AT Command Set for ZTE Module (AT&T)

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CONTENT

1. Introduction 1

1.1 Purpose 1
1.2 Abbreviations 1

2. General Commands 1

2.1 command echo E 1
2.1.1 Syntax 1
2.1.2 Description 1
2.1.3 Defined values 1
2.1.4 e.g. 2
2.2 Display Signal quality +CSQ 2
2.2.1 Syntax 2
2.2.2 Description 2
2.2.3 Defined values 2
2.2.4 e.g. 2
2.3 Request revision identification +CGMR 3
2.3.1 Syntax 3
2.3.2 Description 3
2.3.3 Defined values 3
2.3.4 e.g. 3
2.4 Request model identification +CGMM 3
2.4.1 Syntax 3
2.4.2 Description 4
2.4.3 Defined values 4
2.4.4 e.g. 4
2.5 Request international mobile subscriber identity +CIMI 4
2.5.1 Syntax 4
2.5.2 Description 4
2.5.3 Defined values 4
2.5.4 e.g. 4
2.6 Request product serial number identification +CGSN 5
2.6.1 Syntax 5
2.6.2 Description 5
2.6.3 Defined values 5
2.6.4 e.g. 5
2.7 Request manufacturer identification +CGMI 5
2.7.1 Syntax 5
2.7.2 Description 5
2.7.3 Defined values 6
2.7.4 e.g. 6
2.8 Request request TA revision identification +GMR 6
2.8.1 Syntax 6

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2.8.2 Description 6
2.8.3 Defined values 6
2.8.4 e.g. 6
2.9 Extended error report +CEER 6
2.9.1 Syntax 6
2.9.2 Description 7
2.9.3 Defined values 7
2.10 Report Mobile Termination error +CMEE 7
2.10.1 Syntax 7
2.10.2 Description 7
2.10.3 Defined values 7
2.11 Phone activity status +CPAS 8
2.11.1 Syntax 8
2.11.2 Description 8
2.11.3 Defined values 8
2.12 Preferred operator list +CPOL 8
2.12.1 Syntax 8
2.12.2 Description 9
2.12.3 Defined values 9
2.13 Keypad control +CKPD 9
2.13.1 Syntax 9
2.12.2 Description 9
2.12.3 Defined values 10
3. Commands for SMS 11
3.1 Message Format +CMGF 11
3.1.1 Syntax 11
3.1.2 Description 11
3.1.3 Defined values 11
3.1.4 e.g. 11
3.2 New Message Indications +CMTI 12
3.2.1 Syntax 12
3.2.2 Description 12
3.2.3 Defined values 12
3.3 New SMS-STATUS-REPORT Indications +CDSI 12
3.3.1 Syntax 12
3.3.2 Description 12
3.3.3 Defined values 12
3.4 Configuration of New Message Indications to TE +CNMI 13
3.4.1 Syntax 13
3.4.2 Description 13
3.4.3 Defined values 13
3.4.4 e.g. 14
3.5 Delete Message +CMGD 14
3.5.1 Syntax 14

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3.5.2 Description 14
3.5.3 Defined values 14
3.5.4 e.g. 15
3.6 Preferred Message Storage +CPMS 15
3.6.1 Syntax 15
3.6.2 Description 15
3.6.3 Defined values 15
3.6.4 e.g. 16
3.7 Service Centre Address +CSCA 16
3.7.1 Syntax 16
3.7.2 Description 17
3.7.3 Defined values 17
3.7.4 e.g. 17
3.8 Send Message +CMGS 17
3.8.1 Syntax 17
3.8.2 Description 17
3.8.3 Defined values 17
3.8.4 e.g. 18
3.9 Write Message to Memory +CMGW 18
3.9.1 Syntax 18
3.9.2 Description 18
3.9.3 Defined values 18
3.9.4 e.g. 19
3.10 List Messages +CMGL 19
3.10.1 Syntax 19
3.10.2 Description 19
3.10.3 Defined values 19
3.10.4 e.g. 20
3.11 Read Message +CMGR 20
3.11.1 Syntax 20
3.11.2 Description 20
3.11.3 Defined values 21
3.11.4 e.g. 21
3.12 Select Message Service +CSMS 21
3.12.1 Syntax 21
3.12.2 Description 21
3.12.3 Defined values 22
3.12.4 e.g. 22
3.13 New class0 Message Indications +ZCLAS 22
3.13.1 Syntax 22
3.13.2 Description 22
3.13.3 Defined Values 22
3.13.4 e.g. 22
3.14 Save Settings +CSAS 23

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3.14.1 Syntax....23
3.14.2 Description....23
3.13.3 Defined Values....23
3.15 Restore Settings +CRES....23
3.15.1 Syntax....23
3.15.2 Description....23
3.15.3 Defined Values....23
3.16 New Message Acknowledgement to ME/TA +CNMA....24
3.16.1 Syntax....24
3.16.2 Description....24
3.16.3 Defined Values....24
3.17 Select Cell Broadcast Message Types +CSCB....24
3.17.1 Syntax....24
3.17.2 Description....25
3.17.3 Defined Values....25
3.18 Send Message from Storage +CMSS....25
3.18.1 Syntax....25
3.18.2 Description....25
3.18.3 Defined Values....25
3.19 Send Command +CMGC....26
3.19.1 Syntax....26
3.19.2 Description....26
3.19.3 Defined Values....26
3.20 More Messages to Send +CMMS....26
3.20.1 Syntax....26
3.20.2 Description....26
3.20.3 Defined Values....26
4. Commands for Safety Configuration....27
4.1 Change password +CPWD....27
4.1.1 Syntax....27
4.1.2 Description....27
4.1.3 Defined values....27
4.1.4 e.g....28
4.2 Enter PIN +CPIN....29
4.2.1 Syntax....29
4.2.2 Description....29
4.2.3 Defined values....29
4.2.4 e.g....30
4.3 Facility lock +CLCK....30
4.3.1 Syntax....30
4.3.2 Description....30
4.3.3 Defined values....30
4.3.4 e.g....32
4.4 Restricted SIM access +CRSM....32

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4.4.1 Syntax....32
4.4.2 Description....32
4.4.3 Defined values....32
4.4.4 e.g....33
5. Commands for UMTS Packet Domain....33
5.1 Define PDP Context +CGDCONT....33
5.1.1 Syntax....33
5.1.2 Description....34
5.1.3 Defined values....34
5.1.4 e.g....35
5.2 PS attach or detach +CGATT....35
5.2.1 Syntax....35
5.2.2 Description....36
5.2.3 Defined values....36
5.2.4 e.g....36
5.3 PDP context activate or deactivate +CGACT....36
5.3.1 Syntax....36
5.3.2 Description....37
5.3.3 Defined values....37
5.3.4 e.g....37
6. Commands for Phonebook....37
6.1 Select phonebook memory storage +CPBS....37
6.1.1 Syntax....37
6.1.2 Description....38
6.1.3 Defined values....38
6.1.4 e.g....39
6.2 Read phonebook entries +CPBR....39
6.2.1 Syntax....39
6.2.2 Description....39
6.2.3 Defined values....40
6.2.4 e.g....40
6.3 Write phonebook entry +CPBW....40
6.3.1 Syntax....40
6.3.2 Description....40
6.3.3 Defined values....41
6.3.4 e.g....41
7. Commands for System Configuration....41
7.1 Operator selection +COPS....41
7.1.1 Syntax....41
7.1.2 Description....42
7.1.3 Defined values....42
7.1.4 e.g....43
7.2 Set phone functionality +CFUN....43

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7.2.1 Syntax....43
7.2.2 Description....44
7.2.3 Defined values....44
7.2.4 e.g....44
7.3 Network registration +CREG....44
7.3.1 Syntax....44
7.3.2 Description....44
7.3.3 Defined values....45
7.3.4 e.g....45
7.4 Subscriber number +CNUM....45
7.4.1 Syntax....45
7.4.2 Description....45
7.4.3 Defined values....46
7.4.4 e.g....47
7.5 GPRS network registration status +CGREG....47
7.5.1 Syntax....47
7.5.2 Description....48
7.5.3 Defined values....48
7.5.4 e.g....48
7.6 3G Quality of Service Profile (Requested) +CGEQREQ....48
7.6.1 Syntax....48
7.6.2 Description....50
7.6.3 Defined values....50
7.7 Quality of Service Profile (Requested) +CGQREQ....51
7.7.1 Syntax....51
7.7.2 Description....52
7.7.3 Defined values....52
7.8 3G Quality of Service Profile (Minimum acceptable) +CGEQMIN....52
7.8.1 Syntax....52
7.8.2 Description....54
7.8.3 Defined values....54
7.9 Battery charge +CBC....55
7.8.1 Syntax....55
7.9.2 Description....56
7.9.3 Defined values....56
8. Commands for Call Control....56
8.1 Select bearer service type +CBST....56
8.1.1 Syntax....56
8.1.2 Description....56
8.1.3 Defined values....57
8.1.4 e.g....58
8.2 Dial command D....58
8.2.1 Syntax....58
8.2.2 Description....58

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8.2.3 Defined values....58
8.2.4 e.g....58
8.3 Answer incoming call A....59
8.3.1 Syntax....59
8.3.2 Description....59
8.3.3 Defined values....59
8.3.4 e.g....59
8.4 Hang up call +CHUP....59
8.4.1 Syntax....59
8.4.2 Description....59
8.4.3 Defined values....59
8.4.4 e.g....59
8.5 Calling line identification presentation +CLIP....59
8.5.1 Syntax....59
8.5.3 Defined values....60
8.5.4 e.g....61
8.6 Extended error report +CEER....61
8.6.1 Syntax....61
8.6.2 Description....61
8.6.3 Defined values....61
8.7 Report Mobile Termination Error +CMEE....61
8.7.1 Syntax....61
8.7.2 Description....61
8.7.3 Defined values....62
8.8 Voice Hang up Control +CVHU....62
8.8.1 Syntax....62
8.8.2 Description....62
8.8.3 Defined values....62
8.9 DTMF and tone generation +VTS....63
8.9.1 Syntax....63
8.9.2 Description....63
8.9.3 Defined values....63
9. ZTE Commands for GPS....63
9.1 Initialization Location command +ZGINIT....63
9.1.1 Syntax....63
9.1.2 Description....64
9.1.3 e.g....64
9.2 set location mode +ZGMODE....64
9.2.1 syntax....64
9.2.2 Description....64
9.2.3 e.g....64
9.3 Set fix rate for tracking sessions +ZGFIXRATE....64
9.3.1 syntax....64
9.3.2 Description....65

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9.3.3 e.g. 65
9.4 Set QOS for location +ZGQOS 65
9.4.1 syntax 65
9.4.2 Description 66
9.4.3 e.g. 66
9.5 Set URL of SUPL server +ZGURL 66
9.5.1 syntax 66
9.5.2 Description 66
9.5.3 e.g. 66
9.6 Location mode choice +ZGRUN 67
9.6.1 Syntax 67
9.6.2 Description 67
9.6.3 e.g. 67
9.7 Report error code +ZGPSERROR 67
9.7.1 syntax 67
9.7.2 Description 68
9.7.3 e.g. 68
9.8 report satellites measurements +ZGMEASURE 68
9.8.1 syntax 68
9.8.2 Description 68
9.8.3 e.g. 69
9.9 Report location data +ZGPSR 69
9.9.1 syntax 69
9.9.2 Description 69
9.9.3 e.g. 69
9.10 Switch DRX and GPS command +ZGSWITCH 70
9.10.1 syntax 70
9.10.2 Description 70
9.10.3 e.g. 70
9.11 Initialization NI Location command +ZGNIINIT 70
9.11.1 syntax 70
9.11.2 Description 70
9.11.3 e.g. 70
9.12 Sent NI response to server +ZGNI 71
9.12.1 syntax 71
9.12.2 Description 71
9.12.3 e.g. 71
9.13 report GPS NI event +GPS_NI: NOTIFY 71
9.13.1 syntax 71
9.13.2 Description 71
9.13.3 e.g. 71
10. ZTE Commands for Call Control 72
10.1 Voice call channel SET and Switch + ZVOCCH 72
10.1.1 Syntax 72

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10.1.2 Description 72
10.1.3 Defined values 72
10.1.4 e.g. 72
10.2 Adjust the value of Transmitting volume + ZTXVOICE 72
10.2.1 Syntax 72
10.2.2 Description 73
10.2.3 Defined values 73
10.2.4 e.g. 73
11. ZTE General Commands 73
11.1 Query the status of Network Lock +ZSEC 73
11.1.1 Syntax 73
11.1.2 Description 73
11.1.3 Defined values 73
11.1.4 e.g. 74
11.2 Unlock and query the unlock residual time +ZNCK 74
11.2.1 Syntax 74
11.2.2 Description 74
11.2.3 Defined values 74
11.2.4 e.g. 75
11.3 Turn off the Modem +ZTURNOFF 75
11.3.1 Syntax 75
11.3.2 Description 75
11.3.3 e.g. 75
11.4 ADC status and value inquiry + ZADC1 75
11.4.1 Syntax 75
11.4.2 Description 75
11.4.3 e.g. 76
11.5 GPIO configuration and inquiry + ZGPIOCNF 76
11.5.1 Syntax 76
11.5.2 Description 76
11.5.3 Defined values 77
11.5.4 e.g. 77
11.6 GPIO output setting + ZGPIOSET 77
11.6.1 Syntax 77
11.6.2 Description 78
11.6.3 Defined values 78
11.6.4 e.g. 78
11.7 GPIO status inquiry +ZGPIOGET 78
11.7.1 Syntax 78
11.7.2 Description 79
11.7.3 Defined values 79
11.7.4 e.g. 79
12. ZTE Commands for TCP/IP 79

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12.1 Set and Query the parameters of PS Call +ZIPCFG 79
12.1.1 Syntax 79
12.1.2 Description 79
12.1.3 Defined values 79
12.1.4 e.g. 80
12.2 Start or end PS Call +ZIPCALL 80
12.2.1 Syntax 80
12.2.2 Description 80
12.2.3 Defined values 80
12.2.4 e.g. 80
12.3 Establish TCP/UDP Connection +ZIPOPEN 81
12.3.1 Syntax 81
12.3.2 Description 81
12.3.3 Defined values 81
12.3.4 e.g. 82
12.4 Close TCP/UDP Connection +ZIPCLOSE 82
12.4.1 Syntax 82
12.4.2 Description 83
12.4.3 Defined values 83
12. 4.4 e.g. 83
12.5 Set Encoding Format: +ZIPCODE 83
12.5.1 Syntax 83
12.5.2 Description 83
12.5.3 Defined values 84
12.6 Set Encoding Format: +ZIPSEND 84
12.6.1 Syntax (with encoding format binary) 84
12.6.2 Description 84
12.6.3 Defined values 84
12.6.4 Syntax (with encoding ascii binary) 85
12.6.5 Description 85
12.6.6 Defined values 85
12.7 TCP/UDP Data Receive +ZIPRECV 85
12. 7.1 Syntax 85
12.7.2 Description 85
12.7.3 Defined values 86
12.7.4 e.g. 86
12.8 Query Socket State + ZIPSTAT 86
12.8.1 Syntax 86
12.8.2 Description 86
12.8.3 Defined values 86
12.8.4 e.g. 87
12.9 Set parameters of TCP/UDP server +ZIPSLCFG 87
12.9.1 Syntax 87
12.9.2 Description 87

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12.9.3 Defined values....87
12.9.4 e.g....88
12.10 Open/Close TCP/UDP server + ZIPLISTEN....88
12.10.1 Syntax....88
12.10.2 Description....89
12.10.3 Defined values....89
12.10.4 e.g....89
12.11 Set TCP/UDP internal Firewall +ZIPFRWL....90
12.11.1 Syntax....90
12.11.2 Description....90
12.11.3 Defined values....90
12.11.4 e.g....91
13. ZTE Commands for RPM....91
13.1 RPM Parameter setting+ZRPMC....91
13.1.1 Syntax....91
13.1.2 Description....91
13.1.3 Defined values....91
13.1.4 e.g....92
13.2 RPM lefttime and reset counts+ZRPMNV....92
13.2.1 Syntax....92
13.2.2 Description....92
13.2.3 Defined values....92
13.2.4 e.g....92
14. ZTE Commands for CMUX/UART....92
14.1 Port Mode Switch Command +ZMUXMODE....93
14.1.1 Syntax....93
14.1.2 Description....93
14.1.3 Defined values....93
14.1.4 e.g....93
14.2 Control Bit Rate Command +ZBITRATE....93
14.2.1 Syntax....93
14.2.2 Description....94
14.2.3 Defined values....94
14.2.4 e.g....94
14.3 UART Service Switch Command +UART....94
14.3.1 Syntax....94
14.3.2 Description....94
14.3.3 Defined values....94
14.3.4 e.g....94
14.4 DTE-DCE local flow control +ZFLOW....95
14.4.1 Syntax....95
14.4.2 Description....95
14.4.3 Defined values....95

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14.4.4 e.g. 95
14.5 DTE-DCE local flow control +IFC 95
14.5.1 Syntax 95
14.5.2 Description 96
14.5.3 Defined values 96
14.6 DTE-DCE local flow control AT&K 96
14.6.1 Syntax 96
14.6.2 Description 96
14.6.3 Defined values 97
14.6.4 e.g. 97
15. Commands for Debug Mode 97
15.1 Communication Manager +PACSP 97
15.1.1 Syntax 97
15.1.2 Description 97
15.1.3 For example 97
15.2 Display Signal quality $CSQ 98
15.2.1 Syntax 98
15.2.2 Description 98
15.2.3 Defined values 98
15.2.4 e.g. 98
15.3 Network registration $CREG 99
15.3.1 Syntax 99
15.3.2 Description 99
15.3.3 Defined values 99
15.3.4 e.g. 100
15.4 Network Time $CCLK 100
15.4.1 Syntax 100
15.4.2 Description 100
15.4.3 Defined values 100
15.4.4 e.g. 100
15.5 Display the Access Technology *CNTI 101
15.5.1 Syntax 101
15.5.2 Description 101
15.5.3 Defined values 101
15.5.4 e.g. 101
15.6 Set Band Status +ZBANDI 102
15.6.1 Syntax 102
15.6.2Description 102
15.6.3Defined values 102

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Version History

This chapter reports modifications and improvements over previous versions of the document.

