



L506 AT Command User Guide

LTE Module Series

Version: V2.0

Date: 2016-11-28





Notice

Some features of the product and its accessories described herein rely on the software installed, capacities and settings of local network, and therefore may not be activated or may be limited by local network operators or network service providers.

Thus, the descriptions herein may not exactly match the product or its accessories which you purchase. Shanghai Mobiletek Communication Ltd reserves the right to change or modify any information or specifications contained in this manual without prior notice and without any liability.

Copyright

This document contains proprietary technical information which is the property of Shanghai Mobiletek Communication Ltd. copying of this document and giving it to others and the using or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights reserved in the event of grant of patent or the registration of a utility model or design. All specification supplied herein are subject to change without notice at any time.

DISCLAIMER

ALL CONTENTS OF THIS MANUAL ARE PROVIDED "AS IS". EXCEPT AS REQUIRED BY APPLICABLE LAWS, NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDINGBUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE MADE IN RELATION TO THE ACCURACY, RELIABILITY OR CONTENTS OF THIS MANUAL. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL SHANGHAI MOBILETEKCOMMUNICATION LTD BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, OR LOSS OF PROFITS, BUSINESS, REVENUE, DATA, GOODWILL SAVINGS OR ANTICIPATED SAVINGS REGARDLESS OF WHETHER SUCH LOSSES ARE FORSEEABLE OR NOT.



Version History

Date	Version	Description of chage	Author
2016-03-01	V1.0	Release	KuangPeng
2016-07-19	V1.1	Add extend atcmd about sms,gps,network and general	KuangPeng
2016-07-27	V1.2	Add at^sysinfo	KuangPeng
2016-09-09	V1.3	Add AT cmd for GPIO	KuangPeng
2016-09-12	V1.4	Add AT for lock band,lock cell,get cell information	LiuBin
2016-10-10	V1.5	Add AT cmd for LYNQ FTP	KuangPeng
2016-11-01	V1.6	Add GPS externd cmd	Yangguodong
2016-11-03	V1.7	Add IS-707 related CMD	KuangPeng
2016-11-08	V1.8	Modify CMD for CDMA	KuangPeng
2016-11-10	V1.9	Add AT cmd for LYNQ TCP/IP	Wuyuanwei
2016-11-28	V2.0	Add AT cmd for WIFI	LiuBin



CONTENT

1		<u> 1</u>
_	YONITENIT	2
<u>_</u>	CONTENT	<u> 3</u>
2	Introduction	11
	2.1	4.4
	2.1 Scope	
	2.2 Audience	
	2.3 Document Organization	
	2.4 Related Documents	11
<u>3</u>	Overview	12
_	OVELVIC W	
	3.1 About the document	
<u>4</u>	AT COMMANDS	13
=	AT COMMANDS	10
	4.1 Definitions	13
	4.2 AT Command Syntax	14
	4.2.1 String Type Parameters	14
	4.2.2 Command Lines	15
	4.2.3 Information Responses and Result Codes	16
	4.2.4 Command Response Time-Out	
	4.2.5 Command Issue Timing	
	4.3 AT Commands Set	
	4.3.1 Command Line General Format	
	4.3.1.1 Command LinePrefixes	
	4.3.1.1.1 Starting a Command Line – AT	
	4.3.1.1.2 Last Command Automatic Repetition – A/	
	4.3.2 Hayes Compliant AT Commands	
	4.3.2.1 Generic Modem Control	
	4.3.2.1.1 Set To Factory-Defined Configuration -&F	
		21
	4.3.2.1.3 Select Active Service Class - +FCLASS	
	4.3.2.1.4 Store Current Configuration -&W	
	4.3.2.1.5 Manufacturer Identification - +GMI	
	4.3.2.1.6 Model Identification - +GMM	
	4.3.2.1.7 Revision Identification - +GMR	
	4.3.2.1.8 Capabilities List - +GCAP	
	4.3.2.1.9 Serial Number - + GSN	
	4.3.2.1.10 Display Current Base Configuration and Profile -&V	23
	4.3.2.1.11 Single Line Connect Message - \V	23
	4.3.2.1.12 Speaker Loudness - L	24
	4.3.2.1.13 Speaker Mode - M	
	4 3 2 2 DTF - Modem Interface Control	25



4.3.2.2.1 Command Echo - E	
4.3.2.2.2 Quiet Result Codes - Q	25
4.3.2.2.3 Response Format – V	26
4.3.2.2.4 Extended Result Codes – X	
4.3.2.2.5 Identification Information - I	27
4.3.2.2.6 Data Carrier Detect (DCD) Control - &C	28
4.3.2.2.7 Data Terminal Ready (DTR) Control - &D	
4.3.2.2.8 Standard Flow Control - \Q	
4.3.2.2.9 Data Set Ready (DSR) Control - &S	
4.3.2.2.10 Fixed DTE Interface Rate - +IPR	
4.3.2.2.11 DTE-Modem Local Flow Control - +IFC	
4.3.2.2.12 DTE-Modem Character Framing - +ICF	
4.3.2.3 Call Control	
4.3.2.3.1 Dial - D	
4.3.2.3.2 Tone Dial - T	
4.3.2.3.3 Pulse Dial - P	
4.3.2.3.4 Answer - A	
4.3.2.3.5 Disconnect - H	
4.3.2.3.6 Return To On Line Mode - O	
4.3.2.4 Compression Control	
4.3.2.4.1 Data Compression - +DS	
4.3.2.4.2 Data Compression Reporting - +DR	
4.3.2.5 S Parameters	
4.3.2.5.1 Number of Rings to Auto Answer - SO	
4.3.2.5.2 Escape Character - S2	
4.3.2.5.3 Command Line Termination Character - S3	
4.3.2.5.4 Response Formatting Character - S4	
4.3.2.5.5 Command Line Editing Character - S5	
4.3.2.5.6 Connection Completion Time-Out - S7	
4.3.2.5.7 Carrier Off With Firm Time - S10	
4.3.2.5.8 Disconnect Inactivity Timer - S30	
4.3.3 3GPP TS 27.007 AT Commands	
4.3.3.1 General	
4.3.3.1.1 Request Manufacturer Identification - +CGMI	
4.3.3.1.2 Request Model Identification - +CGMM	
4.3.3.1.3 Request Revision Identification - +CGMR	
4.3.3.1.4 Request Product Serial Number Identification - +CGSN	
4.3.3.1.5 Select TE Character Set - + CSCS	
4.3.3.1.6 Request International Mobile Subscriber Identity (IMSI) - +CIMI	
4.3.3.1.7 PCCA STD-101 Select Wireless Network - +WS46	
4.3.3.2 Call Control	
4.3.3.2.1 Call mode - +CMOD	
4.3.3.2.2 Hang Up Call - +CHUP	
4.3.3.2.3 Select type of address - +CSTA	
4.3.3.2.4 Select Bearer Service Type - +CBST	
4.3.3.2.5 Radio Link Protocol - +CRLP	
4.3.3.2.6 Service Reporting Control - +CR	
4.3.3.2.7 Extended Error Report - +CEER	
4.3.3.2.8 Cellular Result Codes - +CRC	
4.3.3.2.9 HSCSD non-transparent call configuration +CHSN	
4.3.3.2.10 Voice Hang Up Control - +CVHU	
4.3.3.2.11 Setting Time Format - +CSTF	
4.3.3.2.12 Setting Date Format - + CSDF	
4.3.3.3 Network Service Handling	
4.3.3.3.1 Subscriber Number - +CNUM	55



4.3.3.3.2 Read Operator Names - +COPN	
4.3.3.3 Network Registration Report - +CREG	56
4.3.3.4 Operator Selection - +COPS	
4.3.3.3.5 Facility Lock/Unlock - +CLCK	60
4.3.3.3.6 Change Facility Password - +CPWD	62
4.3.3.3.7 Calling Line Identification Presentation - +CLIP	62
4.3.3.3.8 Calling Line Identification Restriction - +CLIR	64
4.3.3.3.9 Connected line identification presentation - COLP	
4.3.3.3.10 Called line identification presentation - +CDIP	
4.3.3.3.11 Call Forwarding Number and Conditions - +CCFC	67
4.3.3.3.12 Call Waiting - +CCWA	68
4.3.3.3.13 Call Holding Services - +CHLD	
4.3.3.3.14 Call deflection - +CTFR	
4.3.3.3.15 Unstructured Supplementary Service Data - + CUSD	
4.3.3.3.16 Advice of Charge - +CAOC	
4.3.3.3.17 List Current Calls - +CLCC	
4.3.3.3.18 SS Notification - +CSSN	
4.3.3.3.19 Closed User Group Supplementary Service Control - + CCUG	
4.3.3.3.20 Preferred Operator List - +CPOL	
4.3.3.3.21 Selection of preferred PLMN list - +CPLS	<i>78</i>
4.3.3.4 Mobile Equipment Control	
4.3.3.4.1 Phone Activity Status - +CPAS	
4.3.3.4.2 Set Phone Functionality - +CFUN	
4.3.3.4.3 Enter PIN - +CPIN	
4.3.3.4.4 Signal Quality - +CSQ	
4.3.3.4.5 Indicator Control - +CIND	84
4.3.3.4.6 Mobile Equipment Event Reporting - +CMER	
4.3.3.4.7 Select Phonebook Memory Storage - +CPBS	
4.3.3.4.8 Read Phonebook Entries - +CPBR	89
4.3.3.4.9 Find Phonebook Entries - +CPBF	
4.3.3.4.10 Write Phonebook Entry - +CPBW	
4.3.3.4.11 Clock Management - + CCLK	
4.3.3.4.12 Restricted SIM Access - +CRSM	
4.3.3.4.13 Accumulated Call Meter - +CACM	
4.3.3.4.14 Accumulated Call Meter Maximum - + CAMM	96
4.3.3.4.15 Available AT Commands - +CLAC	
4.3.3.4.16 Automatic Time Zone update - +CTZU	
4.3.3.5 Mobile Equipment Errors	
4.3.3.5.1 Report Mobile Equipment Error - +CMEE	
4.3.3.6 Voice Control	
4.3.3.6.1 DTMF Tones Transmission - +VTS	98
4.3.3.7 Commands for Package Domain	99
4.3.3.7.1 GPRS Mobile Station Class - +CGCLASS	99
4.3.3.7.2 GPRS Attach or Detach - +CGATT	
4.3.3.7.3 GPRS Event Reporting - +CGEREP	100
4.3.3.7.4 EPS Network Registration Status - +CEREG	102
4.3.3.7.5 GPRS Network Registration Status - +CGREG	105
4.3.3.7.6 Printing IP Address Format - +CGPIAF	106
4.3.3.7.7 Define PDP Context - +CGDCONT	
4.3.3.7.8 Define Secondary PDP Context - +CGDSCONT	
4.3.3.7.9 Traffic Flow Template +CGTFT	
4.3.3.7.10 Quality of Service Profile (Minimum Acceptable) - +CGQMIN	
4.3.3.7.11 3G Quality of Service Profile (Minimum Acceptable) - +CGEQMIN	
4.3.3.7.12 Quality of Service Profile (Requested) - +CGQREQ	
4.3.3.7.13 3G Quality of Service Profile (Requested) - +CGEQREQ	



4.3.3.7.14 PDP Context Activate or Deactivate - +CGACT	
4.3.3.7.15 PDP Context Modify - +CGCMOD	122
4.3.3.7.16 Show PDP Address - +CGPADDR	
4.3.3.7.17 Set Mode of Operator for EPS - +CEMODE	123
4.3.3.7.18 Enter Data State - +CGDATA	124
4.3.3.7.19 PDP Context Read Dynamic Parameters - +CGCONTRDP	124
4.3.3.7.20 Secondary PDP Context Read Dynamic Parameters - +CGSCONTRDP	126
4.3.3.7.21 Traffic Flow Template Read Dynamic Parameters - +CGTFTRDP	
4.3.3.7.22 Define EPS Quality of Service +CGEQOS	
4.3.3.7.23 EPS Quality of Service Read Dynamic Parameters - +CGEQOSRDP	
4.3.3.8 Commands for Battery Charger	
4.3.3.8.1 Battery Charge - +CBC	
4.3.4 3GPP TS 27.005 AT Commands for SMS and CBS	
4.3.4.1 General Configuration	
4.3.4.1.1 Select Message Service - +CSMS	
4.3.4.1.2 Preferred Message Storage - +CPMS	
4.3.4.1.3 Message Format - +CMGF	
4.3.4.2 Message Configuration	
4.3.4.2.1 Service Center Address - +CSCA	
4.3.4.2.2 Select service for MO SMS services - +CGSMS	
4.3.4.2.3 Set Text Mode Parameters - +CSMP	
4.3.4.2.4 Show Text Mode Parameters - +CSDH	
4.3.4.2.5 Select Cell Broadcast Message Types - +CSCB	
4.3.4.2.6 Save Settings - +CSAS	
4.3.4.2.7 Restore Settings - + CRES	130
4.3.4.3 Message Receiving and Reading	
4.3.4.3.1 New Message Indications to Terminal Equipment - +CNMI	
4.3.4.3.2 List Messages - +CMGL	
4.3.4.3.3 Read Message - +CMGR.	
4.3.4.3.4 New Message Acknowledgement to ME/TA - +CNMA	
4.3.4.4 Message Sending and Writing	
4.3.4.4.1 Send Message - +CMGS	
4.3.4.4.2 Send Message from Storage - +CMSS	
4.3.4.4.3 Write Message to Memory - +CMGW	
4.3.4.4.4 Delete Message - +CMGD	
4.3.4.4.5 More Message to Send - +CMMS	
4.3.4.4.6 More Message to Send - +CMGC	
4.3.5.1.1 System config - ^SYSCONFIG	
4.3.5.1.2 Setup RmNet call - \$QCRMCALL	
4.3.5.1.3 Inquires the current system message - ^SYSINFO	
4.3.5.1.4 SIM Card HotSwap Control - +ESIMS	
4.3.5.2 AT Commands for FTP	
4.3.5.2.1 Set FTP parameters - +FTPSRV	
4.3.5.2.2 Set FTP mode - +FTPMODE	
4.3.5.2.3 Set FTP upload file name - +FTPPUTNAME	
4.3.5.2.4 Set FTP upload file path - + FTPPUTPATH	
4.3.5.2.5 Set FTP load file name - +FTPGETNAME	
4.3.5.2.6 Set FTP load file path - + FTPGETPATH	
4.3.5.2.7 Active PDP setup load link - + FTPGET	
4.3.5.2.8 Active PDP setup upload link - + FTPPUT	
4.3.5.2.9 Close FTP connection - + FTPQUIT	
4.3.5.2.10 Manage FTP file - + FTPLOCAL	
4.3.5.3 TCP/IP TOOLKIT	172



4.3.5.3.1 Creat network connect - \$ZIPCALL	
4.3.5.3.2 Creat socket and connect to sever - \$ZIPOPEN	172
4.3.5.3.3 Send data to sever - \$ZIPSEND	173
4.3.5.3.4 Auto receive, this not a command - \$ZIPRECV	173
4.3.5.3.5 Query the socket stat - \$ZIPSTAT	173
4.3.5.3.6 Close connect and release resource - \$ZIPCLOSE	174
4.3.5.4 HTTP AT Commands	175
4.3.5.4.1 Open HTTP Service - \$HTTPOPEN	175
4.3.5.4.2 Close HTTP Service - \$HTTPCLOSE	
4.3.5.4.3 Set HTTP Header Fields - \$HTTPRQH	
4.3.5.4.4 Set HTTP Request URL And Port- \$HTTPPARA	178
4.3.5.4.5 Clear HTTP Related Parameters - \$HTTPCLEAR	
4.3.5.4.6 Send HTTP Request - \$HTTPACTION	
4.3.5.4.7 Set HTTP Post Request's Data - \$HTTPDATA	
4.3.5.4.8 Send HTTP Post Content Data - \$HTTPSEND	
4.3.5.4.9 HTTP Error Code	
4.3.5.5 HTTPS AT Commands	
4.3.5.5.1 Acquire HTTPS protocol stack - +CHTTPSSTART	180
4.3.5.5.2 Stop HTTPS protocol stack - +CHTTPSSTOP	126
4.3.5.5.3 Open HTTPS session - +CHTTPSOPSE	107
4.3.5.5.4 Close HTTPS session - +CHTTPSCPSE	
4.3.5.5.5 Send HTTPS request - +CHTTPSSEND	
4.3.5.5.6 Receive HTTPS response - +CHTTPSRECV	
4.3.5.5.7 Get the state of HTTPS request - +CHTTPSSTATE	
4.3.5.6 EMAIL AT Command	
4.3.5.6.1 Set SMTP server address and port number - +SMTPSRV	194
4.3.5.6.2 SMTP server authentication - +SMTPAUTH	
4.3.5.6.3 Set sender address and name - +SMTPFROM	
4.3.5.6.4 Set recipient type(TO/CC/BCC), address and name - +SMTPRCPT	
4.3.5.6.5 Set Email subject -+SMTPSUB	
4.3.5.6.6 Set Email body - +SMTPBODY	
4.3.5.6.7 Set Email body character set - +SMTPBCH	199
4.3.5.6.8 Add Email attachment file - +SMTPFILE	
4.3.5.6.9 Send an Email - +SMTPSEND	
4.3.5.6.10 Close SMTP connection - SMTPSTOP	
4.3.5.6.11 Set POP3 server address, username, password, port - +POP3SRV	202
4.3.5.6.12 Login POP3 server - +POP3IN	203
4.3.5.6.13 Get Email number and total size - +POP3NUM	203
4.3.5.6.14 List Email ID and size - +POP3LIST	204
4.3.5.6.15 Get an Email header - +POP3HDR.	205
4.3.5.6.16 Get an Email - +POP3GET	206
4.3.5.6.17 Mark an e-mail to delete from POP3 server - +POP3DEL	
4.3.5.6.18 Logout POP3 server - +POP3OUT	
4.3.5.6.19 Force to stop POP3 session - +POP3STOP	
4.3.5.6.20 Read an e-mail from file system - +POP3READ	
4.3.5.6.21 Translate input string to base64 character - +EMAILENC	
4.3.5.6.22 EMAIL AT Command Response Code Definition	
4.3.5.7 Network AT Command	
4.3.5.7.1 Preferred mode selection - +CNMP	
4.3.5.7.1 Preferred mode selection - +CNMP	
4.3.5.7.2 Frejerrea bana selection - +CNBF	
4.3.5.7.4 Preferred service domain selection - +CNSDP	
4.3.5.7.5 Inquiring UE system information - +CPSI	
4.3.5.7.6 Show network system mode - + CNSMOD	
4.3.5.7.7 Show cell system information - +CCINFO	224



