1)

Set command with mode=2 and 3 won't affect Read

command's value.

Test command : +CEMS: (0-3)

Execution command : OK

11.2.5 Unsolicited result code

+BATS: <status>

Description: This is indication report the battery status to MMI.

Type	Short name	Long name	Parameter/comment	
Integer	status	Battery status	PMIC_VBAT_STATUS	0
			PMIC_CHARGER_IN	1
			PMIC_CHARGER_OUT	2
			PMIC_OVERVOLPROTECT	3
			PMIC_OVERBATTEMP	4
			PMIC_LOWBATTEMP	5
			PMIC_OVERCHARGECURRENT	6
			PMIC_CHARGE_COMPLETE	7
			PMIC_INVALID_BATTERY	8
			PMIC_INVALID_CHARGER	9
			PMIC_CHARGING_TIMEOUT	10
			PMIC_LOWCHARGECURRENT	11
			PMIC_CHARGE_BAD_CONTACT	12
			PMIC_BATTERY_BAD_CONTACT	13
			PMIC_USB_CHARGER_IN	14
			PMIC_USB_CHARGER_OUT	15
PMIC_USB_NO_CHARGER_IN	16			
PMIC_USB_NO_CHARGER_OUT	17			

+GPIO: <device>,<status>

Description: This is indication report the GPIO device status to MMI.

Type	Short name	Long name	Parameter/comment	
Integer	device	gpio device	EXT_DEV_NONE	0
			EXT_DEV_HANDFREE	1
			EXT_DEV_EARPHONE	2
			EXT_DEV_CARKIT	3
			EXT_DEV_KEY_1	4
			EXT_DEV_KEY_2	5
			EXT_DEV_UART	6
			EXT_DEV_CALM_OPEN	8
			EXT_DEV_CALM_CLOSE	9

integer	status	device	Off	0
		status	On	1

11.2.6 Note

AT+CEMS is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.2.6.1 Change History

11.2.6.2 Usage Note

- This command can't be used when UART setting is SIM2

11.3 AT+EADP – Set / Get Audio Profile

11.3.1 Description

This Command is used to set and get audio profile command.

11.3.2 Format

Execution command : AT+ EADP = <op>,<mode>,<audio type>,<level>,[<gain>]

Test command : AT+ EADP =? Show if the command is supported

11.3.3 Field

Type	Short name	Long name	Parameter/comment	
integer	Op	operation	Get	0
			Set	1
integer	mode	audio mode	Normal mode	0
			Headset mode	1
			Loud speaker mode	2
integer	type	audio type	Melody	0
			Keytone	1
			Speech	2
			mic	3
integer	level	volume level	sidetone	4
			0-6 (when type = mic or sidetone, volume level = 0)	
integer	gain	gain value	0-255	

11.3.4 Response

Test command : +EADP: (0,1),(0-2),(0-4),(0-6),(0-255)

Execution command : OK

Example :

1. Get Audio mode with Normal Mode , Melody type, volume level is 0. The return value with gain 40

```
at+eadp=0,0,0,0
```

```
+EADP: 40
```

```
OK
```

2. Set Normal Mode , Melody type, volume level with 0 and gain is 99

```
at+eadp=1,0,0,0,99
```

```
OK
```

2. Set HeadSet Mode , Mic type, gain is 60

```
at+eadp=1,1,3,0,60
```

```
OK
```

11.3.5 Note

1. This command is supposed to be executed only from SIM1. Do not execute it when the UART setting is SIM2.

2. AT+EADP is a seldom use AT command before 11AW11.09. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

3. After 11AW11.09 this command is default on, but mainly for MTK internal tool. This command together with +EAPS is designed for MediaTek speech tuning tool. For any other usage please take care and make sure you know the right way and right command order.

11.4 AT+EAPS – Audio Parameter Setting

11.4.1 Description

This command is used to get/set Audio parameter like Input/output FIR, Speech common para, Speech mode.

11.4.2 Format

Execution command : AT+EAPS=<op>,<para1>,<para2>,<para3>]<setting>

Test command : AT+ EAPS =? Show if the command is supported

11.4.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	Operation	0	Get old value
			1	Set New value
integer	para1	Parameter1	0	Input FIR Coeffs
			1	Output FIR Coeffs
			2	FIR output Index
			3	Speech Common Para
			4	Speech mode Para
integer	para2	Parameter2	-	when para1=0/1/4, para2 is a must
integer	para3	Parameter3	-	When para1=0/1, para3 is a must
integer	setting	Setting	-	When op=1, <setting>is a must

11.4.4 Detailed explanation

When para1=0/1, users can set/get Input/Output FIR of handset, Because there are 6 group of FIR parameter, so para2 is a must and it's range is 0~5 to specify which group of FIR to get/set. And each group of FIR has more than 10 elements, so para3 is to specify which 10 elements users want to get/set.

When para1=4, users can set/get Speech mode para. Also there are 8 groups of Speech mode para. so para2 is a must and it's range is 0~7 to specify which group of Speech mode para to set/get.

11.4.5 Example

- <para2> ↓ ↓<para3>

- AT+EAPS=0,0,0,0
 <op>↑ ↑<para1>
 <para2> ↓ ↓<para3>(means user want to get first 10 in the array)
 +EAPS: 0,0,0,"327.65257.575.65289.290.3.37.494.65253.1723"
 <para1> ↑ <setting> ↑ (each setting separated by a dot)

11.4.6 Note

1. This command together with +EADP is designed for MediaTek speech tuning tool. For any other usage please take care and make sure you know the right way and right command order.
2. This command is available from 11AW1109.

11.5 AT+EGPIO – Set GPIO value

11.5.1 Description

This Command is used to set gpio values to driver.

11.5.2 Format

Execution command : AT+ EGPIO = <type>,<level>

Test command : AT+ EGPIO =? Show if the command is supported

11.5.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	type	Device type	GPIO_LABELID 0	0
			GPIO_LABELID 1	1
			GPIO_LABELID 2	2
			GPIO_LABELID 3	3
			GPIO_LABELID 4	4
			GPIO_LABELID 5	5
			And so on...	
		The number of GPIO depends on different platform.		
integer	level	Device level	on	1
			off	0

11.5.4 Response

Test command : OK

Execution command : OK /ERROR

Example :

1.Set the GPIO value with GPIO type GPIO_LABELID_20 , Device level turn on
 at+egpio=20,1

OK

11.5.5 Note

AT+EGPIO is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.6 AT+EADC – ADC Channel Indication

11.6.1 Description

When +EADC is enabled, the ADC channel indication is sent as unsolicited result code to DTE.

11.6.2 Format

Execution command : AT+ EADC = <op>

Test command : AT+ EADC =? Show if the command is supported

11.6.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	On (enable)	1
			Off (disable)	0

11.6.4 Response

Test command : + EADC: (0,1)

Execution command : OK

11.6.5 Unsolicited result code

+EADC: <ADC0 >,< ADC1 >,< ADC2 >,< ADC3>,< ADC4 >

Description: This is indication report the battery status to MMI.

Type	Long name	Parameter/comment		
integer	ADC value	ADC0	Battery voltage	(micro-voltage)
		ADC1	Battery temperature	(1/100 C)
		ADC2	AUX voltage	(micro-voltage)
		ADC3	Charge current	(micro A)
		ADC4	Charger voltage	(micro-voltage)

11.6.6 Note

AT+EADC is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.7 AT+ELCD – LCD Parameter Testing

11.7.1 Description

This command is used to test LCD parameters and save/retrieve LCD testing parameters.

11.7.2 Format

Execution command : AT+ ELCD = <op>,<lcd>,<type>,[“ value1.value2.value.3”s]]

Test command : AT+ ELCD =? Show if the command is supported

11.7.3 Field

Type	Short name	Long name	Parameter/comment
------	------------	-----------	-------------------

Integer	op	operation	Gets number of parameters for the specified LCD operation function. (need to specify the function type)	0
			Test the value of the function (need to specify the function type)	1
			Get the saved value of all functions	2
			Save the parameter values of all functions	3
Integer	Lcd	Lcd type	MAIN	0
			SUB	1
integer	type	function type	bias function	0
			contrast function	1
			line rate function	2
			temperature compensation function	3

11.7.4 Response

Test command : +ELCD:(0-3)

Execution command : OK

11.7.5 Note

11.7.5.1 Change History

N/A

11.7.5.2 Usage Note

Must use op=0 to ask how many values you should give when op=1. In the following example, +ELCD:3 means you should give 3 values when op=1. So we give "8.8.8". If +ELCD:0 means you can't use command to test the value of the function.

1. Get the main LCD, bias function parameters number

at+elcd=0,0,0

+ELCD: 3 (depend on each project)

OK

2.test with main LCD type, bias function, and the value is 8, 8, 8. (The number of parameters of each function is project-dependent and can be query by <op>==0. In this case, number is 3)

```
at+elcd=1,0,0,"8.8.8"
OK
```

3.Get the saved <bias>, <contrast>, <line rate> and <temperature compensation> parameter values, each set of function is separate be comma.

(Here we see each function has 3 parameter number, which is project-dependent and can be query by <op>==0)

```
at+elcd=2,0
+ELCD: "0.0.0","0.0.0","0.0.0","0.0.0"
OK
```

4.save <bias>, <contrast>, <line rate> and <temperature compensation> parameter values with main LCD , each set of function is separate be comma.

(The number of parameters of each function is project-dependent and can be query by <op>==0)

```
at+elcd=3,0,"1.4.6","4.5.6","2.4.7","8.7.6"
OK
```

5. Get the saved <bias>, <contrast>, <line rate> and <temperature compensation> parameter values

```
at+elcd=2,0
+ELCD: "1.4.6","4.5.6","2.4.7","8.7.6"
OK
```

11.8 AT+EPWM -- PWM Testing

11.8.1 Description

This Command is used for engineering mode.

PWM frequency and duty cycle test parameters setting and start/stop operation.

11.8.2 Format

Execution command : AT+ EPWM = <op>,<type>,[<level>],[<freq>,<duty>]

[AT+EPWM = 0, <type>,<level>]
 [AT+EPWM = 1, <type>,<level>,<freq>,<duty>]
 [AT+EPWM = 2, <type>,<freq>,<duty>]
 [AT+EPWM = 3, <type>]

Test command : AT+ EPWM =? Show if the command is supported

11.8.3 Field

Type	Short name	Long name	Parameter/comment
integer	op	operation	Get level value 0
			Set level value 1
			Start Test 2
			Stop Test 3
Integer	type		PWM1 0
			PWM2 1
			Alter 2
Integer	level	level	0 - 4
integer	freq	frequency	in unit of Hz
Integer	duty	duty cycle	percentage

Note: PWM type is project-dependent.

Such as LCM backlight, Keypad backlight, and Flashlight LED.

11.8.4 Response

Test command : + EPWM: <item idx>

Execution command : OK

Example1:

(in this example, PWM1 presents keypad backlight, PWM2 presents LCD backlight)

at+epwm=2,0,5,5 (keypad backlight is blinking)

OK

at+epwm=3,0 (keypad backlight stops blinking)

OK

at+epwm=2,1,3,4 (LCD is blinking)

```
OK
at+epwm=3,1          (LCD stops blinking)
OK
```

Example2:

```
1.Start PWM2 testing with frequency=4, duty=6
at+epwm=2,1,4,6
OK
```

```
2.Stop PWM2 Testing.
at+epwm=3,1
OK
```

11.8.5 Note

AT+EGWM is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.9 AT+ELCM – LCM Testing

11.9.1 Description

This Command is used to turn on/off the LCM RGBW test .We have four different color for testing. The color type normal is to start/stop this test.

Note. AT+ELCM=4 should be the first and last command to do LCM testing (type 0, 1, 2, 3).

Note. AT+ELCM=6 should be the last command to do LCM testing (type 5)

11.9.2 Format

Execution command : AT+ ELCM = <color>[, <red>, <green>, <blue>]

Test command : AT+ ELCM =? Show if the command is supported

11.9.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	color	Color type	R (red)	0
			G (green)	1
			B (blue)	2
			W (white)	3
			Normal (start/stop)	4
			Set R/G/B	5

			Stop R/G/B test	6
interger	Red	Color red	Only when color type = 5	0~255
interger	Green	Color green		0~255
interger	Blue	Color blue		0~255

11.9.4 Response

Test command : + ELCM: (0-6)

Execution command : OK

Example :

AT+ELCM=4 //start

OK

AT+ELCM=0 //red

OK

AT+ELCM=1 //green

OK

At+ELCM=2 //blue

OK

At+ELCM=3 //white

OK

AT+ELCM=4 //stop

OK

AT+ELCM=5,10,45,40 //user set R/G/B

OK

AT+ELCM=6 //stop R/G/B test

OK

11.9.5 Note

11.9.5.1 Change History

11.9.5.2 Usage Note

- This command can't be used when UART setting is SIM2

11.10 AT+EKPD – Keypad Event Report

11.10.1 Description

This command is used for Keypad Testing.

After +EKPD is turned on, pressing each key will cause a unsolicited keypad event report to DTE.

From MMI screen, one can see which keys are not yet been tested. When all keys are tested, then MMI will show “PASS” and then back to normal screen.

11.10.2 Format

Execution command : AT+ EKPD = <op>

Read command : AT+ EKPD? Return the current setting of on/off

Test command : AT+ EKPD =? Show if the command is supported

11.10.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	on	1
			off	0

11.10.4 Response

Read command : + EKPD: <op>
OK

Test command : + EKPD: (0,1)

Execution command : OK

11.10.5 Unsolicited result code

+EKPDS: <status >, < code >

Description: This is indication report the keypad event to MMI.

Type	Short name	Long name	Parameter/comment	
integer	status	Key status	Key Press	0
			Key Release	1
integer	code	Key code	"0"- "9"	0-9
			"*"	10
			"#"	11
			"U/u"	12
			"D/d"	13
			"V/v"	14

			"^"	15
			16	
			17	
			"M/m" (reserved)	18
			"F/f" (reserved)	19
			"["	20
			"]"	21
			"S/s"	22
			"E/e"	23
			"P/p" (reserved)	24

Example:

AT+EKPD = 1;

After push key "1" and release, the following key event will report as follow.

+EKPD: 0,1

+EKPD:1,1

11.10.6 Note

11.10.6.1 Change History

11.10.6.2 Usage Note

- This command can't be used when UART setting is SIM2

11.11 AT+EALT – Loop Back Testing

11.11.1 Description

This Command is used to turn on/off the loop back test.

11.11.2 Format

Execution command : AT+ EALT = <op>

Test command : AT+ EALT =? Show if the command is supported

11.11.3 Field

Type	Short name	Long name	Parameter/comment
Integer	op	operation	on 1

			off	0
--	--	--	-----	---

11.11.4 Response

Test command : + EALT: (0,1)

Execution command : OK

[NOTE] The command can be used to test Headset Loop Back as well, [+ESAM](#) should be set first:

```
AT+ESAM=1
OK
AT+EALT=1
OK
```

11.11.5 Note

AT+EALT is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.12 AT+ESAM – Set Audio Mode

11.12.1 Description

This Command is used to set audio mode. We have three audio mode , normal, loud speaker and handset.

11.12.2 Format

Execution command : AT+ ESAM = <mode>

Test command : AT+ ESAM =? Show if the command is supported

11.12.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	mode	Audio mode	normal	0
			handset	1
			loudspeaker	2

11.12.4 Response

Test command : + ESAM: (0-2)

Execution command : OK

11.13 AT+ESLT – Set Audio Gain Value

11.13.1 Description

This Command is used to set audio sound gain value.

11.13.2 Format

Execution command : AT+ ESLT= <type>,<gain>

Test command : AT+ ESLT =? Show if the command is supported

11.13.3 Field

Type	Short name	Long name	Parameter/comment
Integer	type	Audio type	call tone
			0
			keypad tone
			1
			microphone
			2
<reserved>			
3			
speech sound			
4			
side tone			
5			
MP3, Wave, melody, I-melody, midi			
6			
Integer	Gain	Gain value	0~255

11.13.4 Response

Test command : + ESLT: (0-6),(0-255)

Execution command : OK

Example :

1. set speech sound gain value 150.

AT+ESLT = 4, 150

OK

11.13.5 Note

AT+ESLT is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.14 AT+EGMR – Mobile Revision and IMEI

11.14.1 Description

This command is used to get mobile revision and IMEI for Engineer mode and factory test using.

The set operation only apply for IMEI, Serial Number and SV.

Setting new IMEI needs to reboot the target, then IMEI can take effect.

After reboot, then MMI *#06# and MM will know the update.

11.14.2 Format

Execution command : AT+ EGMR = <op>,<type>[,str]

Test command : AT+ EGMR =? Show if the command is supported

11.14.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	get	0
			Set	1
integer	type	Revision type	Baseband chipset (only for op= 0)	0
			DSP code (only for op= 0)	1
			DSP patch (only for op= 0)	2
			MCU software (only for op= 0)	3
			MS board(hardware) (only for op= 0)	4
			Serial Number	5
			Melody revision (only for op= 0)	6
			SIM1 IMEI	7
			MMI resource ver. (only for op= 0)	8
			SV (Software Version in IMEISV: 2 digit	9
			SIM2 IMEI	10
SIM3 IMEI	11			
SIM4 IMEI	12			

string	Str	Input/output string	
--------	-----	------------------------	--

11.14.4 Response

Test command : +EGMR: (0,1),(0-9)

Execution command : When type = (1-7, 9):
 [+EGMR: "str"]
 OK

When type = 8 (+EGMR=0,8 to get MMI resource):
 +AUDIO: "ver"
 +IMAGE: "ver"
 +FONT: "ver"
 +STR: "ver"
 OK

11.14.5 Example

3. read IMEI:

AT+EMGR=0,7
 +EGMR: "135790246811220"
 OK

4. Write IMEI:

AT+EGMR=1,7,"123451234512345"
 OK
 AT+EGMR=0,7
 +EGMR: "123451234512345"
 OK

5. read SV of IMEISV

AT+EGMR=0,9
 +EGMR: "78"
 OK

6. Write SV

AT+EGMR=1,9,"01"
 OK
 AT+EGMR=0,9

```
+EGMR: "01"
OK
```

11.14.6 Note

<type> = 10, 11, and 12 are only turned on when GEMINI, GEMINI+ with 3 or more SIM, and GEMINI+ with 4 SIM respectively.

11.14.6.1 Change History

<type>=6 is removed from OBA.0848MP
 <type> = 11 and 12 work from 10AW10.50

11.14.6.2 Usage Note

N/A

11.15 AT+ESIMS – check SIM Status

11.15.1 Description

The read command is only response the SIM inserted status.

The active command is used to trigger SIM reset procedure and response the SIM inserted status.

The execute command is used to enable/disable +ESIMS URC report.

11.15.2 Format

Command	Possible Response (s)
AT+ESIMS?	+ESIMS: <SIM_INSERTED> OK
AT+ESIMS	+ESIMS: <SIM_INSERTED> OK
AT+ESIMS=<mode>	OK

11.15.3 Field

Type	Short Name	Parameter / Comment	
Integer	SIM_INSERTED	0	No SIM
		1	Detected
Integer	mode	0	Disable +ESIMS URC
		1	Enable +ESIMS URC

11.15.4 Note

- Active and excute mode only applicable for modem only project

11.16 AT+EDFT – GPIO factory testing

11.16.1 Description

This Command is used for GPIO device factory test using. We provide this function for testing with hardware GPIO device functionality test. You have to specify the GPIO device level if need by +EPWM command.