Version	Date	Authour	Description
1.0	Oct 27 2011	/	First release
1.1	Dec 6 2011	/	Revise the document format
1.2	Dec 16 2011	/	Add at command “ZTURNOFF” Modify at commands related GPS
1.3	Jun 11 2012	Wang xinbo	1. Modify +ZIPSEND
1.4	Sep 3 2012	Zhang jing	Add AT command “ZBANDI” format update
1.4.1	Feb 20 2013	Luo Pingbo	1. Add a list of AT commands about TCP/IP(12.5/12.6), ADC(11.4) , UART(14.3), Auto Baud Rate(14.2), GPIO(11.5/11.6/11.7), Flow Control(14.4/14.5/14.6). 2. The added AT commands is for B15 temporarily

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1. Introduction

1.1 Purpose

This document discusses, in detail, the AT commands that are implemented in ZTE wireless data product. All the AT commands follow 3GPP (R99) TS27.005 and TS27.007.

1.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AT	Attention; this two-character abbreviation is always used to start a command line to be sent from TE to TA
ETSI	European Telecommunications Standards Institute
ITU-T	International Telecommunication Union - Telecommunications Standardization Sector
ME	Mobile Equipment
MT	Mobile Termination
SIM	Subscriber Identity Module
TA	Terminal Adaptor, e.g. a GSM data card (equal to DCE; Data Circuit terminating Equipment)
TE	Terminal Equipment, e.g. a computer (equal to DTE; Data Terminal Equipment)
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module

2. General Commands

2.1 command echo E

2.1.1 Syntax

Table 2-1: ATE basic command syntax

Command	Possible response(s)
E[<value>]	<CR><LF>OK<CR><LF>

2.1.2 Description

This command is used to set TA echoes commands back or not.

2.1.3 Defined values

< value >:

0: TA doesn’t echo commands back

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1: TA echoes commands back

default 1 i.e. TA echoes commands back

2.1.4 e.g.

Command: ATE1
Response: OK

2.2 Display Signal quality +CSQ

2.2.1 Syntax

Table 2-2: +CSQ action command syntax

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

2.2.2 Description

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

Test command +CSQ=? returns values supported as compound values.

2.2.3 Defined values

<rssi>:

0 -113 dBm or less

1 -111 dBm

2...30 -109... -53 dBm

31 -51 dBm or greater

99 not known or not detectable

<ber> (in percent):

0...7 as RXQUAL values in the table in GSM 05.08 [20] subclause 8.2.4

99 not known or not detectable

2.2.4 e.g.

Command: AT+CSQ
Response: +CSQ: 30,99

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OK

2.3 Request revision identification +CGMR

2.3.1 Syntax

Table 2-3: +CGMR action command syntax

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

2.3.2 Description

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

2.3.3 Defined values

<revision>: the total number of characters, including line terminators, in the information text shall not exceed 31 characters.

2.3.4 e.g.

Command: AT+CGMR
Response: P663M1V1.0.2B03 P663M1V1.0.2B03 1 [June 10 2006 10:00:00]
OK

2.4 Request model identification +CGMM

2.4.1 Syntax

Table 2-4: +CGMM action command syntax

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

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2.4.2 Description

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

2.4.3 Defined values

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

2.4.4 e.g.

Command: AT+CGMM
Response: MF330
OK

2.5 Request international mobile subscriber identity +CIMI

2.5.1 Syntax

Table 2-5: +CIMI action command syntax

Command	Possible response(s)
+CIMI	<CR><LF><IMSI><CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CIMI=?	<CR><LF>OK<CR><LF>

2.5.2 Description

Execution command causes the TA to return `<IMSI>,` which is intended to permit the TE to identify the individual active application in the UICC (GSM or USIM) or SIM card which is attached to MT.

2.5.3 Defined values

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

2.5.4 e.g.

Command: AT+CIMI
Response: 460001194914416
OK

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2.6 Request product serial number identification +CGSN

2.6.1 Syntax

Table 2-6: +CGSN action command syntax

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

2.6.2 Description

Execution command causes the TA to return one or more lines of information text <sn>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the individual MT to which it is connected to. Typically, the text will consist of a single line containing the IMEI (International Mobile station Equipment Identity) number of the MT, but manufacturers may choose to provide more information if desired.

Now this command can only return the IMEI number.

2.6.3 Defined values

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

<IMEI>: the IMEI value in NV.

2.6.4 e.g.

Command: AT+CGSN

Response: 356722000068154

OK

2.7 Request manufacturer identification +CGMI

2.7.1 Syntax

Table 2-7: + CGMI parameter command syntax

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

2.7.2 Description

Execution command causes the TA to return one or more lines of information text <manufacturer>, determined by the MT manufacturer, which is intended to permit the user of

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the TA to identify the manufacturer of the MT to which it is connected to. The text will consist of a single line containing the name of the manufacturer.

2.7.3 Defined values

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

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

2.7.4 e.g.

Command: AT+CGMI
Response: ZTE INCORPORATED
OK

2.8 Request request TA revision identification +GMR

2.8.1 Syntax

Table 2-8: + GMR parameter command syntax

Command	Possible response(s)
+GMR	<CR><LF>< TA revision ><CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+GMR=?	<CR><LF>OK<CR><LF>

2.8.2 Description

Execution command causes the TA to return one or more lines of information text < TA revision>, determined by the MT manufacturer, which is intended to permit the user of the TA to identify the version, revision level or date, or other pertinent information of the MT to which it is connected to. The text will consist of a single line containing the version of the product.

2.8.3 Defined values

< TA revision >: the total number of characters, including line terminators, in the information text shall not exceed 31 characters.

2.8.4 e.g.

Command: AT+GMR
Respond: +GMR: BD_P673M3V1.0.1B02
OK

2.9 Extended error report +CEER

2.9.1 Syntax

Table 2-9: +CEER parameter command syntax

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

2.9.2 Description

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

- the failure in the last unsuccessful call setup (originating or answering) or in-call modification;
- the last call release;
- the last unsuccessful GPRS attach or unsuccessful PDP context activation;
- the last GPRS detach or PDP context deactivation.

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

2.9.3 Defined values

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

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

2.10 Report Mobile Termination error +CMEE

2.10.1 Syntax

Table 2-10: +CMEE parameter command syntax

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

2.10.2 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.

2.10.3 Defined values

<n>:

0 disable +CME ERROR: <err> result code and use ERROR instead

1 enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)

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2 enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

2.11 Phone activity status +CPAS

2.11.1 Syntax

Table 2-11: +CPAS parameter command syntax

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

2.11.2 Description

Execution command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone. Refer subclause 9.2 for possible <err> values. Test command returns values supported as a compound value.

2.11.3 Defined values

<pas>:

0 ready (MT allows commands from TA/TE)

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

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

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

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

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

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

2.12 Preferred operator list +CPOL

2.12.1 Syntax

Table 2-12: +CPOL parameter command syntax

Command	Possible response(s)
+CPOL=[<index>][,<format>[,<oper>]]	*+CME ERROR: <err>*
+CPOL?	+CPOL: <index1>,<format>,<oper1> [<CR><LF>+CPOL: <index2>,<format>,<oper2> [...]] *+CME ERROR: <err>*
+CPOL=?	+CPOL: (list of supported <index>s),(list of supported <format>s)*+CME ERROR: <err>*

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2.12.2 Description

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

NOTE: MT may also update this list automatically when new networks are selected.

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

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

2.12.3 Defined values

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

<format>:

0 long format alphanumeric <oper>

1 short format alphanumeric <oper>

2 numeric <oper>

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

2.13 Keypad control +CKPD

2.13.1 Syntax

Table 2-13: +CKPD parameter command syntax

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

2.12.2 Description

Execution command emulates MT keypad by giving each keystroke as a character in a string <keys>. <time>*0.1 seconds is the time to stroke each key and <pause>*0.1 seconds is the length of pause between two strokes. If emulating fails in an MT error, +CME ERROR: <err> is returned.

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Refer subclause 9.2 for <err> values. This command should be accepted (OK returned) before actually starting to press the keys. Thus unsolicited result codes of key pressings and display events can be returned (refer subclause "Mobile Termination event reporting +CMER").

2.12.3 Defined values

<keys>: string of characters representing keys as listed in the following table (based on PCCA STD-101 Annex table I-3). Colon character (IRA 58) followed by one character can be used to indicate a manufacturer specific key not listed here. All characters from a semicolon character (IRA 59) to the next single semicolon character are treated as alpha entries and are not converted to key equivalents. All semicolon characters inside alpha entries should be duplicated in the TE and stripped to one before entering to the MT. Pause character (IRA 87 or 119) can be used to pause between key pressings for a time specified by <pause>. All IRA values not listed here are reserved.

Table 2-13: Character codes

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
;	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)

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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 (default values are manufacturer specific, but should be so long that a normal MT can handle keystrokes correctly)

3. Commands for SMS

3.1 Message Format +CMGF

3.1.1 Syntax

Table 3-1: +CMGF parameter command syntax

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

3.1.2 Description

Set command tells the TA, which input and output format of messages to use. <mode> indicates the format of messages used with send, list, read and write commands and unsolicited result codes resulting from received messages. Mode can be either PDU mode (entire TP data units used) or text mode (headers and body of the messages given as separate parameters).

Test command returns supported modes as a compound value.

3.1.3 Defined values

<mode>:

0 PDU mode (default when implemented)

1 text mode (not supported now)

3.1.4 e.g.

Command: AT+CMGF=0

Response: OK

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3.2 New Message Indications +CMTI

3.2.1 Syntax

Table 3-2: +CMTI parameter command syntax

Command	Possible response(s)
	<CR><LF>+CMTI: <mem>,<index><CR><LF>

3.2.2 Description

When new message is received and stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code.

3.2.3 Defined values

<mem1>: string type

"ME" ME message storage

"SM" (U)SIM message storage

"SR" status report storage

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

3.3 New SMS-STATUS-REPORT Indications +CDSI

3.3.1 Syntax

Table 3-3: +CMTI parameter command syntax

Command	Possible response(s)
	<CR><LF>+CDSI: <mem>,<index><CR><LF>

3.3.2 Description

When new SMS-STATUS-REPORT is received and stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code.

3.3.3 Defined values

<mem1>: string type

"ME" ME message storage

"SM" (U)SIM message storage

"SR" status report storage

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

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3.4 Configuration of New Message Indications to TE +CNMI

3.4.1 Syntax

Table 3-4: +CNMI parameter command syntax

Command	Possible response(s)
+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[,<bfr>]]]]]	<CR><LF>OK<CR><LF> <CR><LF>+CMS ERROR: <err><CR><LF>
+CNMI?	<CR><LF>+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr><CR><LF><CR><LF>OK<CR><LF>
+CNMI=?	<CR><LF>+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) <CR><LF><CR><LF>OK<CR><LF>

3.4.2 Description

Set command selects the procedure, how receiving of new messages from the network is indicated to the TE when TE is active.

Test command gives the settings supported by the TA as compound values.

3.4.3 Defined values

<mode>:

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>:

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>

<bm>:

0 No CBM indications are routed to the TE.

2 CBM indications are routed to the TE.

<ds>:

2 If SMS-STATUS-REPORT is stored into ME/TA, indication of the memory location is

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routed to the TE using unsolicited result code:

+CDSI: <mem>,<index>

<bfr>:

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

3.4.4 e.g.

1.No cell broadcast service
Command: AT+CNMI=3,1,0,2,0
Response: OK

2. Cell broadcast service
Command: AT+CNMI=3,1,2,2,0
Response: OK

3.5 Delete Message +CMGD

3.5.1 Syntax

Table 3-5: +CMGD action command syntax

Command	Possible response(s)
+CMGD=<index>[,<delflag>]	<CR><LF>OK<CR><LF> <CR><LF>+CMS ERROR: <err><CR><LF>
+CMGD=?	<CR><LF>+CMGD: (list of supported <index>s)[,(list of supported <delflag>s)]<CR><LF><CR><LF>OK<CR><LF>

3.5.2 Description

Execution command deletes message from preferred message storage `<mem1>` location `<index>`. If <delflag> is present and not set to 0 then the ME shall ignore <index> and follow the rules for <delflag> shown below. If deleting fails, final result code `+CMS ERROR:<err>` is returned.

Test command shows the valid memory locations and optionally the supported values of <delflag>.

3.5.3 Defined values

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

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

0 (or omitted) Delete the message specified in <index>

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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.

3.5.4 e.g.

Command: AT+CMGD=2
Response: OK

3.6 Preferred Message Storage +CPMS

3.6.1 Syntax

Table 3-6: +CPMS parameter command syntax

Command	Possible response(s)
+CPMS=<mem1>[,<mem2>[,<mem3>]]	+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)

3.6.2 Description

Set command selects memory storages <mem1>, <mem2> and <mem3> to be used for reading, writing, etc. If chosen storage is not appropriate for the ME (but is supported by the TA), final result code +CMS ERROR: <err> shall be returned. See chapter Message Service Failure Result Code for a list of possible <err> values.

Test command returns lists of memory storages supported by the TA.

3.6.3 Defined values

<mem1>: string type; memory from which messages are read and deleted (commands List Messages +CMGL, Read Message +CMGR and Delete Message +CMGD); defined

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values (others are manufacturer specific):

"ME" ME message storage

"SM" (U)SIM message storage

<mem2>: string type; memory to which writing and sending operations are made (commands Send Message from Storage +CMSS and Write Message to Memory +CMGW)); refer <mem1> for defined values

<mem3>: string type; memory to which received SMs are preferred to be stored (unless forwarded directly to TE; refer command New Message Indications +CNMI); refer <mem1> for defined values; received CBMs are always stored in "BM" (or some manufacturer specific storage) unless directly forwarded to TE; received status reports are always stored in "SR" (or some manufacturer specific storage) unless directly forwarded to TE

<total1>: integer type; total number of message locations in <mem1>

<total2>: integer type; total number of message locations in <mem2>

<total3>: integer type; total number of message locations in <mem3>

<used1>: integer type; number of messages currently in <mem1>

<used2>: integer type; number of messages currently in <mem2>

<used3>: integer type; number of messages currently in <mem3>

3.6.4 e.g.