4.3.5.7.8 Inquiring mobile phone system information - + CMGS1	227
4.3.5.7.9 Gets the neighbor measurement information - +CMGRMI	231
4.3.5.7.10 Show cell system information - +MONI	242
4.3.5.8 GPS AT command	247
4.3.5.8.1 Start/Stop GPS position session - +CGPS	247
4.3.5.8.2 Get current GPS position information - +CGPSINFO	248
4.3.5.8.3 Cold Start GPS - + CGPSCOLD	
4.3.5.8.4 Hot Start GPS - + CGPSHOT	250
4.3.5.8.5 Set AGPS default server URL - +CGPSURL	251
4.3.5.8.6 Select Transport Security - + CGPSSSL	
4.3.5.8.7 Auto Start GPS When Module Powers On - +CGPSATUO	
4.3.5.8.8 Used to Configure NMEA Output Sentences - +CGPSNMEA	
4.3.5.8.9 Specifies GPS Session - + CGPSMD	
4.3.5.8.10 Delete the GPS Information - +CGPSDEL	
4.3.5.8.11 Enable/Disable GPS XTRA Function - +CGPSXE	
4.3.5.8.12 Download XTRA Assistant file - +CGPSXD	
4.3.5.8.13 Download XTRA Assistant File Auto - +CGPSXDAUTO	
4.3.5.8.14 Report NMEA-0183 Sentence - +CGPSINFOCFG	
4.3.5.8.15 Configure Positioning Mode - +CGPSPMD	
4.3.5.8.16 Based Mode Switch to Standalone - +CGPSMSB	
4.3.5.8.17 Configure Positioning Desired Accuracy - +CGPSHOR	
4.3.5.8.18 LCS Respond Positioning Request - +CGPSNOTIFY	
4.3.5.8.19 Get Station Positioning - +GTPOS	265
4.3.5.8.20 Set gps output port and position system- +cgpsnmeatype	
4.3.5.8.21 Xtra File Download Error Code	
4.3.5.9 SMS extended AT commands	
4.3.5.9.1 Read Message Only - +CMGRO	
4.3.5.9.2 Change Message Status - + CMGMT	
4.3.5.9.3 Set Message Valid Period - +CMVP	
4.3.5.9.4 Read and Delete Message - +CMGRD	
4.3.5.9.5 Send Message Quickly - +CMGSO	
4.3.5.9.6 Write Message to Memory Quickly - +CMGWO	
4.3.5.9.7 Send message - + CMGSEX	
4.3.5.9.8 Generate a New Message Reference - +CMGENREF	
4.3.5.9.9 Send Multi Messages from Storage - +CMSSEX	
4.3.5.9.10 Send Must Message from Storage to Multi DA - +CMSSEX	
4.3.5.9.11 SMS CMS error code enum:	
4.3.5.10 AT Commands for Status Control	
4.3.5.10.1 Read ICCID from SIM card - +CICCID	
4.3.5.10.2 Times remain to input SIM PIN/PUK - +SPIC	
4.3.5.10.3 Get service provider name from SIM -+CSPN	
4.3.5.10.4 Set CSQ report - +AUTOCSQ	
4.3.5.10.5 Power down the module- +CPOF	
4.3.5.10.6 Reset the module - +CRESET	
4.3.5.10.7 Set IMEI for the module - +SIMEI	282
4.3.5.10.8 Set RSSI delta change threshold - +CSQDELTA	
4.3.5.11 AT Commands for Heartbeat	
4.3.5.11.1 Set server net config - \$HTARG	
4.3.5.11.2 Set timer and connect server - \$HEART	
4.3.5.12 GPIO Control	
4.3.5.12.1 Set the direction of specified GPIO - +CGDRT	
4.3.5.12.2 Set the value of specified GPIO - +CGSETV	
4.3.5.12.3 Get the value of specified GPIO - +CGGETV	
4.3.5.12.4 Flight mode control - +CGFLY	
4.3.5.12.5 Network LED control - +CGNETLED	290



4.3.5.13 Lock band and cell	
4.3.5.13.1 Lock to specified band - +CBAND	
4.3.5.13.2 Lock to specified cell - +CBCCH	
4.3.5.13.3 Get nearby cell information - +CELLINFO	
4.3.5.14 AT Commands for LYNQ FTP	
4.3.5.14.1 Set FTP server port - +CFTPPORT	
4.3.5.14.2 Set FTP mode - +CFTPMODE	
4.3.5.14.3 Set FTP type - +CFTPTYPE	
4.3.5.14.4 Set FTP server domain name or IP address - +CFTPSERV	
4.3.5.14.5 Set user name for FTP access - +CFTPUN	
4.3.5.14.6 Set user password for FTP access - +CFTPPW	302
4.3.5.14.7 Get a file from FTP server to EFS - +CFTPGETFILE	303
4.3.5.14.8 Upload a file from module EFS to FTP server - +CFTPPUTFILE	
4.3.5.14.9 Get a file from FTP server and output it to SIO - +CFTPGET	
4.3.5.14.10 Upload the DATA from SIO to FTP server - +CFTPPUT	
4.3.5.14.11 List the items in the directory on FTP server - +CFTPLIST	
4.3.5.14.12 Create a new directory on FTP server - +CFTPMKD	
4.3.5.14.13 Delete a directory on FTP server - +CFTPRMD	
4.3.5.14.14 Delete a file on FTP server - +CFTPDELE	309
4.3.5.14.15 Read file from local file to SIO - + CFTPRDFILE	310
4.3.5.14.16 Unsolicited FTP Codes (Summary of CME ERROR codes)	
4.3.5.15 AT Commands for LYNQ TCP/IP	
4.3.5.15.1 Select TCP/IP timeout value - + CIPTIMEOUT	
4.3.5.15.2 Select TCP/IP application mode - + CIPMODE	
4.3.5.15.3 Open network - + NETOPEN	314
4.3.5.15.4 Close Network - + NETCLOSE	315
4.3.5.15.5 Inquire socket PDP address - + IPADDR	315
4.3.5.15.6 Startup TCP server - + SERVERSTART	
4.3.5.15.7 Stop TCP server - + SERVERSTOP	
4.3.5.15.8 Establish connection in multi-socket mode - + CIPOPEN	
4.3.5.15.9 Send data through TCP or UDP connection- + CIPSEND	
4.3.5.15.10 Get the network data manually-+ CIPRXGET	
4.3.5.15.11 Close TCP or UDP socket - + CIPCLOSE	
4.3.5.15.12 Inquire the total size of data sent or received recently- + CIPSTAT	
4.3.5.16 AT Commands for WIFI	
4.3.5.16.1 Open/Close WIFI - \$QWIFI	
4.3.5.16.2 Set/Get AP's SSID - \$QWIFISSID	
4.3.5.16.3 Set/Get AP's Password - \$QWIFIPASS	
4.3.5.16.4 Open or Close AP's broadcast - \$QWIFIBCAST	
4.3.5.16.5 Set AP's NAT type - \$QWIFINAT	
4.3.5.16.6 Set WIFI Mode - \$QWIFIMODE	
4.3.5.16.7 Get WIFI client number - \$QWIFICLICNT	
4.3.5.16.8 Reset WIFI setting - \$QWIFIRSTD4.3.5.16.9 Enable Or Unable Network For WIFI - \$QNETSWITCH	
~	
4.3.6 AT Commands for IS-707	
4.3.6.1.1 Answer incoming voice call - \$QCCAV	
4.3.6.1.2 Hangs up incoming voice call - \$QCCHV	
4.3.6.1.3 sends to the ME a password - ^CPIN	
4.3.6.1.4 Sends to the ME a password - +QCPIN	
4.3.6.1.5 Query received signal quality - AT+CCSQ	
4.3.6.1.6 Originated voice call - AT+CDV	
4.3.6.1.7 Compiles the IMSI number - +QCIMI	
4.3.6.2 IS-707 Sms related AT command table	
4.3.6.2.1 Set how receiving new message - \$QCNMI.	
1.5.5.2.1 361 ποιν του εντίες ποιν πουσάξο - ψχοινίτι	



	4.3.6.2.2 Set parameters for sending messages - \$QCSMP	335
	4.3.6.2.3 Select preferred memory storage - \$QCPMS	
	4.3.6.2.4 Read a sms message - \$QCMGR	
	4.3.6.2.5 Send a message from TE to the network - \$QCMGS	
	4.3.6.2.6 Send a message already stored from Memory - \$QCMSS	
	4.3.6.2.7 Delete sms messages - \$QCMGD	
	4.3.6.2.8 Lists all the SMS saved in the loaction - \$QCMGL	
	4.3.6.2.9 Message Format - \$QCMGF	
	4.3.6.2.10 Store message to memory - \$QCMGW	
<u>5</u>	List of acronyms	339
6]	Error Code	341
6.1	ME Error Result Code - +CME ERROR: <err></err>	341
6.2		



2 INTRODUCTION

2.1 Scope

This document aims to provide a detailed specification and a comprehensive listing as a Reference for the whole set of AT commands.

2.2 Audience

Readers of this document should be familiar with Mobiletek modules and how to control them by means of AT Commands.

2.3 Document Organization

This document contains the following chapters:

Chapter 1: "Introduction" provides a scope for this document, target audience, contact and support information, and text conventions.

Chapter 2: "Overview" about the aim of this document and implementation suggestions.

Chapter 3: "AT Commands" The core of this Reference guide.

2.4 Related Documents

ETSI GSM 07.07 specification and rules

http://www.3gpp.org/ftp/Specs/archive/07 series/07.07/

ETSI GSM 07.05 specification and rules

http://www.3gpp.org/ftp/Specs/archive/07 series/07.05/

Hayes standard AT command set



3 OVERVIEW

3.1 About the document

This document describes all AT commands implemented in the Mobiletek wireless module L506

Note: In this document,the '* ' character before parameter mean this parameter support in special version.





4 AT COMMANDS

The Mobiletek wireless module family can be controlled via the serial interface using the standard AT commands^[1]. The Mobiletek wireless module family is compliant with:

Hayes standard AT command set, in order to maintain the compatibility with existing SW programs.

ETSI GSM 07.07 specific AT command and GPRS specific commands.

ETSI GSM 07.05 specific AT commands for SMS (Short Message Service) and CBS (Cell Broadcast Service)

Moreover Mobiletek wireless module family supports also Mobiletek proprietary AT commands for special purposes.

The following is a description of how to use the AT commands with the Mobiletek wireless module family.

4.1 Definitions

The following syntactical definitions apply:

- <CR> Carriage return character, is the command line and result code terminator character, which value, in decimal ASCII between 0 and 255, is specified within parameter S3. The default value is 13.
- <LF> Linefeed character, is the character recognised as line feed character. Its value, in decimal ASCII between 0 and 255, is specified within parameter S4. The default value is 10. The line feed character is output after carriage return character if verbose result codes are used (V1 option used) otherwise, if numeric format result codes are used (V0 option used) it will not appear in the result codes.
- <...> Name enclosed in angle brackets is a syntactical element. They do not appear in the command line

1 The AT is an ATTENTION command and is used as a prefix to other parameters in a string. The AT command combined with other parameters can be set up in the communications package or typed in manually as a command line instruction.



[...] Optional subparameter of a command or an optional part of TA information response is enclosed in square brackets. Brackets themselves do not appear in the command line. When subparameter is not given in AT commands which have a Read command, new value equals to_its previous value. In AT commands which do not store the values of any of their subparameters, and so have not a Read command, which are called action type commands, action should be done on the basis of the recommended default setting of the subparameter.

4.2 AT Command Syntax

The syntax rules followed by Mobiletek implementation of either Hayes AT commands or GSM/WCDMA/LTE commands are very similar to those of standard basic and extended AT commands. There are two types of extended command:

Parameter type commands. This type of commands may be "set" (to store a value or values for later use), "read" (to determine the current value or values stored), or "tested" (to determine ranges of values supported). Each of them has a test command (trailing =?) to give information about the type of its subparameters; they also have a Read command (trailing?) to check the current values of subparameters.

Action type commands. This type of command may be "executed" or "tested".

"executed" to invoke a particular function of the equipment, which generally involves more than the simple storage of a value for later use

"tested" to determine:

Whether or not the equipment implements the Action Command (in this case issuing the correspondent Test command - trailing =? - returns the OK result code), and if subparameters are associated with the action, the ranges of subparameters values that are supported.

Action commands do not store the values of any of their possible subparameters.

Moreover:

The response to the Test Command (trailing =?) may be changed in the future by Mobiletek to allow the description of new values/functionalities.

If all the subparameters of a parameter type command +CMD are optional, issuing AT+CMD=<CR> causes the OK result code to be returned and the previous values of the omitted subparameters to be retained.

4.2.1 String Type Parameters

A string is either enclosed between quotes or not considered a valid string type parameter input. According to V25.ter space characters are ignored on the command line and may be used freely for formatting purposes, unless they are embedded in numeric or quoted string constants.

Therefore a string containing a space character has to be enclosed between quotes to be considered a valid string type parameter (e.g. typing AT+COPS=1,0,"A1" is the same as typing AT+COPS=1,0,A1; typing AT+COPS=1,0,"A BB" is different from typing AT+COPS=1,0,A BB).

A small set of commands requires always writing the input string parameters within quotes. This is explicitly reported in the specific descriptions.



4.2.2 Command Lines

A command line made up of three elements: the prefix, the body and the termination character.

The command line prefix consists of the characters "AT" or "at", or, to repeat the execution of the previous command line, the characters "A/" or "a/".

The termination character may be selected by a user option (parameter S3), the default being <CR>.

The basic structures of the command line are:

ATCMD1<CR> where AT is the command line prefix, CMD1 is the body of a basic command (nb: the name of the command never begins with the character "+") and <CR> is the command line terminator character

ATCMD2=10<CR> where 10 is a subparameter

AT+CMD1;+CMD2=, ,10<CR> These are two examples of extended commands (nb: the name of the command always begins with the character "+"[2]).

They are delimited with semicolon. In the second command, the subparameter omitted.

+CMD1?<CR> This is a Read command for checking current subparameter values

+CMD1=?<CR> This is a test command for checking possible subparameter values

These commands might perform in a single command line as shown below:

ATCMD1 CMD2=10+CMD1;+CMD2=, ,10;+CMD1?;+CMD1=?<CR>

anyway it is always preferable to separate into different command lines the basic commands and the extended commands; furthermore it is suggested to avoid placing several action commands in the same command line, because if one of them fails, then an error message is received but it is not possible to argue which one of them has failed the execution.

If command V1 is enabled (verbose responses codes) and all commands in a command line has been performed successfully, result code <CR><LF>OK<CR><LF> is sent from the TA to the TE, if subparameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code <CR><LF>ERROR<CR><LF> is sent and no subsequent commands in the command line are processed.

If command V0 is enabled (numeric responses codes), and all commands in a command line has been performed successfully, result code 0<CR> is sent from the TA to the TE, if sub-parameter values of a command are not accepted by the TA or command itself is invalid, or command cannot be performed for some reason, result code 4<CR> and no subsequent commands in the command line are processed.

In case of errors depending on ME operation, ERROR (or 4) response may be replaced by +CME ERROR: <err>> or +CMS ERROR: <err>.

² The set of **proprietary AT commands** differentiates from the standard one because the name of each of them begins with either "^", "\$" or "*". **Proprietary AT commands** follow the same syntax rules as **extended command**



4.2.3 Information Responses and Result Codes

The TA response, in case of verbose response format enabled, for the previous examples command line could be as shown below:

Information response to +CMD1?:

<CR><LF>+CMD1:2,1,10<CR><LF>

Information response to +CMD1=?

<CR><LF>+CMD1(0-2),(0,1),(0-15)<CR><LF>

Final result code:

<CR><LF>OK<CR><LF>

Moreover, there are other two types of result codes:

Result codes that inform about progress of TA operation(e.g. connection establishment CONNECT)

Result codes that indicate occurrence of an event not directly associated with issuance of a command from TE (e.g. ring indication RING).

Here the basic result codes according to ITU-T V25Ter recommendation

Result Codes	
Numeric form Verbose	form
0	OK
1	CONNECT
2	RING
3	NO CARRIER
4	ERROR
6	NO DIALTONE
7	BUSY
8	NO ANSWER



4.2.4 Command Response Time-Out

Every command issued to the Mobiletek modules returns a result response if response codes are enabled (default). The time needed to process the given command and return the response varies, depending on the command type. Commands that do not interact with the SIM or the network, and involve only internal set up settings or readings, have an immediate response, depending on SIM configuration(e.g., number of contacts stored in the phonebook, number of stored SMS), or on the network the command may interact with.

In the table below are listed only the commands whose interaction with the SIM or the network could lead to long response timings. When not otherwise specified, timing is referred to set command.

For phonebook and SMS writing and reading related commands, timing is referred to commands issued after phonebook sorting is completed.

For DTMF sending and dialing commands timing is referred to module registered on network ("AT+CREG?" answer is "+CREG: 0,1" or "+CREG: 0,5").