11.16.2 Format

Execution command : AT+ EDFT = <device>,<level>

Test command : AT+ EDTF =? Show if the command is supported

11.16.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	device	GPIO Device	GPIO DEV LED MAINLCD	0
			GPIO DEV LED SUBLCD (reserved)	1
			GPIO DEV LED STATUS 1I	2
			GPIO DEV LED STATUS 2 (G)	3
			GPIO DEV LED STATUS 3 (B)	4
			GPIO DEV LED KEY	5
			GPIO DEV VIBRATOR	6
			GPIO DEV FLASHLIGHT	7
			GPIO DEV RESERVED1	8
			GPIO DEV RESERVED2	9
			GPIO DEV RESERVED3	10

			GPIO DEV RESERVED4	11
			GPIO DEV RESERVED5	12
			GPIO DEV RESERVED6	13
			GPIO DEV RESERVED7	14
			GPIO DEV RESERVED8	15
			GPIO DEV RESERVED9	16
			GPIO DEV RESERVED10	17
			GPIO DEV RESERVED11	18
			GPIO DEV RESERVED12	19
			GPIO DEV RESERVED13	20
integer	level	Device level	Level 0	OFF
			Level 1-5	1~5

11.16.4 Response

Test command : + EDFT: (0-20),(0,1~5)

OK

Execution command : OK

11.16.5 Note

AT+EDFT is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.17 AT+ESLP – Sleep Mode

11.17.1 Description

This Command is used to enable and disable sleep mode in the mobile.

11.17.2 Format

Execution command : AT+ ESLP = <op>

Test command : AT+ ESLP =? Show if the command is supported

11.17.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	enable	1
			disable	0

11.17.4 Response

Test command : +ESLP: (0, 1)

Execution command : OK

11.18 AT+EGPO – GPO value

11.18.1 Description

This Command is used to set gpo values to driver.

11.18.2 Format

Execution command : AT+ EGPO =<port>,<data>

Test command : AT+ EGPO=? Show if the command is supported

11.18.3 Field

Type	Short name	Long name	Parameter/comment
Integer	data	Data Value	0~254
integer	port	Device Port	0~254

11.18.4 Response

Test command : +EGPO: (0-254),(0-254)

OK

Execution command : OK

11.18.5 Note

AT+EGPO is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.19 AT+ELSM – LCM Backlight

11.19.1 Description

This Command is used to enable/disable the LCM backlight sleep mode.

11.19.2 Format

Execution command : AT+ ELSM = <op>

Test command : AT+ ELSM =? Show if the command is supported

11.19.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	Op	Operation	Enable	1
			disable	0

11.19.4 Response

Test command : + ELSM: (0,1)

Execution command : OK

11.19.5 Note

AT+ELSM is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.19.5.1 Change History

11.19.5.2 Usage Note

- This command can't be used when UART setting is SIM2

11.20 AT+ELNVRM – NVRAM write protection

11.20.1 Description

This command is used to lock the operation of NVRAM for write protection.

Only the files with attribute NVRAM_ATTR_WRITEPROTECT will be affected, such as IMEI.

11.20.2 Format

Execution command : AT+ ELNVRM = <op>

Test command : AT+ ELNVRM =? Show if the command is supported

11.20.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	Lock disable (reserved)	0
			Lock enable	1
			Temp disable (reserved)	2
			Lock OTP	3

11.20.4 Response

Test command : +ELNVRM: (1)

Execution command : OK

11.21 AT+ESDP – Set MMI Default Profile

11.21.1 Description

This Command is used to engineering mode with set MMI default profile set operation. We provide customer to customize the mobile before the time to the market. We support the change of wallpaper, ring tone, Home City, Theme, and short cut selection as they want. The query command only query the valid range of each category not for query the current setting. The set operation only apply when reboot.

11.21.2 Format

Execution command : AT+ ESDP = <op>,<cat>,<param1>,<param2>,<param3>

Test command : AT+ ESDP =? Show if the command is supported

11.21.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	Query command	0
			set	1
integer	cat	category	Wall paper	0

			Ring tone	1	
			Home City	2	
			Theme	3	
			Select Short Cut	4	
			Screen saver	5	
			Power on display	6	
			Power off display	7	
integer	param1		Wall paper Home City Theme Select Short Cut	default	0
			Ring tone(profile)	profile1(eg.general)	0
				Profile2(eg.meeting)	1
				Profile3(eg.outdoor)	2
				Profile4(eg.Indoor)	3
profile1(eg.Headset)	4				
integer	param2		Wall paper Home City Theme Select Short Cut	default	0
			Ring tone(type))	Power on	0
				(reserved)	1
Integer	param3		Wall paper(index)	Start from 1 , maximum is project dependent	
			Ring tone(index)	Start from 1 , maximum is project dependent	
			Home(index)	Start from 1 , maximum is project dependent	
			Theme(index)	Start from 1 , maximum is project dependent	
			Select Short Cut(index list)	"a. B. C. D. E. F. G. H. i. J" (each a,b,c should present as integer)	

[NOTE]

1. Depend on each project, when set Ring tone, <param1> ProfileID might map to different profile name.
Such as general, meeting...etc.
1. Depend on each project, the range of <param3>, might have different maximum value.
If <param3> is larger than the maximum value in SET command. No action will take effect.

11.21.4 Response

Test command : +ESDP: <0-1>,<0-4>

OK

Execution command : +ESDP: <param1>,<param2>

OK

Example :

1. we want to query the wall paper set value

```
AT+ESDP = 0,0<CR>
```

```
+ESDP: 0, 0
```

```
OK
```

we can set wall paper with index 5 using

```
AT+ESDP = 1, 0, 0, 0, 5
```

```
OK
```

2. we can set ring tone by using query first then set.

```
AT+ESDP = 0, 1<CR>
```

```
+ESDP: 0-4, 0
```

```
OK
```

(Then set ring tone 7 in general profile for power on type.)

```
AT+ESDP = 1, 1, 0, 0, 7
```

```
OK
```

3. Set Home City

```
AT+ESDP =0,2,0,0
```

```
+ESDP: 0, 0
```

```
OK
```

```
AT+ESDP =1,2,0,0,35
```

```
OK
```

4. Set Theme

```
AT+ESDP =0,3
```

```
+ESDP: 0, 0
```

```
OK
```

```
AT+ESDP =1,3,0,0,7
OK
AT+ESDP=1,3,0,0,5
OK
```

5. Set shortcut

```
AT+ESDP =0,4
+ESDP: 0, 0

OK
at+esdp=1,4,0,0,"1.2.3.4.5.6.7.8.9.10"
OK
```

11.21.5 Note

AT+ESDP is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.21.5.1 Change History

11.21.5.2 Usage Note

1. This command can't be used when UART setting is SIM2
2. This command can't be used on COSMOS projects

11.22 AT+ESLCD – Set Main LCD Contrast Default Value

11.22.1 Description

This command is used to set Main LCD contrast default value into NVRAM user data items. This command will apply a positive or negative offset to the value of each level. Reboot is needed.

11.22.2 Format

Execution command : AT+ ESLCD = <sign>,<value>

Test command : AT+ ESLCD=? Show if the command is supported

11.22.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	sign		negative	0
			positive	1
integer	value		0-254	

11.22.4 Response

Test command : + ESLCD: (0,1), (0-254)

OK

Execution command : OK

11.22.5 Note

AT+ESLCD is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.22.5.1 Change History

11.22.5.2 Usage Note

- This command can't be used when UART setting is SIM2

11.23 AT+ESHW – Set Hardware Default Value

11.23.1 Description

This command is used to set PWM and LCD hardware default value.

11.23.2 Format

Execution command : AT+ ESHW = <op>,<type>[,<value>s]

Test command : AT+ ESHW=? Show if the command is supported

11.23.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	get	0
			set	1
integer	type	type	PWM1	1
			PWM2	2
			Alter	3
			Main LCD contract value	4
			Sub LCD contract value	5

Integer	value	PWM value	When <op> =1, TEN <value>s is needed. <freq1>, <duty1>, <freq2>, <duty2>, <freq3>, <duty3>, <freq4>, <duty4>, <freq5>, <duty5>
		Lcd contract value	When <op>=1, Fifteen <value>s is needed

11.23.4 Response

Test command : + ESHW=(0,1),(1-5)

OK

Execution command : OK

Example :

```
at+eshw=0,1          /* get PWM1 default value */
(255,10), (255,25), (255,30), (255,45), (255,60)
```

OK

```
at+eshw=0,2          /* get PWM2 default value */
(255,20), (20000,40), (20001,60), (20000,80), (20000,100)
```

OK

```
at+eshw=0,3          /* get PWM3(Alter) default value */
(250,20), (250,40), (250,60), (250,80), (250,100)
```

OK

```
at+eshw=0,4          /* get Main LCD contract default value
*/
126,127,128,129,130,131,132,133,134,135,136,137,138,139,140
```

OK

```
at+eshw=0,5          /* get Sub LCD contract default value */
20,22,24,26,28,30,32,34,36,38,40,42,44,46,48
```

OK

```
/* set Main LCD contract default value */
```

```

at+eshw=1,4,126,127,128,129,130,131,132,133,134,135,136,137,
138,139,140
OK
at+eshw=0,4
126,127,128,129,130,131,132,133,134,135,136,137,138,139,140
OK
/* set PWM1 contract default value */
at+eshw=1,1,250,20,250,40,250,60,250,80,250,100
OK
at+eshw=0,1
(250,20),(250,40),(250,60),(250,80),(250,100)
OK

```

11.23.5 Note

AT+ESHW is a seldom use AT command. In order to save code size (ROM size), we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

11.23.5.1 Change History

11.23.5.2 Usage Note

This command can't be used when UART setting is SIM2

11.24 AT+ETEST – Read Autotest Report

11.24.1 Description

The action command reads auto test report.

The set command restore factory setting. (Same as MMI: Setting-> Factory Restore)

11.24.2 Format

Action command : AT+ ETEST

Set command: AT+ ETEST=<phone lock code>

Test command : AT+ ETEST=? Show if the command is supported

11.24.3 Response

Action command : [+EEST: <test item>, <result>]

Set command: OK / ERROR

Test command : OK

11.24.4 Field

Type	Short name	Parameter/comment	
integer	Test item	The number of test items	
integer	result	0	untested
		1	Fail
		2	Pass
String	Phone lock code	Password of Phone lock	

11.24.5 Note

11.24.5.1 Change History

11.24.5.2 Usage Note

- This command can't be used when UART setting is SIM2
- Action command to read auto test report is not supported if AT_COMMAND_SET is set to ULC.i.e. we don't support action command in ULC AT command set.

11.25 AT +ACTTEST – PDP context activate or deactivate from EM mode

11.25.1 Description

To activate or deactivate the specified PDP context (s) and get flow control buffer for +CGSDATA.

11.25.2 Format

Command	Possible Response(s)
+ACTTEST=<state> , <cid>	OK ERROR
+ACTTEST=?	OK

11.25.3 Field

<state>: indicates the state of PDP context activation

- 1 - deactivated
- 2 - activated

Other values are reserved and will result in an ERROR response to the execution command.

<cid>: a numeric parameter which specifies a particular PDP context definition

11.26 AT +EREG – PMIC register access

11.26.1 Description

To read or write data from or to specific register index. **This command is used on “MT6318” only.**

11.26.2 Format

Command	Possible Response(s)
+EREG=<reg_index> [, <ont e>]	If only <reg_index> is given: (read) +EREG:<reg_index>, <value> If <value> is also given: (write) OK/ERROR
+EREG=?	OK

11.26.3 Field

Type	Short name	Parameter/comment
string	Reg_index	indicates the index of register that wants to be wrote or read
integer	value	value that write to or read from register index

11.26.4 Note

11.26.4.1 Change History

11.26.4.2 Usage Note

This command can't be used when UART setting is SIM2

11.27 AT +EPMIC – PMIC status report

11.27.1 Description

To read PMIC related information form driver. **This command is used on “MT6318” only.**

11.27.2 Format

Command	Possible Response(s)
+EPMIC=<category> [, <value>]	+EPMIC=<category>, <param1>[, <param2>[, <param3>]]

[NOTE]

- 3 Only category 0 ~ 3 will need <value>
- 4 The number of parameter is depends on different categories. At least one parameter will be returned, and at most three parameters will be returned. The meaning of parameter is listed as following:

If <category> = 0:
 <param1>:charger status

If <category> = 1:
 <param1>: charger enable or not
 <param2>: Charging current

If <category> = 2:
 <param1>: Duty cycle
 <param2>: current

If <category> = 3:
 <param1>: LDO status

If <category> = 4:
 <param1>: Charge pump status
 <param2>: Charge pump current
 <param3>: DIM clock

If <category> = 5:

<param1>: Bypass divider or not

<param2>: DIM clock

If <category> = 6:

<param1>: Speaker amplifier status

If <category> = 7:

<param1>: Speaker gain

11.27.3 Field

Type	Short name	Parameter/comment		
integer	category	0	Read charging control status	
		1	Read AC USB status	
		2	Read LED configuration	
		3	Read LDO status	
		4	Read R/G/B dim clock and charge pump configuration	
		5	Read BL/dim clock setting	
		6	Read audio amplifier status	
		7	Read speaker gain status	
integer	value	Category = 0	0	CHR STAT OV
			1	CHR STAT CHRDET
			2	CHR STAT BAT ON
			3	CHR STAT AC DET
			4	CHR STAT USB DET
			5	CHR STAT CV
			6	CHR STAT CHRG DIS
		Category = 1	0	AC CHR
			1	USB CHR
		Category = 2	0	R LED
			1	G LED
			2	B LED
			3	KP LED
		Category = 4	4	BL LED
			0	MISC STAT VISENSE

		3	1	MISC STAT VBOUT
			2	MISC STAT USB PWR
			3	MISC STAT VASW SEL
			4	MISC STAT VASW
			5	MISC STAT MC SEL
			6	MISC STAT MC
			7	MISC STAT VIRBRATOR
			8	MISC STAT VIRBRATOR SEL

11.27.4 Note

11.27.4.1 Change History

11.27.4.2 Usage Note

This command can't be used when UART setting is SIM2

11.28 AT +ECPI – call progress information

11.28.1 Description

To enable/disable call progress information

11.28.2 Format

Command	Possible Response(s)
+ECPI=<mode>	
+ECPI?	+ECPI: <mode>
+ECPI=?	+ECPI: (0-4294967295)

11.28.3 Field

<mode>: is a 32 bit unsigned integer value . each bit represent the report mode of each event.

i.e. You can enable/disable specific +ECPI event

[NOTE]

+ECPI:<call_id>, <msg_type>, <is_ibt>, <is_tch>, <dir>, <call_mode>, [<number>, <type>], [<disc_cause>]

Type	Short name	Parameter/comment	
integer	Call_id	Call id for this call	
integer	msg_type	0	CLCC_MT_CALL
		1	CSMCC_DISCONNECT_MSG
		2	CSMCC_ALERT_MSG
		3	CSMCC_CALL_PROCESS_MSG
		4	CSMCC_SYNC_MSG
		5	CSMCC_PROGRESS_MSG
		6	CSMCC_CALL_CONNECTED_MSG
		129	CSMCC_ALL_CALLS_DISC_MSG
		130	CSMCC_CALL_ID_ASSIGN_MSG
		131	CSMCC_STATE_CHANGE_HELD
		132	CSMCC_STATE_CHANGE_ACTIVE
		133	CSMCC_STATE_CHANGE_DISCONNECTED
134	CSMCC_STATE_CHANGE_MO_DISCONNECTING		
integer	is_ibt	0	No in band tone
		1	In band tone assigned
integer	is_tch	0	No TCH assigned
		1	TCH assigned
integer	dir	0	CLCC_MO_CALL
		1	CLCC_MT_CALL
integer	call_mode	0	CLCC_VOICE_CALL
		1	CLCC_DATA_CALL
		3	CLCC_VFD_VOICE
		4	CLCC_AVD_VOICE
		5	CLCC_AVF_VOICE
		6	CLCC_VFD_DATA
		7	CLCC_AVD_DATA
string	Number	Calling/called number	
integer	Type	145	International call
		129	National call
Integer	disc_cause	see Design Note	

Type	Short name	Parameter/comment	
Integer	mode	CSMCC_SETUP_MSG (MT call)	Any value that bit 1 is 1
		CSMCC_DISCONNECT_MSG	Any value that bit 2 is 1
		CSMCC_ALERT_MSG	Any value that bit 3 is 1
		CSMCC_CALL_PROCESS_MSG	Any value that bit 4 is 1
		CSMCC_SYNC_MSG	Any value that bit 5 is 1
		CSMCC_PROGRESS_MSG	Any value that bit 6 is 1
		CSMCC_CALL_CONNECTED_MSG	Any value that bit 7 is 1
		CSMCC_ALL_CALLS_DISC_MSG	Any value that bit 8 is 1
		CSMCC_CALL_ID_ASSIGN_MSG	Any value that bit 9 is 1
		CSMCC_STATE_CHANGE_HOLD	Any value that bit 10 is 1
		CSMCC_STATE_CHANGE_ACTIVE	Any value that bit 11 is 1
		CSMCC_STATE_CHANGE_DISCONNECTED	Any value that bit 12 is 1
		CSMCC_STATE_CHANGE_MODIFYING	Any value that bit 13 is 1

ex: AT+ECPI = 257 .
 257 = 0x101 = 0001 0000 0001
 so only event 1 (CSMCC_SETUP_MSG) and event 9 (CSMCC_CALL_ID_ASSIGN_MSG) report is enabled.

11.28.4 Design Notes

11.28.4.1 Call Disconnection Cause

1. <disc_cause> is only provided for CSMCC_DISCONNECT_MSG event, which is sent when modem receive RELEASE or RELEASE COMPLETE CC message from the Network.
2. <disc_cause> is defined in SPEC 24.008 Annex H. ex: CM_USER_BUSY (17) for Call Control cause.

0 Please refer to l3_inc_enums.h (under mcu\ps\interfaces\enum) before HAL

- revise.(before 11B.W11.44MP)
- 1 Please refer to ps_public_enum.h (under mcu\interfaces\modem) after HAL revise (after 11B.W11.44MP)
- 3. Call application shall monitor CSMCC_CALL_DISCONNECTED event for all call disconnection event. That's because not every call disconnection event has <disc_cause>,ex: the MO call setup fail in local ,maybe MM connection setup fail. In such case, there will be no Call Control cause from Network.