Command: AT+CPMS?
Response: +CPMS: "SM",10,40,"SM",10,40,"ME",1,100
OK

3.7 Service Centre Address +CSCA

3.7.1 Syntax

Table 3-7: +CSCA parameter command syntax

Command	Possible response(s)
+CSCA=<sca>[,<tosca>]	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CSCA?	<CR><LF>+CSCA: <sca>,<tosca><CR><LF><CR><LF>OK<CR><LF>

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	<CR><LF>+CME ERROR: <err><CR><LF>
+CSCA=?	<CR><LF>OK<CR><LF>

3.7.2 Description

Set command updates the SMSC address, through which mobile originated SMs are transmitted. In text mode, setting is used by sending and writing commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <pdu> parameter equals zero.

3.7.3 Defined values

<sca>: RP SC address Address-Value field in string format

<tosca>: RP SC address Type-of-Address octet in integer format

3.7.4 e.g.

Command: AT+CSCA="+8613800290500"
Response: OK

3.8 Send Message +CMGS

3.8.1 Syntax

Table 3-8: +CMGS action command syntax

Command	Possible response(s)
+CMGS=<length><CR> ***PDU is given***<ctrl-Z/ESC>	**if PDU mode(+CMGF=0) and sending successful:** <CR><LF>+CMGS: <mr>[,<ackpdu>]<CR><LF><CR><LF>OK<CR><LF> **if sending fails:** <CR><LF>+CMS ERROR: <err><CR><LF>
+CMGS=?	<CR><LF>OK<CR><LF>

3.8.2 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. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. This command should be abortable.

3.8.3 Defined values

<length>: integer type value indicating the length of the actual TP data unit in octets

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<mr>: TP-Message-Reference in integer format

<ackpdu>: RP-User-Data element of RP-ACK PDU

<ctrl-Z>: must be used to indicate the ending of PDU

3.8.4 e.g.

Command: AT+CMGS=24
>0891683108200905F0040D91683151120800F70008509092313454800462C94
E01< ctrl-Z >
Response: OK

3.9 Write Message to Memory +CMGW

3.9.1 Syntax

Table 3-9: +CMGW action command syntax

Command	Possible response(s)
+CMGW=<length>[,<stat>]<CR>***PDU is given***<ctrl-Z/ESC>	<CR><LF>+CMGW: <index><CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CMS ERROR: <err><CR><LF>
+CMGW=?	<CR><LF>OK<CR><LF>

3.9.2 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. (ME/TA manufacturer may choose to use different default `<stat>` values for different message types.) The entering of PDU is done similarly as specified in command Send Message `+CMGS`. If writing fails, final result code `+CMS ERROR: <err>` is returned.

3.9.3 Defined values

<length>: integer type value indicating the length of the actual TP data unit in octets

<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)

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

3.9.4 e.g.

Command: AT+CMGW=24
>0891683108200905F0040D91683151120800F70008509092313454800462C94E01< ctrl-Z >
Response: +CMGW: 9
OK

3.10 List Messages +CMGL

3.10.1 Syntax

Table 3-10: +CMGL action command syntax

Command	Possible response(s)
+CMGL[=<stat>]	**if PDU mode and command successful:** [<CR><LF>+CMGL: <index>,<stat>,[<reserved>],<length><CR><LF><pdu> [<CR><LF>+CMGL:<index>,<stat>,[<reserved>],<length><CR><LF><pdu> [...]]<CR><LF>]<CR><LF>OK<CR><LF> **otherwise:** <CR><LF>+CMS ERROR: <err><CR><LF>
+CMGL=?	<CR><LF>+CMGL: (list of supported <stat>s) <CR><LF><CR><LF>OK<CR><LF>

3.10.2 Description

Execution command returns messages with status value `<stat>` from preferred message storage `<mem1>` to the TE. Entire data units `<pdu>` are returned. If status of the message is 'received unread', status in the storage will change to 'received read'. If listing fails, final result code `+CMS ERROR: <err>` is returned.

Test command shall give a list of all status values supported by the TA.

3.10.3 Defined values

<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)

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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)

<length>: integer type value indicating the length of the actual TP data unit in octets

3.10.4 e.g.

Command: AT+CMGL=4

Response:

+CMGL: 0,1,,22

089168310820090 5F0240D91683109294348F000005090925131740002ED32

+CMGL: 1,1,,24

089168310820090 5F0040D91683151120800F700085090923134548004 62C94E01

+CMGL: 7,1,,27

089168310820090 5F0200D91683109294348F000005090926140300008E6B3997C269BCF

OK

3.11 Read Message +CMGR

3.11.1 Syntax

Table 3-11: +CMGR action command syntax

Command	Possible response(s)
+CMGR=<index>	**if PDU mode and command successful:** <CR><LF>+CMGR: <stat>,[<reserved>],<length><CR><LF><pdu><CR><LF><CR><LF>OK<CR><LF> **otherwise:** <CR><LF>+CMS ERROR: <err><CR><LF>
+CMGR=?	<CR><LF>OK<CR><LF>

3.11.2 Description

Execution command returns message with location value `<index>` from preferred message storage `<mem1>` to the TE. Status of the message and entire message data unit `<pdu>` is returned. If status of the message is 'received unread', status in the storage will change to 'received read'. If reading fails, final result code `+CMS ERROR: <err>` is returned.

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3.11.3 Defined values

<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)

<length>: integer type value indicating the length of the actual TP data unit in octets

3.11.4 e.g.

Command: AT+CMGR=7

Response: +CMGR: 1,,27
0891683108200905F0200D91683109294348F000005090926140300008E6B39
97C269BCF
OK

3.12 Select Message Service +CSMS

3.12.1 Syntax

Table 3-12: +CSMS action command syntax

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

3.12.2 Description

Set command selects messaging service <service>. It returns the types of messages supported by the ME: <mt> for mobile terminated messages, <mo> for mobile originated messages and <bm> for broadcast type messages. If chosen service is not supported by the ME (but is supported by the TA), final result code +CMS ERROR: <err> shall be returned.

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Also read command returns supported message types along the current service setting.

Test command returns a list of all services supported by the TA.

3.12.3 Defined values

<service>:

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

1 3G TS 23.040 [3] and 3G TS 23.041 [4]the requirement of <service> setting 1 is mentioned under corresponding command descriptions)

2...127 reserved

128... manufacturer specific

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

0 type not supported

1 type supported

3.12.4 e.g.

Command: AT+CSMS=?
Response: +CSMS: (0-1)
OK

3.13 New class0 Message Indications +ZCLAS

3.13.1 Syntax

Table 3-13: +ZCLAS action command syntax

Command	Possible response(s)
	<CR><LF>+ZCLAS: <length> <pdu><CR><LF>

3.13.2 Description

When new class0 message is received, it indicates the pdu-sms to TE and without storing the message in memory.

3.13.3 Defined Values

<length>: integer type value indicating the length of the actual TP data unit in octets
<pdu>: User-Data element of PDU

3.13.4 e.g.

Response: +ZCLAS: 26,040D91685108923137F2001080902151635523066376783E8701

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3.14 Save Settings +CSAS

3.14.1 Syntax

Table 3-14: +CSAS action command syntax

Command	Possible response(s)
+CSAS[=<profile>]	*+CMS ERROR: <err>*
+CSAS=?	+CSAS: (list of supported <profile>s)

3.14.2 Description

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

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

3.13.3 Defined Values

<profile>:

0...255manufacturer specific profile number where settings are to be stored

3.15 Restore Settings +CRES

3.15.1 Syntax

Table 3-15: +CSAS action command syntax

Command	Possible response(s)
+CRES[=<profile>]	*+CMS ERROR: <err>*
+CRES=?	+CRES: (list of supported <profile>s)

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

3.15.3 Defined Values

<profile>:

0...255manufacturer specific profile number from where settings are to be restored

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3.16 New Message Acknowledgement to ME/TA +CNMA

3.16.1 Syntax

Table 3-16: + CNMA action command syntax

Command	Possible response(s)
if text mode (+CMGF=1): +CNMA	*+CMS ERROR: <err>*
+CNMA=?	

3.16.2 Description

Execution command confirms correct reception of a new message (SMS-DELIVER or SMS-STATUS-REPORT) which is routed directly to the TE (refer command +CNMI tables). This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service> equals 1. TA shall not send another +CMT or +CDS result code to TE before previous one is acknowledged.

If ME does not get acknowledgement within required time (network timeout), ME should respond as specified in 3GPP TS 24.011 [6] to the network. ME/TA shall automatically disable routing to TE by setting both <mt> and <ds> values of +CNMI to zero.

If command is executed, but no acknowledgement is expected, or some other ME related error occurs, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values.

NOTE: In case that a directly routed message must be buffered in ME/TA (possible when +CNMI parameter <mode> equals 0 or 2) or AT interpreter remains too long in a state where result codes cannot be sent to TE (e.g. user is entering a message using +CMGS), acknowledgement (RP-ACK) must be sent to the network without waiting +CNMA command from TE. Later, when buffered result codes are flushed to TE, TE must send +CNMA acknowledgement for each result code. In this way, ME/TA can determine if message should be placed in non-volatile memory and routing to TE disabled (+CNMA not received). Refer command +CNMI for more details how to use <mode> parameter reliably.

3.16.3 Defined Values

3.17 Select Cell Broadcast Message Types +CSCB

3.17.1 Syntax

Table 3-17: + CSCB action command syntax

Command	Possible response(s)
+CSCB=[<mode>[,<mids>[,<dcss>]]]	
+CSCB?	+CSCB: <mode>,<mids>,<dcss>
+CSCB=?	+CSCB: (list of supported <mode>s)

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3.17.2 Description

Set command selects which types of CBMs are to be received by the ME.
Test command returns supported modes as a compound value.

3.17.3 Defined Values

<mode>:

0 message types specified in <mids> and <dcss> are accepted

1 message types specified in <mids> and <dcss> are not accepted

<mids>: string type; 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 <dcs>) (default is empty string); e.g. "0-3,5"

Implementation

Optional.

3.18 Send Message from Storage +CMSS

3.18.1 Syntax

Table3-18: + CMSS action command syntax

Command	Possible response(s)
+CMSS=<index>[,<da>[,<toda>]]	**if text mode (+CMGF=1) and sending successful:** +CMSS: <mr>[,<scts>] **if sending fails:** *+CMS ERROR: <err>*
+CMSS=?	

3.18.2 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 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. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values. This command should be abortable..

3.18.3 Defined Values

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3.19 Send Command +CMGC

3.19.1 Syntax

Table3-19: + CMGC action command syntax

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=?	

3.19.2 Description

Execution command sends a command message from a TE to the network (SMS-COMMAND). The entering of text (3G TS 23.040 [3] TP-Command-Data) is done similarly as specified in command Send Message +CMGS, but the format is fixed to be a sequence of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octets (refer +CMGS). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <scts> is returned. Values can be used to identify message upon unsolicited delivery status report result code. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values. This command should be abortable.

3.19.3 Defined Values

3.20 More Messages to Send +CMMS

3.20.1 Syntax

Table3-20: + CMMS action command syntax

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

3.20.2 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.

3.20.3 Defined Values

<n>:

0 disable

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1 keep enabled until the time between the response of the latest message send command (+CMGS, +CMSS, etc.) and the next send command exceeds 1-5 seconds (the exact value is up to ME implementation), then ME shall close the link and TA switches <n> automatically back to 0

2 enable (if the time between the response of the latest message send command and the 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)

4. Commands for Safety Configuration

4.1 Change password +CPWD

4.1.1 Syntax

Table 4-1: +CPWD action command syntax

Command	Possible response(s)
+CPWD=<fac>,<oldpwd>,<newpwd>	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CPWD=?	<CR><LF>+CPWD: list of supported (<fac>,<pwdlength>)s<CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

4.1.2 Description

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

Test command returns a list of pairs, which present the available facilities and the maximum length of their password.

4.1.3 Defined values

<fac>: values reserved by the present document:

"CS" CNTRL (lock CoNTRoL surface (e.g. phone keyboard))

"PS" PH-SIM (lock PHone to SIM/UICC card) (MT asks password when other than current SIM/UICC card inserted; MT may remember certain amount of previously used cards thus not requiring password when they are inserted)

"PF" lock Phone to the very First inserted SIM/UICC card (also referred in the present document as PH-FSIM) (MT asks password when other than the first SIM/UICC card is inserted)

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"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued)

"AO" BAOC (Barr All Outgoing Calls)

"OI" BOIC (Barr Outgoing International Calls)

"OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country)

"AI" BAIC (Barr All Incoming Calls)

"IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country)

"NT" barr incoming calls from numbers Not stored to TA memory

"NM" barr incoming calls from numbers Not stored to MT memory

"NS" barr incoming calls from numbers Not stored to SIM/UICC memory

"NA" barr incoming calls from numbers Not stored in Any memory

"AB" All Barring services (applicable only for <mode>=0)

"AG" All outGoing barring services (applicable only for <mode>=0)

"AC" All inComing barring services (applicable only for <mode>=0)

"FD" SIM card or active application in the UICC (GSM or USIM) fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>)

"PN" Network Personalization

"PU" network sUbset Personalization

"PP" service Provider Personalization

"PC" Corporate Personalization

"P2" SIM PIN2

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

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

4.1.4 e.g.

Command: AT+CPWD=”SC”,”1234”,”4321”

Response: OK

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4.2 Enter PIN +CPIN

4.2.1 Syntax

Table 4-2: +CPIN parameter command syntax

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

4.2.2 Description

Set command sends to the MT a password which is necessary before it can be operated (SIM PIN, SIM PUK,PH-SIM, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no action is taken towards MT and an error message, `+CME ERROR`, is returned to TE.

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

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

When the User Interface is started, MT will use this read command automatically.

4.2.3 Defined values

<pin>, <newpin>: string type values

<code> values reserved by the present document:

READY	MT is not pending for any password
SIM PIN	MT is waiting UICC/SIM PIN to be given
SIM PUK	MT is waiting UICC/SIM PUK to be given
PH-NET PIN	MT is waiting network personalization password to be given
SIM PIN2	MT is waiting active application in the UICC (GSM or USIM) or SIM card PIN2 to be given
SIM PUK2	MT is waiting active application in the UICC (GSM or USIM) or SIM card PUK2 to be given

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4.2.4 e.g.

Command: AT+CPIN?

Response: +CPIN: SIM PUK2

OK

4.3 Facility lock +CLCK

4.3.1 Syntax

Table 4-3: +CLCK action command syntax

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

4.3.2 Description

Execute command is used to lock, unlock or interrogate a MT or a network facility <fac>. Password is normally needed to do such actions. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. This command should be abortable when network facilities are set or interrogated.

Test command returns facility values supported as a compound value.

4.3.3 Defined values

<fac>: values reserved by the present document:

"CS" CNTRL (lock CoNTRoL surface (e.g. phone keyboard))

"PS" PH-SIM (lock PHone to SIM/UICC card) (MT asks password when other than current SIM/UICC card inserted; MT may remember certain amount of previously used cards thus not requiring password when they are inserted)

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"PF" lock Phone to the very First inserted SIM/UICC card (also referred in the present document as PH-FSIM) (MT asks password when other than the first SIM/UICC card is inserted)

"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued)

"AO" BAOC (Barr All Outgoing Calls)

"OI" BOIC (Barr Outgoing International Calls)

"OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country)

"AI" BAIC (Barr All Incoming Calls)

"IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country)

"NT" barr incoming calls from numbers Not stored to TA memory

"NM" barr incoming calls from numbers Not stored to MT memory

"NS" barr incoming calls from numbers Not stored to SIM/UICC memory

"NA" barr incoming calls from numbers Not stored in Any memory

"AB" All Barring services (applicable only for <mode>=0)

"AG" All outGoing barring services (applicable only for <mode>=0)

"AC" All inComing barring services (applicable only for <mode>=0)

"FD" SIM card or active application in the UICC (GSM or USIM) fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>)

"PN" Network Personalization

"PU" network sUbset Personalization

"PP" service Provider Personalization

"PC" Corporate Personalization

<mode>:

0 unlock

1 lock

2 query status

<status>:

0 not active

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1 active

<passwd>: string type; shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD

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

1 voice (telephony)

2 data

4 fax (facsimile services)

8 short message service

4.3.4 e.g.