Command	Estimated maximum time to get response (Seconds)
+COPS	125 (test command)
	15 (SS operation)
+CLCK	5 (FDN enabling/disabling)
	15 (SS operation)
+CPWD	5 (PIN modification)
+CLIP	15 (read command)
+CLIR	15 (read command)
+CCFC	15
+CCWA	15
+CHLD	30
+CPIN	30
+CPBS	5 (FDN enabling/disabling)
	5 (single reading)
+CPBR	15 (complete reading of a 500 records full phonebook)
	10 (string present in a 500 records full phonebook)
+CPBF	5 (string not present)
+CPBW	5



+CACM	5
+CAMM	5
+CPUC	180
+VTS	20 (transmission of full "1234567890*#ABCD" string with no delay between tones, default duration)
+CSCA	5 (read and set commands)
+CSAS	5
+CMGS	120 after CTRL-Z; 1 to get '>' prompt
+CMSS	120 after CTRL-Z; 1 to get '>' prompt
+CMGW	5 after CTRL-Z; 1 to get '>' prompt
	5 (single SMS cancellation)
+CMGD	25 (cancellation of 50 SMS)
+CNMA	120 after CTRL-Z; 1 to get '>' prompt
+CMGR	5
+CMGL	100
+CGACT	150
+CGATT	140
	120 (voice call)
D	Timeout set with ATS7 (data call)
	60 (voice call)
A	Timeout set with ATS7 (data call)
Н	30
+CHUP	60
+COPN	10
+COPL	180
+CRSM	180
+FRH	Timeout set with ATS7
+FTH	Timeout set with ATS7
+FRM	Timeout set with ATS7
+FTM	Timeout set with ATS7
+FRS	Timeout set with the command itself
+FTS	Timeout set with the command itself
+WS46	10



4.2.5 Command Issue Timing

The chain of "Command -> Response" must always be respected and a new command must not be issued before the module has terminated all the sending of its response result code (whatever it may be).

This applies especially to applications that "sense" the OK text and therefore may send the next command before the complete code <CR><LF>OK<CR><LF> is sent by the module.

It is in any case advisable to wait at least 20ms between the end of the reception of the response and the issue of the next AT command.

If the response codes are disabled and therefore the module does not report any response to the command, then at least the 20ms pause time shall be respected.

During command mode, due to hardware limitations, under severe CPU load the serial port can lose some characters if placed in auto bounding at high speeds. Therefore, if you encounter this problem use a fixed baud rate with +IPR command.





4.3 AT Commands Set

4.3.1 Command Line General Format

4.3.1.1 Command LinePrefixes

4.3.1.1.1 Starting a Command Line – AT

AT – Starting A Command	
AT	The prefix AT, or at, is a two-character abbreviation (ATtention), always used to start a command line to be sent from TE to TA
Reference	3GPP TS 27.007

4.3.1.1.2 Last Command Automatic Repetition – A/

A/ - Last Command Automa	tic
A/	If the prefix A/ or a/ is issued, the MODULE immediately executes once again the body of the preceding command line. No editing is possible and no termination character is necessary. A command line may be repeated multiple times through this mechanism, if desired. If A/ is issued before any command line has been executed, the preceding command line is assumed
	to have been empty (that results in an OK result code). Note: this command works only at fixed IPR. *Note: the custom command #/ has been defined, it causes the last command to be
	executed again too; but it does not need a fixed IPR.
Reference	V.25ter



4.3.2 Hayes Compliant AT Commands

4.3.2.1 Generic Modem Control

4.3.2.1.1 Set To Factory-Defined Configuration -&F

&F – Set To Factory-	Defined
AT&F[<value>]</value>	The execution command sets the configuration parameters to default values specified by manufacturer; it takes into consideration hardware configuration switches and other manufacturer-defined criteria.
	Parameter: <value>: 0 - just factory profile's base section parameters are considered. *1 - Both the factory profile base section and the extended section are considered (full factory profile).</value>
	Note: if parameter <value> is omitted, the command has the same behaviour as AT&F0</value>
Reference	V.25ter.

4.3.2.1.2 Soft Reset – Z

Z - Soft Reset	
ATZ[<n>]</n>	The execution command loads the base section of the specified user profile and the extended section of the default factory profile. Parameter: <n> 01 - user profile number Note: any call in progress will terminated. Note: if parameter <n> is omitted, the command has the same behaviour as ATZO.</n></n>
Reference	V.25ter.



4.3.2.1.3 Select Active Service Class - +FCLASS

+FCLASS – Select A	active Service Class
AT+FCLASS= <n></n>	The set command sets the wireless module into the specified connection mode (data, fax, voice). Hence, all the calls done afterwards will be data or voice.
	Parameter:
	<n></n>
	0 – data
	1 –fax class *2.0– fax class
	*8 – voice
AT+FCLASS?	Read command returns the current configuration value of the parameter <n>.</n>
AT+FCLASS=?	Test command returns all supported values of the parameters <n>.</n>
Reference	3GPP TS 27.007 and ITU-T T.32[12] and TIA-592 and TIA-578-A(3GPP Only)

4.3.2.1.4 Store Current Configuration -&W

&W – Store Current Configuration	
AT&W[<n>]</n>	Execution command stores on profile <n> the complete configuration of the device.</n>
	Parameter:
	<n></n>
	01-profile
	Note: if parameter omitted, the command has the same behaviour of AT&W0.

4.3.2.1.5 Manufacturer Identification - +GMI

+GMI – Manufacturer Identification	
AT+GMI	Execution command returns the manufacturer identification.
Reference	V.25ter

4.3.2.1.6 Model Identification - +GMM

+GMM – Model Identification	
AT+GMM	Execution command returns the model identification.
Reference	V.25ter

4.3.2.1.7 Revision Identification - +GMR

+GMR – Revision Identification	
AT+GMR	Execution command returns the software revision identification.
Reference	V.25ter



4.3.2.1.8 Capabilities List - +GCAP

+GCAP – Capbaili	ities List
AT+GCAP	Execution command returns the equipment supported command set list. Where:
	+CGSM: 3GPP TS command set
	+FCLASS: Fax command set
	+DS: Data Service common modem command set
	+MS: Mobile Specific command set
Reference	V.25ter

4.3.2.1.9 Serial Number - + GSN

+GSN – Serial Number	
AT+GSN	Execution command returns the device board serial number.
Reference	V.25ter

4.3.2.1.10 Display Current Base Configuration and Profile - &V

&V – Display Current Base Configuration And Profile	
AT&V	Execution command returns some of the base configuration parameters settings.

4.3.2.1.11 Single Line Connect Message - \V

V – Single Line Connect Message	
AT\V <n></n>	Execution command set single line connect message. Parameter: <n> 0 - off 1 - on</n>



4.3.2.1.12 Speaker Loudness - L

L – Speaker Loudn	less	
ATL <n></n>	Execution command set speaker loudness.	
	Parameter:	
	<n></n>	
	0 – low speaker volume	
	1 – middle low speaker volume	
	2 – middle speaker volume	
	3 – high speaker volume	

4.3.2.1.13 Speaker Mode - M

M – Speaker Mode	
ATM <n></n>	Execution command set the speaker mode.
	Parameter:
	<n></n>
	0 – always turn off the loudspeaker
	1 – open the speaker until TA notifies the TE carrier detect
	2 – when the TA hook, open the speaker



4.3.2.2 DTE - Modem Interface Control

4.3.2.2.1 Command Echo - E

E – Command Echo	
ATE[<n>]</n>	The set command enables/disables the command echo.
	Parameter:
	<n></n>
	0 - Disables command echo
	1 - Enables command echo (factory default), hence command sent to the device are echoed back to the DTE before the response is given.
	Nos.
Reference	V25ter

4.3.2.2.2 Quiet Result Codes - Q

Q – Quiet Result C	Codes
ATQ[<n>]</n>	Set command enables or disables the result codes.
	Parameter:
	<n></n>
	0 - enables result codes (factory default)
	1 - disables result codes
	*2 - disables result codes (only for backward compatibility)
	Note: After issuing either ATQ1 or ATQ2 every information text transmitted in response to commands is not affected
Example	After issuing ATQ1 or ATQ2
	AT+CGACT=?
Reference	V25ter



4.3.2.2.3 Response Format – V

V- Response Form	nat
ATV[<n>]</n>	The set command determines the contents of the header and trailer transmitted with result codes and information responses. It also determines if result codes are transmitted in a numeric form or an alphanumeric form.
	Parameter:
	<n></n>
	0 - limited headers and trailers and numeric format of result codes
	information responses <text><cr><lf> result codes <numeric code=""><cr></cr></numeric></lf></cr></text>
	1 - full headers and trailers and verbose format of result codes (factory default)
	information responses <cr><lf></lf></cr>
	<verbose code=""><cr><lf></lf></cr></verbose>
	Note: the <text> portion of information responses is not affected by this setting.</text>
	Note: if parameter is omitted, the command has the same behaviour of ATV0
Reference	V.25ter



4.3.2.2.4 Extended Result Codes – X

X – Extended Result Codes	
ATX[<n>]</n>	Set command selects the result code messages subset used by the modem to inform the DTE of the result of the commands.
	Parameter:
	<n></n>
	0 - send only OK, CONNECT, RING, NO CARRIER, ERROR, NO ANSWER
	Results.
	14 - reports all messages (factory default is 1).
	Note: If parameter is omitted, the command has the same behaviour of ATX0 Note: Current value is returned by AT&V
	Parameter:
	<n></n>
	0 - EXTENDED MESSAGES : X0=NO 14 - EXTENDED MESSAGES : X1=YES
Note	For complete control on CONNECT response message see also +DR command.
Reference	V.25ter

4.3.2.2.5 Identification Information - I

I – Identification Information	
	Execution command returns one or more lines of information text followed by a result code.
	Execution command returns one or more lines of information for manufacturer model number and softwore version, followed by a result code.
Reference	V25ter



4.3.2.2.6 Data Carrier Detect (DCD) Control - &C

Detect (DCD) Control
Set command controls the RS232 DCD output behaviour.
Parameter:
<n></n>
0-DCD remains high always.
1-DCD follows the Carrier detect status: if carrier detected DCD is high, otherwise DCD is low.
2-DCD off while disconnecting(factory default)
V25ter

4.3.2.2.7 Data Terminal Ready (DTR) Control - &D

&D – Data Terminal Reday (DTR) Control	
AT&D[<n>]</n>	The set command controls the Module behaviour for RS232 DTR transitions.
	Parameter:
	<n></n>
	0 - DTR transitions are ignored
	1 - When the MODULE is connected, the High to Low transition of DTR pin sets the device in command mode and the current connection is NOT closed.
	2 - When the MODULE is connected, the High to Low transition of DTR pin sets the device in command mode and the current connection is closed. (factory default)
	Note: if AT&D2 been issued and the DTR has been tied Low, autoanswering is inhibited and it is possible to answer only by issuing command ATA.
	Note: if parameter is omitted, the command has the same behaviour of AT&D0
Reference	V.25ter



4.3.2.2.8 Standard Flow Control - \Q

Q – Standard Flow Control	
AT\Q[<n>]</n>	Set command controls the RS232 flow control behaviour.
	Parameter:
	<n></n>
	0 - no flow control
	1 - software bi-directional with filtering (XON/XOFF)
	*2 - hardware mono-directional flow control (only CTS active)
	3 - hardware bi-directional flow control (both RTS/CTS active) (factory default)
	Note: if parameter is omitted, the command has the same behaviour as AT\Q0
	Note: \Q's settings are functionally a subset of &K's ones.
Reference	V.25ter

4.3.2.2.9 Data Set Ready (DSR) Control - &S

&S – Data Set Ready (DSR) Control	
AT&S[<n>]</n>	The set command controls the RS232 DSR pin behaviour. Parameter:
	<n></n>
	0 - always High (factory default)
	1 - Follows the GSM traffic channel indication
	*2 - High when connected
	*3 - High when device is ready to receive commands (factory default).
	Note: if option 1 selected, then DSR is tied High when the device receives from the network the UMTS traffic channel indication.
	Note: in power saving mode the DSR pin is always tied Low & USB_VBUS pin is always tied Low.
	Note: if parameter is omitted, the command has the same behaviour as AT&S0
)	Note: If option 1 or 2 active, DSR will not be tied High in case of GSM voice connection.



4.3.2.2.10 Fixed DTE Interface Rate - +IPR

+IPR – Fixed DTE Interface Rate	
AT+IPR= <rate></rate>	The set command specifies the DTE speed (UART only) at which the device accepts commands during command mode operations. The command could be used to fix the DTE-DCE interface speed.
	Note: DTE speed of USB does not change.
	Parameter:
	<rate> 300</rate>
	600
	1200
	2400
	4800
	9600
	19200
	38400
	57600
	115200 (default)
	230400
	460800
	921600
AT+IPR?	Read command returns the current value of +IPR parameter.
AT+IPR=?	Test command returns the list of supported autodetectable <rate> values and the list of fixed-only <rate> values in the format:</rate></rate>
	+IPR:(list of supported autodetectable <rate> values), (list of fixed-only</rate>
	<rate> values)</rate>
Reference	V.25ter



4.3.2.2.11 DTE-Modem Local Flow Control - +IFC

+IFC – DTE-Modem Local Flow Control	
AT+IFC= <by_te>, <by_ta></by_ta></by_te>	The set command selects the flow control behaviour of the serial port in both directions:
	from DTE to modem (<by_ta> option) and from modem to DTE (<by_te>)</by_te></by_ta>
	Parameters:
	 by_te> - flow control option for the data received by DTE. 0 - flow control None
	2 - C105 (RTS) (factory default)
	 by_ta> - flow control option for the data sent by modem 0 - flow control None
	2 - C106 (CTS) (factory default)
	Note: only possible commands are AT+IFC=0,0 and AT+IFC=2,2.
AT+IFC?	Read command returns active flow control settings.
AT+IFC=?	Test command returns all supported values of the parameters
	 by te> and by ta>.
Reference	V25ter

4.3.2.2.12 DTE-Modem Character Framing - +ICF

+ICF – DTE-Modem Character Framing	
AT+ICF= <format> [,<parity>]</parity></format>	Set command defines the asynchronous character framing used when autobauding is disabled. The L506 family supports only the 8 Data, 1 Stop setting.
	Parameters:
	<format> - determines the number of bits in the data bits, the presence of a parity bit, and the number of stop bits in the start-stop frame.</format>
	3 - 8 Data, 1 Stop (default)
	<parity> - determines how the parity bit is generated and checked, if present; setting this subparameter has no meaning.</parity>
	0 - Odd (not supported)
	1 - Even (not supported)
AT+ICF?	Read command returns current settings for subparameters <format> and <parity>. The current setting of subparameter <parity> will always be presented as 0.</parity></parity></format>
AT+ICF=?	Test command returns the ranges of values for the parameters <format> and <parity></parity></format>
Reference	V25ter



4.3.2.3 Call Control

4.3.2.3.1 Dial - D

D - Dial	
ATD <number>[;]</number>	The execution command starts a call to the phone number given as parameter.
	If ";" is present, a voice call to the given number is performed, regardless of the current value of the connection mode set by +FCLASS command.
	Parameter:
	<number> - phone number to be dialed</number>
	Note: type of call (data, fax or voice) depends on last +FCLASS setting. Note: the characters accepted are 0-9 and *,#,"A","B","C","+".
	Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD> <str>[;]</str>	Issues a call to phone number whose corresponding alphanumeric field is
	<str>; all available memories will be searched for the correct entry. If ";" is present a voice call is performed.</str>
	Parameter:
	<str> - alphanumeric field corresponding to phone number. It must be enclosed in</str>
	quotation marks.
	Note: parameter <str> is case sensitive.</str>
ATD> <mem><n>[;]</n></mem>	Issues a call to phone number in phonebook memory storage <mem>, entry location <n> (available memories may be queried with AT+CPBS=?). If ";" is present a voice call is performed.</n></mem>
	Parameters:
	<mem> - phonebook memory storage;</mem>
	"SM" - SIM/UICC phonebook
	"FD" - SIM/USIM fixed dialing phonebook "LD" - SIM/UICC last dialled phonebook "MC" - Missed calls list
	"RC" - Received calls list "DC" - MT dialled calls list "ME" - MT phonebook
	"EN" - SIM/USIM (or MT) emergency number(+CPBW is not be applicable f
	or this storage)
	"ON" - SIM (or MT) own numbers (MSI storage may be available through + CNUM also).
	"MB" - Mailbox numbers stored on SIM.(If this service is provided by the SI M).
	<n> - entry location should be in the range of locations available in the memory used.</n>



D - Dial	
ATD <number>[;]</number>	The execution command starts a call to the phone number given as parameter.
	If ";" is present, a voice call to the given number is performed, regardless of the current value of the connection mode set by +FCLASS command.
	Parameter:
	<number> - phone number to be dialed</number>
	Note: type of call (data, fax or voice) depends on last +FCLASS setting. Note: the characters accepted are 0-9 and *,#,"A","B","C","+".
	Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD> <str>[;]</str>	Issues a call to phone number whose corresponding alphanumeric field is
	<str>; all available memories will be searched for the correct entry. If ";" is present a voice call is performed.</str>
	Parameter:
	<str> - alphanumeric field corresponding to phone number. It must be enclosed in quotation marks.</str>
	Note: parameter <str> is case sensitive.</str>
ATD> <mem><n>[;]</n></mem>	Issues a call to phone number in phonebook memory storage <mem>, entry location <n> (available memories may be queried with AT+CPBS=?). If ";" is present a voice call is performed.</n></mem>
	Parameters:
	<mem> - phonebook memory storage;</mem>
	"SM" - SIM/UICC phonebook
	"FD" - SIM/USIM fixed dialing phonebook "LD" - SIM/UICC last dialled phonebook "MC" — Missed calls list
	"RC" - Received calls list "DC" - MT dialled calls list "ME" - MT phonebook
	"EN" - SIM/USIM (or MT) emergency number(+CPBW is not be applicable f
ATD> <n>[;]</n>	Issue a call to a phone number on entry location <n> of the active phonebook memory storage (see +CPBS).</n>
	If ";" is present a voice call is performed.
	Parameter:
ATELL	<n> - active phonebook memory storage entry location; it should be in the range of locations available in the active phonebook memory storage.</n>
ATDL;	Issues a call to the last number dialed.