For call application that want to get <disc_cause>, it shall also monitor CSMCC_DISCONNECT_MSG event to get <disc_cause>. And it's guaranteed that CSMCC_DISCONNECT_MSG (for call_id =x) must come before CSMCC_CALL_DISCONNECTED(for call_id = x). Thus, call application can keep the <cause> for call_id = x when receiving CSMCC_DISCONNECT_MSG (for call_id =x) first and use it as the <disc_cause> when receiving CSMCC_CALL_DISCONNECTED(for call_id = x)

11.29 AT+ERAT – RAT mode and GPRS/EDGE status

11.29.1 Description

To get RAT mode status and GRRS/EDGE status or set RAT mode of MS

11.29.2 Format

Command	Possible Response(s)
+ERAT?	+ERAT : <current RAT>, <GPRS status>,<RAT mode>,<prefer_rat>
+ERAT=<RAT mode>[,<prefer rat>]	OK /ERROR

11.29.3 Field

+ERAT : <current RAT>, <GPRS status>, <RAT mode>,<prefer_rat>

<current RAT>: RAT of current PLMN

- 0 GSM
- 2 UTRAN
- 3 GSM w/EGPRS
- 4 UTRAN w/HSDPA
- 5 UTRAN w/HSUPA
- 6 UTRAN w/HSDPA and HSUPA

255 unknown

<GPRS status>:

0:GPRS

1:EDGE

<RAT mode>: RAT mode setting of MS

0: GSM only

1: WCDMA only

2: Auto

255: unknown

<prefer_rat>: prefer rat setting

0: No prefer /* Default value */

2: WCDMA prefer /* Applicable when rat_mode=2 */

11.29.4 Note

11.29.4.1 Change History

The command is available from 09A.0940MP

11.29.4.2 Usage Note

- This command is not sync with MMI
- <prefer_rat> only applicable when feature option WCDMA_PREFER is true and only for UMTS FDD project. If <prefer_rat> not given, keep the previous prefer setting.

11.30 AT +ELQT – LCM Qualification Tool Testing

11.30.1 Description

This command is to provide command interface to LQT tool for LCM color performance measurement.

11.30.2 Format

Execution command : AT+

ELQT=<mode>[,<color>][,<op>][,<cmd>][,<level>][,<val_1>][,<val_2>],...

(When < mode >=0, 1 : <mode>, <color> and <level> are needed)

(When < mode >=2 : <mode> is needed)

(When < mode >=3 : <mode>, <op> and <level> are needed)

(When < mode >=4 : <mode>, <level> and <cmd> are needed)

(When < mode >=5 : <mode> is needed)

(When < mode >=6 : <mode>, <cmd>, <level> and <val_1>.... Are needed)

Test command : AT+ ELQT=? Show if the command is supported

11.30.3 Field

Type	Short name	Parameter/comment	
integer	mode	Gamma	0
		Flicker(if flicker test mode is selected, color type will be skipped)	1
		Release (leave gamma or flicker test mode and return to normal phone status)	2
		Tearing test	3
		Register read test	4
		Ram read test	5
		Register write test	6
integer	color	Gray	0
		R	1
		G	2
		B	3
integer	op	TE Off (Only for tearing test)	0
		TE On (Only for tearing test)	1
uint16	cmd	Register address we want to read/write.	0 ~ 65535

uint16	level	Mode = 0 or 1 : from 0 to 63 Mode = 3 : from 0 to 3 (Pattern Type) (Only for tearing test) Mode = 4 : from 0 to 16 (Only for register read test) Mode = 6 : from 0 to 15 (Only for register write test)	0~63
uint16	val_1, val_2...	Mode = 6 : from 0 to 65535, the number of val is decided by level. (Only for register write test)	0 ~ 65535

11.30.4 Response

Execution command :

+ELQT: <cmd>,<nums> //<mode>=4

OK

<cmd> and <num> : Hex type

[EX]

AT+ELQT=4,4,12 /* <level>, <cmd> */

+ELQT : 0x000C, 0x0001, 0x0002, 0x0003, 0x0004

OK

Test command : OK

11.30.5 Note

1. AT+ELQT=3~6 is for internal test only. It won't work from 09B.1028MP.
2. This command is only for MMI project.

11.30.5.1 Change History

the command is available from 07B.0832MP

11.30.5.2 Usage Note

N/A

11.31 AT +ECSCN – Capture Screen(After W1021)

11.31.1 Description

This command is used to take screen shot, and output to user. When sub-LCD appears, users can capture Main LCD display or sub-LCD display. And users can capture Main LCD display on one screen only phones.

Execution command is to capture the specified screen display, and Test command is used to check if the command is supported.

After W1033, This command is also used to enable/disable MMI String Saving, this is designed for MTK string tool only. When op = 2, The information of current displayed string will be saved to handset memory.

11.31.2 Format

Command	Possible Response(s)
+ECSCN=<op>	+ECSCN: <index>,<endf>,<length>,<raw_data> OK
+ECSCN=?	+ECSCN: (0-1) OK

11.31.3 Field

Type	Short name	Parameter/comment	
integer	op	Main LCD display	0
		Sub LCD display	1
		Enable MMI String Saving(After W1033)	2
		Disable MMI String Saving(After W1033)	3
integer	index	Output loop count, increased by 1 after each output	start value: 0
integer	endf	Out put not ended	0
		End of the output loop	1

integer	length	indicate <raw_data> hex character number	-
string	raw_data	string format of the raw hex value data, and the first N characters contain picture info like format, width and height etc...	-

11.31.4 Example

```

/* Capture Main LCD Display */
AT+ECSCN=0
+ECSCN: 0,0,100,"<raw_data>" /* Possible response */
+ECSCN: 1,0,100,"<raw_data>"
....
+ECSCN: 126,1,20,"<raw_data>"
OK
/* Enable MMI String Saving */
AT+ECSCN=2
OK
/*Disable MMI String Saving */
AT+ECSCN=3
OK

```

11.31.5 NOTE

5 The output string will be like: +ECSCN: 12,0,206,"0200610861086108610861086108610861086108610861..." , "02" will stands for 0x02. And there are two special output string, The first and the last.

The first output string will be like: +ECSCN: 0,0,<length>,"18000000F00000009001000002000000....." and index 0 indicates this is the first output string, Then the beginning of the raw data contains enough information to decode the raw data to form a picture. 18000000F00000009001000002000000 will contain the picture info. The first 4 bytes stands for header length. In this example, the header length will be 18000000 and transfer to hex value will be 0x0018 =>> 24 bytes.

Then the next 20 bytes will also be header info, after the beginning 24 bytes will be the raw data. After header length the next 4 bytes is width info, and in this example F0000000 → 0x00F0 = 240 will be the width in pixel. Then the next 4 bytes contains the height info, and 90010000 → 0x0190 = 400 will be the height in pixel. The next 4 bytes contains the color format, and 02000000 → 0x0002 = 2 will be the color format, and this parameter currently would always equal to 2 means the color format is RGB565, and per pixel info has 2 bytes. And last skip the next (24 – 4-4-4-4) = 8 bytes jump to raw data beginning.

Ending of the output is like: +ECSCN:<index>,1,<length>," data" the <endf> flag will be 1.

NOTE: Please keep in mind this design maybe changed for the tool, to give it more information. Then the beginning of the raw_data will be affected for future change.

6 This command can not be execute while UART setting is SIM2

11.32 AT +ECPU – Get CPU Usage(After W1029)

11.32.1 Description

This command is used to get current CPU usage in percentage.

Active command is to enable CPU usage profile query, and query command is used to get current usage.

This command is available only if __OP11_ATK__ is defined.

11.32.2 Format

Command	Possible Response(s)
+ECPU	OK
+ECPU?	+ECPU: **% OK
+ECPU=?	OK

11.32.3 Field

N/A

11.32.4 NOTE

1. Before query command, AT+ECPU should be given to enable CPU profile query. You can enable once before a serials of query command. But if there is no enable or

query command within 5 seconds after the former enable or query command executed, CPU profile query will be disabled.

2. After AT+ECPUR executed, within 1 second query result is not accurate.

11.33 AT+ERAM – Get RAM Usage(After W1029)

11.33.1 Description

This command is used get current RAM usage in Bytes.

Test command is used to check if the command is supported.

This command is available only if __OP11_ATK__ is defined.

11.33.2 Format

Command	Possible Response(s)
+ERAM	+ERAM: *** Bytes OK
+ERAM=?	OK

11.33.3 Field

N/A

11.33.4 NOTE

N/A

11.34 AT+ELAUNCH – Launch Java/VRE application(After W1029)

11.34.1 Description

This command is used to launch Java or VRE application.

This command is available on target that enabled Java/VRE and only if __OP11_ATK__ is defined.

11.34.2 Format

Execution Command:

Launch Java app: AT+ELAUNCH=0, <mids_idx>,<midlet_idx>,<mode>

Launch VRE app: AT+ELAUNCH=1,<vre_action>[,<path>]

11.34.3 Field

Type	Short name	Parameter/comment	
integer	mids_idx	Order of current midlet suite in java list, count started from 1	1~255
integer	midlet_idx	midlet index in mids_idx	start value: 1
integer	mode	Launch app in UI mode	0
		Launch app directly	1
integer	vre_action	Clear previous path setting	0
		Append path to previous path	1
		Launch the VRE app	2
string	path	string format of the hex value data. VRE application path must start from root disk and end with ".vxp" extension	-

11.34.4 NOTE

1. If the Java application directory depth is one, midlet_idx can be 0 or 1. And only 0 or 1 is acceptable.
2. To launch VRE App using AT is almost same as to launch it from File manager, except that user need to input full path of vxp file using ATK while File manager will tell VRE the full path by callback.
3. If VRE application path is longer than 60 characters, Path should be set step by step, and 60 characters each time at most. A character can not be split to pieces so each input should be character based.
4. When launch JAVA application, the midlet_idx can be omit when there is only one program in a midlet suite.
5. When there is other Application running on handset(eg, Camera, media player and etc), users can not use this AT to start any JAVA or VRE application, this kind of operation is illegal.
6. When use AT+ELAUNCH to launch a JAVA or VRE application, please ensure that handset is in IDLE screen(Home screen, that means no application running, include JAVA/VRE applications).

Example:

AT+ELAUNCH=0,1,1,1 //Launch an installed java app that index is 1.
OK

AT+ELAUNCH=0,1,1,0 //Launch java app using UI like way
OK

Launch a VRE application, should set path first

AT+ELAUNCH=1,0 // Clear previous path to ensure the path is clean
OK

AT+ELAUNCH=1,1,"0043003a005c0031002e007600780070" // The path is
"C:\1.vxp"

OK

AT+ELAUNCH=1,2 //Launch the application
OK

11.35 AT +ELOG – Enable/Disable Java/VRE log(After W1029)

11.35.1 Description

This command is used to Enable/Disable Java/VRE log output. Log contains standard output message and error message.

This command is available on target that enabled Java/VRE and only if `__OP11_ATK__` is defined.

11.35.2 Format

Execution Command: AT+ELOG=<type>,<on_off>

Test command: AT+ELOG=? Show if the command is supported

11.35.3 Field

Type	Short name	Parameter/comment	
integer	type	Error message	0
		Standard message	1
integer	off_off	Turn on	1
		Turn off	0

11.35.4 NOTE

1. After enable app log, +ELOG: <type>, “****” will be returned once there is any log generated by JAVA/VRE app.
2. VRE log is available if RODUCTION_RELEASE is FALSE, and the log is VRE engine log not the log from running app.

11.36 AT +ECAL – Calibration Data Download Status Check

11.36.1 Description

This command is used to query the calibration data download status.

11.36.2 Format

Command	Possible Response(s)
+ECAL?	+ECAL: <status>
+ECAL	OK
+ECAL=?	OK

11.36.3 Field

Type	Short name	Parameter/comment	
integer	status	calibration data is not download	0
		calibration data is donwload	1

11.36.4 NOTE

This command is supported from 11B.W12.09

12 Bluetooth through AT commands

12.1 Physical UART configuration of Bluetooth

According to Hardware, the Bluetooth UART port is defined In custom\app\bt_user_config.c. Also, the GPIO reset, power and disconnect setting is also defined in the file.

According to these settings, AT parser can communicate with BT through the UART port and control the GPIOs.

Following table is about the factory mode setting/testing function supported by AT command according to different Bluetooth solution.

Factory mode setting	BT solution		
	handphone	CSR BCHS	MTK BT
test mode	AT+EMBT	AT+EMBT	AT+EMBT
loopback1	N/A	AT+EBTLB	AT+EBTLB
loopback2	N/A	AT+EBTLB	AT+EBTLB
Set BD address	AT+EMBT	AT+EMBT	AT+EMBT
Read BD address	N/A	AT+EMBT	AT+EMBT
calibrated power table	N/A	AT+BTFP	AT+BTFP
ANA trim setting	N/A	AT+BTFP	AT+BTFP

12.2 AT+EMBT – Bluetooth Engineer Mode

12.2.1 Description

This command is perform Bluetooth Engineer Mode function, such as entering test mode, or set Factory BT address and BT name.

12.2.2 Format

Execution command : AT+ EMBT= <mode> [, <name>, <addr>] [,<level>]

Test command : AT+ EMBT=? Show if the command is supported

12.2.3 Response

Execution command : OK

Test command : +EMBT: (0-5)
OK

12.2.4 Field

Type	Short name	Parameter/comment	
integer	result	0	Factory set BT name and address
		1	BT module enter test mode
		2	BT module leave test mode
		3	BT module power on/off (handphone solution) (not supported in BTMTK)
		4	BT module GPIO reset high/low (handphone solution) (not supported in BTMTK)
		5	Read BT address (MTK BT) (supported after 06.25)
String	Name	Bluetooth friendly name	
string	Addr	Bluetooth address	
Integer	level	Range⊕(0,1) - the level of RESET and POWER	

12.2.5 Example

```

AT+EMBT=1
OK          //(BT module now is in test mode)
AT+EMBT=3,1
OK          //(BT module power-on)
AT+EMBT=3,0
OK          //(BT module power-off)
AT+EMBT=4,1
OK          //(Set BT module RESET as high)
AT+EMBT=4,0
OK          //(Set BT module RESET as low)

AT+EMBT=0, EVBoard, 1234565b0101 // [Note] <name> and <addr> are
without double quotes.
OK
    
```

AT+EMBT=5

+EMBT: 1234565b0101 //(Set BT module RESET as low)

- **LAP is 0x123456, UAP is 0x5b, NAP is 0x0101. MMI Display is: 01:01:5b:56:34:12**
- **BT module can't enter or leave test mode continuously. If BT module enters test mode, it can enter test mode again after leaving test mode.**

12.2.6 Note

12.2.6.1 Change History

N/A

12.2.6.2 Usage Note

➤ **Command Limitations:**

7 If there is any active connection existed in our device, it is not allowed to use AT+embt =0 to change our local device's bd address. Otherwise, the original active connection may be disconnected.

8 It is not allowed to send AT+embt command via the virtual port provided by BT SPP. The reason is listed as follows:

Since the AT+embt command may request BT to enter or leave test mode, it may reset BT stack during these procedure. In this way, the original connected SPP profile may be disconnected.

For a user testing, it is suggested that to send AT+ embt command via physical com port instead of virtual port provided by BT SPP.

[Example]:

1. SPP is connected. The virtual port num# 5 is opened.
2. A user uses this port num# 5 to send AT+embt=1, then AT+embt=2
After processing AT+ embt=2, BT stack will reset then disconnect the SPP.
For a user, the com port is closed and not to use again !
3. As for setting BD address,

- (1) MMI will NOT be updated after using this command to set new BD address. Reboot is necessary to check new address in MMI.
- (2) Inputed address is in the reverse order against MMI display. (Please refer to the example in the last section.)

- 9 The user can only set BT name and address while (a)BT is in engineer mode and power on or (b)BT is not in engineer mode and is powered on and is not doing power on procedure and is not doing reset procedure.
- 10 If the user issues command to enter test mode while BT is not powered on, BT will be powered on first and enter test mode. The user can only issue command to leave test mode only when BT is powered on. The enter/leave test mode command cannot be used during power-on/off procedure
- 11 The command to read the BT address can only be used while BT is powered on and BT is already in test mode.

If the original BT is in powered off state and a user sends the AT+EMBT=1 command to request to enter the test mode: Before reporting the BT’s power on result to MMI (i.e., MSG_ID_BT_POWERON_CNF), a user should not send AT+EMBT=2 to exit the tset mode.

This command can’t be used when UART setting is SIM2

12.3 AT +EBTLB – To test Bluetooth speech interface

12.3.1 Description

To test Bluetooth speech interface by loopback testing. (After SW 06.14)

12.3.2 Format

Command	Possible Response(s)
+EBTLB= <mode> [, <addr>, “<pin_code>” , <opcode>]	OK/ERROR
+EBTLB=?	OK

Note: parameter <addr> and <pin_code> are only need when mode = 2(loopback 2 testing).

12.3.3 Field

Type	Short name	Parameter/comment	
integer	mode	1	Loopback 1 testing
		2	Loopback 2 testing /BT connection testing
string	addr	Bluetooth address	
string	pin code	PIN code	
integer	opcode	0	Loopback 2 testing
		1	BT connection testing

12.3.4 Example

Loopback 1 testing:

```
AT+EBTLB=1
OK (ERROR)
```

Loopback 2 testing:

```
AT+EBTLB=2, 12345601025b, "0000",0
OK (ERROR)
```

BT connection testing:

```
AT+EBTLB=2, 12345601025b, "0000",1
OK (ERROR)
```

Note:

1. Bluetooth address 12345601025b => LAP=123456, UAP=5b, NAP=0102
2. PIN code "0000" => is the passcode of remote ontents headset

12.3.5 Note

For LP2 testing, you have to

- (1) know remote device's ontents device address and passcode.
- (2) rework the remote ontents headset to route the headset's speaker output to mic input.
- (3) let remote ontents headset to be at inquiry scan mode

- (4) send correct AT command to our MS phone.
- (5) then MS phone will setup HFP connection and SCO link with remote ontents headset
- (6) send one voice patten via the sco link to remote ontents device.
- (7) and we expect that remote headset shall loopback the voice pattern to MS phone and MS phone reply "OK" AT command. If not, MS phone will reply "ERROR".

12.3.6 Note2

You can only issue this command while BT is powered on and is not doing power on procedure and is not doing reset procedure.

This command can 't be used when UART setting is SIM2

12.4 WAKEOK – Wake up OK Indication

12.4.1 Description

The indication sent by BT chip will be used to response to our +CWUP in order to indicate that it is awake and ready for accept command. After receiving the indication, if there is any BT string need to be sent, ATCI will write they to UART.

12.5 +CKPD – Button press indication

12.5.1 Description

The indication gives the button that user presses with button value.

12.5.2 Format

+CKPD=<button>

12.5.3 Response

none

12.5.4 Field

Type	Short name	Parameter/comment
integer	Button	Button pressed

13 Proprietary AT commands for Phone suite tool

These commands is used for Phone suite Tool to communicate with our MMI.

These commands will be INVALID if it is a MODULE solution.

13.1 AT+EIMG – Image Download

13.1.1 Description

This command is used by Phone suite Tool to download/remove/retrieve image to the mobile. We should clearly define the behavior between Phone suite Tool and our file system through the AT command. We have to define the Max data field length.

Therefore, if one file is over than our data field size, Phone suite Tool have to segment this file within the Max size. In additional, Phone suite tool should use one Boolean parameter to tell the mobile the end of this file.

If Phone suite tool want to download one exist file. It should delete the file first. We do not support file overwrite automatically. When downloading, for example, one file has 100 bytes but our limitation is 30 bytes. Phone suite tool should lunch AT command 4 times. However, if any error occurred before successful download, PS will delete this opened file. Another example is if 2 AT command are successfully performed, but user want to abort the download, We recommended that Phone suite close the image file and delete it.