Command: AT+CLCK=”SC”,0,”1234”
Response: OK

4.4 Restricted SIM access +CRSM

4.4.1 Syntax

Table 4-4: +CRSM action command syntax

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

4.4.2 Description

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

4.4.3 Defined values

<command>:

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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 datafile on SIM. Mandatory for every command except STATUS

<P1>, <P2>, <P3>: integer type; parameters passed on by the MT to the SIM. These parameters are mandatory for every command, except GET RESPONSE and STATUS.

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

<sw1>, <sw2>: integer type; information from the SIM about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command

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

4.4.4 e.g.

Command: AT+CRSM=176,28423,0,0,9
Response: +CRSM: 144,0,"084906103392791577"
OK

5. Commands for UMTS Packet Domain

5.1 Define PDP Context +CGDCONT

5.1.1 Syntax

Table 5-1: +CGDCONT parameter command syntax

Command	Possible response(s)
+CGDCONT=<cid>[,<PDP_type>[,<APN>[,<PDP_addr>[,<d_comp>[,<h_comp>[,<pd1	<CR><LF>OK<CR><LF>

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> [,…[,pdN]]]]]]]]	<CR><LF>ERROR<CR><LF>
+CGDCONT?	<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]] [<CR><LF>+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <d_comp>, <h_comp>[,<pd1>[,…[,pdN]]] [...]]<CR><LF>
+CGDCONT=?	<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 <pd1>s)[,…[,(list of supported <pdN>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 <pd1>s)[,…[,(list of supported <pdN>s)]]] [...]]<CR><LF>

5.1.2 Description

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

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

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

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

5.1.3 Defined values

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

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

X.25 ITU-T/CCITT X.25 layer 3 (Obsolete)

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IP Internet Protocol (IETF STD 5)
IPV6 Internet Protocol, version 6 (IETF RFC 2460)
OSPIH Internet Hosted Octet Stream Protocol (Obsolete)
PPP Point to Point Protocol (IETF STD 51)

<APN>: (Access Point Name) a string parameter which is a logical name that is used to select the GGSN or the external packet data network.
If the value is null or omitted, then the subscription value will be requested.

<PDP_address>: a string parameter that identifies the MT in the address space applicable to the PDP.
If the value is null or omitted, then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested.
The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command.

<d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 44.065 [61])
0 - off (default if value is omitted)
1 - on (manufacturer preferred compression)
2 - V.42bis
3 - V.44
Other values are reserved.

<h_comp>: a numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61])
0 – off (default if value is omitted)
1 – on (manufacturer preferred compression)
2 - RFC1144 (applicable for SNDCP only)
3 - RFC2507
4 - RFC3095 (applicable for PDCP only)
Other values are reserved.

<pd1>, … <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type>

5.1.4 e.g.

Command: AT+CGDCONT=1,”IP”,”mms.com”,,0,0
Response: OK

5.2 PS attach or detach +CGATT

5.2.1 Syntax

Table 5-2: +CGATT parameter command syntax

Command	Possible response(s)
+CGATT= [<state>]	<CR><LF>OK<CR><LF>

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	<CR><LF>ERROR<CR><LF>
+CGATT?	<CR><LF>+CGATT: <state><CR><LF> OK<CR><LF>
+CGATT=?	<CR><LF>+CGATT: (list of supported <state>s) <CR><LF> OK<CR><LF>

5.2.2 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.25ter command state. If the MT is already in the requested state, the command is ignored and the OK response is returned. If the requested state cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

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

The read command returns the current Packet Domain service state.

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

5.2.3 Defined values

<state>: indicates the state of PS attachment

0 – detached

1 - attached

5.2.4 e.g.

Command: AT+CGATT=?

Response: +CGATT: (0,1)

OK

5.3 PDP context activate or deactivate +CGACT

5.3.1 Syntax

Table 5-3: +CGACT parameter command syntax

Command	Possible response(s)
+CGACT=[<state> [,<cid>[,<cid>[,…]]]]	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+CGACT?	<CR><LF>+CGACT: <cid>, <state>[<CR><LF>+CGACT: <cid>, <state>[...]]<CR><LF> OK<CR><LF>

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+CGACT=?	<CR><LF>+CGACT: (list of supported <state>s) <CR><LF> OK<CR><LF>

5.3.2 Description

The execution command is used to activate or deactivate the specified PDP context (s). After the command has completed, the MT remains in V.25ter command state. If any PDP context is already in the requested state, the state for that context remains unchanged. If the requested state for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command. If the MT is not PS attached when the activation form of the command is executed, the MT first performs a PS attach and them attempts to activate the specified contexts. If the attach fails then the MT responds with ERROR or, if extended error responses are enabled, with the appropriate failure-to-attach error message.

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

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

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

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

5.3.3 Defined values

<state>: indicates the state of PDP context activation

0 – deactivated

1 - activated

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

5.3.4 e.g.

Command: AT+CGACT=?

Response: +CGACT: (0,1)

OK

6. Commands for Phonebook

6.1 Select phonebook memory storage +CPBS

6.1.1 Syntax

Table 6-1: +CPBS action command syntax

Command	Possible response(s)
+CPBS=<storage>	<CR><LF>OK<CR><LF>

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[,<password>]	<CR><LF>+CME ERROR: <err><CR><LF>
+CPBS?	<CR><LF>+CPBS: <storage>[,<used>,<total>]<CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CPBS=?	<CR><LF>+CPBS: (list of supported <storage>s)<CR><LF><CR><LF>OK<CR><LF>

6.1.2 Description

Set command selects phonebook memory storage <storage>, which is used by other phonebook commands. If setting fails in an MT error, +CME ERROR: <err> is returned.

Read command returns currently selected memory, and when supported by manufacturer, number of used locations and total number of locations in the memory.

Test command returns supported storages as compound value.

6.1.3 Defined values

<storage> values reserved by the present document:

"SM" SIM/UICC phonebook. If a SIM card is present or if a UICC with an active GSM application is present, the EFADN under DFTelecom is selected. If a UICC with an active USIM application is present, the global phonebook, DFPHONEBOOK under DFTelecom is selected.

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

"EN" SIM/USIM (or MT) emergency number (+CPBW is not be applicable for this storage)

"FD" SIM/USIM fixdialling-phonebook. If a SIM card is present or if a UICC with an active GSM application is present, the information in EFFDN under DFTelecom is selected. If a UICC with an active USIM application is present, the information in EFFDN under ADFUSIM is selected.

"LD" SIM/UICC last-dialling-phonebook

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

"ME" MT phonebook

"MT" combined MT and SIM/USIM phonebook

"ON" SIM (or MT) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM also). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active GSM application is present, the information in EFMSISDN under DFTelecom is selected. If a UICC with an active USIM application is present, the information in EFMSISDN under ADFUSIM is selected.

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

"TA" TA phonebook

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"AP" Selected application phonebook. If a UICC with an active USIM application is present, the application phonebook, DFPHONEBOOK under ADFUSIM is selected.

<password>: string type value representing the PIN2-code required when selecting PIN2-code locked <storage>s above, e.g. "FD" or the hidden key to be verified in order to access to the hidden phonebook entries in the UICC/USIM or any other phonebook with hidden entries.

If the combined phonebook is selected, "MT", the <password> will correspond to the hidden key of the USIM phonebook.

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

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

6.1.4 e.g.

Command: AT+CPBS?

Response: +CPBS: "SM",0,250

OK

6.2 Read phonebook entries +CPBR

6.2.1 Syntax

Table 6-2: +CPBR action command syntax

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

6.2.2 Description

Execution command returns phonebook entries in location number range `<index1>`... `<index2>` from the current phonebook memory storage selected with `+CPBS`. If `<index2>` is left out, only location `<index1>` is returned. Entry fields returned are location number `<indexn>`, phone number stored there `<number>` (of format `<type>`) and text `<text>`

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associated with the number. If all queried locations are empty (but available), no information text lines will be returned. If listing fails in an MT error, +CME ERROR: <err> is returned.

Test command returns location range supported by the current storage as a compound value and the maximum lengths of <number> and <text> fields. In case of SIM/UICC storage, the lengths may not be available. If MT is not currently reachable, +CME ERROR: <err> is returned.

6.2.3 Defined values

<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

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

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

<tlength>: integer type value indicating the maximum length of field <text>

6.2.4 e.g.

Command: AT+CPBR=3,7

Response: +CPBR: 3,"13989245045",129,"zhangshan"
+CPBR: 4,"13989245045",129,"lishi"
+CPBR: 5,"88888888",129," 56FD5BB6"
+CPBR: 6,"13989245045",129," 623F7ACB519B"
+CPBR: 7,"88888888",129," 0041"
OK

6.3 Write phonebook entry +CPBW

6.3.1 Syntax

Table 6-3: +CPBW action command syntax

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

6.3.2 Description

Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS. Entry fields written are phone number

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<number> (in the format <type>) and text <text> associated with the number. If those fields are omitted, phonebook entry is deleted. If <index> is left out, but <number> is given, entry is written to the first free location in the phonebook (the implementation of this feature is manufacturer specific). If writing fails in an MT error, +CME ERROR: <err> is returned.

Test command returns location range supported by the current storage as a compound value, the maximum length of <number> field, supported number formats of the storage, and the maximum length of <text> field. In case of SIM/UICC storage, the lengths may not be available. If MT is not currently reachable, +CME ERROR: <err> is returned. If storage does not offer format information, the format list should be empty parenthesis.

6.3.3 Defined values

<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; default 145 when dialling string includes international access code character "+", otherwise 129
<text>: string type field of maximum length <tlength>
<nlength>: integer type value indicating the maximum length of field <number>
<tlength>: integer type value indicating the maximum length of field <text>

6.3.4 e.g.

Command: AT+CPBW=32,"88723348",129,"zhangguoli"
Response: OK

7. Commands for System Configuration

7.1 Operator selection +COPS

7.1.1 Syntax

Table 7-1: +COPS parameter command syntax

Command	Possible response(s)
+COPS=[<mode>[,<format>[,<oper>]]]	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+COPS?	<CR><LF>+COPS:<mode>[,<format>,<oper>]<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

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+COPS=?	<CR><LF>+COPS: [list of supported (<stat>,long alphanumeric <oper>,short alphanumeric <oper>,numeric <oper>)s][,,(list of supported <mode>s),(list of supported <format>s)]<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

7.1.2 Description

Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select whether the selection is done automatically by the MT or is forced by this command to operator <oper> (it shall be given in format <format>). If the selected operator is not available, no other operator shall be selected (except <mode>=4). The selected operator name format shall apply to further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected mode affects to all further network registration (e.g. after <mode>=2, MT shall be unregistered until <mode>=0 or 1 is selected). This command should be abortable when registration/deregistration attempt is made.

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

Test command returns a list of quadruplets, each representing an operator present in the network. Quadruplet consists of an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the operator, and numeric format representation of the operator. Any of the formats may be unavailable and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM/UICC, and other networks.

It is recommended (although optional) that after the operator list TA returns lists of supported <mode>s and <format>s. These lists shall be delimited from the operator list by two commas.

7.1.3 Defined values

<mode>:

0 automatic (<oper> field is ignored). For ZTE, Set AUTOMATIC network selection should use AT+ZSNT.

1 manual (<oper> field shall be present)

2 deregister from network

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

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

<format>:

0 long format alphanumeric <oper>

1 short format alphanumeric <oper>

2 numeric <oper>

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

<stat>:

0 unknown
1 available
2 current
3 forbidden

<AcT> access technology selected:

0 GSM
2 UTRAN
No para UMTS PREF, only used for Write command.

7.1.4 e.g.

Command: AT+COPS?
Response: +COPS: 0,0,"China Mobile Communication Corp."
OK

7.2 Set phone functionality +CFUN

7.2.1 Syntax

Table 7-2： +CFUN parameter command syntax

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

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7.2.2 Description

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

7.2.3 Defined values

<fun>:

0 minimum functionality

1 full functionality

4 disable phone both transmit and receive RF circuits

5...127 reserved for manufacturers as intermediate states between full and minimum functionality

<rst>:

0 do not reset the MT before setting it to <fun> power level

NOTE: This shall be always default when <rst> is not given.

1 reset the MT before setting it to <fun> power level

7.2.4 e.g.

Command: AT+CFUN?

Response: +CFUN: 0

OK

7.3 Network registration +CREG

7.3.1 Syntax

Table 7-3: +CREG parameter command syntax

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

7.3.2 Description

Set command controls the presentation of an unsolicited result code +CREG: <stat> when <n>=1 and there is a change in the ME network registration status, or code +CREG: <stat>[,<lac>,<ci>] 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 ME. Location information elements <lac> and <ci> are returned only when <n>=2 and ME is registered in the

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network.

7.3.3 Defined values

<n>:

0 disable network registration unsolicited result code

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

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

<stat>: registration status

0 not registered, ME is not currently searching a new operator to register to

1 registered, home network

2 not registered, but ME is currently searching a new operator to register to

3 registration denied

4 unknown

5 registered, roaming

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

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

7.3.4 e.g.

Command: AT+CREG?

Response: +CREG: 0,5

OK

7.4 Subscriber number +CNUM

7.4.1 Syntax

Table 7-4: **+CNUM action command syntax**

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

7.4.2 Description

Action command returns the MSISDNs related to the subscriber (this information can be stored in the SIM/UICC or in the MT). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active GSM application is present, the information is stored in the

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EFMSISDN under DFTelecom. If a UICC with an active USIM application is present, the information is stored in the EFMSISDN under ADFUSIM). If subscriber has different MSISDN for different services, each MSISDN is returned in a separate line.

7.4.3 Defined values

<alpha*x*>: optional alphanumeric string associated with <number*x*>;

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

<type*x*>: type of address octet in integer format

<speed>:

0	autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz module and non-transparent service)
1	300 bps (V.21)
2	1200 bps (V.22)
3	1200/75 bps (V.23)
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)
15	19200 bps (V.34)
16	28800 bps (V.34)
17	33600 bps (V.34)
34	1200 bps (V.120)
36	2400 bps (V.120)
38	4800 bps (V.120)
39	9600 bps (V.120)
43	14400 bps (V.120)
47	19200 bps (V.120)
48	28800 bps (V.120)
49	38400 bps (V.120)
50	48000 bps (V.120)
51	56000 bps (V.120)
65	300 bps (V.110)
66	1200 bps (V.110)
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)
79	19200 bps (V.110 or X.31 flag stuffing)
80	28800 bps (V.110 or X.31 flag stuffing)
81	38400 bps (V.110 or X.31 flag stuffing)
82	48000 bps (V.110 or X.31 flag stuffing)

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83	56000 bps (V.110 or X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI or RDI service in order to get FTM)
84	64000 bps (X.31 flag stuffing; this setting can be used in conjunction with asynchronous non-transparent UDI service in order to get FTM)
115	56000 bps (bit transparent)
116	64000 bps (bit transparent)
120	32000 bps (PIAFS32k)
121	64000 bps (PIAFS64k)
130	28800 bps (multimedia)
131	32000 bps (multimedia)
132	33600 bps (multimedia)
133	56000 bps (multimedia)
134	64000 bps (multimedia)

<service> (service related to the phone number):

0 asynchronous module

1 synchronous module

2 PAD Access (asynchronous)

3 Packet Access (synchronous)

4 voice

5 fax

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

<itc> (information transfer capability):

0 3,1 kHz

1 UDI

7.4.4 e.g.