D - Dial	
ATD <number>[;]</number>	The execution command starts a call to the phone number given as parameter.
	If ";" is present, a voice call to the given number is performed, regardless of the current value of the connection mode set by +FCLASS command.
	Parameter:
	<number> - phone number to be dialed</number>
	Note: type of call (data, fax or voice) depends on last +FCLASS setting. Note: the characters accepted are 0-9 and *,#,"A","B","C","+".
	Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD> <str>[;]</str>	Issues a call to phone number whose corresponding alphanumeric field is
	<str>; all available memories will be searched for the correct entry. If ";" is present a voice call is performed.</str>
	Parameter:
	<str> - alphanumeric field corresponding to phone number. It must be enclosed in quotation marks.</str>
	Note: parameter <str> is case sensitive.</str>
ATD> <mem><n>[;]</n></mem>	Issues a call to phone number in phonebook memory storage <mem>, entry location <n> (available memories may be queried with AT+CPBS=?). If ";" is present a voice call is performed.</n></mem>
	Parameters:
	<mem> - phonebook memory storage;</mem>
	"SM" - SIM/UICC phonebook
	"FD" - SIM/USIM fixed dialing phonebook "LD" - SIM/UICC last dialled phonebook
	"MC" - Missed calls list
	"RC" - Received calls list "DC" - MT dialled calls list "ME" - MT phonebook
	"EN" - SIM/USIM (or MT) emergency number(+CPBW is not be applicable f
ATD <number>I[;] ATD<number>i[;]</number></number>	Issues a call suppressing the CLIR supplementary service subscription default value for this call
V	If ";" is present a voice call is performed. I - invocation, restrict CLI presentation i - suppression, allow CLI presentation
ATD <number>G[;] ATD<number>g[;]</number></number>	Issues a call checking the CUG supplementary service information for the current call. Refer to +CCUG command.
	If ";" is present a voice call is performed.



D - Dial	
ATD <number>[;]</number>	The execution command starts a call to the phone number given as parameter.
	If ";" is present, a voice call to the given number is performed, regardless of the current value of the connection mode set by +FCLASS command.
	Parameter:
	<number> - phone number to be dialed</number>
	Note: type of call (data, fax or voice) depends on last +FCLASS setting. Note: the characters accepted are 0-9 and *,#,"A","B","C","+".
	Note: for backwards compatibility with landline modems modifiers "T", "P", "R", ",", "W", "!", "@" are accepted but have no effect.
ATD> <str>[;]</str>	Issues a call to phone number whose corresponding alphanumeric field is
	<str>; all available memories will be searched for the correct entry. If ";" is present a voice call is performed.</str>
	Parameter:
	<str> - alphanumeric field corresponding to phone number. It must be enclosed in quotation marks.</str>
	Note: parameter <str> is case sensitive.</str>
ATD> <mem><n>[;]</n></mem>	Issues a call to phone number in phonebook memory storage <mem>, entry location <n> (available memories may be queried with AT+CPBS=?). If ";" is present a voice call is performed.</n></mem>
	Parameters:
	<mem> - phonebook memory storage;</mem>
	"SM" - SIM/UICC phonebook
	"FD" - SIM/USIM fixed dialing phonebook "LD" - SIM/UICC last dialled phonebook "MC" - Missed calls list
	"RC" - Received calls list "DC" - MT dialled calls list "ME" - MT phonebook
	"EN" - SIM/USIM (or MT) emergency number(+CPBW is not be applicable f
ATD* <gprs_sc> [*<addr>] [*[<l2p>] [*[<cid>]]]]#</cid></l2p></addr></gprs_sc>	This command is specific to GPRS functionality and causes the MT to perform whatever actions are necessary to establish communication between the TE and the external PDN.
	Parameters:
	<pre><gprs_sc> - GPRS Service Code, a digit string (value 99) which identifies a request to use the GPRS</gprs_sc></pre>
	<addr> - string that identifies the called party in the address space applicable to the PDP.</addr>
	<l2p> - a string which indicates the layer 2 protocol to be used (see</l2p>
	+CGDATA command). For communications software that does not support arbitrary



D - Dial	
	numeric equivalents shall be used: 1 - PPP
	<cid> - a digit which specifies a particular PDP context definition (see</cid>
	+CGDCONT command).
Reference	V.25ter.(3GPP Only)

4.3.2.3.2 Tone Dial - T

T - Tone Dial	
	The set command has no effect and is included only for backward compatibility with landline modems.
Reference	V.25ter.

4.3.2.3.3 Pulse Dial - P

P – Pulse Dial		
ATP	Select pulse dialing.	
Reference	V.25ter. GSM invalid	

4.3.2.3.4 Answer - A

A - Answer	
	Execution command answers an incoming call if automatic answer is disabled. Note: This command MUST be the last in the command line and followed immediately by a <cr> character.</cr>
Reference	V.25ter.(3GPP Only)

4.3.2.3.5 Disconnect - H

H - Disconnect	
АТН	The execution command is used to close the current conversation (voice, data or fax).
	Note: this command issued only in command mode.
	When a data conversation is active the device is in on-line mode (commands are not sensed and characters are sent to the other party), hence escape sequence (see register S2) is required before issuing this command, otherwise if &D1 option is active, DTR pin has to be tied Low to return in command mode.
Reference	V.25ter.(3GPP Only)



4.3.2.3.6 Return To On Line Mode - O

O – Return To C	n Line Mode
ATO	The execution command used to return to on-line mode from command mode. If there is no active connection, it returns NO CARRIER.
	Note: After issuing this command and if the device is in conversation, to send other commands to the device you must return to command mode by issuing the escape sequence (see register S2) or tying low DTR pin if &D1 option is active.
Reference	V.25ter.(3GPP Only)





4.3.2.4 Compression Control

4.3.2.4.1 Data Compression - +DS

+DS – Data Compression		
AT+DS=[<dir>[,<ne g="">[,<p1>[,<p2>]]]]</p2></p1></ne></dir>	Set command sets the V42 compression parameter. Parameter: <dir> : desired direction of operations 0 - no compression (factory default) 1 - Transmit only. 2 - Receive only. 3 - Both directions, accept any direction</dir>	
ATT DC2	<neg>: whether the DCE should continue to operate if the desired result is not obtained. 0 - Do not disconnect if V.42 bis is not negotiated by the remote DCE as specified in <dir>. <p1>: maximum number of dictionary entries 512-2048 (Factory default is 2048)</p1></dir></neg>	
AT+DS?	Read command returns current value of the data compression parameter.	
AT+DS=?	Test command returns all supported values of the parameter <n></n>	
Reference	V.25ter(3GPP Only)	

4.3.2.4.2 Data Compression Reporting - +DR

+DR – Data Compression Reporting			
AT+DR= <n></n>	Set command enables/disables the data compression reporting upon connection.		
	Parameter:		
	<n></n>		
	0 - data compression reporting disabled		
	1 - data compression reporting enabled upon connection		
	Note: if enabled, the following intermediate result code is transmitted before the		
+DR – Data Co	+DR – Data Compression Reporting		
	final result code:		
	+DR: <compression></compression>		
AT+DR?	Read command returns current value of <n>.</n>		
AT+DR=?	Test command returns all supported values of the parameter <n></n>		
Reference	V25ter(3GPP Only)		



4.3.2.5 S Parameters

Basic commands that begin with the letter "S" are known as "S-Parameters". The number following the "S" indicates the "parameter number" being referenced. If the number is not recognized as a valid parameter number, an ERROR result code is issued.

If no value is given for the subparameter of an S-Parameter, an ERROR result code will be issued and the stored value left unchanged.

NOTE: what follows is a special way to select and set an S-Parameter:

- 1) ATSn<CR> selects n as current parameter number. If the value of n is in the range (0, 2, 3, 4, 5, 7, 10, 12, 25, 30, 38), this command establishes Sn as last selected parameter. Every value out of this range and less than 256 can be used but has no meaning and is maintained only for backward compatibility with landline modems.
- 2) AT=<value><CR> or ATS=<value><CR> set the contents of the selected S-parameter

Example:

ATS7<CR> establishes S7 as last selected parameter.

Reference: V25ter and RC56D/RC336D

4.3.2.5.1 Number of Rings to Auto Answer - S0

S0 – Number Of Rings	To Auto Answer
	Set command sets the number of rings required before device automatically answers an incoming call. Parameter:
	<n> - number of rings</n>
	0 - auto answer disabled (factory default)
ATS0?	Read command returns the current value of S0 parameter.
Reference	V.25ter



4.3.2.5.2 Escape Character - S2

S2 – Escape Chara	rcter
ATS2=[<char>]</char>	Set command sets the ASCII character used as escape characters. –
	Parameter:
	<char> - escape character decimal ASCII 0127 - factory default value is 43 (+).</char>
	Note: the escape sequence consists of three escape characters preceded and followed by
S2 – Escape Chara	rcter
ATS2?	Read command returns the current value of S2 parameter.
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s

4.3.2.5.3 Command Line Termination Character - S3

S3 – Command Li	ine Termination Character
ATS3=[<char>]</char>	Set command sets the value of the character recognized by the device as command line terminator and generated by the device as part of the header, trailer, and terminator for result codes and information text, along with S4 parameter.
	Parameter:
	<char> - command line termination character (decimal ASCII)</char>
	0127 - factory default value is 13 (ASCII <cr>)</cr>
	Note: the "previous" value of S3 used to determine the command line termination character for entering the command line containing the S3 setting command. However the result code issued shall use the "new" value of S3 (as set during the processing of the command line)
ATS3?	Read command returns the current value of S3 parameter.
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter



4.3.2.5.4 Response Formatting Character - S4

S4 – Response For	matting Character
ATS4=[<char>]</char>	Set command sets the value of the character generated by the device as part of the header, trailer, and terminator for result codes and information text, along with the S3 parameter.
	Parameter: <char> - response formatting character (decimal ASCII) 0127 - factory default value is 10 (ASCII <lf>)</lf></char>
ATS4?	Note: if the value of S4 changed in a command line, the result code issued in response Read command returns the current value of S4 parameter.
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

4.3.2.5.5 Command Line Editing Character - S5

S5 – Command Line B	diting Character
ATS5=[<char>]</char>	Set command sets the value of the character recognized by the device as a request to delete from the command line the immediately preceding character.
	Parameter:
	<char> - command line editing character (decimal ASCII) 0127 - factory default value is 8 (ASCII <bs>)</bs></char>
ATS5?	Read command returns the current value of S5 parameter.
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter



4.3.2.5.6 Connection Completion Time-Out - S7

S7 – Connection C	ompletion Time-Out
ATS7=[<tout>]</tout>	Set command sets the amount of time, in seconds, that the device shall allow between either answering a call (automatically or by A command) or completion of signalling of call addressing information to network (dialling), and establishment of a connection with the remote device. Parameter: <tout> - number of seconds</tout>
ATS7?	Read command returns the current value of S7 parameter.
	Note: the format of the numbers in output is always 3 digits, left-filled with 0s
Reference	V25ter

4.3.2.5.7 Carrier Off With Firm Time - S10

S10 – Carrier C	Off With Firm Time
ATS10	Execution command has no effect and is included only for backward compatibility with landline modems

4.3.2.5.8 Disconnect Inactivity Timer - S30

S30 – Disconnect In	activity Timer
ATS30=[<tout>]</tout>	Set command defines the inactivity time-out in minutes. The device disconnects if no characters are exchanged for a period at least <tout> minutes.</tout>
	Parameter: <tout> - expressed in minutes</tout>
	0 - disabled, disconnection due to inactivity is disabled (factory default). 1255 - inactivity time-out value
ATS30?	Read command returns the current value of S30 parameter. Note: the format of the numbers in output is always 3 digits, left-filled with 0s



4.3.3 3GPP TS 27.007 AT Commands

4.3.3.1 General

4.3.3.1.1 Request Manufacturer Identification - +CGMI

+CGMI - Request Manufacturer	
AT+CGMI	Execution command returns the device manufacturer identification code
	without command echo.
AT+CGMI=?	Test command returns OK result code.
Reference	3GPP TS 27.007

4.3.3.1.2 Request Model Identification - +CGMM

+CGMM - Request Model	
AT+CGMM	Execution command returns the device model identification code without command echo.
AT+CGMM=?	Test command returns OK result code.
Reference	3GPP TS 27.007

4.3.3.1.3 Request Revision Identification - +CGMR

+CGMR – Request Revision Indentification	
AT+CGMR	Execution command returns device software revision number without
	command echo.
AT+CGMR=?	Test command returns OK result code. "
Reference	3GPP TS 27.007

4.3.3.1.4 Request Product Serial Number Identification - + CGSN

+CGSN – Request Product Serial Number Identification		
AT+CGSN	Execution command returns the product the mobile, without command echo.	serial number, identified as the IMEI of
AT+CGSN=?	Test command returns OK result code.	
Reference	3GPP TS 27.007	



4.3.3.1.5 Select TE Character Set - +CSCS

+CSCS – Select TE Character	
AT+CSCS=	Set command sets the current character set used by the device.
[<chset>]</chset>	
	Parameter:
	<chset> - character set</chset>
	"GSM" - GSM default alphabet (3GPP T S 03.38/23.008).
	"IRA" - international Reference alphabet (ITU-T T.50)
	"UCS2" - 16-bit universal multiple-octet coded character set (ISO/IEC10646).
AT+CSCS?	Read command returns the current value of the active character set.
AT+CSCS=?	Test command returns the supported values for parameter <chset>.</chset>
Example	AT+CSCS="IRA" OK
	AT+CPBR=1
4	+CPBR: 1,"13845763000",129,"Lin Wang" OK
Reference	3GPP TS 27.007

4.3.3.1.6 Request International Mobile Subscriber Identity (IMSI) - +CIMI

+CIMI – Request Ir	nternational Mobile Subscriber Identify
AT+CIMI	Execution command returns the value of the Internal Mobile Subscriber Identity stored in the SIM without command echo. Note: a SIM card must be present in the SIM card housing. Otherwise, the command returns ERROR.
AT+CIMI=?	Test command returns OK result code.
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.1.7 PCCA STD-101 Select Wireless Network - +WS46

+WS46 – PCCA ST	+WS46 – PCCA STD-101 Select Wireless Network		
AT+WS46=[<n>]</n>	Set command selects the cellular network (Wireless Data Service, WDS) to operate with the TA (WDS-Side Stack Selection).		
	Parameter:		
	<n> - integer type, it is the WDS-Side Stack to be used by the TA. 12 GSM Digital Cellular Systems (GERAN only)</n>		
	22 UTRAN only		
	25 3GPP Systems (GERAN and UTRAN and E-UTRAN) (factory default) 28 E-UTRAN only		
	GERAN and UTRAN		
	GERAN and E-UTRAN		
	UTRAN and E-UTRAN		
	Note:		
	The values in <n> for Query are mutually exclusive. If one value (e.g. "25") is returned, other values shall not be returned.</n>		
	<n> parameter setting is stored in NVM and available at next reboot .</n>		
AT+WS46?	Read command reports the currently selected cellular network, in the format:		
	+ WS46: <n></n>		
AT+WS46=?	Test command reports the range for the parameter <n>.</n>		
Reference	3GPP TS 27.007(3GPP Only)		



4.3.3.2 Call Control

4.3.3.2.1 Call mode - +CMOD

CMOD – Parameter C	Command Syntax
+CMOD= [<mode>]</mode>	Set command selects the call mode of further dialling commands (D) or for next answering command (A). Mode can be either single or alternating (in the present document, terms "alternating mode" and "alternating call" refer to all GSM/UMTS bearer and teleservices that incorporate more than one basic service (voice, data, fax) within one call).
	When single mode is selected the call originating and hangup procedures are similar to procedures specified in ITU-T Recommendations V.250 [14], T.31 [11] and T.32 [12].
	NOTE: +CMOD shall be set to zero after a successfully completed alternating mode call. It shall be set to zero also after a failed answering. The power-up, factory (&F) and user resets (Z) shall also set the value to zero.
	This reduces the possibility that alternating mode calls are originated or answered accidentally.
	Defined values
	<mode>:</mode>
	0 - single mode (default mode)
+CMOD?	Test command returns values supported as a compound value.
	+CMOD: <mode></mode>
+CMOD=?	+CMOD: (list of supported <mode>s)</mode>
Reference	3GPP Only

4.3.3.2.2 Hang Up Call - +CHUP

+CHUP - Hang Up Call	
AT+CHUP	Execution command cancels all active and held calls, also if a multi-party session is running.
AT+CHUP=?	Test command returns the OK result code
Reference	GSM 07.07(3GPP Only)



4.3.3.2.3 Select type of address - +CSTA

+CSTA – Select type of address	
AT+CSTA=[<type>]</type>	Set command selects the type of number for further dialling commands (D) according to GSM/UMTS specifications.
	Parameter: <type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7).</type>
	default 145 when dialling string includes international access code character "+",
AT+CSTA?	Read command returns selected <type></type>
AT+CSTA =?	Test command returns supported <type>s</type>
Reference	3GPP TS 27.007

${\bf 4.3.3.2.4~Select~Bearer~Service~Type-+CBST}$

GD GT G 1 D	
+CBST – Select Beare	er Service Type
AT+CBST=	Set command sets the bearer service <name> with data rate <speed>, and the connection element <ce> used when data calls are originated. This</ce></speed></name>
[<speed> [,<name:< td=""><td></td></name:<></speed>	
[, <ce>]]]</ce>	setting is also used during mobile terminated data call setup, in case of single numbering scheme calls (refer +CSNS).
	Parameters:
	<speed> - data rate</speed>
	0 - autobauding (autobaud)
	7 - 9600 bps (V.32)
	12 - 9600 bps (V.34)
	14 - 14400 bps (V.34)
	16 - 28800 bps (V.34)
	17 - 33600 bps (V.34)
	39 - 9600 bps (V.120)
	43 - 14400 bps (V.120)
	48 - 28800 bps (V.120)
	51 - 56000 bps (V.120)
	71 - 9600 bps (V.110 or X.31 flag stuffing)
	75 - 14400 bps (V110 or X.31 flag stuffing)
	80 - 14400 bps (V110 or X.31 flag stuffing)
	81 - 38400 bps (V110 or X.31 flag stuffing)
	83 - 56000 bps (V110 or X.31 flag stuffing)