NOTE:

1. The file path : \USER\images
2. The open command is for writing a file. Therefore it is only allowed to create a new file. If the filename is already existed in File system, ERROR will be returned when you try to open it.
3. after open a file, write/close command should be issued in 10 seconds. Otherwise, the target might consider it as PC connection broken. The file handle will be closed.
4. When download image file, output string <eof_flag> will marked as if file output ended or not. Notice that in case the last output, <eof_flag> is 1, <len> parameter maybe 0, and if <len> = 0, means no data output. Example: +EIMG: 99, 0, 200, *****"

+EIMG: 100, 1,0

13.1.2 Format

Execution command : AT+ EIMG = <op>[,<file>[,<type>]][,<length>,<eof_flag>," data "]

(When <op>=0,3,4,5,6 : <file> and <type> is needed)

(When <op>=2, <length>,<eof_flag>," data " are needed)

(When <op>=7, <type> is needed)

Read command : AT+ EIMG =? Show if the command is supported

13.1.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	Operation	0	Open image file
			1	Close image file
			2	Write image file
			3	Retrieve image
			4	Delete image
			5	Display image
			6	Stop display image (to Idle screen)
			7	Retrieve image file list
string	file	File name		The file name in the FAT system (in UCS2)
Integer	type	Type	0	Image standard
Integer	len	Length		The length of data field. The Max length is 64 (after 05.29 max length = 200)
	Enf_flag	End of file flag	0	True
			1	False
string	data	Hex data		File data block. Each bytes of file will present by HEX mode in this block.

13.1.4 Response

Test command : + EIMG: (0-7)

Execution command :

```
[+EIMG: <number of data block>, <eof_flag> ,< data_len/ total_length>,
<data>]s //<op>=3
[+EIMG: <filename>]s
//<op>=7
OK
```

Example :

1. Download a file, named "ki.gif", of file size 128 bytes.

```
AT+EIMG =0,"6B0069002E00670069006600",0
OK
```

```
AT+EIMG =
2,64,0,"D1CC53C73F9597DD792977D64A42A63559EEA6E3167DD16CFF754AB4CB969503
3CF00DA2B02C71453CD5ECCEC6717F5CA3CA29EFBDF2A3539D7BF8F1435F956F"
OK
```

```
AT+EIMG =2,
64,1,"D1CC53C73F9597DD792977D64A42A63559EEA6E3167DD16CFF754AB4CB969503
3CF00DA2B02C71453CD5ECCEC6717F5CA3CA29EFBDF2A3539D7BF8F1435F956F"
OK
AT+ EIMG = 1
OK
```

12 Retrieve the previous downloaded file

```
AT+ EIMG =3,"6B0069002E00670069006600",0
```

```
+EIMG: 1, 0, 64, "D1CC53C73F9597DD792977D64A42A63559EEA6E3167DD16CFF
754AB4CB9695033CF00DA2B02C71453CD5ECCEC6717F5CA3CA29EFBDF2A3539D7BF8F1435F956F"
```

```
+EIMG: 2, 1, 64, "D1CC53C73F9597DD792977D64A42A63559EEA6E3167DD16CFF
754AB4CB9695033CF00DA2B02C71453CD5ECCEC6717F5CA3CA29EFBDF2A3539D7BF8F1435F956F"
OK
```

13 Remove a file

```
AT+ EIMG =4,"6B0069002E00670069006600",0
OK
```

14 Display a image file

```
AT+EIMG = 5, "6B0069002E00670069006600",0
OK
```

15 List files in DIR

```
AT+EIMG = 7,0
+EIMG: „6B0069007400740079002E00670069006600“
+EIMG: "70006F00720073006300680065002E00670069006600"
```

OK

13.2 AT+EMDY – Melody Download

13.2.1 Description

This command is used by Phone suite tool to download/remove/retrieve midi to the mobile. We should clearly define the behavior between Phone suite tool and our file system through the AT command. We have to define the Max data field length.

Therefore, if one file is over than our data field size, Phone suite tool have to segment this file within the Max size. In additional, Phone suite tool should use one Boolean parameter to tell the mobile the end of this file.

If Phone suite tool want to download one exist file. It should delete the file first. We do not support file overwrite automatically. When downloading, for example, one file has 100 bytes but our limitation is 30 bytes. Phone suite tool should lunch AT command 4 times. However, if any error occurred before successful download, PS will delete this file. Another example is if 2 AT command are successfully performed, but user want to abort the download, We recommended that Phone suite close the melody file and delete it.

NOTE:

4. The file path : \USER\Audio
5. The open command is for writing a file. Therefore it is only allowed to create a new file. If the filename is already existed in File system, ERROR will be returned when you try to open it.
6. after open a file, write/close command should be issued in 10 seconds. Otherwise, the target might consider it as PC connection broken. The file handle will be closed.
7. When download melody file, output string <eof_flag> will marked as if file output ended or not. Notice that in case the last output, <eof_flag> is 1, <len> parameter maybe 0, and if <len> = 0, means no data output. Example: +EMDY: 99, 0, 200, “*****”

+EMDY: 100, 1,0

13.2.2 Format

Execution command : AT+ EMDY = <op>[,<file>,<type>][,<length>,<eof_flag>,” data ”]

Read command : AT+ EMDY =? Show if the command is supported

13.2.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	Operation	0	Open midi file
			1	Close midi file
			2	Download midi
			3	Retrieve midi
			4	Delete midi
			5	Play one midi by name
			6	Stop play one midi by name
			7	Retrieve midi file list
String	file	File name	The file name in the FAT system (in UCS2 format)	
Integer	type	Type	0	.imy
			1	.mid
Integer	len	Length	The length of data field. The Max length is 64 (after 05.29 max length = 200)	
Integer	Enf_flag	End of file flag	0	True
			1	False
string	data	Hex data	File data block. Each bytes of file will present by HEX mode in this block.	

13.2.4 Response

Test command : +EMDY: (0~7)

Execution command :

[+EMDY: <number of data block>, <eof_flag> ,< data_len/ total_length>, <data>]s //<op>=3

[+EMDY: <filename>]s

//<op>=7

OK

Example:

1. Download a file, named test.mid, of file size120 bytes.

```

AT+EMDY = 0, "74006500730074002E006D0069006400", 1
OK
(→ the data field contains 128 chars for 64 bytes binary data)
AT+EMDY =2, 64 , 0 , "00FFFB....."
OK
AT+EMDY = 2,56,1, "BB FA...."
OK
AT+EMDY = 1
OK

16 Retrieve the previous downloaded file(test.mid)
AT+EMDY = 3, "74006500730074002E006D0069006400", 1
+EMDY= 1, 0, 64, "00FFFB....."
+EMDY= 1, 1, 8, "BBFA....."
OK

17 Remove a midi file
AT+EMDY = 4, "74006500730074002E006D0069006400", 1
OK

18 Play a midi file
AT+EMDY = 5, "74006500730074002E006D0069006400", 1
OK

19 Stop Playing a midi file
AT+EMDY = 6, "74006500730074002E006D0069006400", 1
OK

20 Get specify folder file list.
AT+EMDY = 7, 1
+EMDY:" 74006500730074002E006D0069006400"
+EMDY:" 74006500730073002e006D0069006400"
OK
    
```

13.3 AT+EFSR – Read File

13.3.1 Description

Set command is to read a file.
Action command is to abort reading action or listing file action.

NOTE:

1. When download a file, output string <eof_flag> will marked as if file output ended or not. Notice that in case the last output, <eof_flag> is 1, <len> parameter maybe 0, and if <len> = 0, means no data output. Example: +EFSR: 99, 0, 200, "*****"

+EFSR: 100, 1,0

13.3.2 Format

Execution command : AT+ EFSR = <filename>
Test command : AT+ EFSR =? Show if the command is supported

Action command: AT+EFSR

Type	Short name	Long name	
string	<filename>	Full Filepath	<p>fullpath should be given. Eg: C:\USER\MMS\msg.s (Change this to UCS2 format, This command only support UCS2 format)</p> <p>Note that the full path that FS support is up to 260 chars, the file name can up to 255 chars.</p> <p>Note: AT has limitation of UART_QUEUE=512. Therefore, if UCS2 chars filename length > 125, which represents 500 HEX chars, Phone suite should use AT+EFSF=2 to set path step by step.</p>

13.3.3 Response

Execution command : [+EFSR: <index>, <eof_flag>, <length>, <raw data>]
 [[+EFSR: <index>, <eof_flag>, <length>, <raw data>]...]
 OK /ERROR

Test command : OK

Type	Short name	Long name	Discription
Integer	index	The number of data block	<p>If file size is larger than 200Bytes, data will be read out by more than one time.</p> <p>Index is used to record the data sequence. If a file is 500Bytes, and there will be 3 "+EFSR: **" response then index will be 1,2,3 each time.</p>
Integer	Eof_flag	End of file	<p>0: FALSE (There is remaining raw data for the file)</p> <p>1: TRUE (End of file, the last part of raw data)</p>
Integer	length	Length of raw data	<p>Maximum = 200 (and will be 400 hex string characters in <raw data> string)</p>

String	Raw data	Raw data of the file	In HEX format
--------	----------	----------------------	---------------

13.4 AT+EFSW – Write File

13.4.1 Description

To write a file.

13.4.2 Format

Execution command : AT+ EFSW = <op> [, <filename>]
[,<eof_flag>,<length>,<rawdata>]

Read command : AT+EFSW ? return the max raw data length in bytes that MS supports

Test command : AT+ EFSW = ? Show if the command is supported

Type	Short name	Long name	Parameter/comment
Integer	op	Operation	0 Create and open a file
			1 Close the file (will close the file which was opened by <op>=0)
			2 Write raw data to a open file
When <op>=0: <filename> shall be present			
String	filename	Fullpath of Filename	Refer to <filename> in +EFSR
When <op>=2 : <eof_flag>,<length>,<rawdata> shall be present			
Integer	eof_flag	End of file flag	0: FALSE (There is remaining raw data for the file)
			1: TRUE (End of file, the last part of raw data)
Integer	length	Length of raw data	Maximum = 200 (and will be 400 hex string characters in <raw data> string)
String	Raw data	Raw data of the file	In HEX format

13.4.3 Response

Execution command : OK / ERROR

Test command : +EFSW: (0-2)

OK

13.5 AT+EFSD – Delete File

13.5.1 Description

To delete a file

13.5.2 Format

Execution command : AT+ EFSD = <filename>

Test command : AT+ EFSD =? Show if the command is supported

Type	Short name	Long name	
string	<filename>	Full path of Filename	Same as +EFSR

13.5.3 Response

Execution command : OK /ERROR

Test command : OK

13.6 AT+EFSF – Folder operation

13.6.1 Description

To create/delete a folder

13.6.2 Format

Execution command : AT+ EFSF = <op> , <foldername>

Test command : AT+ EFSF = ? Show if the command is supported

Type	Short name	Long name	Parameter/comment	
Integer	op	Operation	0	Create the folder
			1	Delete the folder

			<p>Enter the folder (available after 04.22)</p> <p>(When the full file path is longer than 120 UCS2 chars (represent by 480 ascii chars), this command can provide the way to access the file, please see example. Note This command need to be provided before every action command(except for AT+EFSRN and AT+EFSCP), since the stored path is cleared after every action. Also a 10 seconds timer is used. So if there's no file operation in 10 seconds after +EFSF=2 is used, the stored path will be cleared as well.)</p>
			<p>Back to the Root folder. (available after 04.22)</p>
String	folder	Fullpath of foldername	Refer to <filename> in +EFSR .

13.6.3 Response

Execution command : OK
Test command : +EFSF: (0-1)
 OK

13.7 AT+EFSL – List Files

13.7.1 Description

Active command is used to get **visible** drives from MT.
 Set command is used to get the file list in a folder.

Active command : AT+ EFSL
Execution command : AT+ EFSL = <foldername>

Test command : AT+ EFSL = ? Show if the command is supported

Type	Short name	Long name	Parameter/comment
String	foldername	Fullpath of foldername	Refer to <filename> in +EFSR.

13.7.2 Response

Execution command : [+EFSL: <filename> [,<filesize>, <fileatt>]]
OK /ERROR

Test command : OK

Type	Short name	Long name	Parameter/comment	
String	filename	filename	Refer to <filename> in +EFSR	
Integer	filesize	filesize		
Integer	fileatt	File attribute	0x01	RTF_ATTR_READ_ONLY
			0x02	RTF_ATTR_HIDDEN
			0x04	RTF_ATTR_SYSTEM
			0x08	RTF_ATTR_VOLUME
			0x10	RTF_ATTR_DIR
			0x20	RTF_ATTR_ARCHIVE

13.8 AT+EFS – File System Size

13.8.1 Description

Get the available size in file system.

13.8.2 Format

Action command : AT+ EFS (Query the available size of default drive C☺)

Response: +EFS: <size>

Execution command : AT+ EFS= <drv>

Response: +EFS: <size>

Test command : AT+ EFS=? Show if the command is supported

Type	name	comment	
Integer	drv	67	C:
		68	D:
		69	E:
		70	F:
		71	G:
Integer	size	In bytes	

NOTE: This command can be used after AT+EFSL active mode. AT+EFSL active mode is to get available driver list and after got the driver list AT+EFS = <drv> can be used to get the free disk size.

13.9 AT+EFSC – Folder ontents number Count

13.9.1 Description

This command is used to get file/folder number under a specified folder. The return value is the summary of file and folder number under user specified path but files/folders with hidden or system attributes will be excluded.

13.9.2 Format

Execution command: AT+EFSC = <foldername>

Test command: AT+EFSC=? Show if the command is supported

Type	Short name	Long name	Parameter/comment
String	Folder name	Fullpath of foldername	Refer to <filename> in +EFSR.

13.9.3 Response

Execution command : +EFSC: number of file
OK/ERROR

Test command : OK

13.10 AT+EFSRN – File/Folder Rename

13.10.1 Description

The command is used to rename a folder/file.
 In addition, this command can be used to do move one file/folder to another file/folder on phone side. Phone suite can use AT+EFSRN move file under same driver or between different drivers.

13.10.2 Format

Execution command : AT+ EFSRN = <op> , <filename>
Active command: AT+EFSRN(Abort file moving action)
Test command : AT+ EFSRN = ?Show if the command is supported

Type	Short name	Long name	Parameter/comment
Integer	op	Operation	0 Execute the FS_Rename action. (After execute the Rename action, the temporary paths stored in ME will be cleaned automatically.)
			1 Set the file name, which will be renamed. (The path can be appended by continuously issuing this command. A long file path can be given by this way. Please see example.)
			2 Set the new file name. (The path can be appended by continuously issuing this command. A long file path can be given by this way. Please see example.)
			3 Clear the temporary paths stored in ME.

			4	Move file between different drivers(after 09B.W10.01) (op=0 can only be used to move file under same driver and op=4 can only be used when moving file between different drivers)
String	filename	Fullpath of File or Folder		Refer to <filename> in +EFSR.

NOTE: AT+EFSRN=0 can be used to rename file or move file under same driver and it's operation time is independent of file size. So OK/ERROR will be return to user immediately after executing the command. AT+EFSRN=4 can only be used when moving file between different drivers and it's operation time is depend on file size. When moving file +EFSRN: completed/total response will be send to user every 2s. AT+EFSRN active mode is used to abort file move between different divers. If the destination file is already existing user should delete the file first.

13.10.3 Response

Execution command : OK/+EFSRN: (completed/total bytes) OK
Active command: OK/ERROR
Test command : +EFSRN: (0-4)/+EFSRN: (0-3) when file move operation is not supported
 OK

13.10.4 Example

```

/* clear temporary file paths stored in ME */
at+efsrn=3
OK

/* Move the folder "D:\erica2" to "D:\test1\erical" */
//set file path "D:\erica2"
at+efsrn=1,"0044003A005C006500720069006300610032"
OK
//set new file path "D:\test1\erical"
at+efsrn=2,"0044003A005C00740065007300740031005C006500720069
006300610031"
OK

at+efsrn=0 //do Rename action
OK

/* Move the folder "D:\test1\erical" to "D:\2erica" */
//set file path "D:\test1\erical"
at+efsrn=1,"0044003A005C00740065007300740031005C006500720069
006300610031"
OK
    
```

```
//set new file path: "D:\2erica"
at+efsrn=2,"0044003A005C003200650072006900630061"
OK

at+efsrn=0 //do Rename action
OK

/* Rename the folder "D:\2erica" to "D:\1" */
//set file path "D:\\"
at+Efsrn=1,"0044003A005C"
OK
//append and set file path "D:\2erica"
at+efsrn=1,"003200650072006900630061"
OK
//set new file path "D:\\"
at+efsrn=2,"0044003A005C"
OK
//append and set new file path "D:\1"
at+efsrn=2,"0031"
OK

at+efsrn=0 //do Rename action
OK

/* move the file "D:\1.txt" to "D:\1\1.txt" */
//set file path "D:\\"
at+efsrn=1,"0044003A005C"
OK
//append and set file path "D:\1.txt"
at+efsrn=1,"0031002E007400780074"
OK
//set new file path "D:\\"
at+efsrn=2,"0044003A005C"
OK
//append and set new file path "D:\1\"
at+efsrn=2,"0031005C"
OK
//append and set new file path "D:\1\1.txt"
at+efsrn=2,"0031002E007400780074"
OK

at+efsrn=0 //do Rename action
OK
```

13.11 AT+EFSCP—File Copy(After 09B.W10.01)

13.11.1 Description

This command is used to copy file inside phone, both copy file under same driver or between different drivers.

13.11.2 Format

Execution command : AT+ EFSCP = <op> , <filename>

Active command: AT+EFSCP(Abort file copy action)

Test command : AT+ EFSCP = ? Show if the command is supported

Type	Short name	Long name	Parameter/comment
Integer	op	Operation	0 Execute the file copy action. (After execute the copy action, the temporary paths stored in ME will be cleaned automatically.)
			1 Set the source file name. (Refer to <op> =1 in AT+EFSRN)
			2 Set the destination file name. (Refer to <op> = 2 in AT+EFSRN)
			3 Clear the temporary paths stored in ME.
String	filename	Fullpath of File	Refer to <filename> in +EFSR.

NOTE: AT+EFSCP=0 can be used to copy file both under same driver and between different drivers and it's operation time is depend on file size. When copying file +EFSCP: completed/total response will be send to user every 2s. AT+EFSCP active mode is used to abort file move between different divers. If the destination file is already existing user should delete the file first.