Command: AT+CNUM

Response: +CNUM: "2332","23232",129

OK

7.5 GPRS network registration status +CGREG

7.5.1 Syntax

Table 7-5: + CGREG parameter command syntax

Command	Possible response(s)

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+CGREG=[<n>]	
+CGREG?	<CR><LF>+CGREG:<n>,<stat><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CGREG=?	<CR><LF>+CGREG:(list of supported <n>s) <CR><LF>OK<CR><LF>

7.5.2 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

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.

7.5.3 Defined values

<n>:

0 disable network registration unsolicited result code

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

<stat>:

0 not registered, ME is not currently searching an operator to register to

1 registered, home network

2 not registered, but ME is currently trying to attach or searching an operator to register to

3 registration denied

4 unknown

5 registered, roaming

7.5.4 e.g.

Command: AT+CGREG?

Response: +CGREG: 0,5

OK

7.6 3G Quality of Service Profile (Requested) +CGEQREQ

7.6.1 Syntax

Table 7-6: +CGEQREQ parameter command syntax

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

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Command	Possible Response(s)
	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>+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> […]]
+CGEQREQ=?	+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 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

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Command	Possible Response(s)
	<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) […]]

7.6.2 Description

This command allows the TE to specify a UMTS Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network. The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and sent to the network only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQREQ command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value. A special form of the set command, +CGEQREQ= <cid> causes the requested profile for context number <cid> to become undefined. The read command returns the current settings for each defined context. The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

7.6.3 Defined values

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

The following parameters are defined in 3GPP TS 23.107 [46] -

<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.

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<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•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•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).

If a value is omitted for a particular class then the value is considered to be unspecified.

7.7 Quality of Service Profile (Requested) +CGQREQ

7.7.1 Syntax

Table 7-7: +CGQREQ parameter command syntax

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

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	<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) […]]

7.7.2 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. The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGQREQ command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value. A special form of the set command, +CGQREQ= <cid> causes the requested profile for context number <cid> to become undefined. The read command returns the current settings for each defined context. The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

7.7.3 Defined values

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

The following parameters are defined in GSM 03.60 -

<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

If a value is omitted for a particular class then the value is considered to be unspecified.

7.8 3G Quality of Service Profile (Minimum acceptable) +CGEQMIN

7.8.1 Syntax

Table 7-8: +CGEQMIN parameter command syntax

Command	Possible Response(s)
+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>	OK ERROR

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Command	Possible Response(s)
[,<Delivery of erroneous SDUs> [,<Transfer delay> [,<Traffic handling priority>]]]]]]]]]]]]	
+CGEQMIN?	+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> […]]
+CGEQMIN=?	+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 <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

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Command	Possible Response(s)
	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) […]]

7.8.2 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. The set command specifies a profile for the context identified by the (local) context identification parameter, <cid>. The specified profile will be stored in the MT and checked against the negotiated profile only at activation or MS-initiated modification of the related context. Since this is the same parameter that is used in the +CGDCONT and +CGDSCONT commands, the +CGEQMIN command is effectively an extension to these commands. The QoS profile consists of a number of parameters, each of which may be set to a separate value. A special form of the set command, +CGEQMIN= <cid> causes the minimum acceptable profile for context number <cid> to become undefined. In this case no check is made against the negotiated profile.

The read command returns the current settings for each defined context. The test command returns values supported as a compound value. If the MT supports several PDP types, the parameter value ranges for each PDP type are returned on a separate line.

7.8.3 Defined values

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

The following parameters are defined in 3GPP TS 23.107 [46] -

<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, …).

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<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•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•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).

If a value is omitted for a particular class then the value is considered to be unspecified.

7.9 Battery charge +CBC

7.8.1 Syntax

Table 7-9: +CBC parameter command syntax

Command	Possible response(s)
+CBC	+CBC: <bcs>,<bcl> *+CME ERROR: <err>*

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+CBC=?	+CBC: (list of supported <bcs>s),(list of supported <bcl>s)

7.9.2 Description

Execution command returns battery connection status <bcs> and battery charge level <bcl> of the MT. Refer subclause 9.2 for possible <err> values.
Test command returns values supported as compound values.

7.9.3 Defined values

<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...100battery has 1-100 percent of capacity remaining

8. Commands for Call Control

8.1 Select bearer service type +CBST

8.1.1 Syntax

Table 8-1: +CBST parameter command syntax

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)

8.1.2 Description

Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated (refer GSM 02.02 [1]). Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls (refer +CSNS).

Test command returns values supported by the TA as compound values.

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8.1.3 Defined values

<speed>:

0 autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz module and non-transparent service)

1 300 bps (V.21)

2 1200 bps (V.22)

3 1200/75 bps (V.23)

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)

15 19200 bps (V.34)

16 28800 bps (V.34)

34 1200 bps (V.120)

36 2400 bps (V.120)

38 4800 bps (V.120)

39 9600 bps (V.120)

43 14400 bps (V.120)

47 19200 bps (V.120)

48 28800 bps (V.120)

49 38400 bps (V.120)

50 48000 bps (V.120)

51 56000 bps (V.120)

65 300 bps (V.110)

66 1200 bps (V.110)

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)

79 19200 bps (V.110 or X.31 flag stuffing)

80 28800 bps (V.110 or X.31 flag stuffing)

81 38400 bps (V.110 or X.31 flag stuffing)

82 48000 bps (V.110 or X.31 flag stuffing)

83 56000 bps (V.110 or X.31 flag stuffing)

115 56000 bps (bit transparent)

116 64000 bps (bit transparent)

also all other values below 128 are reserved

<name>:

0 data circuit asynchronous (UDI or 3.1 kHz module)

1 data circuit synchronous (UDI or 3.1 kHz module)

2 PAD Access (asynchronous) (UDI)

3 Packet Access (synchronous) (UDI)

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4 data circuit asynchronous (RDI)
5 data circuit synchronous (RDI)
6 PAD Access (asynchronous) (RDI)
7 Packet Access (synchronous) (RDI)
also all other values below 128 are reserved by the present document

<ce>:
0 transparent
1 non-transparent
2 both, transparent preferred
3 both, non-transparent preferred

8.1.4 e.g.

Command: AT+CBST?
Response: +CBST: 0,0,1
OK

8.2 Dial command D

8.2.1 Syntax

Table 8-2: D parameter command syntax

Command	Possible response(s)
D<dial string>	<CR><LF><RE><CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

8.2.2 Description

This command is used to originate a voice call.

8.2.3 Defined values

<dial string>: the string to dial.
<RE>: Return result
OK successful
BUSY busy signal detected
CONNECT connection has been established
NO ANSWER connection completion timeout
NO CARRIER connection terminated
NO DIALTONE no dial tone detected

8.2.4 e.g.

Command: ATD1860;
Response: CONNECT

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8.3 Answer incoming call A

8.3.1 Syntax

Table 8-3: A parameter command syntax

Command	Possible response(s)
A	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

8.3.2 Description

This command is used to answer an incoming call.

8.3.3 Defined values

Null.

8.3.4 e.g.

Command: ATA

8.4 Hang up call +CHUP

8.4.1 Syntax

Table 8-4：+CBST parameter command syntax

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

8.4.2 Description

Execution command causes the TA to hangup the current GSM/UMTS call of the MT.

8.4.3 Defined values

Null.

8.4.4 e.g.

Command: AT+CHUP

Response: OK

8.5 Calling line identification presentation +CLIP

8.5.1 Syntax

Table 8-5: +CLIP parameter command syntax

Command	Possible response(s)
+CLIP=[<n>]	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>

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+CLIP?	<CR><LF> <n>,<m><CR><LF>
+CLIP=?	<CR><LF>+CLIP: (list of supported <n>s) <CR><LF>
Unsolicited result code	<CR><LF>+CLIP: <CLI>, <type>, , , <CLI validity><CR><LF>

8.5.2 Description

This command refers to the GSM/UMTS supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the calling line identity (CLI) of the calling party when receiving a mobile terminated call. Set command enables or disables the presentation of the CLI at the TE. It has no effect on the execution of the supplementary service CLIP in the network.

When the presentation of the CLI at the TE is enabled (and calling subscriber allows), +CLIP:<number>,<type>[,<subaddr>,<satype>[,[<alpha>][,<CLI validity>]]] response is returned after every RING (or +CRING: <type>; refer subclause "Cellular result codes +CRC") result code sent from TA to TE. It is manufacturer specific if this response is used when normal voice call is answered.

Read command gives the status of <n>, and also triggers an interrogation of the provision status of the CLIP service according 3GPP TS 22.081 [3] (given in <m>).Test command returns values supported as a compound value.

8.5.3 Defined values

<n> (parameter sets/shows the result code presentation status in the MT/TA):
0 disable
1 enable
<m> (parameter shows the subscriber CLIP service status in the network):
0 CLIP not provisioned
1 CLIP provisioned
2 unknown (e.g. no network, etc.)
<number>: string type phone number of format specified by <type>
<type>: type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7)
<subaddr>: string type subaddress of format specified by <satype>
<satype>: type of subaddress octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.8)
<alpha>: optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS
<CLI validity>:
0 CLI valid
1 CLI has been withheld by the originator.
2 CLI is not available due to interworking problems or limitations of originating network.
When CLI is not available (<CLI validity>=2), <number> shall be an empty string ("") and <type> value will not be significant. Nevertheless, MT/TA may return the recommended value 128
for <type> ((TON/NPI unknown in accordance with GSM 04.08 [8] subclause 10.5.4.7).
When CLI has been withheld by the originator, (<CLI validity>=1) and the CLIP is

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provisioned with the "override category" option (refer 3GPP TS 22.081[3] and 3GPP TS 23.081[40]), <number> and <type> is provided. Otherwise, MT/TA shall return the same setting for <number> and <type> as if the CLI was not available.

8.5.4 e.g.

Command: AT+CLIP=0
Response: OK

8.6 Extended error report +CEER

8.6.1 Syntax

Table 8-6: +CEER parameter command syntax

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

8.6.2 Description

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

- the failure in the last unsuccessful call setup (originating or answering) or in-call modification;
- the last call release;
- the last unsuccessful GPRS attach or unsuccessful PDP context activation;
- the last GPRS detach or PDP context deactivation.

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

8.6.3 Defined values

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

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

8.7 Report Mobile Termination Error +CMEE

8.7.1 Syntax

Table 8-7: +CMEE parameter command syntax

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

8.7.2 Description

Set command disables or enables the use of result code +CME ERROR: <err> as an

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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.

8.7.3 Defined values

<n>:

0 disable +CME ERROR: <err> result code and use ERROR instead

1 enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)

2 enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

8.8 Voice Hang up Control +CVHU

8.8.1 Syntax

Table 8-8: +CMEE parameter command syntax

Command	Possible response(s)
+CVHU=[<mode>]	<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CVHU?	<CR><LF>+CMEE: <n><CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
+CVHU=?	<CR><LF>+CMEE: (list of supported <n>s) <CR><LF>

8.8.2 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.

8.8.3 Defined values

<n>:

0 disable +CME ERROR: <err> result code and use ERROR instead

1 enable +CME ERROR: <err> result code and use numeric <err> values (refer next subclause)

2 enable +CME ERROR: <err> result code and use verbose <err> values (refer next subclause)

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8.9 DTMF and tone generation +VTS

8.9.1 Syntax

Table 8-9：+VTS parameter command syntax

Command	Possible response(s)
+ VTS=as below	
+ VTS=?	(list of supported <tone1>s),(list of supported <tone2>s) ,(list of supported <duration>s)

8.9.2 Description

This command allows the transmission of DTMF tones and arbitrary tones (see note). These tones may be used (for example) when announcing the start of a recording period. The command is write only. In this profile of commands, this command does not operate in data or fax modes of operation (+FCLASS=0,1,2-7).

8.9.3 Defined values

NOTE 1: D is used only for dialling.

The string parameter of the command consists of combinations of the following separated by commas:

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

NOTE 2: In GSM this operates only in voice mode.

2. [<tone1>,<tone2>,<duration>]. This is interpreted as a dual tone of frequencies <tone1> and <tone2>, lasting for a time <duration> (in 10 ms multiples).

NOTE 3: This does not operate in GSM.

3. {<DTMF>,<duration>}. This is interpreted as a DTMF tone of different duration from that mandated by the VTD command.

NOTE 4: In GSM this operates only in voice mode.

9. ZTE Commands for GPS

9.1 Initialization Location command +ZGINIT

9.1.1 Syntax

Table 9-1: +ZGINIT parameter command syntax

Command	Possible response
AT+ZGINIT	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

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9.1.2 Description

Init a client for GPS application

9.1.3 e.g.

AT+ZGINIT
OK

9.2 set location mode +ZGMODE

9.2.1 syntax

Table 9-2: +ZGMODE parameter command syntax

Command	Possible response
AT+ZGMODE=<flag>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>
AT+ ZGMODE=?	<CR><LF>+ZGMODE: <flag><CR><LF> <CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.2.2 Description

This command used for set location mode by user.

9.2.3 e.g.

Values of flag:

Flag	Explanation
1	MS-BASED
2	MS-ASSISTED
3	STANDALONE_ONLY

AT+ZGMODE=1
OK

9.3 Set fix rate for tracking sessions +ZGFIXRATE

9.3.1 syntax

Table 9-3: +ZGFIXRATE parameter command syntax

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Command	Possible response
AT+ZGFIXRATE=<flag1>,<flag2>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>
AT+ ZGFIXRATE =?	<CR><LF>+ ZGFIXRATE: <flag1>,<flag2><CR><LF> <CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.3.2 Description

Set fix rate for tracking sessions

9.3.3 e.g.

Values of flag:

Flag	Explanation	Data type
flag1	Fix numbers	Unsigned 32 bit value
flag2	Positioning time interval	Unsigned 32 bit value

AT+ZGFIXRATE=2,5
OK
AT+ZGFIXRATE=?
+ZGFIXRATE: 2,5
OK

9.4 Set QOS for location +ZGQOS

9.4.1 syntax

Table 9-4: +ZGQOS parameter command syntax

Command	Possible response
AT+ZGQOS=<flag1>,<flag2>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>
AT+ZGQOS=?	<CR><LF>+ZGQOS: <flag1>,<flag2><CR><LF> <CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

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9.4.2 Description

This command used for set QOS for location.

9.4.3 e.g.

Values of flag:

Flag	explanation	Data type
Flag1	Positioning accuracy	Unsigned 32 bit value
Flag2	Desired level of performance. (0-255)	Unsigned 8 bit value

AT+ZGQOS=50,100
OK
AT+ZGQOS=?
+ZGQOS: 50,100

OK

9.5 Set URL of SUPL server +ZGURL

9.5.1 syntax

Table 9-5: +ZGURL parameter command syntax

Command	Possible response
AT+ZGURL =<flag>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>
AT+ZGURL =?	<CR><LF>+ZGURL: <flag><CR><LF> <CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.5.2 Description

This command used to set URL of SUPL server.

9.5.3 e.g.

Values of flag:

Flag	explanation
Flag	SUPL server URL

AT+ZGURL=http://h-slp.mnc410.mcc310.pub.3gppnetwork.org:7275

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OK

AT+ZGURL=?

+ZGURL: http://h-slp.mnc410.mcc310.pub.3gppnetwork.org:7275

OK

9.6 Location mode choice +ZGRUN

9.6.1 Syntax

Table 9-6: +ZGRUN parameter command syntax

Command	Possible response
AT+ZGRUN=<flag>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.6.2 Description

This command used to start or stop GPS Application，and choice one-shot or tracking mode location mode.

9.6.3 e.g.

Values of flag:

Flag	Explanation
0	Stop GPS location command
1	Start one-shot location mode
2	Start tracking mode （not applicable for MSA）,controlled by MS
3	Start tracking mode ,controlled by upper layer application software

AT+ZGRUN=0

OK

9.7 Report error code +ZGPSERROR

9.7.1 syntax

Table 9-7: +ZGPSERROR parameter command syntax

Command	Possible response

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	<CR><LF>+ZGPSERROR: <flag>

9.7.2 Description

This command used to report error code when some error happen in location process

9.7.3 e.g.