+CBST – Select Bearer Service Type 84 - 64000 bps (X.31 flag stuffing) 116 - 64000 bps (bit transparent) 134 – 64000 bps (multimedia) <name> - bearer service name 0 - data circuit asynchronous (UDI or 3.1 kHz modem) 1 - data circuit synchronous(UDI or 3.1 kHz modem) 4 - data circuit asynchronous(RDI) <ce> - connection element 0 - transparent 1 - non transparent (default) The bearer service on L506 family only has support for the following combinations: <GSM network> AT+CBST= 0,0,1 (Autobaud 9.6k, non transparent) AT+CBST= 7,0,1 (V.32 9.6k, non transparent) AT+CBST=12,0,1 (V.34 9.6k, non transparent)) AT+CBST=14,0,1 (V.34 14.4k, non transparent) AT+CBST=39,0,1 (V.120 9.6k, non transparent) AT+CBST=43,0,1 (V.120 14.4k, non transparent) AT+CBST=71,0,1 (V.110 9.6k, non transparent) AT+CBST=75,0,1 (V.110 14.4k, non transparent) AT+CBST= 7,0,0 (V32 9.6k, transparent) AT+CBST=12,0,0 (V34 9.6k, transparent) AT+CBST=14,0,0 (V34 14.4k, transparent) <WCDMA network> AT+CBST= 0,0,1 (Autobaud 57.6k, non transparent) AT+CBST=14,0,1 (V.34 14.4k, non transparent) AT+CBST=16,0,1 (V.34 28.8k, non transparent) AT+CBST=17,0,1 (V.34 33.6k, non transparent) AT+CBST=43,0,1 (V.120 14.4k, non transparent) AT+CBST=48,0,1 (V.120 28.8k, non transparent) AT+CBST=51,0,1 (V.120 56k, non transparent) AT+CBST=75,0,1 (V.110 14.4k, non transparent) AT+CBST=80,0,1 (V.110 28.8k, non transparent) AT+CBST? Read command returns current value of the parameters <speed>, <name>



+CBST – Select Bearer Service Type	
	and <ce></ce>
AT+CBST=?	Test command returns the supported range of values for the parameters.
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.2.5 Radio Link Protocol - +CRLP

+CRLP – Radio Link I	Protocol
AT+CRLP= [<iws>[,<mws>[,<t 1>[,<n2> [,<ver>]]]]]</ver></n2></t </mws></iws>	Set command sets Radio Link Protocol (RLP) parameters used when non-transparent data calls originated.
	Parameters:
	<iws> - IWF window Dimension</iws>
	061 - factory default value is 61 (ver 0/1)
	0488 - factory default value is 240 (ver 2)
	<mws> - MS window Dimension</mws>
	061 - default value is 61 (ver 0/1)
	0488 - factory default value is 240 (ver 2)
	<t1> - acknowledge timer (10 ms units).</t1>
	38255 - default value is 78 (ver 0 or 1)
	42255 deafault value is 52 (ver 2)
AT+CRLP?	Read command returns current settings for each supported RLP version
	<ver>.</ver>
	+CRLP: <iws>,<mws>,<t1>,<n2></n2></t1></mws></iws>
_	+CRLP: <iws>,<mws>,<t1>,<n2>,<ver></ver></n2></t1></mws></iws>
AT+CRLP=?	Test command returns the range of setting value for each supported RLP version <ver></ver>
Reference	3GPP TS 27.007(3GPP Only)
Note	Versions 0 and 1 share the same parameter set. Read and Test commands shall return only one line for this set (where <ver> is not present)</ver>



4.3.3.2.6 Service Reporting Control - +CR

+CR – Service Repor	-CR – Service Reporting Control	
AT+CR=[<mode>]</mode>	Set command controls whether or not the intermediate result code +CR is returned from TA to TE.	
	Parameter:	
	<mode></mode>	
	0 - disables +CR reporting (factory default)	
	1 - enables +CR reporting: the intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before the intermediate result code CONNECT is transmitted.	
	Note: After power off/on in L506 the value returns to "0". Its format is:	
	+CR: <serv></serv>	
	where: <serv></serv>	
	ASYNC - asynchronous transparent	
	SYNC - synchronous transparent	
	REL ASYNC - asynchronous non-transparent	
	REL SYNC - synchronous non-transparent.	
AT+CR?	Read command returns whether or not intermediate result code +CR is enabled, in the format:	
AT+CR=?	Test command returns the supported range of values of parameter <mode>.</mode>	
Reference	3GPP TS 27.007(3GPP Only)	

4.3.3.2.7 Extended Error Report - +CEER

+CEER – Extended Error Report	
	Execution command returns one or more lines of information text <report> offering the TA user an extended error report, in the format: +CEER: <report></report></report>



+CEER – Extende	ed Error Report
	the failure in the last unsuccessful call setup (originating or answering)
	the last call release
	the last unsuccessful GPRS attach or unsuccessful PDP context activation
	the last GPRS detach or PDP context deactivation
	Note: if none of these conditions have occurred since power up then
AT+CEER=?	Test command returns OK result code.
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.2.8 Cellular Result Codes - +CRC

+CRC – Celluar Result	t Codes
AT+CRC= [<mode>]</mode>	Set command controls whether or not the extended format of incoming call indication is used. Parameter: <mode> 0 - disables extended format reporting (factory default) 1 - enables extended format reporting: When enabled, an incoming call is indicated to the TE with unsolicited result code +CRING: <type> Instead of the normal RING. Where: <type> - call type: ASYNC - asynchronous transparent data</type></type></mode>
AT+CRC?	Read command returns current value of the parameter <mode>.</mode>
AT+CRC=?	Test command returns supported values of the parameter <mode>.</mode>
Reference	3GPP TS 27.007(3GPP Only)



$\textbf{4.3.3.2.9 HSCSD} \ non-transparent \ call \ configuration \ + CHSN$

+CHSN parameter con	mmand syntax
AT+CHSN	·
=[<waiur>[,<wrx></wrx></waiur>	Set command controls parameters for originating non-transparent HSCSD calls. Values may also be used during mobile terminated data call setup. In GERAN, changing topRx or <codings> value during a call does not affect the current call. In GERAN,</codings>
[, <topr> [,<codings< td=""><td>changing of</td></codings<></topr>	changing of
>]]]]	<waiur> or <wrx> affects the current call only if <toprx> was non- zero when call was established.</toprx></wrx></waiur>
	Defined values
	<waiur>: integer type; wanted air interface user rate. Default value 0 indicates that TA shall calculate a proper</waiur>
	value from currently selected fixed network user rate (<speed> subparameter from +CBST command),</speed>
	<codings>, and <wrx> (or <maxrx> from +CHSD command if</maxrx></wrx></codings>
	<wrx>=0). Other values:</wrx>
	1 - 9600 bps
	2 - 14400 bps
	3 - 19200 bps
	4 - 28800 bps
	5 - 38400 bps
	6 - 43200 bps
	7 - 57600 bps
	Note: only support 0-2,4,7
	<wrx>: integer type; wanted amount of receive timeslots. Default value 0 indicates that TA shall calculate a proper value from currently selected</wrx>
	<waiur> and <codings>.</codings></waiur>
	This parameter is not applicable to UTRAN or EUTRAN UEs.
	<toprx>: integer type; top value for <wrx> that user is going to request during the next established nontransparent HSCSD call. Default value 0 indicates that user is not going to change</wrx></toprx>
	<waiur>/<wrx> during the next call. This parameter is not applicable to UTRAN or E-UTRAN UEs.</wrx></waiur>
AT+CHSN	+CHSN: <waiur>,<wrx>,<toprx>,<codings></codings></toprx></wrx></waiur>
AT CHEN 9	CHEN, fligt of supported and in a little of supported by Alice of
AT+CHSN=?	+CHSN: (list of supported <waiur>s), (list of supported <wrx>s),(list of supported <toprx>,(list of supported <codings>s)</codings></toprx></wrx></waiur>
Reference	3GPP Only
L	



4.3.3.2.10 Voice Hang Up Control - +CVHU

+CVHU – Voice H	Hang Up Control
AT+CVHU= [<mode>]</mode>	Set command selects whether ATH or "drop DTR" shall cause a voice connection to disconnect or not.
[<mode>]</mode>	
	Parameter:
	<mode></mode>
	0 - "Drop DTR" ignored but OK result code given. ATH disconnects.
	1- "Drop DTR" and ATH ignored but OK result code given. (factory default).
	*2 - "Drop DTR" behaviour according to &D setting. ATH disconnects
AT+CVHU?	Read command reports the current value of the <mode> parameter, in the format:</mode>
	+CVHU: <mode></mode>
AT+CVHU=?	Test command reports the range of supported values for parameter <mode></mode>
Reference	3GPP Only

4.3.3.2.11 Setting Time Format - +CSTF

+CSTF – Setting Time	Format
AT+CSTF= [<mode>]</mode>	Set command sets the time format of the time information presented to the user. Refer subclause 9.2 for possible <err> values</err>
[mode/]	Possible Response(s):
	+CME ERROR: <err></err>
Ţ,	Defined values
	<mode>: integer type. The default value is manufacturer specific.</mode>
	1、HH:MM (24 hour clock)
	2、HH:MM a.m./p.m.
AT+CSTF?	Read command reads the current setting. Possible Response(s):
	+CSTF: <mode></mode>
	+CME ERROR: <err></err>
AT+CSTF=?	Test command reads the supported <mode>s as a compound value.</mode>
	+CSTF: (list of supported <mode>s)</mode>
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.2.12 Setting Date Format - + CSDF

+CSDF – Setting Dat	re Format
AT+CSDF=[[<mod e>][,<auxmode>]]</auxmode></mod 	This command sets the date format via MMI of the date information presented to the user, which is specified by use of the <mode> parameter. The <mode> affects the date format on the phone display and doesn't affect the date format of the AT command serial interface. The command also sets the date format of the TE-TA interface, which is specified by use of the <aux mode=""> parameter (e.g. the <aux mode=""> affects the <ti>time> of +CCLK and +CALA). If the parameter is omitted</ti></aux></aux></mode></mode>
	("+CSDF=","+CSDF= <mode>","+CSDF=,<auxmode>"), then this sets the default value.</auxmode></mode>
	Refer to subclause 9.2 for possible <err> values.</err>
	Possible Response(s):
	+CME ERROR: <err></err>
	Defined values:
	<mode>: integer type</mode>
	Note 1:
	It is manufacturer specific which modes are supported.
	1 - DD-MMM-YYYY
	Note 2:
	Presentation of MMM is language dependent.
	2 - DD-MM-YY
	3 - MM/DD/YY
	4 - DD/MM/YY
	5 - DD.MM.YY
	6 - YYMMDD
	7 - YY-MM-DD
	8-255 Manufacturer specific
	<auxmode>: integer type</auxmode>
	1 - yy/MM/dd
AT+CSDF?	Read command reads the current setting. Possible Response(s):
	+CSDF: <mode>[,<auxmode>]</auxmode></mode>
AT+CSDF=?	Test command reads the supported <mode>s as a compound value.</mode>
	+CSDF: (list of supported <mode>s) [,(list of supported <auxmode>s)]</auxmode></mode>
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.3 Network Service Handling

4.3.3.3.1 Subscriber Number - +CNUM

+CNUM – Subscr	iber Number
AT+CNUM	Execution command returns the MSISDN (if the phone number of the device has been stored in the SIM card) in the format:
	+CNUM: <alpha>,<number>,<type>[<cr><lf></lf></cr></type></number></alpha>
	+CNUM: <alpha>,<number>,<type>[]]</type></number></alpha>
	where:
	<alpha> - alphanumeric string associated to <number>; used character set should be the one selected with +CSCS.</number></alpha>
	<number> - string containing the phone number in the format <type></type></number>
	<type> - type of number:</type>
AT+CNUM=?	Test command returns the OK result code
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.3.2 Read Operator Names - +COPN

+COPN – Read Operator Names	
AT+COPN	Execution command returns the list of operator names from the ME in the format:
	+COPN: <numeric1>,<alpha1>[<cr><lf></lf></cr></alpha1></numeric1>
	+COPN: <numeric2>,<alpha2>[]]</alpha2></numeric2>
	where:
	<numericn> - string type, operator in numeric format (see +COPS)</numericn>
	<alphan> - string type, operator in long alphanumeric format (see +COPS)</alphan>
	Note: each operator code <numericn> that has an alphanumeric equivalent</numericn>
	<alphan> in the ME memory is returned</alphan>
AT+COPN=?	Test command returns the OK result code
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.3 Network Registration Report - +CREG

+CREG – Netwo	ork Registration Report
AT+CREG=	Set command enables/disables network registration reports depending on the parameter
[<mode>]</mode>	<mode>.</mode>
	Parameter:
	<mode></mode>
	0 - disable network registration unsolicited result code (factory default)
	1 - enable network registration unsolicited result code
	2 - enable network registration unsolicited result code with network Cell identification data
	If <mode>=1, network registration result code reports:</mode>
	+CREG: <stat></stat>
	Where:
	<stat></stat>
	0 - not registered, ME is not currently searching for a new operator to register to
_	1 - registered, home network
	2 - not registered, but ME is currently searching for a new operator to register to
	3 - registration denied
	4 - unknown
	5 - registered, roaming
	If <mode>=2, network registration result code reports:</mode>
	+CREG: <stat>[,[<lac>],[<ci>],[<act>]]</act></ci></lac></stat>
	where:
	<lac>: string type; two byte location area code (when <act> indicates value 0 to 6), or tracking area code (when <act> indicates value 7). In hexadecimal forma t</act></act></lac>
	ci> string type: four byte GERAN/LITRAN/F_LITRAN cell ID in hevadecimal format



+CREG – Netw	ork Registration Report
	1 - GSM Compact
	2 - UTRAN
	3 - GSM w/EGPRS
	4 - UTRAN w/HSDPA
	5 - UTRAN w/HSUPA
	6 - UTRAN w/HSDPA and HSUPA
	7 - E-UTRAN
AT+CREG?	Read command reports the <mode> and <stat> parameter values in the format:</stat></mode>
	+CREG: <mode>,<stat>[,<lac>,<ci>,<act>]</act></ci></lac></stat></mode>
	Note: <lac>,<ci> and <act> are reported only if <mode>=2 and the mobile is registered on some network cell.</mode></act></ci></lac>
AT+CREG=?	Test command returns the range of supported <mode></mode>
Example	AT OK
	at+creg?
	+CREG: 0,2
	OV
	OK
	(the MODULE is in network searching state)
	at+creg?
	+CREG: 0,2
	ок
	at+creg?
	+CREG: 0,2
	ОК
	at+creg?
	+CREG: 0,2 OK
	at+creg?
	+CREG: 0,1
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.4 Operator Selection - +COPS

+COPS – Operate	-COPS – Operator Selection	
AT+COPS=	Set command forces an attempt to select and register the GSM\UMTS network operator.	
	mat> <mode> parameter defines whether the operator selection is automatic or forced by thi [,<command <oper="" operator="" to=""/>.</mode>	
AcT>]]]]	The operator <oper> given in format <format>.</format></oper>	
	Parameters:	
	<mode></mode>	
	0 - automatic choice (the parameter < oper> will be ignored) (factory default)	
	1 - manual choice (<oper> field shall be present)</oper>	
	2 - deregister from the network; the MODULE is kept unregistered until a +COPS with <mode>=0, 1 or 4 is issued</mode>	
	3 - set only <format> parameter (the parameter <oper> will be ignored)</oper></format>	
	4 - manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered</mode></oper>	
	<format></format>	
4	0 - alphanumeric long form (max length 16 digits)	
	1 - short format alphanumeric < oper>	
	2 - numeric <oper></oper>	
	<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 character (refer GSM MoU SE.13 [9]). Numeric format is the GSM Location Area Identification number (refer 3GPP TS</format></oper>	
	24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific. Returned <pre>coper></pre> shall not be in BCD format, but in IRA characters converted from BCD. Hence, the number has the structure: (country code digit 3) (country code digit 2) (country code digit 1) (network code digit 3) (network code digit 2) (network code digit 1).	
0	Note: <mode> parameter setting is stored in NVM and available at next reboot, if it is not 3 (i.e.: set only <format> parameter).</format></mode>	
	Note: if <mode>=1 or 4, the selected network is stored in NVM too and is available a next reboot (this will happen even with a new SIM inserted)</mode>	



+COPS – Operator Selection	
	<stat>:</stat>
	0 - unknown
	1- available
	2 - current
	3- forbidden
	<act>: access technology selected</act>
	0 - GSM
	1 - GSM Compact
	2 - UTRAN
	3 - GSM w/EGPRS (see NOTE 1)
	4 - UTRAN w/HSDPA (see NOTE 2)
	5 - UTRAN w/HSUPA (see NOTE 2)
	6 - UTRAN w/HSDPA and HSUPA (see NOTE 2)
	7 - E-UTRAN
AT+COPS?	Read command returns current value of <mode>,<format> and <oper> in format</oper></format></mode>
THI COLD.	<pre><format>; if no operator is selected, <format> and <oper> are omitted</oper></format></format></pre>
	+COPS: <mode>[,<format>,<oper>,< AcT>]</oper></format></mode>
AT+COPS=?	Test command returns a list of quintuplets, each representing an operator present in the network.
	The quintuplets in the list are separated by commas:
	+COPS: [list of supported (<stat>,long alphanumeric <oper>,short alphanumeric <oper>,numeric <oper>,<act>)]</act></oper></oper></oper></stat>
	[,,(list of supported <mode>s),(list of supported <format>s)]</format></mode>
	where:
	<stat> - operator availability</stat>
	0 - unknown
	1 - available
	2 - current
	3 - forbidden