13.11.3 Response

Execution command : OK/+EFSCP: (completed/total bytes) OK
Active command: OK/ERROR
Test command : +EFSCP: (0-3)
 OK

13.11.4 File operation Examples

```

/* get file lists using +CSCS = "IRA" */
at+cscs="IRA"
OK
at+efsl
+EFSL: "D:"

OK
at+efsl="D:"
+EFSL: "audio", 0, 16

+EFSL: "USER", 0, 16

OK
at+efsl="D:\5CUSER"
    
```



```

+EFSL: "USER", 0, 16

+EFSL: "TEST", 0, 16

OK

/* upload temp3.gif to TEST folder */
at+efsw=0,"D:\5CTEST\5Ctemp3.gif"
OK
AT+EFWS=2, 0, 64,
`4749463839611D001900D53300BDE469FFCA1799CF29FFB00BE1FAA9FFE423ABD949523D00CFEF898B6800
719823447403FFED27A5D63ED5F293C9EB7EB1DD53"
OK
AT+EFWS=2, 0, 64,
`FFDC1F987200497807FFA707654C00FFB90F90B038B285007F5F006C941FAFC21F53800ED9EC72725500AB
8000628C18785A00A57B0085A831E7FB8D7BA02ABD"
OK
AT+EFWS=2, 0, 64,
`CF3B9E7600769C265842005D88155884116B500085630067901C80A42D8AAC34FFFF33FF9900FFFFFF0000
0000000000000000000000000000000000000000000000000000"
OK
AT+EFWS=2, 0, 64,
`000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
C96C3A9FD0E8657AC4589FB00EC0042B7E0A81C1A7"
OK
AT+EFWS=2, 0, 64,
`3922210086CD68288A81073211F345381B04AFE1C91D969D982566681B2543127C70124D285A262845126F
8A4C0A95960A43099A9B094B1A040E0F0010D021A"
OK
AT+EFWS=2, 0, 64,
`332D310C11011614322D4A2EA0A2A4022E3319AAACAE32194A20B4A3A5203321BBADAF214A2AC2B62A331E
C8BD1E4B2B7568022B432C88322C4C1CD8771C4315"
OK
AT+EFWS=2, 1, 38,
`DE154C13E30213E6E8EAECEE4229DE294C0BF9FA0B4307FEFF07A2081C48B0A0C1224100003B"
OK
at+efsw=1
OK

at+efsl="D:\5CTEST"
+EFSL: ".", 0, 16

+EFSL: "..", 0, 16

+EFSL: "temp3.gif", 422, 32

OK

/* read temp3.gif */
at+efsr="D:\5CTEST\5Ctemp3.gif"
+EFRS: 1, 0, 64,
`4749463839611D001900D53300BDE469FFCA1799CF29FFB00BE1FAA9FFE423ABD949523D00CFEF898B6800
719823447403FFED27A5D63ED5F293C9EB7EB1DD53"

+EFRS: 2, 0, 64,
`FFDC1F987200497807FFA707654C00FFB90F90B038B285007F5F006C941FAFC21F53800ED9EC72725500AB
8000628C18785A00A57B0085A831E7FB8D7BA02ABD"

+EFRS: 3, 0, 64,
`CF3B9E7600769C265842005D88155884116B500085630067901C80A42D8AAC34FFFF33FF9900FFFFFF0000
0000000000000000000000000000000000000000000000000000"

```



```

...
...
+EFSR: 17, 1, 41, "A13E4E70882D58274D908E759AF091F2542021349915CE645EE727C13F26C
38B061F4FBE3CC480003B"

OK
at+cscs="UCS2"
OK
at+efsf=2,"0044003A" /* "D:" */
OK
at+efsf=2,"0055005300450052" /* "D:\USER" */
OK
at+efsl="0069006D006100670065" /* "D:\USER\image */
+EFSL: "002E", 0, 16

+EFSL: "002E002E", 0, 16

+EFSL: "00690063006F006E0035002E006700690066", 1065, 32

+EFSL: "006D0069006E00690035002E0062006D0070", 17462, 32

+EFSL: "00790065006C006C006F0077002E0062006D0070", 17462, 32

+EFSL: "0063006F006F007000650072002E0062006D0070", 17462, 32

+EFSL: "0065006D0073", 0, 16

OK

```

13.12 AT+EMMSFS – MMS Folder Status

13.12.1 Description

To get MMS folder status

13.12.2 Format

Execution command : AT+ EMMSFS = <folderID>,<retrievalmode>
Test command : AT+ EMMSFS =? Show if the command is supported

13.12.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	folderID	Folder ID	1 (0x01)	Inbox
			2 (0x02)	Outbox
			4 (0x04)	Sent
			8 (0x08)	Drafts
			64 (0x40)	Templates
Integer	RetrievalMode	RetrievalMode	1	Phone Memory Basic
			2	Phone Memory Full
			3	Memory Card Basic
			4	Memory Card Full

13.12.4 Response

Test command : +EMMSFS: (1,2,4,8,64) ,(1-4)

Execution command : +EMMSFS: <result>, <n_msg>, <n_unread> ,< home_dir>, <filepath>
OK /ERROR

Type	Short name	Long name
Integer	result	0 OK (No ERROR)
		1 BUSY
		2 Insufficient Memory
		3 Insufficient Persistent Storage
		4 Invalid Message
		5 Message ID not found
		6 File Operation ERROR
		7 Invalid Folder
		8 Access Deny
		9 Invalid Parameter
		10 Exceed MAX messages
		11 ERROR
12 MMS Not Ready		
Integer	n msg	Number of Msg
Integer	n unread	Number of Unread msg
string	Home dir	MMS Home directory (Ex. C:\USER\MMS\)
string	filepath	Filename which keeps msg infomation

13.13 AT+EMMSEXE – Add /Delete a MMS message

13.13.1 Description

The command is used to Add/Delete a MMS message to system in MT.
Before using this command to ADD message, the MMS message should be already saved to the MT by using related File operation commands.

13.13.2 Format

Execution command : AT+ EMMSEXE = <op> [,<folderID> [,<msgID>]] [,<filepath>]
Test command : AT+ EMMSEXE =? Show if the command is supported

13.13.3 Field

Type	Short name	Long name	Parameter/comment
Integer	Op	operation	0 Delete message
			1 Add message
Integer	folderID	Folder ID	0 Delete <msgID>
			1 (0x01) Delete all msg in Inbox
			2 (0x02) Delete all msg in Outbox
			4 (0x04) Delete all msg in Sent
			8 (0x08) Delete all msg in Drafts

13.14 AT+EJAVA

13.14.1 Description

Request the Java task to install the jad and jar files.

13.14.2 Format

Execution command : AT+ EJAVA = <is_force>, <jad_file_name>, <jar_file_name>
Test command : AT+ EJAVA =? Show if the command is supported

Type	Short name	Comment	
integer	is_force	0	FALSE: if the local installation request is trying to install the AP without user intervention.
		1	TRUE: if the installation is by force, that is, answer "yes" for every installation confirmation.
		NOTE: This parameter has no meaning in 06A branch because of JAVA's design change	
string	jad_file_name	Local directory for the jad file. This field can be empty (AT+EJAVA = <is_force>, , <jar_file_name> or AT+EJAVA = <is_force>, "", <jar_file_name>) and it means the request installation is a JAR only installation.	
String	jar_file_name	Local directory for the jar file. This field cannot be empty.	

13.14.3 Response

Execution command : OK / ERROR / +CME: <error>
Test command : OK

13.14.4 Error code <error> :

Short name	Value	Comment
J2ME_NO_ERROR	256+ 0	The local install was successful
MISSING_PROVIDER_CERT	256+ 4	The content provider certificate is missing.
CORRUPT_PROVIDER_CERT	256+ 5	The content

		provider certificate cannot be decoded.
UNKNOWN_CA	256+6	The CA that issued the content provider certificate is unknown.
INVALID_PROVIDER_CERT	256+7	The signature of the content provider certificate is invalid.
CORRUPT_SIGNATURE	256+8	The JAR signature cannot be decoded.
INVALID_SIGNATURE	256+9	The signature of the JAR is invalid.
UNSUPPORTED_CERT	256+10	The content provider certificate is a supported version.
EXPIRED_PROVIDER_CERT	256+11	The content provider certificate is expired.
EXPIRED_CA_KEY	256+12	The CA's public key has expired.
MISSING_SUITE_NAME	256+13	The name of MIDlet suite is missing.
MISSING_VENDOR	256+14	The vendor is missing.
MISSING_VERSION	256+15	The version is missing.
INVALID_VERSION	256+16	The format of the version is invalid.
OLD_VERSION	256+17	This suite is older than the one currently installed.
MISSING_JAR_URL	256+18	The URL for the JAR is missing.
JAR_NOT_FOUND	256+20	The JAR was not found.
MISSING_JAR_SIZE	256+21	The JAR size is missing.

SUITE_NAME_MISMATCH	256+25	The MIDlet suite name does not match the one in the JAR manifest.
VERSION_MISMATCH	256+26	The version does not match the one in the JAR manifest.
VENDOR_MISMATCH	256+27	The vendor does not match the one in the JAR manifest.
INVALID_KEY	256+28	A key for an attribute is not formatted correctly.
INVALID_VALUE	256+29	A value for an attribute is not formatted correctly.
INSUFFICIENT_STORAGE	256+30	Not enough storage for this suite to be installed
JAR_SIZE_MISMATCH	256+31	The JAR was not size in the JAD.
NEW_VERSION	256+32	This suite is newer than the one currently installed.
JAD_MOVED	256+34	The JAD URL is for an installed suite but different than the original JAD URL.
CORRUPT_JAR	256+36	An entry could not be read from the JAR.
ALREADY_INSTALLED	256+39	The JAD matches a version of a suite already installed
DEVICE_INCOMPATIBLE	256+40	The device does not support either the configuration or profile in the JAD.
MISSING_CONFIGURATION	256+41	The configuration is missing from the

		manifest.
MISSING_PROFILE	256+42	The profile is missing from the manifest.
PUSH_DUP_FAILURE	256+45	The connection in a push entry is already taken.
PUSH_FORMAT_FAILURE	256+46	The format of a push attribute has an invalid format.
PUSH_PROTO_FAILURE	256+47	The class in a push attribute is not in MIDlet-<n>; attribute.
AUTHORIZATION_FAILURE	256+49	Application authorization failure.
ATTRIBUTE_MISMATCH	256+50	An attribute in both the JAD and JAR manifest does not match. This error is for trusted suites only.
TRUSTED_OVERWRITE_FAILURE	256+52	Indicates that the user tried to overwrite a trusted suite with an untrusted suite during an update.
DEFAULT_GAME	256+60	The AP is one of the default games and cannot be updated.
DISK_OPERATION_FAIL	256+80	Disk operation fail. The installation was not finished.

13.15 AT +EVCARD – Access phonebook optional field

13.15.1 Description

To read or write phonebook optional field through MMI.

13.15.2 Format

Command	Possible Response(s)
+EVCARD= <mode>, <index> [, <path>]	If <mode> is 0 (write): OK/ERROR If <mode> is 1 (read): +EVCARD: OK, "<file_path>" +EVCARD: ERROR
+EVCARD=?	OK

13.15.3 Field

Type	Short name	Parameter/comment
integer	mode	0 Write operation
		1 Read operation
integer	index	Index of phonebook entry
string	path	Full path of Vcard file

13.16 AT +EVCLD – Vcalendar sync

13.16.1 Description

To sync Vcalendar between PC and target.

13.16.2 Format

Command	Possible Response(s)
+EVCLD= <mode> [, <index>] [, <path>] [, <vcal type>]	OK/ERROR
+EVCLD=?	OK

13.16.3 Field

Type	Short name	Parameter/comment
integer	mode	0 Add
		1 Update
		2 Delete
		3 Read
		4 Query
integer	index	Index of Vcalendar entry
string	path	Full path of Vcalendar file

integer	vcal_type	Type of Vcalendar entry
---------	-----------	-------------------------

<mode>:

- 0: add a new calendar from PC to MS
- 1: update a existing calendar record in MS
- 2: delete a existing calendar record in MS
- 3: read a existing calendar record in MS
- 4: query current number of calendar record in MS

<index>:

index must be given when <mode> = 1,2,3

<file_path>

file_path must be given when <mode> = 0,1

<vcal_type>

vcal_type must be given when <mode> = 2,3,4

EX:

<ADD>

[Using proprietary AT command to upload a file in Vcalendar format to MS first and then can use add command]

AT+EVCLD=0,"0031003200330034" [only <file_path> needed]

OK

<UPDATE>

[Using proprietary AT command to upload a file in Vcalendar format to MS first and then can use update command]

AT+EVCLD=1,1,"0031003200330034" [both <index> has meaning]

OK

<DELETE>

AT+EVCLD=2,1,0 [only <index> and <vcal_type> has meaning]

OK

<READ>

AT+EVCLD=3,1,0 [only <index> and <vcal_type> has meaning]

+EVCLD: "file path"

OK

[after receiving file path, using proprietary command to download this file from MS]

<QUERY>

AT+EVCLD=4,0

+EVCLD: 10, 50

OK

13.16.4 Note

13.16.4.1 Change History

13.16.4.2 Usage Note

- This command is only supported for phone suite. Others can't use this command to do test.
- This command can't be used when UART setting is SIM2

13.17 AT +ESUO – Set UART owner

13.17.1 Description

To set UART owner.

13.17.2 Format

Command	Possible Response(s)
+ESUO=<mode>	OK/ERROR
+ESUO?	+ESUO: <owner>, <default owner>
+ESUO=?	+ESUO: (list of supported <owner>s)

13.17.3 Field

<mode>:

- 3: switch UART owner to DT
- 4: switch UART owner to ATCI
- 5: switch UART owner to ATCI_2
- 6: switch UART owner to ATCI_3
- 7: switch UART owner to ATCI_4

...

n: switch UART owner to ATCI_(n-3)

<owner>:

3: DT

4: ATCI

5: ATCI_2

6: ATCI_3

7: ATCI_4

...

n: ATCI_(n-3)

<default owner>: the default uart setting owner

4: ATCI

5: ATCI_2

6: ATCI_3

7: ATCI_4

...

n: ATCI_(n-3)

13.17.4 Example

AT+ESUO=?

+ESUO: (3-4) (support DT)

OK

AT+ESUO=?

+ESUO: (3-5) (support DT & dual SIM)

OK

AT+ESUO=?

+ESUO: (3-6) (support DT & 3 SIM)

OK

AT+ESUO=?

+ESUO: (3-7) (support DT & 4 SIM)

OK

13.17.5 Example

The following command is handled by DT(DATA TASK):

+EIMG – Image Download
 +EMDY – Melody Download
 +EFSR – Read File
 +EFSW – Write File
 +EFSD – Delete File
 +EFSF – Folder operation
 +EFSL – List Files
 +EFS – File System Size
 +EFSC – Count File
 +EFSRN – File/Folder Rename

Before using these command, must execute AT+ESUO=3 to switch owner from ATCI to DT.
 After using these command, must execute AT+ESUO=4 to switch owner from DT to ATCI.

EX: phone suite write file
 AT+ESUO=3 (switch owner from ATCI to DT)
 AT+EFSW=0 (open file)
 AT+EFSW=2 (write file)
 ...
 AT+EFSW=2 (write file)
 AT+EFSW=1 (close file)
 AT+ESUO=4 (switch owner from DT to ATCI)

AT+ESUO=4 switch owner from DT to ATCI and clear all DT context (including clear timer, close file, ...). So the following example is wrong:

EX: phone suite write file
 AT+ESUO=3
 AT+EFSW=0
 AT+EFSW=2
 AT+EFSW=2
 ...
 AT+EFSW=2
 AT+ESUO=4 (clear all DT context here, including clear timer, close file, ...)
 AT+ESUO=3
 AT+EFSW=2 (file has already closed by AT+ESUO=4, so write file fail here!)
 ...
 AT+EFSW=2
 AT+EFSW=1
 AT+ESUO=4

13.17.6 Note

13.17.6.1 Change History

the command is available from 08A.0840MP

13.17.6.2 Usage Note

- This command is only supported for phone suite. Others can't use this command to do test.

14 Proprietary STK AT Commands

Please refer to another document Remote_SAT (RSAT). We introduce the STK AT command in detail in that document.

15 Other Proprietary AT Commands

15.1 AT+EPBSE – Band Selection

15.1.1 Description

To set MS preferred band.

15.1.2 Format

Command	Response
+EEBSE=<gsm_band>, <umts_band>	
+EEBSE?	+EPBSE: <gsm_band>, <umts_band>
+EEBSE =?	List of supported bit masks of each band mode +EPBSE: <gsm_band>, <umts_band>

15.1.3 Field

<GSM_band>

bit 1 EGSM900
bit 3 DCS1800
bit 4 PCS1900
bit 7 GSM850

0xff Auto selection → select All supported bands

<UMTS_band>

bit 0 UMTS BAND I : WCDMA-IMT-2000
bit 1 UMTS BAND II : WCDMA-PCS-1900
bit 2 UMTS BAND III : WCDMA-DCS-1800
bit 3 UMTS BAND IV : WCDMA-AWS-1700
bit 4 UMTS BAND V : WCDMA-CLR-850
bit 5 UMTS BAND VI : WCDMA-800
bit 6 UMTS BAND VII : WCDMA-IMT-E-2600
bit 7 UMTS BAND VIII : WCDMA-GSM-900
bit 8 UMTS BAND IX : WCDMA-1800
bit 9 UMTS BAND X : WCDMA-1700

0xffff Auto selection → select All supported bands

15.1.4 Example

Set Auto band (select all supported bands)

AT+EPBSE=255, 65535

OK

Set "EURO band" (GSM-900 / DCS-1800 / WCDMA-IMT-2000)

AT+EPBSE=10, 1

OK

15.1.5 Note

15.1.5.1 Change History

The command is available from 09A.09B.W0948MP

15.1.5.2 Usage Note

1. This command is not allowed to set each band mode, GSM or UMTS, as 0, said AT+EPBSE=<gsm_band>,0 or AT+EPBSE=0, <umts_band>.
2. If the band mode is not supported, this command will just ignore the setting
3. After using this command, user should reboot the handset to let the setting become effective if the compile option `__DYNAMIC_BAND_SEL__` is not opened
4. If we get 0 in the certain field using AT+EPBSE=?, it means that the field is not supported.

15.2 AT+EGPAU – PPP Authentication

15.2.1 Description

This command is used to set GPRS PPP negotiated authentication protocol.

15.2.2 Format

Execution command : AT+ EGPAU = <op>,<cid> [,<is_chap>]

Test command : AT+ EGPAU =?Show the supported value.

15.2.3 Field

Type	Short name	Long name	Parameter/comment	
Integer	op	operation	Read	0
			Write	1
Integer	cid	Context id	Please refer to the value in test command response.	
Integer	is_chap	Negotiation protocol	PAP	0
			CHAP	1

15.2.4 Response

Test command : +EGPAU: (0,1), (<cid range>), (0-1)

Execution command : OK

15.3 AT+EPIN1 – Enter PIN1

15.3.1 Description

This command is used to validate PUK and to define a new PIN code.

15.3.1.1 Format

Command	Possible response(s)
+EPIN1= <puk>,<new_pin>	+CME ERROR: <err>
+EPIN1?	+EPIN1: <code> +CME ERROR: <err>
+EPIN1=?	

15.3.1.2 Field

<puk>, <new_pin>: string type values

<code> values reserved by the present document:

READY MT is not pending for any password

SIM PIN MT is waiting SIM PIN to be given

SIM PUK MT is waiting SIM PUK to be given

SIM BLOCKED PIN and PUK are blocked

15.3.1.3 Change History

- AT+EPIN1? Is ready in 09A.W0940MP

15.3.1.4 Usage Note

- **Do not use this command during power on process.** During power on process, use AT+CPIN to validate PUK.
- Since this proprietary command is intended for modem project or dual-SIM/mode project . We won't handle such MMI synchronization problem or perform extra error handling
- Only used AT+EPIN1 when SIM card inserted

15.4 AT+EPIN2 – Enter PIN2

15.4.1 Description

This command is used to validate the PIN2 , or to validate PUK2 and to define a new PIN2 code.