Values of flag:

Flag	Explanation	Data type
0	ERROR_ACCESS_DENIED	Signed 32 bit value
1	ERROR_ BAD_NET_RESP	Signed 32 bit value
2	ERROR_ BUSY	Signed 32 bit value
3	ERROR_ CANCELLED	Signed 32 bit value
4	ERROR_ CONNECTION_ABORTED	Signed 32 bit value
5	ERROR_ CONTINUE	Signed 32 bit value
6	ERROR_ FATAL_ERROR	Signed 32 bit value
7	ERROR_ GEN_FAILURE	Signed 32 bit value
8	ERROR_ INCORRECT_ADDRESS	Signed 32 bit value
9	GPS_ERR_INSUFFICIENT_SAT_SIGNAL	Signed 32 bit value
10	ERROR_ INVALID_CATEGORY	Signed 32 bit value
11	ERROR_ INVALID_PARAMETER	Signed 32 bit value
12	ERROR_ NETWORK_UNREACHABLE	Signed 32 bit value
13	ERROR_ NOT_AUTHENTICATED	Signed 32 bit value
14	ERROR_ NOT_CONNECTED	Signed 32 bit value
15	ERROR_ REQUEST_ABORTED	Signed 32 bit value
16	ERROR_ RETRY	Signed 32 bit value
17	ERROR_ OUTOFMEMORY	Signed 32 bit value
18	ERROR_ TIMEOUT	Signed 32 bit value
19	ERROR_ RADIO_OFF	Signed 32 bit value

+ZGPSERROR: 3

9.8 report satellites measurements +ZGMEASURE

9.8.1 syntax

Table 9-8: +ZGMEASURE parameter command syntax

Command	Possible response
	<CR><LF>+ZGMEASURE: <flag1>,<flag2>,<flag3>,<flag2>,<flag3>,<….> <CR><LF>

9.8.2 Description

This command used to report sv_num and cn0 of the satellites .

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9.8.3 e.g.

Values of flag:

Flag	Explanation	Data type
Flag1	Sv_num	Unsigned 8 bit value
Flag2	Prn	Unsigned 8 bit value
Flag3	Cn0	Unsigned 16 bit value
Flag2	Prn	Unsigned 8 bit value
Flag3	Cn0	Unsigned 16 bit value
…..		

+ZGMEASURE: 13,2,0,4,0,8,0,9,167,11,0,17,0,20,0,27,192,28,0,32,190,0,0,0,0,0,0

9.9 Report location data +ZGPSR

9.9.1 syntax

Table 9-9: +ZGPSR parameter command syntax

Command	Possible response
	<CR><LF>+ZGPSR: <flag1>,<flag2>,<flag3>,<flag4>,<flag5>,<flag6>,<flag7><CR><LF>

9.9.2 Description

Report UTC time 、lon、lat and speed

9.9.3 e.g.

Values of flag:

Flag	Value	Data type	Explanation	Transform
1	11102010	Unsigned 32 bit value	day /month /year	
2	19	Unsigned 8 bit value	Hour	
3	13	Unsigned 8 bit value	Min	
4	12	Unsigned 16 bit value	seconds	
5	-15724780	Signed 32 bit value	Longitude	-15724780*360/2^26
6	6308862	Signed 32 bit value	Latitude	6308862*180/2^25
7	0	Unsigned 32 bit value	Speed	0/10

+ZGPSR: 11102010,19,13,12,-15724780,6308862,0

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9.10 Switch DRX and GPS command +ZGSWITCH

9.10.1 syntax

Table 9-10: +ZGSWITCH parameter command syntax

Command	Possible response
AT+ZGSWITCH=<flag1>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.10.2 Description

This command is used for Real-time switch DRX and GPS receiver.

9.10.3 e.g.

Values of flag:

Flag1	Explanation
1	Enable DRX
2	Enable GPS

AT+ZGSWITCH=1
OK

9.11 Initialization NI Location command +ZGNIINIT

9.11.1 syntax

Table 9-11: +ZGSWITCH parameter command syntax

Command	Possible response
AT+ZGNIINIT=<flag1>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.11.2 Description

This command is used to init a NI client to response server request.

9.11.3 e.g.

Values of flag:

Flag1	Explanation
0	Close notification
2	Open notification
NULL	Just init a client

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AT+ZGNIINIT
OK

9.12 Sent NI response to server +ZGNI

9.12.1 syntax

Table 9-12: +ZGQOS parameter command syntax

Command	Possible response
AT+ZGNI=<flag>	<CR><LF>OK<CR><LF> When some errors from MS: <CR><LF> ERROR<CR><LF>

9.12.2 Description

This command used for NI client to response server request, when received +GPS_NI: NOTIFY, user should use this command to response server request.

9.12.3 e.g.

Values of flag:

Flag	explanation
0	Accept
1	Deny
2	No response
3	Test for error application ID

AT+ZGNI=0
OK

9.13 report GPS NI event +GPS_NI: NOTIFY

9.13.1 syntax

Table 9-13: +ZGMEASURE parameter command syntax

Command	Possible response
	<CR><LF>+GPS_NI: NOTIFY

9.13.2 Description

When open notification, this event will be reported, which used for user to response

9.13.3 e.g.

+GPS_NI: NOTIFY

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10. ZTE Commands for Call Control

10.1 Voice call channel SET and Switch + ZVOCCH

10.1.1 Syntax

Table 10-1+ZVOCCH parameter command syntax

Command	Possible response(s)
+ZVOCCH=[<channel>]	<CR><LF>OK<CR><LF> <CR><LF> +CME ERROR: <err><CR><LF>
+ZVOCCH?	<CR><LF>+ZVOCCH:<channel><CR><LF>OK<CR> <LF> <CR><LF>+CME ERROR: <err><CR><LF>
+ZVOCCH=?	(list of supported <channel>s) <CR><LF>+CME ERROR: <err><CR><LF>

10.1.2 Description

This command allows switch or set the voice call channel. The voice channel can be set is decided by the hardware device support. The command is a command for reading and writing. In this profile of commands, this command can work before or during current voice call.

10.1.3 Defined values

NOTE 1: is used both before and during the current voice call.

The channel support value is descript as follow:

Channel:

0: pcm voice channel

1: linein for input, lineout difference channel for output

2: micin for input, lineout left-right voice channel (stereo sound channel) for output

3: micin for input, lineout difference channel for output

10.1.4 e.g.

AT+ZVOCCH=2

OK

This AT command is used to set and switch the voice channel to MicIn-LineOut channel mode.

10.2 Adjust the value of Transmitting volume + ZTXVOICE

10.2.1 Syntax

Table 10-2+ZVOCCH parameter command syntax

Command	Possible response(s)
+ZTXVOICE=v_value	<CR><LF>OK<CR><LF>

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+ZTXVOICE?	<CR><LF>OK<CR><LF>

10.2.2 Description

This at command is used to adjust the value of transmitting volume.

10.2.3 Defined values

v_value: the v_value stand for the value of transmitting volume .If you want to make the transmitting volume low,you can set the v_value smaller than what it is .If you want make the transmitting volumehigh,you can set the v_value bigger than what it is.note: the v_value must be at the range between 0 and 65535.

10.2.4 e.g.

AT+ZTXVOICE=10
OK
This AT command is used to set the valuse of transmitting volume 10.

11. ZTE General Commands

11.1 Query the status of Network Lock +ZSEC

11.1.1 Syntax

Table 11-1: + ZSEC parameter command syntax

Command	Possible response(s)
+ZSEC?	<CR><LF>+ZSEC:<SEC_STATUE>,<SEC_ITEMS> <CR><LF><CR><LF>OK<CR><LF> MS Error ： <CR><LF>+CME ERROR: <err><CR><LF>

11.1.2 Description

Extensible AT command, this command is for querying the status of encryption. (The appropriative function of Network Lock).

11.1.3 Defined values

< SEC_STATUE >：

0: Initializing the encryption (Insignificant SEC_ITEMS)

1: Encrypt error. (Insignificant SEC_ITEMS)

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2: Lock Encryption

3: Unlocked or correct MCC/MNC/EF_GID1

<SEC_ITEMS>：

0: No action

1: Network lock

2: (U)SIM card lock

3: Network Lock and (U)SIM card Lock

11.1.4 e.g.

Command: AT+ZSEC?
Response: +ZSEC: 3,0
OK

11.2 Unlock and query the unlock residual time +ZNCK

11.2.1 Syntax

Table 11-2: +ZNCK parameter command syntax

Command	Possible response(s)
+ZNCK=<”nck_code”> >	<CR><LF>OK<CR><LF> MS error： <CR><LF>+CME ERROR: <err><CR><LF>
+ZNCK?	<CR><LF>+ZNCK:<nck_time><CR><LF><CR><LF>OK<CR><LF> MS error： <CR><LF>+CME ERROR: <err><CR><LF>

11.2.2 Description

Extensible AT command, this command is for unlock and querying the residual time of this function.. (The appropriative function of Network Lock)

The Unlock Code would be fed back by the command EXECUTION,.

The unlock residual time would be fed back by the command READ.

11.2.3 Defined values

<”nck_code”>： Unlock code

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11.2.4 e.g.

Command:AT+ZNCK?
Response: +ZNCK: 5
OK
Command:AT+ZNCK=” 707054c4b4926836”
Response: OK

11.3 Turn off the Modem +ZTURNOFF

11.3.1 Syntax

Table 11-3: +ZTURNOFF parameter command syntax

Command	Possible response(s)
+ZTURNOFF	No response can get from the modem，because the modem is turned off.
+ZTURNOFF ?	<CR><LF>+CME ERROR: <err><CR><LF>

11.3.2 Description

This is a command to turn off the modem.

11.3.3 e.g.

Command: AT+ZTURNOFF

11.4 ADC status and value inquiry + ZADC1

11.4.1 Syntax

Table 11-4: + ZADC1 parameter command syntax

Command	Possible response(s)
+ZADC1?	<CR><LF><status>,<pResult.raw ><CR><LF><CR><LF>OK<CR><LF> <CR><LF><2>,< Input Is Out Of Range. ><CR><LF>ERROR <CR><LF><CR><LF> <CR><LF>ERROR<CR><LF>

11.4.2 Description

Extensible AT command, this command is used to inquire ADC status and value. The range of the return value of parameter 2(pResult.raw) is 0 to 2199, unit is mV. When the input is out of range, it will return an error message.

The return value these parameters are shows in the table:

parameter	range	remarks
<status>	0	success
	1	read error
	2	reading out of range

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	3	underway
<pResult.raw>	0~2199	uint is mV
	Input Is Out Of Range	reading out of range

note1: “1” is number one in “+ ZADC1”.

note2: ADC pin should not be no connection.

11.4.3 e.g.

Command: AT+ZADC1?

Response: 0,2000

OK

Command: AT+ ZADC1?

Response: 2, input Is Out Of Range.

ERROR

11.5 GPIO configuration and inquiry + ZGPIOCNF

11.5.1 Syntax

Table 11-5: + ZGPIOCNF parameter command syntax

Command	Possible response(s)
+ZGPIOCNF=<pin>	<CR><LF> ZGPIOCNF: <pin>,<mode><CR><LF><CR><LF>OK<CR><LF> <CR><LF>ZGPIOCNF:<all pins mode><CR><LF><CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+ZGPIOCNF=<pin>,<mode>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+ZGPIOCNF=<pin>,<mode>,<status>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+ZGPIOCNF=?	<CR><LF>ZGPIOCNF: <0000-FFFF><CR><LF><CR><LF>OK <CR><LF> <CR><LF>ERROR<CR><LF>

11.5.2 Description

Extensible AT command, this command is used to configure and inquire GPIO.

The value of these parameters are shows in the table :

parameter	range	remarks
<pin>	0	Stand for all GPIO.
	1~4	Stand for single GPIO
<mode>	0	Input
	1	Output
<status>	0	High

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	1	Low

11.5.3 Defined values

Parameter One:

<pin>	return	remarks
0	ZGPIOCNF:<1,1>,<2,1>,<3,0>,<4,1> OK (default)	Inquire all GPIO mode.
1~4	ZGPIOCNF: <pin>,<mode> OK	Inquire single GPIO mode.
other	ERROR	

Parameter Two:

<pin>	<mode>	return	remarks
0	0 / 1	OK	Set all GPIO mode.
1~4	0 / 1	OK	Set single GPIO mode.
other	other	ERROR	

Parameter Three:

<pin>	<mode>	<status>	return	remarks
0	0	0 / 1	ERROR	Input mode can,t set status.
0	1	0 / 1	OK	Set all GPIO status.
1~4	0	0 / 1	ERROR	Input mode can,t set status.
1~4	1	0 / 1	OK	Set single GPIO status.
other	other	other	ERROR	

11.5.4 e.g.

Command: AT+ZGPIOCNF=0
Response: ZGPIOCNF: <1,1>,<2,1>,<3,0>,<4,1>
OK (default)
Remarks: It returns all GPIO mode.

Command: AT+ZGPIOCNF=2,0
Response: OK
Remarks: It sets GPIO2 to be input mode.

Command: AT+ZGPIOCNF=4,1,1
Response: OK
Remarks: It sets GPIO1 to be output mode and output high level.

11.6 GPIO output setting + ZGPIOSET

11.6.1 Syntax

Table 11-6: + ZGPIOSET parameter command syntax

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Command	Possible response(s)
+ZGPIOSET=<pin>,<status>	<CR><LF>OK<CR><LF> <CR><LF> +ZGPIOSET: Change Pin's Mode. <CR><LF>ERROR <CR><LF><CR><LF> <CR><LF>ERROR<CR><LF>
+ZGPIOSET =?	<CR><LF>ZGPIOSET:(1,2,3,4),(0-1)<CR><LF><CR><LF>OK <CR><LF> <CR><LF>ERROR<CR><LF>

11.6.2 Description

Extensible AT command, this command is used to + set GPIO to output high or low level.

Parameter1<pin>: 1~4-stands for 4 single GPIO.

Parameter3<status>: 1-HIGH, 0-LOW.

11.6.3 Defined values

The parameter is shown as follows:

<pin>	< status >	<mode>	return	remarks
1~4	0 / 1	0	+ZGPIOSET: Change Pin's Mode. ERROR	Input mode can't set status.
1~4	0 / 1	1	OK	Set single GPIO status.
other	other	other	ERROR	

11.6.4 e.g.

Command: AT+ZGPIOSET=1,1

Response: OK

Remarks: It sets GPIO1 to output high level.

Command: AT+ZGPIOCNF=3,0

Response: +ZGPIOSET: Change Pin's Mode.

ERROR

Remarks: It sets GPIO3 to output low level but fails, because GPIO3 is input mode.

11.7 GPIO status inquiry +ZGPIOGET

11.7.1 Syntax

Table 11-7: + ZGPIOGET parameter command syntax

Command	Possible response(s)

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+ZGPIOGET =<pin>	<CR><LF> ZGPIOGET: <pin>,<status> <CR><LF><CR><LF> OK <CR><LF> <CR><LF>ERROR<CR><LF>
+ZGPIOGET =?	<CR><LF>ZGPIOGET:(1,2,3,4)<CR><LF><CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>

11.7.2 Description

Extensible AT command, this command is used to get GPIO status.

Parameter<pin>: 1~4-stands for 4 single GPIO.

11.7.3 Defined values

<pin>	<mode>	return	remarks
1~4	0	OK	GPIO should not be no connection.
1~4	1	OK	
other	other	ERROR	

11.7.4 e.g.

Command: AT+ZGPIOGET=1

Response: ZGPIOGET: 1,1

OK

Remarks: It gets GPIO1 status and the status is high level.