+COPS – Opera	ntor Selection
	1 - GSM Compact
	2 - UTRAN
	Note: if the command options require a network scan, this command may require some
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.3.5 Facility Lock/Unlock - +CLCK

+CLCK – Facility Lock /Unlock	
AT+CLCK=	Execution command used to lock or unlock a ME or a network facility.
<fac>,</fac>	
<mode></mode>	Parameters:
[, <passwd> [,<class>]]</class></passwd>	<fac> - facility</fac>
[, (0.1055)]]	"SC" - SIM (PIN request) (device requests SIM password at 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)
	"AB" - All Barring services (applicable only for <mode>=0)</mode>
	"AG" - All Outgoing Barring services (applicable only for <mode>=0) "AC" - All Incoming Barring services (applicable only for <mode>=0)</mode></mode>
	"FD" - SIM fixed dialling memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as
	<pre><passwd>)</passwd></pre>
	"PN" - network Personalisation



+CLCK – Facili	ty Lock /Unlock
	"PC" - Corporate Personalization (refer 3GPP TS 22.022 [33])
	"PF" - lock Phone to the very First inserted SIM/UICC card (also referred in the present document as PH-FSIM) (MT requests password when any other than the first SIM/UICC card is inserted)
	<mode> - defines the operation to be done on the facility</mode>
	0 - unlock facility
	1 - lock facility
	2 - query status
	<passwd> - shall be the same as password specified for the facility from the DTE user interface or with command Change Password +CPWD</passwd>
	<class> - sum of integers each representing a class of information (default is 7)</class>
	1 - voice (telephony)
	2 - data (refers to all bearer services)
	4 - fax (facsimile services)
	8 - short message service 6 - data circuit sync
	32 - data circuit async
	64 - dedicated packet access 128 - dedicated PAD access
	Note: when <mode>=2 and command successful, it returns:</mode>
	+CLCK: <status>[,<class1>[<cr><lf>+CLCK: <status>,<class2></class2></status></lf></cr></class1></status>
	LII
AT+CLCK=?	Test command reports all the facilities supported by the device.
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.3.6 Change Facility Password - +CPWD

+CPWD – Change	Facility Password
AT+CPWD= <fac>, <oldpwd>,</oldpwd></fac>	Execution command changes the password for the facility lock function defined by command Facility Lock +CLCK.
<newpwd></newpwd>	Parameters:
	<fac> - facility</fac>
	SC -SIM (PIN request)
	AB - All barring services
	P2 - SIM PIN2
	AC - All Incoming barring services
	AG – All outgoing barring services
	AI - BAIC (Barr All Incoming Calls)
	AO - BAOC (Barr All Outgoing Calls)
	IR - BIC-Roam (Barr Incoming Calls when Roaming outside the home country)
	OI - BOIC (Barr Outgoing International Calls)
	OX - BOIC-exHC (Barr Outgoing International Calls except to Home Country)
	<oldpwd> - string type, it shall be the same as password specified for the facility from the ME user interface or with command +CPWD.</oldpwd>
	<newpwd> - string type, it is the new password</newpwd>
AT+CPWD=?	Test command returns a list of pairs (<fac>,<pwdlength>) which presents the available facilities and the maximum length of their password (<pwdlength>)</pwdlength></pwdlength></fac>
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.3.7 Calling Line Identification Presentation - +CLIP

+CLIP – Calling Line	e Identification Presentation
	Set command enables/disables the presentation of the CLI (Calling Line Identity) at the TE. This command refers to the UMTS supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the CLI of the calling party when receiving a mobile terminated call.



+CLIP – Calling Line	e Identification Presentation
	Parameters:
	<n></n>
	0 - disables CLI indication (factory default)
	1 - enables CLI indication
	If enabled the device reports after each RING the response:
	+CLIP: <number>,<type>,"",128,<alpha>,<cli_validity></cli_validity></alpha></type></number>
	where:
	<number> - string type phone number of format specified by <type></type></number>
	<type> - type of address octet in integer format</type>
	128 - both the type of number and the numbering plan are unknown $129-129$ -unknown type of number and ISDN/Telephony numbering plan
	145 - international type of number and ISDN/Telephony numbering plan (contains the character "+")
	<alpha> - 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</number></alpha>
	+CSCS.
	<cli_validity></cli_validity>
	0 - CLI valid
	1 - CLI has been withheld by the originator.
	2 - CLI is not available due to interworking problems or limitation of originating
	network.
AT+CLIP?	Read command returns the presentation status of the CLI in the format:
	+CLIP: <n>,<m></m></n>
	where:
	<n></n>
	0 - CLI presentation disabled
	1 - CLI presentation enabled
	<m> - status of the CLIP service on the network</m>
	0 - CLIP not provisioned



+CLIP – Calling Line Identification Presentation	
	- CLIP provisioned - unknown (e.g. no network is present) Note: This command issues a status request to the network. Hence, it may take a few seconds to give the answer due to the time needed to exchange data.
AT+CLIP=?	Test command returns the supported values of parameter <n></n>
Reference	3GPP TS 27.007(3GPP Only)
Note	The command changes only the report behaviour of the device. It does not change CLI supplementary service setting on the network.

4.3.3.3.8 Calling Line Identification Restriction - +CLIR

+CLIR – Calling Lin	+CLIR - Calling Line Identification Restriction	
AT+CLIR=[<n>]</n>	Set command overrides the CLIR subscription set in the network. The value becomes the default setting for all following outgoing calls. This adjustment can be revoke by using the opposite command. This command refers to CLIR- service (3GPP TS 02.81/21.081) that allows a calling subscriber to enable or disable the presentation of the CLI to the called party when originating a call.	
	Parameter:	
	<n> - facility status on the Mobile</n>	
	0 - CLIR facility according to CLIR service network status	
	1 - CLIR facility active (CLI not sent)	
AT+CLIR?	Read command gives the default adjustment for all outgoing calls (<n>) and also triggers an interrogation of the provision status of the CLIR service (<m>), where</m></n>	
Ţ.	<n> - facility status on the Mobile</n>	
	0 - CLIR facility according to CLIR service network status	
	1 - CLIR facility active (CLI not sent)	
	2 - CLIR facility not active (CLI sent)	
	<m> - facility status on the Network</m>	
	0 - CLIR service not provisioned	
	1 - CLIR service provisioned permanently	
	2 - Unknown (e.g. no network present, etc.)	
AT+CLIR=?	Test command reports the supported values of parameter <n>.</n>	
Reference	3GPP TS 27.007(3GPP Only)	
Note	This command sets the default behaviour of the device for outgoing calls.	



4.3.3.9 Connected line identification presentation - COLP

+COLP – Connected	Line Identification Presentation
AT+COLP=[<n>]</n>	Set command enables or disables the presentation of the COL at the TE
	Parameter:
	<n></n>
	0 disable (factory default) 1 enable
	Note: When enabled (and the called subscriber allows it),
	+COLP: <number>,<type>[,<subaddr>,<satype> [,<alpha>]] intermediate res ult code is returned from TA to TE before any +CR or V.25ter [14] responses.</alpha></satype></subaddr></type></number>
	It is manufacturer specific if this response is used when normal voice call is established.
AT+COLP?	Read command gives the status of <n> and triggers an interrogation of the pro vision status of the COLP service according 3GPP TS 22.081 [3] (given in <m>).</m></n>
	+COLP: <n>,<m></m></n>
	Where:
	<n></n>
	0 disable
	1 enable
	<m></m>
	0 - COLP not provisioned 1 - COLP provisioned
AT+COLP=?	Test command returns supported parameters <n></n>
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.3.10 Called line identification presentation - +CDIP

+CDIP – Parameter C	Command Syntax
	This command relates to a network service that provides "multiple called numbers (called line identifications) service" to an MT. This command enables a called subscriber to get the called line identification of the called party when receiving a mobile terminated call. Set command enables or disables the



+CDIP – Parameter C	Command Syntax
	presentation of the called line identifications at the TE.
	When the presentation of the called line identification at the TE is enabled,
	+CDIP: <number>,<type>[,<subaddr>,<satype>] response is returned after every RING (or +CRING:</satype></subaddr></type></number>
	<type>; refer subclause "Cellular result codes +CRC") result code sent from TA to TE. It is manufacturer specific if this response used when normal voice call answered.</type>
	<n> (parameter sets/shows the result code presentation status to the TE):</n>
	0 - disable
	1 - enable
	<number> string type phone number of format specified by <type></type></number>
	<type> type of address octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.7)</type>
	<subaddr> string type subaddress of format specified by <satype></satype></subaddr>
	<satype> type of subaddress octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.8)</satype>
AT+CDIP?	+CDIP: <n>,<m></m></n>
	Read command gives the status of <n> and triggers an interrogation of the provision status of the "multiple called numbers" service. Test command returns values supported as a compound value.</n>
	Defined values <n> (parameter sets/shows the result code presentation status to the TE):</n>
	0 - disable
	1 - enable
	i - enable
	<m> (parameter shows the subscriber "multiple called numbers" service status in the network):</m>
	0 - "multiple called numbers service" is not provisioned
	1 - "multiple called numbers service" is provisioned
AT+CDIP=?	+CDIP: (list of supported <n>s)</n>
Reference	3GPP Only



4.3.3.3.11 Call Forwarding Number and Conditions - +CCFC

.c.c.c.iii cuii i oi wu	
+CCFC – Call Forward	ling Number And Condition
AT+CCFC=	Execution command controls the call forwarding supplementary service. Registration, erasure, activation, deactivation, and status query are supported.
<reason>, <cmd>[,<number> [,<type></type></number></cmd></reason>	Parameters:
	<reason></reason>
[, <class> [,,,<time>]]]</time></class>	0 - unconditional
	1 - mobile busy
	2 - no reply
	3 - not reachable
	4 - all calls (not with query command)
	5 - all conditional calls (not with query command)
	<cmd></cmd>
	0 - disable
	1 - enable
	2 - query status
	3 - registration
	4 - erasure
	<number> - string type phone number of forwarding address in format specified by <type> parameter</type></number>
	<type> - type of address octet in integer format : 129 - national numbering scheme</type>
, and the second	145 - international numbering scheme (contains the character "+")
	<pre><class> - sum of integers each representing a class of information which the command refers to; default 7 (voice + data + fax)</class></pre>
	1 - voice (telephony)
	2 - data
	4 - fax (facsimile service)
	8 - short message service
	16 - data circuit sync
	32 - data circuit async
	64 - dedicated packet access
	128 - dedicated PAD access
	<time> - time in seconds to wait before call is forwarded; it is valid only when <reason> "no reply" is enabled (<cmd>=1) or queried (<cmd>=2)</cmd></cmd></reason></time>
	130 - automatically rounded to a multiple of 5 seconds (default is 20) Note: wher <pre><cmd>=2 and command successful, it returns:</cmd></pre>
	+CCFC: <status>,<class1>[,<number>,<type>[,,,<time>]][<cr><lf></lf></cr></time></type></number></class1></status>
<u> </u>	I



+CCFC – Call Forwar	ding Number And Condition
	where:
	<status> - current status of the network service</status>
	0 - not active
	1 - active
	<classn> - same as <class></class></classn>
	<pre><time> - it is returned only when <reason> <cmd>=2.</cmd></reason></time></pre>
	The other parameters are as seen before.
AT+CCFC=?	Test command reports supported values for the parameter <reason>.</reason>
Reference	3GPP TS 27.007(3GPP Only)
Note	When querying the status of a network service (<cmd>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any</status></cmd>
	<class>.</class>

4.3.3.3.12 Call Waiting - +CCWA

+CCWA – Call W	aiting
AT+CCWA= [<n>[,<cmd></cmd></n>	Set command allows the control of the call waiting supplementary service. Activation deactivation, and status query are supported.
[, <class>]]]</class>	
	Parameters:
	<n> - enables/disables the presentation of an unsolicited result code: 0 – disable</n>
	1 – enable
	<md> - enables/disables or queries the service at network level:</md>
	0 - disable
	1 - enable
	2 - query status
	<class> - is a sum of integers each representing a class of information which the command refers to; default is 7 (voice + data + fax)</class>
	1 - voice (telephony)
	2 - data
	4 - fax (facsimile services)
	8 - short message service
	16 - data circuit sync
	32 - data circuit async



+CCWA – Call Wai	ting
	<status> represents the status of the service:</status>
	0 - inactive
	1 - active
	<classn> - same as <class></class></classn>
	Note: the unsolicited result code enabled by parameter <n> is in the format:</n>
	+CCWA: <number>,<type>,<class>,[<alpha>][,<cli_validity>]</cli_validity></alpha></class></type></number>
	where:
	<number> - string type phone number of calling address in format specified by <type></type></number>
	<type> - type of address in integer format</type>
	<class> - see before</class>
	<alpha> - string type; alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with +CSCS.</number></alpha>
	<cli_validity></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.
	Note: if parameter <cmd> omitted then the network is not interrogated. Note: On the query command, the class parameter must not be issued.</cmd>
	Note: the difference between call waiting report disabling (AT+CCWA = 0,1,7) and call waiting service disabling (AT+CCWA = 0,0,7) is that in the first case the call waiting indication is sent to the device by network but the device does not report it to the DTE Instead, in the second case the, call waiting indication is not generated by the network Hence, the device returns busy to the third party in the 2nd case while in the 1st case a ringing indication is sent to the third party.
AT+CCWA?	Read command reports the current value of the parameter <n>.</n>
AT+CCWA=?	Test command reports the supported values for the parameter <n>.</n>
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.3.13 Call Holding Services - +CHLD

+CHLD – Call Holding Service	
AT+CHLD=[<n>]</n>	Execution command controls the network call holding services. With this service, it is possible to temporarily disconnect a call and keep it suspended while the network retains it and in parallel, it is possible to connect another party or make a multiparty connection.
	Parameter:
	<n></n>
	0 - releases all held calls, or sets the UDUB (User Determined User Busy) indication for a waiting call. (only from version D)
	1 - releases all active calls (if any exist), and accepts the other (held or waiting) call
	1X - releases a specific active call X.
	2 - Places all active calls (if any exist) on hold and accepts the other (held or waiting) call.
	2X - places all active calls on hold except call X with which communication shall be resumed (only from version D).
	3 - adds a held call to the conversation
	4 - Connects the two calls and disconnects the subscriber from both calls (ECT).
	Note: "X" is the numbering (starting with 1) of the call given by the sequence of setting up or receiving the calls (active, held or waiting) as seen by the served subscriber. Calls hold their number until released. New calls take the lowest available number.
	Note: where both a held and a waiting call exist, the above procedures apply to the waiting call (i.e. not to the held call) in conflicting situation.
AT+CHLD=?	Test command returns the list of supported <n>s.</n>
	+CHLD: (0,1,1X,2,2X,3,4)
Reference	3GPP TS 27.007(3GPP Only)
Note	ONLY for VOICE calls



4.3.3.3.14 Call deflection - +CTFR

+CTFR – Action Cor	nmand Syntax
AT+CTFR= <number> [,<type [,<subaddr=""></type></number>	This refers to a service that causes an incoming alerting call to be forward to a specified number.
[, <satype>]]]</satype>	It is based on the GSM/UMTS supplementary service CD (Call Deflection; refer 3GPP TS 22.072 [30]).
	The interaction of this command with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standard. Refer subclause (3.2.3 ME Error Result Code - +CME ERROR: <err>) for possible <err> values.</err></err>
	Defined values:
	<number>: string type phone number of format specified by <type></type></number>
	<type>: type of address octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.7); default 145 when dialling string includes international access code character "+", otherwise 129</type>
	<pre><subaddr>: string type subaddress of format specified by <satype></satype></subaddr></pre>
	<satype>: type of subaddress octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.8); default 128</satype>
AT+CTFR=?	Test command returns the OK result code
Reference	3GPP Only

4.3.3.3.15 Unstructured Supplementary Service Data - +CUSD

+CUSD – Unstructured Supplementary Service	
AT+CUSD=	Set command allows control of the Unstructured Supplementary Service Data (USSD
[<n>[,<str></str></n>	[3GPP TS 02.90/22.090]).
[, <dcs>]]]</dcs>	
	Parameters:
	<n> - used to disable/enable the presentation of an unsolicited result code.</n>
	0 - disable the result code presentation in the DTA
	1 - enable the result code presentation in the DTA
	2 - cancel an ongoing USSD session (not applicable to read command response)
	<str> - USSD-string (when <str>> parameter is not given, network is not interrogated)</str></str>
	If <dcs> indicates that 3GPP TS 3.38/23.038 default alphabet is used ME/TA converts GSM alphabet into current TE character set (see +CSCS).</dcs>
	If <dcs> indicates that 8-bit data coding scheme is used: ME/TA converts</dcs>



+CUSD – Unstruc	ctured Supplementary Service
	each 8-bit octet into two IRA character long hexadecimal number; e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65).
	<pre><dcs> - 3GPP TS 3.38/23.038 Cell Broadcast Data Coding Scheme in integer format (default is 0).</dcs></pre>
	Note: the unsolicited result code enabled by parameter <n> is in the format:</n>
	+CUSD: <m>[,<str>,<dcs>] to the TE where:</dcs></str></m>
	<m>:</m>
	0 - no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation).
	1 - further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation)
	2 -USSD terminated by the network
	3 - other local client has responded
AT+CUSD?	Read command reports the current value of the parameter <n></n>
AT+CUSD=?	Test command reports the supported values for the parameter <n></n>
Reference	3GPP TS 27.007(3GPP Only)
Note	Only mobile initiated operations are supported

4.3.3.3.16 Advice of Charge - +CAOC

+CAOC – Advice O	Of Charge
AT+CAOC=	Set command refers to the Advice of Charge supplementary services that enable subscriber
<mode></mode>	to get information about the cost of calls; the command also includes the possibility to enable an unsolicited event reporting of the Current Call Meter (CCM) information.
	Parameter:
	<mode></mode>
	0 - query CCM value
	1 - disables unsolicited CCM reporting
	2 - enables unsolicited CCM reporting



+CAOC – Advic	e Of Charge
	Note: the unsolicited result code enabled by parameter <mode> is in the format:</mode>
	+CCCM: <ccm></ccm>
	where:
	<ccm> - current call meter in home units, string type: three bytes of the CCM</ccm>
	Value in hexadecimal format [e.g. "00001E" indicates decimal value 30]
	Note: the unsolicited result code +CCCM sent when the CCM value changes, but not more
AT+CAOC?	Read command reports the value of parameter <mode> in the format:</mode>
	+CAOC: <mode></mode>
AT+CAOC=?	Test command reports the supported values for <mode> parameter.</mode>
Reference	3GPP TS 27.007(3GPP Only)
Note	+CAOC command returns an estimate of the cost of the current call only, produced by the MS and based on the information provided by either
	AoCI or AOCC supplementary services; it is not stored in the SIM.