15.4.2 Format

Command	Possible response(s)
+EPIN2=<pin2> or +EPIN2= <puk2>,<newpin2>	+CME ERROR: <err>
+EPIN2 ?	+EPIN2: <code> +CME ERROR: <err>
+EPIN2=?	

15.4.3 Field

<pin2>, <newpin2>, <puk2>: string type values

<code> values reserved by the present document:

READY PIN2 is allowed to verified
 SIM PUK2 PIN2 is blocked
 SIM BLOCKED PIN2 and PUK2 are blocked

15.4.3.1 Change History

- AT+EPIN2? Is ready in 09A.W0940MP

15.4.3.2 Usage Note

- For feature phone project , MMI will not sync with AT+EPIN2 operation. Ex: AT+EPIN2 to input PUK code fail , the remaining count in MMI might not decrease. Since this proprietary command is intended for modem project or dual-SIM/mode project . We won't handle such MMI synchronization problem.
- To verify PIN2 , suggest to use AT+CPWD="P2","PIN2","PIN2" .
- To unblock PIN2, use AT+EPIN2="PUK2","new_PIN2"
- Only used AT+EPIN2 when SIM card inserted and MT has completely boot up.

15.5 AT+EPINC – PIN remaining attempt number

15.5.1 Description

This command queries the number of remaining valid tries for PIN1, PIN2, PUK1, and PUK2

15.5.2 Format

Command	Possible response(s)
+EPINC	+EPINC: <pin1>,<pin2>,<puk1>,<puk2> +CME ERROR: <err>
+EPINC ?	+EPINC: <pin1>,<pin2>,<puk1>,<puk2> +CME ERROR: <err>
+EPINC=?	

15.5.3 Field

<pin1>,<pin2>,<puk1>,<puk2> are the remaining tries of each type.

15.6 AT+ESMSS – SMS status change mode

15.6.1 Description

SMS status change mode after +CMGR and +CMGL

15.6.2 Format

Command	Possible response(s)
+ESMSS= <mode>	+CME ERROR: <err>
+ESMSS ?	+ESMSS : <mode>
+ESMSS=?	+ESMSS : (0-1)

15.6.3 Field

<mode>

- 0 Unchange – SMS status remains as “REC UNREAD” after +CMGR or +CMGL
- 1 Change – SMS status changes from “REC UNREAD” to “REC READ” after +CMGR or +CMGL.

15.6.4 Note

15.6.4.1 Change History

N/A

15.6.4.2 Usage Note

The command only supported in projects without __SMS_STORAGE_BY_MMI__ option from 09B.0952MP.

15.7 AT+EOPN – Read Operator name

15.7.1 Description

This command returns the operator name in alphanumeric format when given the numeric format.

15.7.2 Format

Command	Possible response(s)
+EOPN= <format>,<oper_num>	+EOPN: <format>, <oper_alpha> <i>+CME ERROR: <err></i>
+EOPN=?	<i>+CME ERROR: <err></i>

15.7.3 Field

<format> : 0 long alphanumeric format
 25 short alphanumeric format
 <oper_num>: the operator in numeric format
 <oper_alpha>: the operator in alphanumeric format

[NOTE] We DO NOT support full set of alphanumeric format of <oper>, since the code size will become very large. If the customer needs the alphanumeric format, the table can be customized in `mcu\custom\ps\xxx_bb\customer_operator_names.c`.

15.8 AT+CGSDATA – Sending uplink data

15.8.1 Description

This command is used to send uplink data to network.

15.8.2 Format

Command	Possible response(s)
+CGSDATA= <byte>	<i>+CME ERROR: <err></i>

15.8.3 Field

<byte> the number of byte sending to network

example:

at+cgsgdata = 500 (sending 500 bytes)

15.9 AT+EMMISTR – MMI trace string

15.9.1 Description

To enable MMI trace string for factory testing.

15.9.2 Format

Command	Possible Response(s)
+EMMISTR= <op> [, <len>, <data>]	OK/ERROR +MMI_STR:<state>, (<x>, <y>) , <len>, <data>
+EMMISTR=?	OK

Note: parameter <len>, <data> are only needed when <op> = 2.

15.9.3 Field

Type	Short name	Parameter/comment	
Integer	op	0	Disable MMI trace string
		1	Enable MMI trace string
		2	Send data to MMI
		3	Write MMI data string to UART transparently
Integer	len	The length of data when <op> = 2 Maximum len = 250	
Integer	data	Row data send to MMI	
Integer	State	0	No more string
		1	Normal string
		2	Highlighted string
Integer	x	Coordination X	
Integer	Y	Coordination Y	

15.9.4 Example

AT+EMMISTR=1 /*enable MMI trace string*/

OK

AT+EMMISTR=2,3,"0A0B0C" /*PC sends data to MMI*/

OK

+MMI_STR:1, (40,25), 3, "0A0B0C" /*normal MMI trace string*/


```
+MMI_STR:2, (5,35), 4, "0A0B0C0D" /*highlighted MMI trace
string*/
+MMI_STR:0 /*no more string*/
AT+EMMISTR=0 /*disable MMI trace string*/
OK
```

15.9.5 Note

AT+EMMISTR is a seldom use AT command. In order to save code size (ROM size) , we default disable the command in low cost projects (LOW_COST_SUPPORT is defined). If you need this command, please ask PM to enable this command support (update L4 library).

15.9.5.1 Change History

15.9.5.2 Usage Note

This command is supported only in the feature phone project
 This command can 't be used when UART setting is SIM2

15.10 AT +EQUERY – general query command

15.10.1 Description

To query hardware or MS status.

15.10.2 Format

Command	Possible Response(s)
+EQUERY=<op>	OK ERROR
+EQUERY=?	OK

15.10.3 Field

Type	Short name	Parameter/comment
integer	op	0 Query SMS stats to write SMS to inbox
		1 Query charger status
		2 Query clam status
		3 Query if sms ready
		4 Query if phb ready

		5	Query if open compile option __SMS_STORAGE_BY_MMI__ and __GEMINI__ (for phone suite).
		6	Query the PHB System module version. When defined __PHB_STORAGE_BY_MMI__, the version is 2. Else, the version is 1.
		7	Query the SMS System module version. When defined __SMS_STORAGE_BY_MMI__, the version is 2. Else, the version is 1.

15.10.4 Example

AT+EQUERY=0

+CMGW: (0-3) // SMS support writing SMS to inbox

OK

AT+EQUERY=1

+CHAR: 1 // charger is plug-in

OK

AT+EQUERY=2

+CLAM: 0 // clam is closed

OK

AT+EQUERY=5

+EQMO: 1 // #if defined(__SMS_STORAGE_BY_MMI__) &&
defined(__GEMINI__)

OK

AT+EQUERY=6

+EPBV: 2 // #if defined(__PHB_STORAGE_BY_MMI__)

OK

AT+EQUERY=7

+ESMSV: 2 // #if defined(__SMS_STORAGE_BY_MMI__)

OK

15.11 AT +EIND – Indication Control Command

15.11.1 Description

Set command to enable +EIND unsolicited result code . to indicate the readiness of SMS or PHB or AT

15.11.2 Format

Command	Possible Response(s)
+EIND= <flag>	OK ERROR
+EIND?	+EIND: <ind>
+EIND=?	+EIND: (0-4294967295)

15.11.3 Field

Type	Short name	Parameter/comment
------	------------	-------------------

Integer	flag	Bit 0	Any value (0~4294967295) that bit 0 is 1 e.g. 1,3,5..
		Bit 1	Any value (0~4294967295) that bit 1 is 1 e.g. 2,3,6..
		Bit 2	Any value (0~4294967295) that bit 2 is 1 e.g. 4,5,..
		Bit 3	Any value (0~4294967295) that bit 3 is 1 e.g. 8,9..
		Bit 7	Any value (0~4294967295) that bit 7 is 1 e.g. 128,129,130..
Integer	ind	1	SMS READY
		2	PHB READY
		4	file change for PLMN files
		8	file change for EONS files
		16	Invalid SIM
		128	AT READY

15.12 AT +ECSQ – received signal level indication

15.12.1 Description

Set command to enable +ECSQ unsolicited result code +ECSQ:
 <rssI>,<ber>,<raw_rssi_in_qdbm>[,<RSCP_in_qdbm>,<EcN0_in_qdbm>],
 which is to indicate the received signal level.

Active command is to query the current received signal level.

Read command returns the current setting of +ECSQ unsolicited result code.

15.12.2 Format

Command	Possible Response(s)
+ECSQ= <flag>	OK ERROR
+ECSQ?	+ECSQ: <flag>
+ECSQ=?	+ECSQ: (0,1)
+ECSQ	+ECSQ: <rssI>,<ber>,<raw_rssi_in_qdbm>[,<RSCP_in_qdbm>,<EcN0_in_qdbm>]

15.12.3 Field

Type	Short name	Parameter/comment	
Integer	flag	0	Received signal level indication disable
		1	Received signal level indication enable
Integer	rssi	0-99	Received signal strength indication. This field is the same as <rssi> in +CSQ, which is translated according to TS 27.007, but not the raw dBm value measured by L1.
Integer	ber	0-255	Bit error rate
Integer	raw_rssi_in_qdbm		Received signal strength raw data in quarter dbm
Integer	RSCP_in_qdbm		RSCP in quarter dbm. Only available when camp on UMTS network.
Integer	EcN0_in_qdbm		EcN0 in quarter dbm. Only available when camp on UMTS network.

15.12.4 Note

- <RSCP_in_qdbm> and <EcN0_in_qdbm> are only present when current RAT is UMTS

15.13 AT +EINFO – URC Information Control Command

15.13.1 Description

Set command to enable some proprietary unsolicited result code(URC) information report.

15.13.2 Format

Command	Possible Response(s)
+EINFO= <flag>	OK ERROR
+EINFO?	+EINFO: <flag>
+EINFO=?	+EINFO: (0-4294967295)

15.13.3 Field

Type	Short name	Parameter/comment	
Integer	flag	Bit 0	Any value (0~4294967295) that bit 0 is 1 e.g. 1, 3, 5..
		Bit 1	Any value (0~4294967295) that bit 1 is 1 e.g. 2, 3, 6..
		Bit 2	Any value (0~4294967295) that bit 2 is 1 e.g. 4, 5, ..
		Bit 3	Any value (0~4294967295) that bit 3 is 1 e.g. 8, 9..
		Bit 7	Any value (0~4294967295) that bit 7 is 1 e.g. 128, 129, 130..

Currently , bit 0 is for +ESMLA (see 15.14 for detail) , bit 1 is for +ECFU (see 15.15 for detail) , bit 4 is for +ESPEECH (see 15.16 for detail)

15.14 AT+ECUSD – Proprietary unstructured supplementary service data

15.14.1 Description

This command allows users to input SS string which will be processed as input from MMI idle screen.

15.14.2 Format

Command	Possible response(s)
+ECUSD=<m>,<n>[,<str>[,<dc s>]]]	+CME ERROR: <err>

15.14.3 Field

<m>:

- 1 Execute SS
- 2 Execute USSD

<m>=2 is specifically used to reply USSD Request from remote and cancel USSD session. Otherwise, we don't distinguish <m>.

<n>:

- 1 Excute SS/USSD
- 2 Cancel USSD session (only allowed when <m>=2)

<str>: string type USSD string

<dcs>: 3GPP TS 23.038 [25] Cell Broadcast Data Coding Scheme in integer format (default 0).

This parameter is supposed to be 0x0f. To support other coding scheme needs to turn on specific compile option.

15.14.4 Note

- This command is responded before actually receiving the execution result from the network. It is responded after FDN checked by PHB to prevent user waiting for a long duration of network response time.
- This command is only supported in modem load and when the command compile option is turn on.

15.15 AT+EAIC – Approve Incoming Call

15.15.1 Description

This command allows users to approve an incoming call in Call Present (U6) stage. Parameter <mode> can be used to disable/enable the incoming call approval. When the approval is enabled and there is an incoming call, modem will send an unsolicited result code +EAIC:<call_id>,<number>,<type>,<call_mode>,<seq_no> to the TE and wait for the approval result. If TE allows the incoming call, it shall send AT+EAIC=0,<call_id>,<seq_no> to modem with the <call_id> and <seq_no> piggybacked from the previous +EAIC URC. If TE disallows the incoming call, it shall send AT+EAIC=1,<call_id>,<seq_no> to modem.

15.15.2 Format

Command	Possible response(s)
+EAIC=<mode> [, <call_id>, <seq_no>]	OK +CME ERROR: <err>
+EAIC?	+EAIC:0 or +EAIC:1
+EAIC=?	+EAIC: (0~3)

15.15.3 Field

<mode>:

- 0 Allow incoming call
- 1 Disallow incoming call
- 2 Enable incoming call approval
- 3 Disable incoming call approval

<mode>= 0 and 1 are effective only when incoming call approval is enable, i.e., +EAIC=2 has been shot.

<seq_no>: An integer type sequence number which is piggybacked from the incoming call URC.

<call_id>: An integer type call ID.

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

<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)

<call_mode> (bearer/teleservice):

- 0 voice
- 1 data
- 3 voice followed by data, voice mode
- 4 alternating voice/data, voice mode
- 6 voice followed by data, data mode
- 7 alternating voice/data, data mode
- 9 unknown

15.15.4 Note

- If TE has not enabled the incoming call approval, modem will acknowledge the SETUP message by a CALL CONFIRMED message itself. Refer to TS 24.080 chapter 5.2.2.3
- The <seq_no> is a number for modem to match the correct incoming call, TE shall send the same number received in the URC to be approved.

15.16 AT+ES3G – Switch 3G Service

15.16.1 Description

This command is used to set the mapping between 3G capability of the protocol and physical SIM

15.16.2 Format

Command	Possible response(s)
+ES3G=<setting>[,<rat>]	+CME ERROR: <err>
+ES3G?	+ES3G:<setting> +CME ERROR: <err>

15.16.3 Field

<setting>: a bit mask value. Each bit corresponding to a physical SIM. This value is used to indicate that which SIM has the 3G capability. Since we could only support one SIM to use the 3G capability, only the following values are valid.

- 1: SIM1
- 2: SIM2
- 4: SIM3
- 8: SIM4

<rat>: The network RAT mode after switching. The valid values are as follows.

- 1: GSM
- 2: UMTS
- 3: Dual Mode (GSM and UMTS)

If this value is omitted, the default value is “Dual Mode”

15.16.4 Note

After using this command, please reboot the phone so that the setting could take effect.

15.17 AT+ERFTX – Proprietary control RF transmitter power

15.17.1 Description

This command allows users to perform RF test or control TX power

15.17.2 Format

Command	Possible response(s)
+ERFTX=<op>, [. . .]	+CME ERROR: <err> OK

15.17.3 Field

- **UMTS RF test: <op>=0**
 AT+ERFTX=0,<para1>,<para2>,<para3>,<para4>
 - <para1>: integer type
 - 0: request UE WCDMA TX output power for possible next desired TX signal measurement (with <para2/3/4>)
 - 1: to stop WCDMA TX power output (without any other parameters)
 - <para2>: integer type, indicate 'band', acceptable range is 1~10
 - Except 7
 - MT6268 solution supports band 1/2/4/5/6/8
 - <para3>: integer type, indicate 'channel (TX frequency)', unit is UL UARFCN number
 - <para4>: integer type, indicate 'power level', acceptable range: +24 ~ -55, unit is dBm

- **RF TX power reduction: <op>=1**
 AT+ERFTX=1,<para1>,<para2>
 - <para1>: integer type, 2G L1 reduction level (unit: 1/8 dB)
 - 0 ~ 255 (0 dB ~ 32 dB)

- <para2>: integer type, 3G L1 reduction level (unit: 1/8 dB)
 - 0 ~ 255 (0 dB ~ 32 dB)

➤ **GSM RF test: <op>=2**

AT+ERFTX=2,<type>,[<parameter1>,<parameter2>,...]

- <type>=0 RF test GSM stop
 - No parameter

- <type>=1 RF test GSM TX
 - parameters:

<arfcn>:

PGSM900: 1..124
 EGSM900: 0..124, 975..1023
 RGSM900: 0..124, 955..1023
 DCS1800: 512..885
 PCS1900: 512..810
 GSM450: 259..293
 GSM480: 306..340
 GSM850: 128..251

<afc>: 0..8191

<band>:

L1_PGSM900 0x01
 L1_EGSM900 0x02
 L1_RGSM900 0x04
 L1_DCS1800 0x08
 L1_PCS1900 0x10
 L1_GSM450 0x20
 L1_GSM480 0x40
 L1_GSM850 0x80

(Actually permitted bands are configured by *BAND_SUPPORT* in make file)

<tsc>: BSIC (int8), also for TSC = BSIC&0x7 (0~7)

<pcl>:

GSM400, GSM850, GSM900: 5~19
DCS1800, PCS1900: 0~15

<pattern>:

RFTOOL_NB_TX_RANDOM_WITH_TSC = 0
RFTOOL_NB_TX_ALL_ONES_WITHOUT_TSC = 1
RFTOOL_AB_TX_RANDOM_WITH_SYNC_SEQ = 2
RFTOOL_CONT_TX_ALL_ZEROS = 3
RFTOOL_CONT_TX_ALL_ONES = 4
RFTOOL_CONT_TX_ALTERNATE_BITS = 5
RFTOOL_CONT_TX_PSEUDO_RANDOM = 6

- <type>=2 RF test GSM RX
 - parameters:
 - <arfcn>: refer to TX section
 - <gain>: different in each chip. Usually: -160~320 (unit: 1/8 dB)
 - <band>: refer to TX section
 - <pattern>:
 - RFTOOL_NB_RX_CONTINUE = 0
 - RFTOOL_NB_RX_BURST = 1
- <type>=3 RF test GSM power scan
 - parameters:
 - <band>: refer to TX section
 - <arfcn_in>: refer to TX section

15.18 AT+ESCRI – Send SCRI or Fast Dormancy request to network

15.18.1 Description

The command has different functionality in different condition:

(1) With compile option **__NO_PSDATA_SEND_SCRI__**

Request the network to try to release RRC connection for two purposes.

<Reason#1>

This command can be used to request NW to release RRC connection on SIM1, then plmn search procedure or MO/MT calls can be executed on SIM2 due to SIM1 is in IDLE mode

<Reason#2>

Power Saving

(2) With compile option __FAST_DORMANCY__

. Request the network to enter the Fast Dormancy mode (e.g., Let UE in CELL_PCH state instead of IDLE state) for power saving purpose

15.18.2 Format

Command	Possible response(s)
AT+ESCRI=<force_send>	+CMS ERROR: OK
AT+ESCRI	Same as AT+ESCRI=1

15.18.3 Field

<force_send>: integer

- 0 RRCE send SCRI depend on NW support FD or not
- 1 force RRCE send SCRI

15.18.4 Note

15.18.4.1 Change History

15.18.4.2 Usage Note

- Only applicable when define compile option __NO_PSDATA_SEND_SCRI__ or __FAST_DORMANCY__
- After execute +ESCRI, will get +ESCRI URC with result code

15.19 AT+EBOOT – Boot up mode

15.19.1.1 Description

This command is used to set the boot up mode for modem. If boot up in exception mode, modem will perform silent boot up, such as bypass PIN check when it has been verified before.