12. ZTE Commands for TCP/IP

12.1 Set and Query the parameters of PS Call +ZIPCFG

12.1.1 Syntax

Table 12-1 : +ZIPCFG parameter command syntax

Command	Possible response(s)
+ZIPCFG=<APN>[,<Username>,<Password>]	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+ ZIPCFG?	<CR><LF>+ ZIPCFG: <APN>[,<User name>,<Password>] <CR><LF>

12.1.2 Description

Extensible AT command, this command is used to Set and Query the parameters of PS Call.

12.1.3 Defined values

<APN>: The Access Point Name.

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<User name>:Usernanme when start a call

<Password>:Password when start a call

12.1.4 e.g.

Command: AT+ZIPCFG=cmwap,zte,ztepasswd

Response: OK

Command: AT+ZIPCFG?

Response: +ZIPCFG: cmwap, zte, ztepasswd

OK

12.2 Start or end PS Call +ZIPCALL

12.2.1 Syntax

Table 12-2 : + ZIPCALL parameter command syntax

Command	Possible response(s)
+ZIPCALL =<State>	<CR><LF>OK<CR><LF> <CR><LF>+ ZIPCALL: < State >[,<IP address>]<CR><LF> <CR><LF>ERROR<CR><LF>
+ ZIPACLL?	<CR><LF>+ZIPCALL: < State >[,<IP address>]<CR><LF>
+ ZIPCALL=?	<CR><LF>+ZIPCALL: (list of supported <State>s) <CR><LF> OK<CR><LF>

12.2.2 Description

Extensible AT command, this command is used to Start or end PS Call, If PS call successful. It will report IP address automatically.

12.2.3 Defined values

< State >: Socket call connection state.

0：Disconnected

1：Connected

2，Connecting

3，Disconnecting

<IP address>: The IP address when connect to Network successful.

12.2.4 e.g.

Command: AT+ZIPCALL=1

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Response: OK
+ZIPCALL: 1, 1.1.72.120

Command: AT+ZIPCALL?
Response:+ZIPCALL: 1, 1.1.72.120
OK

Command: AT+ZIPCALL=0
Response: OK
+ZIPCALL: 0, 0.0.0.0

Command: AT+ZIPCALL?
Response:+ZIPCALL: 0

12.3 Establish TCP/UDP Connection +ZIPOPEN

12.3.1 Syntax

Table 12-3 : + ZIPOPEN parameter command syntax

Command	Possible response(s)
+ZIPOPEN=<Socket id>, <Type>, <Remote IP >,<Remote port>[,<Local port>]	<CR><LF>OK<CR><LF> <CR><LF>+ZIPSTAT: <Socket id>,<Status> <CR><LF> OR <CR><LF>ERROR<CR><LF>
+ZIPOPEN?	<CR><LF>+ZIPOPEN: <Socket id>,<Type>, <Remote IP >,<Remote port> [<CR><LF>+ZIPOPEN: <Socket id>,<Type>, <Remote IP >,<Remote port> [...]]<CR><LF> OR +ZIPOPEN:0
+ZIPOPEN=?	<CR><LF>+ZIPOPEN:(range of supported <Socket id>s), (range of supported <Type>) [,(range of supported <Remote port>)]<CR><LF>

12.3.2 Description

Extensible AT command, this command is used to Establish TCP/UDP connection with remote server. it will report +ZIPSTAT automatically to indicate the socket state.

12.3.3 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

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1～5：Valid Socket id

<Type>: The protocal type of socket connection

0：TCP

1：UDP

<Remote IP >: IP address or Domainname of Romote server.

<Remote port>：Server port of Romote server, range: 1-65535

<Local port>：Local port，range: 1-65535

<Status>: State of Socket Connection

0：Socket connection is closed.

1：Socket connection is open, both send data and receive data normally.

2：Socket connection is open, receive data narmal, but send buffer is full.

3，Socket connection is opening.

4，Socket connection is closing.

12.3.4 e.g.

Command: AT+ZIPOPEN=1,1,192.232.33.10,21
Response: OK
+ZIPSTAT: 1, 1

Command: AT+ZIPOPEN?
Response:+ZIPOPEN:(1, 1, 21, 192.232.33.10)
+ZIPOPEN:(5, 1, 21, 192.232.33.10)
OK

12.4 Close TCP/UDP Connection +ZIPCLOSE

12.4.1 Syntax

Table 12-4 : + ZIPCLOSE parameter command syntax

Command	Possible response(s)
+ZIPCLOSE =<Socket id>	<CR><LF>OK<CR><LF> <CR><LF>+ZIPCLOSE:<Socket id>,< state> <CR><LF> OR <CR><LF>ERROR<CR><LF>
+ZIPCLOSE?	<CR><LF>+ZIPCLOSE:<Socket1 state>,< Socket2 state>,< Socket3 state>,< Socket4 state>,<Socket5 state> <CR><LF> <CR><LF>OK<CR><LF> OR

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	<CR><LF>+ZIPCLOSE:0 <CR><LF> <CR><LF>OK<CR><LF>
+ZIPCLOSE=?	<CR><LF>+ZIPCLOSE:(range of < Socket id>) <CR><LF> <CR><LF>OK<CR><LF>

12.4.2 Description

Extensible AT command, this command is used to Close TCP/UDP connection. it will report +ZIPSTAT automatically to indicate the socket state.

12.4.3 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

1～5：Valid Socket id

<Status>: State of Socket Connection

0：Socket connection closed.

1：Socket connection open, both send data and receive data normally.

2：Socket connection open, receive data narmal, but send buffer is full.

3，Socket connection opening.

4，Socket connection closing.

12. 4.4 e.g.

Command: AT+ZIPCLOSE=1
Response: OK
+ZIPSTAT: 1, 0

Command: AT+ZIPCLOSE?
Response: +ZIPCLOSE: (Socket1, 0),(Socket2, 0),(Socket3, 0),(Socket4, 0),
OK

12.5 Set Encoding Format: +ZIPCODE

12.5.1 Syntax

Table 12-5 : + ZIPCODE parameter command syntax

Command	Possible response(s)
+ZIPCODE=<CODE_ TYPE>	<CR><LF>OK<CR><LF> <CR><LF>ERROR<CR><LF>
+ ZIPCODE?	<CR><LF>+ ZIPCODE: <CODE_TYPE> <CR><LF>

12.5.2 Description

AT+ZIPCODE is used to query and set the encoding format of transmit data, Now MF206A

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supports ASCII and binary encoding format, and the default encoding format is binary.

12.5.3 Defined values

<CODE_TYPE>: the encoding format of transmit data

0：ASCII

1：BINARY

12.6 Set Encoding Format: +ZIPSEND

AT+ZIPSEND is used to send user data to modem. Modem receive and parse user data, then send the data to specific TCP/UDP link. If the buffer of this link is full, it returns ERROR, and send unsolicited command "+ZIPSTAT: <Socket id>, 2" to notify user the buffer of this link is full, and user should not send any data on this link until receive unsolicited notification "+ZIPSTAT: <Socket id>, 1" which indicates the TCP/UDP link is OK. MF206A support two encoding format, binary code and ASCII code (reference +ZIPCODE). Different encoding format correspond with different +ZIPSEND command format.

12.6.1 Syntax (with encoding format binary)

Table 12-6: + ZIPSEND parameter command syntax

Command	Possible response(s)
+ZIPSEND=<Socket id> > <Data> Binary Code is given<ctrl-Z>	<CR><LF>+ZIPSEND: <Socket id>,<length><CR><LF><CR><LF>OK<CR><LF> OR <CR><LF>ERROR<CR><LF> OR <CR><LF> ERROR <CR><LF> <CR><LF>+ZIPSTAT: <Socket id>,2 <CR><LF>
+ZIPSEND?	<CR><LF>+ZIPSEND: <Socket id>,<Size><CR><LF> [<CR><LF>+ZIPSEND: <Socket id>,<Size><CR><LF>[...]]<CR><LF> (For all opened Socket)
+ZIPSEND=?	<CR><LF>+ERROR<CR><LF>

12.6.2 Description

Extensible AT command, this command is used to send data. The data can be sent only when the socket state is 1(Socket connection open, both send data and receive data normally), if socket state become to 2(Socket connection open, receive data narmal, but send buffer is full). It will report +ZIPSTAT: <Socket id>,2 automatically. At this time, user can not send data until the socket state become to 1.

12.6.3 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

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1～5：Valid Socket id

<Data>: user data encoded with binary, end with <ctrl-Z>.

12.6.4 Syntax (with encoding ascii binary)

Table 12-7 : + ZIPSEND parameter command syntax

Command	Possible response(s)
+ZIPSEND=<Socket id>, <Data>	<CR><LF>+ZIPSEND: <Socket id>,<length><CR><LF><CR><LF>OK<CR><LF> OR <CR><LF>ERROR<CR><LF> OR <CR><LF> ERROR <CR><LF> <CR><LF>+ZIPSTAT: <Socket id>,2 <CR><LF>
+ZIPSEND?	<CR><LF>+ZIPSEND: <Socket id>,<Size><CR><LF> [<CR><LF>+ZIPSEND: <Socket id>,<Size><CR><LF>[...]]<CR><LF> (For all opened Socket)
+ZIPSEND=?	<CR><LF>+ERROR<CR><LF>

12.6.5 Description

Extensible AT command, this command is used to send data. The data can be sent only when the socket state is 1(Socket connection open, both send data and receive data normally), if socket state become to 2(Socket connection open, receive data narmal, but send buffer is full). It will report +ZIPSTAT: <Socket id>,2 automatically. At this time, user can not send data until the socket state become to 1.

12.6.6 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

1～5：Valid Socket id

<Data>: user data encoded with ascii.

12.7 TCP/UDP Data Receive +ZIPRECV

12. 7.1 Syntax

Table 12-8: +ZIPRECV parameter command syntax

Command	Possible response(s)
	<CR><LF>+ZIPRECV: <Socket id>,<Remote IP >,<Remote port>,<Data len>,<Data>

12.7.2 Description

Extensible AT command, this command is used to reveive data. The data will be reported to

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TE automatically when modual received data. The data lenth should less than 1024Bytes..

12.7.3 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

1～5：Valid Socket id

<Remote port>：Server port of Romote server, range: 1-65535

<Local port>：Local port，range: 1-65535

<Data len>: The leath of received data, should less than 1024Bytes.

<Data>: data should be encoded. Eg: “48656C6C6F21” indicate to “Hello!”.

12.7.4 e.g.

Response: +ZIPRECV: 1, 192.232.33.10, 21, 42,
3232302D46696C655A696C6C6120536572766572207665727369 6F6E20302E392E323220626574610D0A

12.8 Query Socket State + ZIPSTAT

12.8.1 Syntax

Table 12-9 : + ZIPSTAT parameter command syntax

Command	Possible response(s)
+ZIPSTAT=<Socket id>	<CR><LF>+ZIPSTAT: <Socket id>,< Status ><CR><LF>
Auto report	<CR><LF>+ZIPSTAT: <Socket id>,< Status ><CR><LF>
+ ZIPSTAT=?	<CR><LF>+ ZIPSTAT:(range of < State>) <CR><LF>

12.8.2 Description

Extensible AT command, this command is used to Query Socket State. When the socket state changed, the new state will be reported automaticlly.

12.8.3 Defined values

<Socket id>: Socket Connection indication

0：Invalid Socket id

1～5：Valid Socket id

<Status>: State of Socket Connection

0：Socket connection closed.

1：Socket connection open, both send data and receive data normally.

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2：Socket connection open, receive data narmal, but send buffer is full.

3，Socket connection opening.

4，Socket connection closing.

12.8.4 e.g.

Command: AT+ZIPSTAT=3
Response: +ZIPSTAT: 3, 0
OK

12.9 Set parameters of TCP/UDP server +ZIPSLCFG

12.9.1 Syntax

Table 12-10: + ZIPSLCFG parameter command syntax

Command	Possible response(s)
+ZIPSLCFG=<Type >,< Source port >,<Time out>,	<CR><LF>OK<CR><LF> or <CR><LF>ERROR<CR><LF>
+ZIPSLCFG?	<CR><LF>+ZIPSLCFG:<Type>,< Source port >,<Time out> [<CR><LF>+ZIPSLCFG:<Type>,< Source port >,<Time out>]<CR><LF>
+ZIPSLCFG=?	<CR><LF>+ZIPSLCFG: (range of supported <Type >),(range of supported < Source port >),(range of supported <Time out>)<CR><LF>

12.9.2 Description

Extensible AT command, this command is used to Set parameters of TCP/UDP server.

12.9.3 Defined values

<Type>: protocal type

0 - TCP

1 - UDP

< Source port >: the Listening port, range: 1-65535

<Time out>: ： Max idle time of UDP connection. When the max idle time large than the value of time out, this udp connection will be released automatic, the parameter just used for udp server.

0 – the idle time is infinite.

1~3600 – idle time, means several seconds, the default value is 600 senconds。

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12.9.4 e.g.

Command:AT+ZIPSLCFG=0,5000,0
Response: OK

Command:AT+ZIPSLCFG=1,5001,60
Response: OK

Command:AT+ZIPSLCFG?
Response: +ZIPSLCFG:0,5000,0
+ZIPSLCFG:1,5001,60
OK

12.10 Open/Close TCP/UDP server + ZIPLISTEN

12.10.1 Syntax

Table 12-11: + ZIPLISTEN parameter command syntax

Command	Possible response(s)
+ZIPLISTEN=<Mode>, <Type >	<CR><LF>OK<CR><LF> <CR><LF> +ZIPLISTEN: <Status>,<Type>,<Socket id ><Remote IP>,<Remote port>reported when the remote client connect to the listening port, <CR><LF> or <CR><LF>ERROR<CR><LF>
+ZIPLISTEN?	<CR><LF>+ZIPLISTEN:<Status>,<Type> [<CR><LF>+ZIPLISTEN:<Status>,<Type>] <CR><LF> or <CR><LF>+ZIPLISTEN:<Status>,<Type> [<CR><LF>+ZIPLISTEN:<Status>,<Type>] <CR><LF> <CR><LF>+ZIPLISTEN: <Status>,<Type>,<Socket id ><Remote IP>,<Remote port> [<CR><LF>+ZIPLISTEN: <Status>,<Type>,<Socket id ><Remote IP>,<Remote port>[...]] <CR><LF>
+ZIPLISTEN=?	<CR><LF>+ZIPLISTEN:(range of supported <Mode>), (range of supported <Type >) [,(range of supported < Source port >)]<CR><LF>

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12.10.2 Description

Extensible AT command, this command is used to Open/Close TCP/UDP server. It can support a udp server and a tcp server simultaneously, the infomation of romote cliect connected to the server will be reported automatically.

12.10.3 Defined values

<Mode>：TCP/UDP server listening mode

0 – close TCP/UDP server

1 - open TCP/UDP server

<Type>: protocal type

0 - TCP

1 – UDP

<Status>：State of TCP/UDP server

0 – server listening is close

1 – server listening is open

<Socket id>: Socket Connection indication

0：Invalid Socket id

1～5：Valid Socket id

<Remote IP>： IP address of remote client

<Remote port>: port of romote client，range: 1-65535

12.10.4 e.g.

Command:AT+ZIPLISTEN=1,0 //Open tcp server

Response: OK

Response: +ZIPLISTEN: 1,0,1,119.75.1.1,5005 //TCP server is in the listening state, and a remote client connected to the server.

Command:AT+ZIPLISTEN=1,1 //Open udp server

Response: OK

Response: +ZIPLISTEN: 1,1,2,119.75.1.1,5005 //UDP server is in the listening state, and a remote client connected to the server.

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12.11 Set TCP/UDP internal Firewall +ZIPFRWL

12.11.1 Syntax

Table 12-12 : +ZIPFRWL parameter command syntax

Command	Possible response(s)
+ZIPFRWL=< Cmd type >, <IP address>,<Net mask>	<CR><LF>OK<CR><LF> or <CR><LF>ERROR<CR><LF>
+ZIPFRWL?	<CR><LF>+ZIPFRWL: <State> <CR><LF>+ZIPFRWL: <IP address>,<Net mask> [<CR><LF>+ZIPFRWL: <IP address>,<Net mask>[...]]<CR><LF>
+ZIPFRWL=?	<CR><LF>+ZIPFRWL:(range of supported < Cmd type >)<CR><LF>

12.11.2 Description

Extensible AT command, this command is used to Set TCP/UDP internal Firewall.