4.3.3.3.17 List Current Calls - +CLCC

+CLCC – List Curr	rent Calls
AT+CLCC	Execution command returns the list of current calls and their characteristics in the format:
	[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>,<number>,<type></type></number></mpty></mode></stat></dir></id1>
	, <alpha>[<cr><lf>+CLCC:<id2>,<dir>,<stat>,<mode>,</mode></stat></dir></id2></lf></cr></alpha>
	<mpty>,<number>,<type>,<alpha>[]]]</alpha></type></number></mpty>
	where:
	<idn> - call identification number</idn>
	<dir> - call direction</dir>
	0 - mobile originated call
	1 - mobile terminated call
	<stat> - state of the call</stat>
	0 - active
	1 - held



+CLCC – List Cur	rent Calls
	3 - alerting (MO call)
	4 - incoming (MT call)
	5 - waiting (MT call)
	<mode> - call type</mode>
	0 - voice
	1 - data
	2 - fax
	9 – unknown
	<mpty> - multiparty call flag</mpty>
	0 - call is not one of multiparty (conference) call parties
	1 - call is one of multiparty (conference) call parties
	<number> - string type phone number in format specified by <type></type></number>
	<type> - type of phone number octet in integer format</type>
	129 - national numbering scheme
	145 - international numbering scheme (contains the character "+")
AT+CLCC=?	Test command returns the OK result code
Reference	3GPP TS 27.007

4.3.3.3.18 SS Notification - +CSSN

+CSSN – SS Notification	
AT+CSSN= [<n>[,<m>]]</m></n>	This refers to supplementary service related network initiated notifications. Set command enables/disables the presentation of notification result codes from TA to TE.
	Parameters: <n> - sets the +CSSI result code presentation status 0 - disable 1 - enable <m> - sets the +CSSU result code presentation status 0 - disable</m></n>



+CSSN –SS Notific	eation
	When <n>=1 and a supplementary service notification is received after a mobile originated call setup, an unsolicited code:</n>
	+CSSI: <code1></code1>
	is sent to TE before any other MO call setup result codes, where:
	<code1>:</code1>
	0 - unconditional call forwarding is active
	1 - some of the conditional call forwardings are active
	2 - call has been forwarded
	3 - call is waiting
	5 - outgoing calls are barred
	6 - incoming calls are barred
	When <m>=1 and a supplementary service notification is received during a mobile terminated call setup or during a call, an unsolicited result code:</m>
	+CSSU: <code2></code2>
<u> </u>	is sent to TE, where:
	<code2>:</code2>
	0 - this is a forwarded call (MT call setup)
	2 - call has been put on hold (during a voice call)
	3 - call has been retrieved (during a voice call).
	4 - multiparty call entered (during a voice call)
	5 - call on hold has been released (this is not a SS notification) (during a voice call)
	Read command reports the current value of the parameters.
AT+CSSN=?	Test command reports the supported range of values for parameters <n>, <m>.</m></n>
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.3.19 Closed User Group Supplementary Service Control - +CCUG

+CCUG – Closed U	+CCUG – Closed User Group Supplementary Service Control	
	Set command allows control of the Closed User Group supplementary service [3GPP TS 02.85/22.085].	
	Parameters:	
	<n></n>	
	0 - disable CUG temporary mode (factory default).	
	1 - enable CUG temporary mode: it enables to control the CUG information on the air interface as a default adjustment for all following outgoing calls.	
	<index></index>	
	09 - CUG index	
	10 not an index (preferential CUG taken from subscriber data) (default) <info></info>	
	0 - no information (default)	
	1 - suppress Outgoing Access (OA)	
AT+CCUG?	Read command reports the current value of the parameters	
AT+CCUG=?	Test command returns the OK result code	
Reference	3GPP TS 27.007(3GPP Only)	



4.3.3.3.20 Preferred Operator List - +CPOL

-CPOL – Preferred Operator		
AT+CPOL=	Execution command writes an entry in the SIM list of preferred operators.	
[<index>] [,<format> [,<oper>]</oper></format></index>	Parameters:	
[, <gsm_act>,</gsm_act>		
<gsm_compact_ AcT>,</gsm_compact_ 	<index> - integer type; the order number of operator in the SIM preferred operator list 1n</index>	
<utran_act>,</utran_act>	<format></format>	
<eutran_act>]</eutran_act>	0 long format alphanumeric <oper></oper>	
]	1 short format alphanumeric <oper></oper>	
	2 - numeric <oper></oper>	
	<pre><oper> - string type</oper></pre>	
	<gsm_act> - GSM access technology</gsm_act>	
	0 access technology not selected	
	1 access technology selected	
	<gsm_compact_act> - GSM compact access technology</gsm_compact_act>	
	0 access technology not selected	
	1 access technology selected	
	<utra_act> - UTRA acess technology</utra_act>	
	0 access technology not selected	
	1 access technology selected	
	<e-utran_actn> - E-UTRAN access technology:</e-utran_actn>	
	0 - access technology not selected	
	1 - access technology selected	
AT+CPOL?	Read command returns all used entries from the SIM list of preferred operators.	
AT+CPOL=?	Test command returns the whole <index> range supported by the SIM and the</index>	
	range for the parameter <format></format>	
Reference	3GPP TS 27.007(3GPP Only)	



4.3.3.3.21 Selection of preferred PLMN list - +CPLS

+CPLS – Selection	OF Preferred PLMN List +CPLS
AT+CPLS= <list></list>	Set command select one PLMN selector with Access Technology list in the SIM card or active application in the UICC (GSM or USIM), that is used by
	+CPOL command.
	Parameter:
	
	0 - User controlled PLMN selected from Access Technology EFPLMNwAcT, if not found in the SIM/UICC, then use PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC) (Default)
	1 - Operator controlled PLMN selector with Access Technology EFOPLMNwAcT
	2 - HPLMN selector with Access Technology EFHPLMNwAcT
AT+CPLS?	Read command returns the selected PLMN selector list from the SIM/USIM
	+CPLS: <list></list>
AT+CPLS=?	Test command returns the whole index range supported by the SIM/USIM
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.4 Mobile Equipment Control

4.3.3.4.1 Phone Activity Status - +CPAS

+CPAS – Phone Activity Status	
AT+CPAS	Execution command reports the device status in the form:
	+CPAS: <pas></pas>
	Where:
	<pas> - phone activity status</pas>
	0 - ready (device allows commands from TA/TE)
	3 - ringing (device is ready for commands from TA/TE, but the ringer is active)
	4 - call in progress (device is ready for commands from TA/TE, but a call is in
	progress)
AT+CPAS=?	Test command reports the supported range of values for <pas>.</pas>
	Note: although +CPAS is an execution command, 3gpp TS 27.007 requires the Test command to be defined.
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.4.2 Set Phone Functionality - +CFUN

+CFUN – Set Phone Functionality

AT+CFUN=

Set command selects the level of functionality in the ME. Parameters:

[<fun> [,<rst>]]

<fun> - is the power saving function mode

0 - minimum functionality, NON-CYCLIC SLEEP mode: in this mode, the AT interface is not accessible by UART. Consequently, once you have set <fun> level 0, do not send further characters. Otherwise these characters remain in the input buffer and may delay the output of an unsolicited result code. The first wake-up event stops power saving and takes the ME back to full functionality level <fun>=1.

1 - mobile full functionality with power saving disabled (factory default)

4 - disable phone both transmit and receive RF circuits

5 - factory test mode

6 - reset

7 - offline mode

<rst> - reset flag

0 - do not reset the ME before setting it to <fun> functionality level.

1 - reset the ME before setting it to <fun> functionality level. This option works only with <fun> =1, with other values it will return an error.

Note: AT+CFUN=2 is not supported.

Note: Issuing AT+CFUN=4[,0] in fact causes the module to perform both a network deregistration and a SIM deactivation.

Note: If power saving is enabled, most modes reduce power consumption during idle time, thus allowing a longer standby time with a given battery capacity.

Note: To place the module in power saving mode, set the <fun> parameter to value = 5 and the line DTR (RS232) must be set to OFF. Once in power saving, the CTS line switches to the OFF status to signal that the module is really in power saving condition.

During the power saving condition, before sending any AT command on the serial line, first enable DTR, then wait for the CTS (RS232) line to go to ON status.

Until the DTR line is ON, the module will not return back from the power saving condition.

Note: The power saving function does not affect the network behavior of the module.



+CFUN – Set Phone Functionality	
	Even during the power save condition the module remains registered on the network and reachable for incoming calls or SMS. If a call comes in during power saving, then the module will wake up and proceed normally with the unsolicited incoming call code.
AT+CFUN?	Read command reports the current setting of <fun>.</fun>
AT+CFUN=?	Test command returns the list of supported values for <fun> and <rst>.</rst></fun>
Reference	3GPP TS 27.007

4.3.3.4.3 Enter PIN - +CPIN

+CPIN – Enter PIN	
AT+CPIN= <pin> [,<newpin>]</newpin></pin>	Set command sends the device one of the necessary passwords before it can be operated (SIM PIN, SIM PUK, PH-SIM PIN, etc.).
Fam (, and offers)	If the <pin> required is SIM PUK or SIM PUK2, the <newpin> is required. This second pin, <newpin> will replace the old pin in the SIM.</newpin></newpin></pin>
	The command may be used to change the SIM PIN by sending it with both parameters <pin> and <newpin> when PIN request is pending; if no PIN request is pending the command will return an error code. To change the PIN the command +CPWD must be used instead.</newpin></pin>
	Parameters:
	<pre><pin> - string type value</pin></pre>
	<newpin> - string type value.</newpin>
	To check the status of the PIN request use the command AT+CPIN?
AT+CPIN?	Read command reports the PIN/PUK/PUK2 request status of the device in the form:
	+CPIN: <code> where:</code>
	<code> - PIN/PUK/PUK2 request status code READY - ME is not awaiting any password SIM PIN - ME is awaiting SIM PIN</code>
	SIM PUK - ME is awaiting SIM PUK
	PH-SIM PIN - ME is awaiting phone-to-SIM card password.
	PH-FSIM PIN - ME is awaiting phone-to-very-first-SIM card password. PH-FSIM PUK - ME is awaiting phone-to-very-first-SIM card unblocking



+CPIN – Enter PIN						
	password.					
				is returned only when to (i.e. +CME ERROR: 17)		
				is returned only when to (i.e. +CME ERROR: 18		
	PH-NET PIN	- ME is awai	ting network personaliz	ation password		
	PH-NET PUK - 1	ME is awaiting ne	work personalization u	nblocking password		
	PH-NETSUB PI	N - ME is awaiting	g network subset person	alization password		
		_	•	nalization unblocking pas	ssword	
			-			
			alization unblocking	ion password PH-SP PU	K - MIL	
	password					
	PH-CORP PIN -	ME is awaiting co	rporate personalization	password		
	PH-CORP PUK - ME is awaiting corporate personalization unblocking password					
4			depends on PIN facilit mmand AT+CLCK=SC	y setting, to change or qu <mode>,<pin></pin></mode>	ery the	
Example	AT+CMEE=1 O	K AT+CPIN?				
1	+CME ERROR: 10 error: you have to insert the SIM					
	AT+CPIN?					
			CD (11 : .	tit e pp. 1		
	+CPIN: READY	you inserted the	e SIM and device is not	waiting for PIN to be give	/en	
Note	OK	a list of the somm	ands which are accenta	d when ME is pending Sl	IM DIN	
Note	or SIM PUK	a list of the comm	ands which are accepted	u when ME is pending Si	IIVI PIIN	
	A	&K	+FCLASS	+CPIN		
	D	&N	+GCAP	+CSQ		
	H	&P	+GCI	+CIND		
	0	&S	+IPR	+CMER		
	E	&V	+IFC	+CCLK		
	I	&W	+ILRR	+CALA		
	L	&Y	+ICF			
	M	&Z	+CRSM			



+CPIN – Enter		7.0		
	<u>P</u>	+DS		
	Q	%L	+DR	
	%Q	+CGMI		
	T	\Q	+CGMM	
	V	+CGMR	+CLAC	
	X	\V	+GMI	+CMEE
	Z	+CRC	+GMM	+CGREG
	&C	+CRLP	+GMR	+CBC
	&D	+CREG	+CGSN	+CSDH
	&F	+CFUN	+GSN	+CNMI
	+COPS	+CHUP	+CR	
	+CLIP	+CPAS		
	All the above com			n be issued even if ME is waiting
Reference	3GPP TS 27.007(3	-		

4.3.3.4.4 Signal Quality - +CSQ

+CSQ – Signal (Quality	
AT+CSQ	Execution command reports received signal quality indicators in the form:	
	+CSQ: <rssi>,<ber> Where:</ber></rssi>	
	<rssi> - received signal strength indication</rssi>	
	0 - (-113) dBm or less	
	1 - (-111) dBm	
	230 - (-109)dBm(-53)dBm / 2 dBm per step	
	31 - (-51)dBm or greater	
	99 - not known or not detectable	
	 ber> - bit error rate (in percent)	
	0 - less than 0.2%	
	1 - 0.2% to 0.4%	
	2 - 0.4% to 0.8%	



+CSQ – Signal	Quality
	5 - 3.2% to 6.4%
	6 - 6.4% to 12.8%
	7 - more than 12.8%
	99 - not known or not detectable
	Note: this command should be used instead of the %Q and %L commands, since the relevant parameters refer to the radio link and no line is present, hence %Q and %L have no meaning.
AT+CSQ=?	Test command returns the supported range of values of the parameters <rssi> and <ber>.</ber></rssi>
	Note: although +CSQ is an execution command without parameters, 3GPP TS
	27.007 requires the Test command to be defined.
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.4.5 Indicator Control - +CIND

+CIND – Indicator	Control
AT+CIND= [<state> [,<state> []]]</state></state>	Set command is used to control the registration state of ME indicators, in order to automatically send the +CIEV URC whenever the value of the associated indicator changes. The supported indicators (<descr>) and their order are shown in the test command AT+CIND=?</descr>
	Parameter:
	<state> - registration state</state>
	0 - The indicator is deregistered; no unsolicited result code (+CIEV URC) is automatically sent by the ME to the application whenever the value of the associated indicator changes.
	1 - The indicator is registered: an unsolicited result code (+CIEV URC) is automatically sent by the ME to the application whenever the value of the associated indicator changes. (default)
AT+CIND?	Read command returns the current value of ME indicators, in the format:
	+CIND: <ind>,<ind ind=""></ind></ind>
	Note: the order of the values for <ind> is the same as that in which the associated indicators appear from test command AT+CIND=?</ind>
AT+CIND=?	Test command returns pairs, where string value <descr> is a description (max. 16 chars) of the indicator and compound value is the supported values for the</descr>
+CIND – Indicator	Control



indicator, in the format: +CIND: (<descr>, (list of supported <ind>s)),(<descr>, (list of supported <ind>s)) (<descr>, (list of supported <ind>s)) where: <descr> - indicator names as follows (along with their <ind> ranges). battchg - battery charge level. <ind>- battery charge level indicator range 0..5 - battery levels. signal - signal quality. <ind> - signal quality indicator range 0..5 - signal levels. service - service availability. <ind> - service availability indicator range 0 - not registered to any network. 1 - Registered. call - call in progress. <ind> - call in progress indicator range. 0 - there are no calls in progress 1 - at least one call has been established. roam roaming. <ind> - roaming indicator range. 0 - registered to home network or not registered.