15.19.1.2 Format

Command	Possible Response(s)
+EBOOT=<mode>	OK/ERROR

15.19.1.3 Field

<mode>

- 0 Normal boot up
- 1 Exceptoon boot up

15.19.1.4 Note

- The command is applicable for modem project only
- Must use this command before the first AT+CFUN/AT+EFUN execution during boot up.

15.20 AT+ECSG – Select CSG network

15.20.1 Description

The command is used to perform CSG related operation.

AT+ECSG=0 CSG list for all PLMN

AT+ECSG=0,<plmn>,<act> CSG list for specific PLMN and RAT

AT+ECSG=1,<plmn>,<csq_id>,<act> Manual CSG selection

AT+ECSG=2 Abort CSG list

AT+ECSG=3,0 Disable CSG auto search

AT+ECSG=3,1 Enable CSG auto search

15.20.2 Format

Command	Possible response(s)
+ECSG=?	+ECSG: {0,1,2,3}
+ECSG=0[,<plmn>,<act>]	+ECSG: <num_plmn>,<plmn_id>,<act>,<num_csg> ,<csg_id>,<csg_type>,<hnb_name>[,...]
+ECSG=1,<plmn>,<csg_id>[,<act>]	OK / +CME ERROR: <err>
+ECSG=2	OK / +CME ERROR: <err>
+ECSG=3,<auto_seach_mode>	OK

15.20.3 Field

<num_plmn>,<num_csg>,<csg_id>,<csg_type>: integer

<plmn>,<hnb_name>: string

<act>: integer

0: GSM

2: UMTS

<auto_search_mode>: integer

0: Off

1: On

15.20.4 Example

// CSG manual selection

AT+ECSG=?

+ECSG:

2,46000,2,1,<csg_id>,<csg_type>,<hnb_name>,46002,7,2,<csg_id>,<csg_type>,<hnb_name>,<csg_id>,<csg_type>,<hnb_name>

OK

// CSG manual selection

AT+ECSG=1,"46000",12345,2

```
// CSG abort list
AT+ECSG=2
```

```
// Switch CSG auto search
AT+ECSG=3,0
AT+ECSG=3,1
```

15.20.5 Note

- The command only applicable with compile option `__CSG_SUPPORT__`

15.21 AT+EVSIM – Virtual SIM

15.21.1.1 Description

This command is used to switch virtual SIM function.

15.21.1.2 Format

Command	Possible Response(s)
+EVSIM?	+EVSIM: <mode> OK
+EVSIM=<mode>	OK/ERROR

15.21.1.3 Field

<mode>

- 0 Virtual SIM disable
- 1 Virtual SIM enable

15.21.1.4 Note

- The command is applicable with compile option `__VSIM__`

15.22 AT+ESIMREC – SIM Recovery Enhancement

15.22.1.1 Description

This command is used to switch SIM recovery enhancement.

15.22.1.2 Format

Command	Possible Response(s)
+ESIMREC=<mode>	OK/ERROR

15.22.1.3 Field

<mode>

- 0 SIM recovery enhancement disable
- 1 SIM recovery enhancement enable

15.22.1.4 Note

- The command is applicable with compile option __SIM_RECOVERY_ENHANCEMENT__

15.23 AT+ESIMINIT – Start up SIM module

15.23.1.1 Description

This command is to start up SIM initialization procedure, which is originally performed by modem automatically during power-on procedure.

When __2STAGES_POWERON__ is turned on, and the command AT+ESIMINIT=1 is received before power-on AT +CFUN/+EFUN, the modem power-on procedure will not perform SMU and SIM initialization, but just initializes network related modules and camps on limited service. After receiving AT+ESIMINIT, modem will perform SMU and SIM initialization immediately, and respond OK after the initialization complete. Meanwhile if PIN1 is required, the AT+CPIN? will return +CPIN: SIM PIN1. SML check is also performed after this procedure.

Set command enables/disable this feature, i.e. modem will/will not perform SMU and SIM initialization during power-on procedure.

Active command triggers modem going to perform SMU and SIM initialization.

15.23.1.2 Format

Command	Possible Response(s)
+ESIMINIT=<mode>	OK ERROR
+ESIMINIT	OK ERROR

15.23.1.3 Field

<mode>: integer

- 0 disable 2 stages power-on(default)
- 1 enable 2 stages power-on

15.23.1.4 Note

- The default setting of modem power-on procedure is only 1 stage, i.e. AT+ESIMINIT=0
- To enable this feature, AP shall send AT+ESIMINIT=1 before sending AT+CFUN or AT+EFUN for power-on.
- This feature is wrapped by `__2STAGES_POWERON__`.
- This command is set independently for each SIM. AP shall send this command to the specific modem which he wants to prevent the SIM initialization from start automatically, and will manually start later.
- AT+ESIMS is to reset SIM, which will detect SIM slot to check the SIM inserted status. The user case is AP sends AT+ESIMINIT=1 to enable the 2-stages power-on first and uses AT+EFUN or AT+CFUN to start power-on procedure. After it decides to start the SMU and SIM modules, it sends AT+ESIMS to get the SIM inserted status and then sends +ESIMINIT to start-up SMU and SIM.

15.24 AT+EACMT – URC for reporting network reject cause

15.24.1.1 Description

This URC is for ACMT feature. To report network reject cause.

Set command is used to enable/disable URC +EACMT: <error_type>, <cause>

15.24.1.2 Format

Command	Possible Response(s)
+EACMT?	+EACMT: <mode> OK
+EACMT=<mode>	OK/ERROR

15.24.1.3 Field

<mode>: integer

- 0 disable +EACMT URC
- 1 enable +EACMT URC

<error_type>: integer

- 0 UNDEFINED
- 1 MM reject code received during a MM procedure
- 2 CM reject code received during a CM procedure
- 3 GMM reject code received during a non-combined GMM procedure for GPRS services
- 4 SM reject code
- 5 GMM reject code received during a combined GMM procedure for non-GPRS services
- 6 GMM reject code received during a combined GMM procedure for GPRS and non-GPRS services
- 7 EMM reject code received during a non-combined EMM procedure for EPS services
- 8 EMM reject code received during a combined EMM procedure for non-EPS services
- 9 EMM reject code received during a combined EMM procedure for EPS and non-EPS services
- 10 ESM reject code received during a ESM procedure
- 11 GMM reject code received during a GMM Service procedure
- 12 GMM reject code received during a GMM MT Detach procedure

<cause>: integer

error_type	refer to
1	seet 3GPP TS 24.008, 10.5.3.6 Reject Cause
2	seet 3GPP TS 24.008, 10.5.3.6 Reject Cause
3	seet 3GPP TS 24.008, 10.5.5.14 GMM Cause
4	seet 3GPP TS 24.008, 10.5.6.6
5	seet 3GPP TS 24.008, 10.5.5.14 GMM Cause
6	seet 3GPP TS 24.008, 10.5.5.14 GMM Cause
7	seet 3GPP TS 24.301, EMM Cause
8	seet 3GPP TS 24.301, EMM Cause
9	seet 3GPP TS 24.301, EMM Cause
10	seet 3GPP TS 24.301, 9.9.4.4
11	seet 3GPP TS 24.008, 10.5.5.14 GMM Cause
12	seet 3GPP TS 24.008, 10.5.5.14 GMM Cause

15.24.1.4 Note

- The error_type 7~10 are reserved for LTE protocol stack, which is not supported currently.
- This option is wrapped by __ACMT_SUPPORT__ in modem side, and only turned on by customer's request.
- The <mode> setting is not saved in modem after power-off. AP is responsible to configure this setting everytime when power-on.
- This command is SIM-independent.

15.25 AT+EFD – Proprietary Fast Dormancy setting

15.25.1 Description

This is command is for Fast Dormancy feature.

Set command can enable/disable Fast Dormancy, set timer, or notify modem the screen status.

Test command returns the supported mode. If the return is ERROR, it means this command is not supported.

Read command returns the current mode of Fast Dormancy.

15.25.2 Format

Command	Possible response(s)
AT+EFD=<mode> [, <param1> [, <param2>]]	OK/ ERROR
AT+EFD=?	+EFD: (0-3) OK/ ERROR
AT+EFD?	+EFD: <mode> OK

15.25.3 Field

<mode>: integer

- 0 disable modem Fast Dormancy
- 1 enable modem Fast Dormancy
- 2 set Fast Dormancy inactivity timer
- 3 inform modem the screen status

<param_1>: integer

<mode>	<param_1> value	<param_1> meaning
2	0~255	ID of the timer to be set
3	0	screen is off
	1	screen is on

<param_2>: integer

<mode>	<param_2> value	<param_2> meaning
2	0~65535	value of the timer to be set. The unit is 0.1 second.

15.25.4 Note

- Currently there are four inactivity timers implemented in modem. These four timers are used in different scenarios according to the screen on/off and the network R8 Fast Dormancy supported status. The unsigned timer ID (bit8-bit1) implicitly indicates the specific scenario. For example, the last significant bit indicates the status of the screen, while the second bit indicates the support status of the network R8 Fast Dormancy.

screen	on	off
bit 1	1	0
NW R8 FD	support	not support
bit 2	1	0

15.25.5 Change History

This command is supported after MT6589

15.25.6 Usage Note

- Only applicable when define compile option `__NO_PSDATA_SEND_SCRI__` or `__FAST_DORMANCY__`

15.26 AT+ICCID – Read ICCID of SIM Card

15.26.1.1 Description

This command is used to read SIM card ICCID if SIM inserted. If SIM not inserted, return +CME ERROR: 10

15.26.1.2 Format

Command	Possible Response(s)
+ICCID	<iccid> OK ERROR / +CME ERROR: 10

15.26.1.3 Field

<iccid>: string type

15.26.1.4 Note

- This command only available in modem only project

15.27 AT+EPCT – PS Conformance Test Mode

15.27.1.1 Description

For the following cases that our handset behavior needs to be adjusted to meet test requirement of CTA/FTA/IOT

- CTA/FTA/IOT lab equipment is not capable with Spec
- Our handset make some changes for real network for better performance or some other reason.
- In one kind of test, CTA for example, there maybe two cases that need exclusive behavior of handset. Just like case A need handset send some signal to network, But Case B actual need handset do not send those signal to network.

15.27.1.2 Format

Command	Possible Response(s)
+EPCT=?	+EPCT: <list of supported mode> OK
+EPCT?	+EPCT: <mode>,<profile > OK
+EPCT=<mode>[,<profile>]	OK

15.27.1.3 Field

<mode>: integer type.

Availabe test mode defined in **ps_em_enum.h**.

```
typedef enum
{
    PS_CONF_TEST_NONE,
    PS_CONF_TEST_CTA,
    PS_CONF_TEST_FTA,
    PS_CONF_TEST_IOT,
    PS_CONF_TEST_OPERATOR,
    PS_CONF_TEST_FACTORY,
```

```

    PS_CONF_TEST_END
} ps_conf_test_mode_enum;

```

<profile>: integer type. Specific test profile under the <mode>

Availabe test profile defined in **ps_em_enum.h**. Following is the subset of available test profile.

```

/* CTA Items */
#define CTA_INTEGRITY_CHECK_BIT_FOR_MM      0x00000001
#define CTA_TL1_BIT_FOR_TL1                 0x00000002
#define CTA_K1297_BIT_FOR_RRCE              0x00000004
#define CTA_SNCONFLICT_BIT_FOR_RLC_RRCE     0x00000008
#define CTA_CFQUERY_BIT_FOR_SS               0x00000010
#define CTA_PLMN_LOCK_BIT_FOR_CSCE          0x00000020
#define CTA_OPEN_MEAS_BIT_FOR_CSCE          0x00000040
#define CTA_DISABLE_DPA_BIT_FOR_RRCE        0x00000080
#define CTA_OPEN_INVALID_INTRA_CELL_REPORT__BIT_FOR_MEME 0x00000100
#define CTA_AUTO_ADJUST_BIT_FOR_RRCE        0x00000200
#define CTA_DISABLE_UPA_BIT_FOR_RRCE        0x00000400
#define CTA_RELEASE_ADAPTION_BIT_FOR_RRCE   0x00000800

/* FTA Items */
#define FTA_TEST_ANITE      0x00000001
#define FTA_TEST_CRTUG     0x00000002
#define FTA_TEST_CRTUW     0x00000004
#define FTA_TEST_ANRITSU   0x00000008
#define FTA_TEST_CMW500    0x00000010

```

15.27.1.4 Note

- Example:
 - Set handset to CTA mode without special setting → AT+EPCT=1
 - Set handset to CTA mode with special setting bits(bit 123 on) → AT+EPCT=1,7
 - ◆ 7 = 0000 0111(bit 1/2/3 set to 1 means on)

15.28 AT+ECRO – Cell Reselection Optimization

15.28.1 Description

Execution command turn on/off TDD 23G cell reselection optimization.

Note: This command only applies on TDD UMTS rat.

15.28.2 Format

Command	Possible response(s)
+ECRO=<op>	OK +CME ERROR: <err>
+ECRO=?	+CME ERROR: <err>

15.28.3 Field

<AT Command>: AT+ECRO=<op>

<op>:

- 0 InterRat optimization off
- 1 InterRat optimization on
- 2 3G2 handover optimization off
- 3 3G2 handover optimization on

15.28.4 Note

- op=0/1 and op=2/3 does not affect each other, which means if you want to set InterRAT optimization on and 3G2 handover optimization on, you can use AT+ECRO=1 and AT+ECRO=3 sequentially.

15.28.5 Change History

The command is available from MOLY.W12.32

15.29 AT+ECCP – Enable/Disable Video Call

15.29.1 Description

This command is used to diable video call functionality.

15.29.2 Format

Command	Possible response(s)
+ECCP=<op>	OK +CME ERROR: <err>

15.29.3 Field

<op>:

- 0 Enable VT call
- 1 Disable VT call

15.29.3.1 Note

15.29.3.2 Change History

The command is available from MAUI.W11.48

15.30 AT+CTMCALL – Enable/Disable TTY call

15.30.1 Description

This command is used to diable TTY call functionality.

15.30.2 Format

Command	Possible response(s)
+CTMCALL=<op>	OK +CME ERROR: <err>

15.30.3 Field

<op>

- 0 Disable TTY call
- 1 Enable TTY call

15.30.4 Note

- For Gemini project, the settings are independent in each SIM . For example, for SIM2 TTY call , we need to send AT+CTMCALL=1 to SIM2.

15.30.5 Change History

The command is available from MAUI.W11.45

15.31 AT+ECHUP – Force release specific call by call_id

15.31.1 Description

This command is used to force release specific call by call_id. If disconnect call can not be complete in time, it is allowed to use this command to force release the call.

15.31.2 Format

Command	Possible response(s)
+ECHUP=<call_id>	OK +CME ERROR: <err>

15.31.3 Field

<call_id>: integer

15.31.4 Note

- Note that it required to disconnect call by AT+CHLD before using AT+ECHUP, MODEM does not allow disconnect call by AT+ECHUP only.

15.31.5 Change History

The command is available from MAUI.W11.25

15.32 AT+CGPRCO – GPRS Protocol Configuration

15.32.1 Description

This command is used to for NDIS dialup set/get protocol related config options (PDP username, passwd, DNS, Authentication Type, request IPv6 DNS, ...). And these protocol configuration will be used in SM PDP context activation to negotiate with GGSN.

15.32.2 Format

Command	Possible response(s)
+CGPRCO= <cid>,<user_name>,<passwd>,<DNS1> ,<DNS2>,<auth_type>,<req_v6_dns>	OK +CME ERROR: <err>

+CGPRCO=?	+CGPRCO: <list of cids>,<max user_name length>,<max passwd length>
+CGPRCO?	+CGPRCO:<cid>,<DNS1>,<DNS2>[,<V6_DNS1>,<V6_DNS2>] [...]

15.32.3 Field

<cid>: a numeric parameter which specifies a particular PDP context definition.

<user_name>: string to specify "User Name"

<passwd>: string to specify "Password"

<DNS1>: string to specify "primary DNS"

<DNS2>: string to specify "secondary DNS"

<auth_type>: a numeric parameter used to indicate authentication type. Default is PAP.

0: PAP

1: CHAP

2: None

3: PAP+CHAP

<req_v6_dns>: a numeric parameter to indicate if request IPv6 DNS or not. Default is Yes.

0: No

1: Yes

15.32.4 Note

N/A

15.32.5 Change History

N/A

15.33 AT+ECOPS – Switch PLMN List URC

15.33.1 Description

This command is used to turn on/off +ECOPS Unsolicited Result code.

When +ECOPS URC is enabled, modem will report +ECOPS: [list of supported (<stat>,long alphanumeric <oper>, short alphanumeric <oper>,numeric <oper>[,<Act> [,<lac>]])s]

15.33.2 Format

Command	Possible response(s)
AT+ECOPS=<mode>	OK/ ERROR
AT+ECOPS=?	+ECOPS: (0,1) OK/ ERROR
AT+ECOPS?	+ECOPS: <mode> OK

15.33.3 Field

<mode>: integer

- 0 disable +ECOPS URC
- 1 enable +ECOPS URC

<stat>: integer

- 0 unknown
- 1 available
- 2 current
- 3 forbidden

<oper>: string type;

<format> of +COPS indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer 3GPP TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1)

<AcT>: access technology selected

- 0 GSM

- 1 GSM Compact
- 2 UTRAN
- 3 GSM w/EGPRS (see NOTE 1)
- 4 UTRAN w/HSDPA (see NOTE 2)
- 5 UTRAN w/HSUPA (see NOTE 2)
- 6 UTRAN w/HSDPA and HSUPA (see NOTE 2)
- 7 E-UTRAN

15.33.4 Note

The URC format is similar to the PLMN List response for AT+COPS=?

15.33.5 Change History

N/A

15.33.6 Usage Note

- +ECOPS shall be turn on before +EMSR
- +ECOPS could be turn off only when +EMSR is already turned off

15.34 AT+EMSR – Suspend/Resume modem

15.34.1 Description

Set command is used to enable/disable the modem suspend feature, or to resume modem according to the <action> field.

If modem suspend feature is enabled and the suspend scenario happened, modem will report +EMSR: <session_id> URC to indicate AP that it's suspend.

If AP decides to resume modem, it shall send AT+EMSR=1,<session_id> to modem.

Otherwise it shall reset modem. No other operation is allowed during modem is suspend.

15.34.2 Format

Command	Possible response(s)
AT+EMSR=<action>, <data>	OK/ ERROR

AT+EMSR=?	+EMSR: (0,1) OK/ ERROR
AT+EMSR?	+EMSR:0,<data> OK

15.34.3 Field

<session_id>: integer

0-255 the session ID for the suspend/resume event

<action>: integer

0 enable/disable modem suspend/resume feature

1 resume modem

<data>: integer

<action>	<data>	meaning
0	0	disable modem suspend/resume feature
	1	enable modem suspend/resume by MCC change
1	0-255	resume modem with session ID <data>

15.34.4 Note

Currently this command shall be used with +ECOPS together. The condition for whether to resume modem is from the inform carried in +ECOPS URC.