The Internal firewall is used to allow the module be connected with clients whose ip address are in the visit list. The firewall works when the TCP/UDP server is in the listening state.

The visit list includes an IP address and an IP subnet mask..and the firewall suppost at most 10 visit list.

The visit lists can be edited only when there are no socket are open and the firewall is in close state. The firewall has no use to the sockets established before firewall starts.When the modual is restarted, the firewall will in the close state, and the visit lists will be initialized as empty.

12.11.3 Defined values

< Cmd type >：

0 – Close firewall

1 – Open firewall

2 – add new ip address to the visit lists

3 - delete ip address from the visit lists

4 - initialized the visit lists as empty,

< state >： firewall state

0 – firewall is in the close state

1 - firewall is in the open state

<IP adress>： ip address to add or delete

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It can be any valid IP address, fomat is: XXX.XXX.XXX.XXX

<Net mask>：submit mask of the ip address to add or delete

It can be any valid IP address mak, fomat is: XXX.XXX.XXX.XXX

12.11.4 e.g.

Command:AT+ZIPFRWL=1 //open firewall

Response: OK

Command:AT+ZIPFRWL=2,"192.158.1.1","255.255.0.0" // Add ipaddr to list

Response: OK

Command:AT+ZIPFRWL=?

Response: +ZIPFRWL: (0,4)

OK

Command: AT+ZIPFRWL? //Query firewall list

Response: +ZIPFRWL: 1

+ZIPFRWL: "192.158.1.1","255.255.0.0"

OK

13. ZTE Commands for RPM

13.1 RPM Parameter setting+ZRPMC

13.1.1 Syntax

Table 13-1 : + ZRPMC parameter command syntax

Command	Possible response(s)
+ZRPMC=< Parameter >,<Value>	<CR><LF>OK<CR><LF>
+ ZRPMC?	<CR><LF>+ ZRPMC:(current RPM value < Parameter > ,< Value >) <CR><LF>

13.1.2 Description

Extensible AT command, this command is used to read and set RPM parameters.

13.1.3 Defined values

< Parameter >:

N1: Max number of SW resets per Hour allowed by RPM following permanent MM or GMM reject scenario

T1: Average time before RPM resets module following permanent MM/GMM reject

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F1-F4: Max number of PDP Activation Requests

E: RPM Enabled Flag

R: random time

I1:mm and gmm time window

I2: sm time window

<Value>:

Timer value of T1 and R shoud be defined in millisecond.

Time window of I1 and I2 should be defined in minute.

Enable flag value:

0: disable

1: enable

13.1.4 e.g.

Command: AT+ZRPMC=T1,60000

Response: OK

13.2 RPM lefttime and reset counts+ZRPMNV

13.2.1 Syntax

Table 13-2 : + ZRPMNV parameter command syntax

Command	Possible response(s)
+ZRPMNV=<Lefttime>,<Resetcount>	<CR><LF>OK<CR><LF>
+ ZRPMNV?	<CR><LF>+ ZRPMNV:< Parameter > ,< Value > <CR><LF>

13.2.2 Description

Extensible AT command, this command is used to read and set RPM left time and reset counts parameters.

13.2.3 Defined values

< Lefttime >:

The left time of time window

< Resetcount:

The reset counts during the time window

13.2.4 e.g.

Command: AT+ZRPMNV=60000,2

Response: OK

14. ZTE Commands for CMUX/UART

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14.1 Port Mode Switch Command +ZMUXMODE

14.1.1 Syntax

Table 14-1 : + ZMUXMODE parameter command syntax

Command	Possible response(s)
+ ZMUXMODE =< Parameter >	<CR><LF>OK<CR><LF> <CR><LF> ERROR<CR><LF>

14.1.2 Description

Extensible AT command, this command is used to switch port mode between USB mode and MUX mode. This command is invalid, unless the MUX is enabled through the AT command AT+UART=M.

14.1.3 Defined values

< Parameter >: switch parameter

E: Enter MUX mode

F: Quit MUX mode

G: Query the current working port mode.

Note: After downloading image and restoring NV, Please input AT command AT+ZMUXMODE=E and restart the module in order to make the module work in MUX mode.

14.1.4 e.g.

Command: at+zmuxmode=g

Response: Inquiry MUX mode result (while CFG is valid)(0:NO 1:YES):0

OK

at+zmuxmode=e

Enter MUX mode result(0:FAIL 1:SUCCESS):1

OK

at+zmuxmode=f

exit MUX mode result(0:FAIL 1:SUCCESS):1

OK

14.2 Control Bit Rate Command +ZBITRATE

14.2.1 Syntax

Table 14-2 : + ZBITRATE parameter command syntax

Command	Possible response(s)
+ ZBITRATE =<	<CR><LF>OK<CR><LF>

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Parameter >	
+ ZBITRATE?	<CR><LF>+ ZBITRATE:< Parameter ><CR><LF>

14.2.2 Description

Extensible AT command, this command is used to control the bit rate of the serial port.

14.2.3 Defined values

< Parameter >:
0: close auto birate function
1:open auto birate function
S:save bitrate to nv
Other:bitrate, now support 115200 460800 230400 115200 57600 38400 19200 9600 4800 2400 1200 600 300.

14.2.4 e.g.

Command: at+zbitrate=460800
Response: OK

14.3 UART Service Switch Command +UART

14.3.1 Syntax

Table 14-3: + UART parameter command syntax

Command	Possible response(s)
+ UART =< Parameter >	<CR><LF>OK<CR><LF>
+ UART?	<CR><LF>+UART: a, b, c<CR><LF>

14.3.2 Description

Extensible AT command, this command is used to switch the service mode among the Diag service, AT service and MUX service. After processing set command, restart the module in order to make the certain service working.

Note: Make sure that only one flag file exists at anytime, because these services can NOT working simultaneously.

14.3.3 Defined values

< Parameter >: Service mode indicator.
D: switch to Diag service
A: switch to AT service
N:switch to DATA service
M: switch to MUX service
C: clear the flag file for Diag/AT/MUX

14.3.4 e.g.

Command: at+uart=m
Response: OK

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14.4 DTE-DCE local flow control +ZFLOW

14.4.1 Syntax

Table 14-4: + ZFLOW parameter command syntax

Command	Possible response(s)
+ZFLOW=< State >	OK or ERROR
+ZFLOW?	+ZFLOW: <State>
+ZFLOW=?	+ZFLOW:(range of supported < State >)

14.4.2 Description

Extensible AT command, this command is used to Set the DTE-DCE flow control without USIM. This is similar to +IFC. It acceps one numeric parameters which is used to control the operation of local flow control between the DTE and DCE during the data state when v.42 error control is being used, or when fallback to non-error control mode is specified to include buffering and flow control.

14.4.3 Defined values

< State >:

0: Disable flow control (IFC=0,0)

3: Enable RTS/CTS（default for data modem）(IFC=2,2)

4: Enable XON/XOFF (IFC=1,1)

5: Enable transport XON/XOFF (IFC=3,1)

14.4.4 e.g.

Command:AT+ZFLOW=0 //Disable flow control

Response: OK

Command:AT+ZFLOW=?

Response: +ZFLOW: (0-5)

OK

Command: AT+ ZFLOW?

Response: +ZFLOW: 0

OK

14.5 DTE-DCE local flow control +IFC

14.5.1 Syntax

Table 14-5: + IFC parameter command syntax

Command	Possible response(s)
IFC [DCE_by_DTE [, DTE_by_DCE]]	

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IFC?	IFC: DCE_by_DTE , DTE_by_DCE
IFC =?	IFC:(list of supported DCE_by_DTE . values), (list of supported DTE_by_DCE . values)

14.5.2 Description

This extended-format compound parameter is used to control the operation of local flow control between the DTE and DCE during the data state when V.42 error control is being used, or when fallback to non-error control mode is specified to include buffering and flow control. It accepts two numeric subparameters:

– DCE_by_DTE, which specifies the method to be used by the DTE to control the flow of received data from the DCE;

– DTE_by_DCE, which specifies the method to be used by the DCE to control the flow of received data from the DTE.

14.5.3 Defined values

< DCE_by_DTE >:

0: None

1: DC1/DC3 on circuit 103; do not pass DC1/DC3 characters to the remote DCE

2: Circuit 133 (Ready for Receiving)

3: DC1/DC3 on circuit 103 with DC1/DC3 characters being passed through to theremote DCE in addition to being acted upon for local flow control。

4 – 127: Reserved for future standardization

Other: Reserved for manufacturer-specific use

< DTE_by_DCE >:

0: None

1: DC1/DC3 on circuit 104

2: Circuit 106 (Clear to Send/Ready for Sending)

3 – 127: Reserved for future standardization

Other: Reserved for manufacturer-specific use

NOTE: DC1 is IA5 1/1; DC3 is IA5 1/3.

Implementation of this parameter is mandatory if V.42 error control or Buffered mode is provided in the DCE; otherwise it is optional. DCEs which do not implement circuit 106 and/or circuit 133 do not need to support the value of 2 for the corresponding subparameter.

14.6 DTE-DCE local flow control AT&K

14.6.1 Syntax

Table 14-4: &K parameter command syntax

Command	Possible response(s)
&K[<n>]	OK or ERROR

14.6.2 Description

This command is used to Set the DTE-DCE flow control with USIM. This is similar to +IFC.

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If &K is changed, IFC command would get reflected but other way is not required and hence not taken care.

14.6.3 Defined values

< n>:

0: Disable flow control (Mapping to IFC: IFC=0,0)

3: Enable RTS/CTS（default for data modem）(Mapping to IFC: IFC=2,2)

4: Enable XON/XOFF (Mapping to IFC: IFC=1,1)

5: Enable transport XON/XOFF (Mapping to IFC: IFC=3,1)

14.6.4 e.g.

Command:AT&K0 //Disable flow control

Response: OK

Command:AT&K3

Response: OK

15. Commands for Debug Mode

15.1 Communication Manager +PACSP

15.1.1 Syntax

Table 15-1: +PACSP action command syntax

Command	Possible response
AT+PACSP?	+PACSP0 if the Menu should be disabled <CR><LF>PACSP0<CR><LF> +PACSP1 if the Menu should be enabled. <CR><LF>PACSP1<CR><LF> When some errors: <CR><LF> ERROR<CR><LF>

15.1.2 Description

Required to indicate Network Selection Menu availability to User or not (ENS support)

15.1.3 For example

AT+PACSP?

PACSP1

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15.2 Display Signal quality $CSQ

15.2.1 Syntax

Table 15-2: $CSQ action command syntax

Command	Possible response(s)
$CSQ	<CR><LF>$CSQ: <rssi>,<ber>[,<Ec/Io>]<CR><LF><CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
$CSQ=?	<CR><LF>$CSQ: (list of supported <rssi>s),(list of supported <ber>s) [,(list of supported <Ec/ Io>s, e.g. [0, -24db])] <CR><LF><CR><LF>OK<CR><LF>

15.2.2 Description

$CSQ is derived from the standard +CSQ, but with the addition of the <Ec/Io> variable. This allows the GSM standard to evolve without affecting this implementation of this command

15.2.3 Defined values

<rssi>:

0 -113 dBm or less

1 -111 dBm

2...30 -109... -53 dBm

31 -51 dBm or greater

99 not known or not detectable

<ber> (in percent):

0...7 as RXQUAL values in the table in GSM 05.08 [20] subclause 8.2.4

99 not known or not detectable

<Ec/Io> (in db):

0 - -24. No output if not supported

15.2.4 e.g.

3G:

Command: AT$CSQ

Response: $CSQ: 18,99,5

OK

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2G:

Command: AT$CSQ

Response: $CSQ: 18,99

OK

15.3 Network registration $CREG

15.3.1 Syntax

Table 15-3: $CREG parameter command syntax

Command	Possible response(s)
$CREG=[<n>]	<CR><LF>OK<CR><LF>
$CREG?	<CR><LF>$CREG:<n>,<stat>[,<lac>,<ci>[,[<AcT>],<PSC>]]<CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
$CREG=?	<CR><LF>$CREG:(list of supported <n>s) <CR><LF>OK<CR><LF>

15.3.2 Description

$CREG is derived from the standard +CREG, but with the addition of the <PSC>variable. This allows the GSM standard to evolve without affecting this implementation of this command.

15.3.3 Defined values

<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>],<PSC>]]

<stat>: registration status

0 not registered, ME is not currently searching a new operator to register to

1 registered, home network

2 not registered, but ME is currently searching a new operator to register to

3 registration denied

4 unknown

5 registered, roaming

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

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

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<AcT>: access technology of the registered network
0 GSM
1 GSM Compact
2 UTRAN

<PSC>: Primary Scrambling Code of the serving cell when <AcT>=2.

15.3.4 e.g.

2G:
Command: AT$CREG?
Response: $CREG: 0,5
OK
3G:
Command: AT$CREG?
Response: $CREG: 2,1, A, 103FD, C8
OK

15.4 Network Time $CCLK

15.4.1 Syntax

Table 15-4: $CCLK parameter command syntax

Command	Possible response(s)
$CCLK=<time>	*+CME ERROR: <err>*
$CCLK?	+CCLK: <time> *+CME ERROR: <err>*
$CCLK=?	

15.4.2 Description

The only change to the standard +CCLK is the addition of the support with default Format

15.4.3 Defined values

<time>: string type value; format is “yy/MM/dd,hh:mm:ss zz”, where characters indicate year
(two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -96...+96). E.g. 6th of
May 1994, 22:10:00 GMT+2 hours equals to “94/05/06,22:10:00+08”
NOTE: If MT does not support time zone information then the three last characters of <time> are not returned by +CCLK?. The format of <time> is specified by use of the +CSDF command. If +CSDF is not supported the default format should of “yy/MM/dd,hh:mm:ss zz” should be used.

15.4.4 e.g.

Command: AT$CCLK?

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Response: $CCLK: "94/05/06,22:10:12"
OK

15.5 Display the Access Technology *CNTI

15.5.1 Syntax

Table 15-5: *CNTI parameter command syntax

Command	Possible response(s)
*CNTI=[<n>]	<CR><LF> *CNTI: <n>,<tech>[,<tech>[...]] <CR><LF> +CME ERROR: <err>
*CNTI?	<CR><LF>*CNTI: <n>,<tech>[,<tech>[...]] <CR><LF>OK<CR><LF> <CR><LF>+CME ERROR: <err><CR><LF>
*CNTI=?	<CR><LF>*CNTI:(list of supported <n>s) <CR><LF>OK<CR><LF>

15.5.2 Description

*CNTI is a command to display the access technology. Action command returns a list of technologies based on the value of <n>.

Test command returns the values of <n> supported by the device.

Refer GSM 07.07 subclause 9.2 for possible <err> values.

15.5.3 Defined values

<n>: parameter controls the results displayed by the response

0- Technology currently in use to access the network

1- The available technologies on the current network

2- All technologies supported by the device

<tech>: alphanumeric string used to identify technology

GSM

GPRS

EDGE

UMTS

HSDPA

HUSPA

15.5.4 e.g.

Command: AT*CNTI=2

Response: *CNTI: 2, GSM, GPRS, EDGE, UMTS, HSDPA, HSUPA
OK

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15.6 Set Band Status +ZBANDI

15.6.1 Syntax

Table 15-6: +ZBANDI parameter command syntax

Command	Possible response(s)
+ZBANDI=<band >	ERROR
+ZBANDI?	+ZBANDI: <band >

15.6.2Description

This command is used to change the band status.

15.6.3Defined values

at+zbandi=0 • Automatic (Auto) - Default

at+zbandi=1 • UMTS 850 + GSM 900/1800

at+zbandi=2 • UMTS 2100 + GSM 900/1800 (Europe)

at+zbandi=3 • UMTS 850/2100 + GSM 900/1800

at+zbandi=4 • UMTS 850/1900 + GSM 850/1900

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