The <session_id> is used to prevent race condition between AP and modem. Modem will keep the latest suspend <session_id> it has sent to AP, and respond to the corresponding resume request with the same <session_id>. Other <session_id> will be discard as invalid resume requests. The <session_id> will be reset to 0 after counting to 255.

15.34.5 Change History

N/A

15.34.6 Usage Note

- +EMSR could be turn on only when +ECOPS is already turned on.

- +EMSR shall be turn off before +ECOPS.

15.35 AT+EOPS – Enhanced Operator Selection

15.35.1 Description

This command is similar to +COPS, with additional support for specified ARFCN. Set command forces an attempt to select and register the GSM/UMTS network operator. If the selected operator is not available, ERROR is returned.

Read command returns the current mode, the currently selected operator.

Test command returns operator list present in the network.

15.35.2 Format

Command	Possible response(s)
+EOPS=<mode> [, <format>, <oper> [, <Act>, <arfcn>]]	OK +CME ERROR: <err>
+EOPS?	+COPS: <mode> [, <format>, <oper>] +CME ERROR: <err>
+EOPS=?	+COPS: [list of supported (<stat>, long alphanumeric <oper> , short alphanumeric <oper>, numeric <oper>, [, <Act>])s] [, , (list of supported <mode>s) , (list of supported <format>s)] +CME ERROR: <err>

15.35.3 Field

<mode>: integer type

- 0 automatic (<oper> field is ignored)
- 1 manual (<oper> field shall be present)

<format>: integer type

- 0 long format alphanumeric <oper>
- 1 short format alphanumeric <oper>
- 2 numeric <oper>

<oper>: string type;

<format> of +COPS indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer 3GPP TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1)

<stat>:

- 0 unknown
- 1 available
- 2 current
- 3 forbidden

<AcT>: access technology selected

- 0 GSM
- 2 UTRAN

<arfcn>: interger type range 0~65535

Valid arfcn value

GSM:

- band900: 0~124, 975~1023
- band1800: 512~885
- band1900: 512~810
- band850: 128~251

UTRAN TD-SCDMA:

Band A: 10054~10121
 Band E: 11504~11996
 Band F: 9404~9596

15.35.4 Note

Currently 3G operator selection with specified ARFCN only support TD-SCDMA.

15.35.5 Change History

N/A

15.35.6 Usage Note

N/A

15.36 AT+ECELCK – Cell Lock

15.36.1 Description

This command is used to set or cancel cell lock, and get the currently locked cell if any.

15.36.2 Format

Command	Possible response(s)
AT+ECELCK= <mode>, [<enabled_bitmap>,] <band_indicator>, <arfcn>, [<arfcn>, ...]	OK/ ERROR
AT+ECELCK=?	ERROR
AT+ECELCK?	+ECELCK: <enabled_bit map>, <band_indica tor>, <arfcn>, [<arfcn>, ...] OK

15.36.3 Field

<mode> integer type

0: cancel cell lock (for the only <arfcn>)

1: set cell lock (for the only <arfcn>)

2: get extended cell lock, this will get the current locked cells' arfcn.

3: set extended cell lock, this will set lock for a group of cells by different arfcn (maximum 3). Only in this mode, more than one <arfcn> can be entered in the following parameter.

4: cancel extended cell lock, this will cancel all cell lock.

<enabled_bitmap> integer type 0~7

Bits set to 1 indicate which <arfcn> to be locked.

Ex. 00000101 => the 1st and 3rd <arfcn> is valid.

<band_indicator> integer type

0: not 1900 band cell

1: 1900 band cell

<arfcn> integer type: the cell's arfcn to be locked

Valid arfcn value

GSM:

band900: 0~124, 975~1023

band1800: 512~885

band1900: 512~810

band850: 128~251

15.36.4 Note

Currently only GSM cell lock is supported.

15.36.5 Change History

N/A

15.36.6 Usage Note

After AT+ECELCK executed successfully, the cell lock will take effect in the next plmn search procedure. So the tester need to trigger a plmn search procedure after this AT command.

16 Other Proprietary Unsolicited Result code

16.1 Unsolicited Result Code : +ESMLA

16.1.1 Description

This URC is to report if Auto personalization(defined in 3GPP TS 22.022) is enabled.

16.1.2 Format

Unsolicited result code	
+ESMLA: <is_autolock_enabled>, <autolock_result>	

16.1.3 Field

Type	Short name	Parameter/comment	
Integer	is_autolock_enabled	0	autolock is disabled
		1	autolock is enabled
Integer	autolock_result	0	autolock is failed
		1	autolock is successful

16.1.4 Note

Available after W08.45.

16.2 Unsolicited Result Code : +ECFU

16.2.1 Description

This URC is intended to notify application to show CFU(Call Forwarding Unconditional) icon.

16.2.2 Format

Unsolicited result code	
+ECFU: <status>,<line>	

16.2.3 Field

Type	Short name	Parameter/comment	
Integer	status	0	hide CFU icon
		1	show CFU icon
Integer	line	1	Line1
		2	Line2

16.2.4 Note

Available after W09.04 . And it's only supported in modem load .

16.3 Unsolicited Result Code : +ESPEECH

16.3.1 Description

This URC is to notify application to attach the speech for voice call (user connection). It's defined in spec 24.008 section5 call control .

16.3.2 Format

Unsolicited result code	
+ESPEECH: <on_off>,<rat>,<irho_speech_on_off>	

16.3.3 Field

Type	Short name	Parameter/comment	
Integer	on_off	0	Detach speech
		1	Attach speech
Integer	Rat	1	GSM
		2	UMTS
		3	GSM
Integer	irho_speech_on_off	0	Not inter-rat handover
		1	Is inter-rat handover

16.3.4 Note

Available after W09.12 . And it's only supported in modem load .

16.4 Unsolicited Result Code : +ESCRI

16.4.1 Description

This URC is to notify application the result of AT+ESCRI

16.4.2 Format

Unsolicited result code	
+ESCRI: <report_value>	

16.4.3 Field

<report_value>: integer

```

SCRI_REQ_SENT = 0,
SCRI_CS_SESSION_ONGOING = 1,
SCRI_PS_SIGNALLING_ONGOING = 2,
SCRI_NO_PS_DATA_SESSION = 3,
SCRI_REQ_NOT_SENT = 4,
SCRI_NOT_ALLOWED = 5

```

16.4.4 Note

16.5 Unsolicited Result Code: +ESIMS

16.5.1 Description

Indicate the SIM is inserted or not and related cause

16.5.2 Format

+ESIMS: <sim_inserted_status>,<cause >

16.5.3 Field

<sim_inserted_status>: integer

- 0 SIM not presented
- 1 SIM presented

<cause>: integer

- 0 SIM_CARD_REMOVED,
- 1 SIM_ACCESS_ERROR,
- 2 // Reserved for other use
- 3 // Reserved for other use
- 4 // Reserved for other use
- 5 SIM_ACCESS_PROFILE_ON
- 6 SIM_ACCESS_PROFILE_OFF
- 7 DUALSIM_DISCONNECTED
- 8 DUALSIM_CONNECTED
- 9 SIM_VSIM_ON

- 10 SIM_VSIM_OFF
- 11 SIM_PLUG_OUT
- 12 SIM_PLUG_IN
- 13 SIM_RECOVERY_START
- 14 SIM_RECOVERY_END

16.5.4 Note

- Only applicable in modem project

16.6 Unsolicited Result Code: +EUSIM

16.6.1 Description

Indicate the inserted SIM card is SIM or USIM.
 The URC is control by AT+EIND command(The 6th bit).

16.6.2 Format

+EUSIM: <type>

16.6.3 Field

Type	Name	Parameter / Comment	
Integer	type	0	SIM
		1	USIM

16.6.4 Note

- Only applicable in modem project

16.7 Unsolicited Result Code : +EESTSIM

16.7.1 Description

This URC reports whether current inserted SIM is test SIM during power-on procedure. There is no query mode for this command. This URC is supported from W12.23.

16.7.2 Format

Unsolicited result code
+EESTSIM: <is test sim>

16.7.3 Field

Type	Short name	Parameter/comment	
Integer	is_test_sim	0	normal sim
		1	test sim

17 SLIM and ULC AT Command set

17.1 Introduction

SLIM AT command set is a subset of MTK FULL AT command set. The basic idea is that normal user will not use all AT commands, so we would like to disable some AT commands and only support commonly used commands. This can save ROM/RAM consumption. SLIM AT command set can save about 40~45K ROM size and 0.5K~2.2K RAM size.

Below are the common applications which use AT command to work with handset.

- PC dialup program
- Bluetooth Handfree device
- Phonsuite
- FTA test
- Factory or in-house testing (ex: proprietary hardware testing commands)

These applications will only use certain AT commands to work with handset. So all the commands used by these applications will be supported in SLIM AT command set. That means **all the application listed above will still work fine when SLIM AT command set is enabled**. Only if the user connect Hyper Terminal to input every AT command (this is not common user behavior), he will find some command are not supported.

The default configuration in most project will be FULL AT command set support, if you want to enable SLIM AT command set. Please modify AT_COMMAND_SET in Makefile to "SLIM" and rebuild L4 library. If you don't have L4 source code license , you need to ask PM to release new L4 library with AT_COMMAND_SET= SLIM.

For low cost projects(LOW_COST_SUPPORT is set), default configuration will be SLIM AT command set.

ULC AT command set is a subset of SLIM AT command set. The idea is to disable more AT commands to save more ROM size (about 20~25K ROM size)

In ULC AT command set , it only support AT commands used by

- Bluetooth Handfree device
- Factory testing (ex: proprietary hardware testing commands)

Note1: SLIM AT command is available from **W10.12** ,and ULC AT command is available from **W11.04**

Note2: SLIM and ULC AT command set is designed for feature phone MMI project, we don't allow to enable SLIM or ULC AT command set in modem project.

17.2 SLIM and ULC AT Command List

We list MTK FULL AT command set here. You can check the list to see if the command is support in SLIM AT command set or not.

AT Command	Support in SLIM AT	Support in ULC AT	Notes
			Some command support also depend on other feature option or compile option. See Notes for more detail.
V.25ter AT Commands (see section 2)			
ATA	YES	YES	
ATD	YES	YES	
ATE	YES	YES	
ATH	YES	YES	
ATI	YES	NO	
ATL	YES	NO	
ATO	YES	NO	
ATP	YES	NO	
ATQ	YES	NO	
ATS	YES	NO	
ATT	YES	NO	
ATV	YES	NO	
ATW	YES	NO	
ATX	YES	NO	
ATZ	YES	NO	
AT&F	YES	NO	
AT+GMI	NO	NO	
AT+GMM	NO	NO	
AT+GMR	YES	YES	
AT+IPR	YES	NO	
AT+ICF	YES	NO	Support when CSD_SUPPORT is defined

AT+DS	YES	NO	Support when CSD_SUPPORT is defined
AT+GCAP	NO	NO	
07.07 AT Commands – General commands (see section 3)			
AT+CGMI	NO	NO	
AT+CGMM	NO	NO	
AT+CGMR	YES	YES	
AT+CGSN	NO	NO	
AT+CSCS	YES	NO	
AT+CLAC	NO	NO	
AT+CIMI	YES	NO	
07.07 AT Commands – Call Control commands (see section 4)			
AT+CSTA	NO	NO	
AT+CMOD	YES	NO	Support when CSD_SUPPORT is defined
AT+CHUP	YES	YES	
AT+CBST	YES	NO	Support when CSD_SUPPORT is defined
AT+CRLP	YES	NO	Support when CSD_SUPPORT is defined
AT+CR	NO	NO	
AT+CEER	NO	NO	
AT+CRC	NO	NO	
AT+CSNS	NO	NO	
AT+CVHU	NO	NO	
AT+CSDF	NO	NO	
AT+CSIL	NO	NO	
AT+CSTF	NO	NO	
07.07 AT Commands –Network Service related commands (see section 5)			
AT+CNUM	YES	YES	
AT+CREG	YES	NO	
AT+COPS	YES	YES	
AT+CLCK	NO	NO	
AT+CPWD	NO	NO	
AT+CLIP	YES	YES	
AT+CLIR	NO	NO	
AT+COLP	NO	NO	
AT+CCUG	NO	NO	
AT+CCFC	NO	NO	
AT+CCWA	YES	YES	

AT+CHLD	YES	YES	
AT+CTFR	NO	NO	
AT+CUSD	NO	NO	
AT+CAOC	NO	NO	
AT+CSSN	NO	NO	
AT+CLCC	YES	YES	
AT+CPOL	NO	NO	
AT+COPN	NO	NO	
AT+CAEMLPP	NO	NO	
AT+WS46	NO	NO	
07.07 AT Commands –MT control and status command (see section 6)			
AT+CPAS	NO	NO	
AT+CFUN	YES	NO	
AT+CPIN	NO	NO	
AT+CBC	NO	NO	
AT+CSQ	NO	NO	
AT+CMEC	NO	NO	
AT+CKPD	Yes	YES	
AT+CIND	YES	YES	
AT+CMER	YES	YES	
AT+CPBS	YES	NO	
AT+CPBR	YES	NO	
AT+CPBF	No	NO	
AT+CPBW	YES	NO	
AT+CCLK	NO	NO	
AT+CALA	No	NO	
AT+CRSM	NO	NO	
AT+CRSL	NO	NO	
AT+CVIB	NO	NO	
AT+CLVL	NO	NO	
AT+CMUT	NO	NO	
AT+CACM	YES	NO	
AT+CAMM	YES	NO	
AT+CPUC	NO	NO	
AT+CCWE	NO	NO	
AT+CLAN	NO	NO	
AT+CLAE	NO	NO	

AT+CSGT	NO	NO	
AT+CALD	No	NO	
AT+CTZR	NO	NO	
AT+CBKLT	NO	NO	
AT+CTSA	NO	NO	Support when TOUCH_PANEL_SUPPORT is defined
AT+CSO	NO	NO	
AT+CSS	NO	NO	

[07.07 AT Commands – GPRS commands \(see section 7\)](#)

AT+CGDCONT	YES	NO	
AT+CGDSCONT	NO	NO	
AT+CGQREQ	YES	NO	
AT+CGQMIN	YES	NO	
AT+CGATT	YES	NO	
AT+CGACT	YES	NO	
AT+CGCMOD	YES	NO	
AT+CGDATA	NO	NO	
AT+CGPADDR	NO	NO	
AT+CGAUTO	NO	NO	
AT+CGANS	NO	NO	
AT+CGCLASS	YES	NO	
AT+CGREG	YES	NO	
AT+CGSMS	NO	NO	
AT+EGTP	NO	NO	
AT+EMPPCH	NO	NO	

[07.07 Mobile Termination Errors \(see section 8\)](#)

AT+CMEE	YES	YES	
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[07.07 Annex C \(see section 9\)](#)

AT+VTS	YES	YES	
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[07.05 SMS AT Commands \(see section 10\)](#)

AT+CSMS	NO	NO	
AT+CPMS	YES	NO	
AT+CMGF	YES	NO	
AT+CSCA	YES	NO	
AT+CSMP	NO	NO	
AT+CSDH	NO	NO	
AT+CSCB	NO	NO	
AT+CSAS	NO	NO	

AT+CRES	NO	NO	
AT+CNMI	NO	NO	
AT+CMGL	NO	NO	
AT+CMGR	YES	NO	
AT+CMGS	YES	NO	
AT+CMSS	NO	NO	
AT+CMGW	YES	NO	
AT+CMGD	YES	NO	
AT+CMGC	NO	NO	
AT+CMMS	NO	NO	
AT+EQSI	YES	NO	
AT+EMGR	YES	NO	
Proprietary Hardware Testing AT Commands (see section 11)			
AT+CASP	YES	YES	
AT+CEMS	YES	YES	
AT+EADP	YES	YES	
AT+EGPIO	YES	YES	
AT+EADC	YES	YES	
AT+ELCD	YES	YES	
AT+EPWM	YES	YES	
AT+ELCM	YES	YES	
AT+EKPD	YES	YES	
AT+EALT	YES	YES	
AT+ESAM	YES	YES	
AT+ESLT	YES	YES	
AT+EGMR	YES	YES	
AT+ESIMS	NO	NO	
AT+EDFT	YES	YES	
AT+ESLP	YES	YES	
AT+EGPO	YES	YES	
AT+ELSM	YES	YES	
AT+ELNVRM	YES	YES	
AT+ESDP	YES	YES	
AT+ESLCD	YES	YES	
AT+ESHW	YES	YES	
AT+ETEST	YES	YES	action command to read auto test report is not supported in ULC_AT
AT+ACTTEST	YES	YES	

AT+EREG	YES	YES	Support when it's in MT6318 project
AT+EPMIC	YES	YES	Support when it's in MT6318 project
AT+ECPI	YES	YES	Support in both projects from W11.13
AT+ERAT	NO	NO	
AT+ELQT	YES	NO	Support when __LQT_SUPPORT__ is defined
AT+ECAL	YES	YES	
Bluetooth through AT commands (see section 12)			
AT+EMBT	YES	NO	Support when BLUETOOTH_SUPPORT is defined
AT+EBTLB	YES	NO	Support when BLUETOOTH_SUPPORT is defined
Proprietary AT commands for Phone suite tool (see section 13)			
AT+EIMG	YES	YES	Support when DT_SUPPORT is TRUE
AT+EMDY	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSR	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSW	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSO	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSF	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSL	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFS	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSC	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSRN	YES	YES	Support when DT_SUPPORT is TRUE
AT+EFSCP	YES	YES	Support when DT_SUPPORT is TRUE
AT+EMMSFS	YES	YES	Support when DT_SUPPORT is TRUE and MMS_SUPPORT is defined
AT+EMMSEXE	YES	YES	Support when DT_SUPPORT is TRUE and MMS_SUPPORT is defined
AT+EJAVA	YES	YES	Support when DT_SUPPORT is TRUE
AT+EVCARD	YES	YES	Support when DT_SUPPORT is TRUE and it's NOT neptune MMI project
AT+EVCLD	YES	NO	
AT+ESUO	YES	NO	
Other Proprietary AT Command (see section 15)			
AT+EPBSE	YES	NO	
AT+EGPAU	NO	NO	
AT+EPIN1	NO	NO	
AT+EPIN2	NO	NO	
AT+EPINC	NO	NO	
AT+ESMSS	NO	NO	

AT+EOPN	YES	NO	
AT+CGSDATA	YES	NO	
AT+EMMISTR	YES	NO	
AT+EQUERY	Yes	NO	
AT+EIND	NO	NO	
AT+ECSQ	NO	NO	
AT+EINFO	NO	NO	
AT+ECUSD	NO	NO	
AT+EAIC	NO	NO	
AT+ESIMINIT	NO	NO	This command is support only when __2STAGES_POWERON__ is defined
AT+EACMT	NO	NO	This command is support only when __ACMT_SUPPORT__ is defined
AT+EFD	NO	NO	This command is suppot only when __NO_PSDATA_SEND_SCRI__ or __FAST_DORMANCY__