+CIND – Indicator	Control
	1 - registered to other network.
	smsfull - a short message memory storage in the MT has become full (1), or memory locations are available (0).
	<ind> - short message memory storage indicator range. 0 - memory locations are available.</ind>
	1 - a short message memory storage in the MT has become full.
	"GPRS coverage" there is packet service coverage.
	0 no packet service.
	1 module is attached to a packet service.
	"callsetup" call setup status indicator. 0 - No active call setup.
	1 - MT call is waiting or ringing.
	2 - MO call was initiated.
	3 - MO call ringing at B-party.
Note	See command +CMER
Reference	3GPP TS 27.007



4.3.3.4.6 Mobile Equipment Event Reporting - +CMER

+CMER – Mobile I	Equipment Event Reporting
AT+CMER=	
	Set command enables/disables sending of unsolicited result codes from TA to TE in the case of indicator state changes (NOTE: sending URCs in the case of key presses or display changes is currently not implemented).
	Parameters:
	<mode> - controls the processing of unsolicited result codes</mode>
	0 - discard +CIEV Unsolicited Result Codes.
	1- discard +CIEV Unsolicited Result Codes when TA-TE link is reserved (e.g. on- line data mode); otherwise forward them directly to the TE.
	2- buffer +CIEV Unsolicited Result Codes in the TA when TA-TE link is reserved (e.g. on-line data mode) and flush them to the TE after reservation; otherwise forward them directly to the TE.
	3- forward +CIEV Unsolicited Result Codes directly to the TE; when TA is in on- line data mode each +CIEV URC is replaced with a Break (100 ms), and is stored in a buffer; once the ME goes into command mode (after +++ was entered), all URCs stored in the buffer will be output.
4	<keyp> - keypad event reporting</keyp>
	0 - no keypad event reporting
	<disp> - display event reporting</disp>
	0 - no display event reporting
	<ind> - indicator event reporting</ind>
	0 - no indicator event reporting
	1 - indicator event reporting
	 bfr> - TA buffer clearing
	O TA buffer of unsolicited result codes defined within this command is cleared when <mode> 13 is entered</mode>
AT+CMER?	Read command returns the current setting of parameters, in the format:
	+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr></bfr></ind></disp></keyp></mode>
AT+CMER=?	Test command returns the range of supported values for parameters <mode>,</mode>
	<keyp>, <disp>, <ind>, <bfr>, in the format:</bfr></ind></disp></keyp>
	+CMER: (list of supported <mode>s),(list of supported <keyp>s),(list of supported <disp>s),(list of supported ind>s),(list of supported of supported ind>s)</disp></keyp></mode>
Reference	3GPP TS 27.007



4.3.3.4.7 Select Phonebook Memory Storage - +CPBS

+CPBS – Select	Phonebook Memory Storage
AT+CPBS= <storage></storage>	Set command selects phonebook memory storage <storage>, which will be use by other phonebook commands.</storage>
	Parameter:
	<storage></storage>
	"SM" - SIM phonebook
	"FD" - SIM fixed dialling-phonebook (only phase 2/2+ SIM)
	"LD" - SIM last-dialled-phonebook (+CPBF is not applicable for this storage)
	"MC" - device missed calls (unanswered received) list (+CPBF is not applicable for this storage) (Not supported now)
	"RC" - ME received calls list (+CPBF is not applicable for this storage). (Not supported now)
	"DC" - MT dialled calls list
	"ME" - MT phonebook
	"EN" - SIM/USIM (or MT) emergency number (+CPBW is not applicable for this storage)
	"ON" - SIM (or MT) own numbers (MSI storage may be available through +CNUM also).
4	"MB" - mailbox numbers stored on SIM; it is possible to select this storage only if the mailbox service is provided by the SIM (see #MBN).
AT+CPBS?	"SD" - SIM Service Dialling Numbers (SDN) phonebook (+CPBW is not applicable for this Read command returns the current values of the parameter <storage>, the number of occupied records <used> and the maximum index number <total>, in the format:</total></used></storage>
	+CPBS: <storage>,<used>,<total></total></used></storage>
	Note: For: if there is more than one missed call from the same number, the read command will return only the last call.
AT+CPBS=?	Test command returns the supported range of values for the parameters <storage>.</storage>
Reference	3GPP TS 27.007



4.3.3.4.8 Read Phonebook Entries - +CPBR

+CPBR - Read Phonebo	pok Entries
AT+CPBR= <index1> [,<index2>]</index2></index1>	Execution command returns phonebook entries in location number range <index1><index2> from the current phonebook memory storage selected with +CPBS. If <index2> is omitted, only location <index1> is returned.</index1></index2></index2></index1>
	Parameters: <index1> - integer type. Value in the range of location numbers of the currently selected phonebook memory storage (see +CPBS). <index2> - integer type. Value in the range of location numbers of the currently selected phonebook memory storage (see +CPBS). The response format is: [+CPBR:<index1>,<number>,<type>,<text>,[<group>], [<adnumber>],[<adtype>],[<secondtext>],[<email>][<cr><lf> +CPBR:<index2>,<number>,<type>,<text>,[<group>], [<adnumber>],[<adtype>],[<secondtext>],[<email> []]] or</email></secondtext></adtype></adnumber></group></text></type></number></index2></lf></cr></email></secondtext></adtype></adnumber></group></text></type></number></index1></index2></index1>
	<pre>+CME ERROR: <err> where:</err></pre>
	<pre><group> - group name the entry may belong to; used character set should be the one selected with</group></pre>
	<email> - The alphanumeric text associated to email address; used character set should be the one selected with command +CSCS.</email>
AT+CPBR=?	Test command returns the supported range of values for parameters <indexn>andthemaximumlengthsof<number>and<text>fields,inthe</text></number></indexn>



+CPBR - Read Phonebo	pok Entries
	format:
	+CPBR: <minindex><maxindex>),<nlength>,<tlength>,<slength>,<slength></slength></slength></tlength></nlength></maxindex></minindex>
	where: <minindex>- the minimum <index> number, integer type <maxindex>- the maximum <index> number, integer type <nlength>- maximum <number> field length, integer type <tlength>- maximum <name> field length, integer type <glength>group name length for example AND group, FDN group. <slength> Secondary text length associated with the number. <elength><email> length Note: the value of <nlength> could vary, depending on the availability of Extension service, in the following situations: 1. If "SM" memory storage has been selected [see +CPBS] and the SIM</nlength></email></elength></slength></glength></name></tlength></number></nlength></index></maxindex></index></minindex>
	supports the Extension1 service
	2. If "FD" memory storage has been selected [see +CPBS] and the SIM
	supports the Extension2 service
	3. If "MB" memory storage has been selected (see +CPBS) and the SIM
	supports the Extension6 service
Note	Remember to select the PB storage with +CPBS command before issuing PB commands.
Example	OK AT+CPBS? +CPBS: "ME",1,100 OK AT+CPBR=? +CPBR: (1-500),40,20,2,20,20 OK AT+CPBR=1,"","",0,"",""
Reference	3GPP TS 27.007



4.3.3.4.9 Find Phonebook Entries - +CPBF

+CPBF – Find Phone	book Entries
AT+CPBF= <findtext></findtext>	Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS) whose alphanumeric field starts with string <findtext>.</findtext>
	Parameter:
	<pre><findtext> - string type, used character set should be as selected with command +CSCS.</findtext></pre>
	The command returns a report in the form:
	[+CPBF: <index1>,<number>,<type>,<text>[<cr><lf></lf></cr></text></type></number></index1>
	+CPBF: <index2>,<number>,<type>,<text>[]]]</text></type></number></index2>
	where:
	<pre><index n=""> - the location number of the phonebook entry</index></pre>
	<pre><number> - string type phone number of format <type></type></number></pre>
	<type> - type of phone number octet in integer format</type>
	129 - national numbering scheme
	145 - international numbering scheme (contains the character "+")
	<text> - the alphanumeric text associated to the number; used character set should be as selected with command +CSCS.</text>
	<secondtext> - secondary text</secondtext>
	<email> - email text</email>
	Either "MC",either "RC" or "LD" or "DC"
	Note: +CPBF is not applicable if the current selected storage (see +CPBS) is
AT+CPBF=?	Test command returns the supported range of values for parameters
	<indexn> and the maximum lengths of <number> and <text> fields, in the format:</text></number></indexn>
	+CPBR:
	<nlength>,<tlength>,<glength>,<elength></elength></glength></tlength></nlength>
	where:
	<nlength> - maximum <number> field length, integer type</number></nlength>
	1



+CPBF – Find I	Phonebook Entries
	<tlength> - maximum <name> field length, integer type</name></tlength>
	<glength> group name length for example AND group, FDN group.</glength>
	<slength> Secondary text length associate with the number</slength>
	<elength> <email> length</email></elength>
	Note: the value of <nlength> could vary depending on the availability of Extension service, in the following situations:</nlength>
	1. If "SM" memory storage has been selected [see +CPBS] and the SIM
	supports the Extension1 service
	2. If "FD" memory storage has been selected [see +CPBS] and the SIM
	supports the Extension2 service
Note	Remember to select the PB storage with +CPBS command before issuing PB commands.
Reference	3GPP TS 27.007



4.3.3.4.10 Write Phonebook Entry -+ CPBW

+CPBW – Write Phonebook Entry		
-		
[<index>]</index>	Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS.</index>	
[, <number> [,<type></type></number>		
[, <text> [,<group> [,<adnumber></adnumber></group></text>	Parameters:	
[, <adtype></adtype>	<index> - integer type, value in the range of location numbers of the currently selected phonebook memory storage (see +CPBS).</index>	
[, <secondtext>[,<</secondtext>		
email]]]]]]]	<number> - string type, phone number in the format <type></type></number>	
	<type> - the type of number</type>	
	129 - national numbering scheme	
	145 - international numbering scheme (contains the character "+")	
	<text> - the text associated to the number, string type; used character set should be the one selected with command +CSCS.</text>	
	<group> - group name the entry may belong to; used character set should be the one selected with command +CSCS.</group>	
	<adnumber> - additional string type phone number of format <adtype>.</adtype></adnumber>	
	<adtype> - additional type number octet in integer format.</adtype>	
	129 - national numbering scheme	
	145 - international numbering scheme (contains the character "+")	
	<secondtext> - the alphanumeric text associated with secondary text; used character set should be the one selected with command +CSCS.</secondtext>	
	<email> - The alphanumeric text associated with email address; used character set should be the one selected with command +CSCS.</email>	
	Note: If record number <index> already exists, it will be overwritten.</index>	
	Note: if either <number>, <type>, <text>, <group>, <adnumber>, <adtype>,</adtype></adnumber></group></text></type></number>	
	<pre><secondtext> and <email> are omitted the phonebook entry in location</email></secondtext></pre>	
	<index> is deleted.</index>	
	Shidex is defeted.	
	Note: if <index> is omitted or <index>=0, the number <number> is stored in the first free phonebook location.</number></index></index>	
AT+CPBW=?	Test command returns location range supported by the current storage as a compound value, the maximum length of <number> field, supported number format of the storage and maximum length of <text> field. The format is:</text></number>	
	+CPBW: (list of supported <index>s),<nlength>,</nlength></index>	



4.3.3.4.11 Clock Management - +CCLK

-CCLK – Clock Management	
AT+CCLK=	Set command sets the real-time clock of the ME.
<time></time>	
	Parameter:
	<time> - current time as quoted string in the format: "yy/MM/dd,hh:mm:ss±zz"</time>
	yy - year (two digits are mandatory). range is (0099)
	MM - month (two digits are mandatory). range is (0112)
	dd - day (two digits are mandatory). available ranges are:
	(0128)
	(0129)
	(0130)
	(013 †)
	hh - hour (two digits are mandatory). range is (0023)
	mm - minute (two digits are mandatory). range is (0059)
	ss - Seconds (two digits are mandatory). range is (0059)
	±zz - time zone (indicates the difference, expressed in quarter of an hour, between the local time and GMT; two digits are mandatory), range is - 96+96
AT+CCLK?	Read command returns the current setting of the real-time clock, in the format
	<time>.</time>
AT+CCLK=?	Test command returns the OK result code.
Reference	3GPP TS 27.007



4.3.3.4.12 Restricted SIM Access - +CRSM

+CRSM – Resgricted SI	M Access
AT+CRSM= <command/> [, <fileid> [,<p1>,<p2>, <p3>[,<data>]]]</data></p3></p2></p1></fileid>	Execution command transmits to the ME the SIM <command/> and its required parameters. ME handles internally all SIM-ME interface locking and file selection routines. As a response to the command, ME sends the current SIM information parameters and response data.
	Parameters:
	<command/> - command passed on by the ME to the SIM 176 - READ BINARY
	178 - READ RECORD
	192 - GET RESPONSE
	214 - UPDATE BINARY
	220 - UPDATE RECORD
	242 - STATUS
	<fileid> - identifier of an elementary data file on SIM. Mandatory for every command except STATUS.</fileid>
	<p1>,<p2>,<p3> - parameter passed on by the ME to the SIM; they are mandatory for every command except GET RESPONSE and STATUS 0255</p3></p2></p1>
	<data> - information to be read/written to the SIM (hexadecimal character format).</data>
	The response of the command is in the format:
	+CRSM: <sw1>,<sw2>[,<response>] where:</response></sw2></sw1>
	<sw1>,<sw2> - information from the SIM about the execution of the current command both on successful or failed execution.</sw2></sw1>
	<response> - on a successful completion of the command previously issued it returns the requested data (hexadecimal character format). It is not returned after a successful UPDATE, BINARY or UPDATE RECORD command.</response>
	Note: this command requires PIN authentication. However commands READ BINARY and READ RECORD can be issued before PIN authentication and if the SIM is blocked (after three failed PIN authentication attempts) to access the contents of the Elementary Files.
	Note: use only decimal numbers for parameters <command/> , <fileid>,</fileid>
	<p1>, <p2> and <p3>.</p3></p2></p1>
AT+CRSM=?	Test command returns the OK result code
Reference	3GPP TS 27.007, 3GPP TS 11.11/51.011(3GPP Only)



4.3.3.4.13 Accumulated Call Meter - +CACM

+CACM – Accumulated Call Meter	
AT+CACM= [<pwd>]</pwd>	Set command resets the Advice of Charge related Accumulated Call Meter stored in SIM (ACM): it contains the total number of home units for both the current and preceding calls.
	Parameter: <pwd> - to access this command provide PIN2; if PIN2 has been already input once after startup, it is required no more</pwd>
AT+CACM?	Read command reports the current value of the SIM ACM in the format:
	+CACM: <acm></acm>
	where: <acm> - accumulated call meter in home units, string type: three bytes of decimal value 30)</acm>
AT+CACM=?	Test command returns the OK result code
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.4.14 Accumulated Call Meter Maximum - +CAMM

CANDIA	ICHW. W.
+CAMM – Accumulated Call Meter Maximum	
	Set command sets the Advice of Charge related Accumulated Call Meter Maximum
[<acmmax>[,<pwd>]]</pwd></acmmax>	Value stored in SIM (ACMmax). This value represents the maximum number of home units allowed to be consumed by the subscriber. When ACM reaches <acmmax> value further calls are prohibited.</acmmax>
	Parameter:
	<acmmax> - ACM max value, integer type: it is the maximum number of home units allowed to be consumed by the subscriber.</acmmax>
	<pwd> - PIN2; if PIN2 has been already input once after startup, it is required no more</pwd>
	Note: $\langle \text{acmmax} \rangle = 0$ value disables the feature.
AT+CAMM?	Read command reports the ACMmax value stored in SIM in the format:
	+CAMM : <acmm> where:</acmm>
	<acmm> - ACMmax value in home units, string type: three bytes of the</acmm>
	ACMmax value in hexadecimal format (e.g. "00001E" indicates
AT+CAMM=?	Test command returns the OK result code
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.4.15 Available AT Commands - +CLAC

+CLAC – Available AT Commands	
AT+CLAC	Execution command causes the ME to return the AT commands that are available for the user, in the following format:
	<at cmd1="">[<cr><lf><at cmd2="">[]] where:</at></lf></cr></at>
	<at cmdn=""> - defines the AT command including the prefix AT</at>
AT+CLAC=?	Test command returns the OK result code
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.4.16 Automatic Time Zone update - +CTZU

+CTZU Automatic Time Zone Update	
AT+CTZU= <onoff></onoff>	This command enables and disables automatic time zone update via NITZ. Parameters:
	<onoff>:</onoff>
	0 - Disable automatic time zone update via NITZ (default)
	1 - Enable automatic time zone update via NITZ
	Note: despite the name, the command AT+CTZU=1 enables automatic update of the date and time set by AT+CCLK command (not only time zone). This happens when a Network Identity and Time Zone (NITZ) message is sent by the network.
AT+CTZU?	Read command reports the currently selected <onoff> in the format:</onoff>
	+CTZU: <onoff></onoff>
AT+CTZU=?	Test command reports the supported range of values for parameter <onoff></onoff>
Reference	3GPP Only



4.3.3.5 Mobile Equipment Errors

4.3.3.5.1 Report Mobile Equipment Error - +CMEE

+CMEE – Report Mobile Equipment	
AT+CMEE=[<n>]</n>	Set command enables/disables the reporting of result codes:
	+CME ERROR: <err></err>
	It is an indication of an error relating to the +Cxxx commands issued.
	When enabled, device related errors cause the +CME ERROR <err> result code instead of the default ERROR result code. ERROR will still be returned normally when the error message relates to syntax, invalid parameters, or DTE functionality.</err>
	Parameter:
	<n> - enable flag</n>
	0 - disable +CME ERROR: <err> reports, use only ERROR report. (default)</err>
	1 - enable +CME ERROR: <err> reports, with <err> in numeric format</err></err>
AT+CMEE?	Read command returns the current value of subparameter <n>:</n>
	+CMEE: <n></n>
AT+CMEE=?	Test command returns the range of values for subparameter <n></n>
Note	+CMEE has no effect on the final result code +CMS
Reference	3GPP TS 27.007

4.3.3.6 Voice Control

4.3.3.6.1 DTMF Tones Transmission - +VTS

+VTS – DTMF Tones Transmission	
AT+VTS=	Execution command allows the transmission of DTMF tones.
<dtmfstring></dtmfstring>	
[,duration]	Parameters:
	<pre><dtmfstring> - string of <dtmf>s, i.e. ASCII characters in the set (0-9),</dtmf></dtmfstring></pre>
U	#,*,(A-D); the string can be at most 255 <dtmf>s long; it allows the user to send a sequence of DTMF tones, each of them with a duration that was</dtmf>



+VTS – DTMF Tones Transmission	
	defined through +VTD command.
	<duration> - duration of a tone in 1/100 sec.; this parameter can be specified only if the length of first parameter is just one ASCII character.</duration>
	0 - a single DTMF tone will be transmitted for a duration depending on the network, no matter what the current +VTD setting is.
	1255 - a single DTMF tone will be transmitted for a time <duration> (in 10 ms multiples), no matter what the current +VTD setting is.</duration>
	Note: This command operates in voice mode only (see +FCLASS).
AT+VTS=?	Test command provides the list of supported <dtmf>s and the list of supported <duration>s in the format:</duration></dtmf>
	(list of supported <dtmf>s)[,(list of supported <duration>s)]</duration></dtmf>
Reference	3GPP TS 27.007 and TIA IS-101 (3GPP Only)

4.3.3.7 Commands for Package Domain

4.3.3.7.1 GPRS Mobile Station Class - +CGCLASS

+CGCLASS – GPRS Mobile Station Class	
AT+CGCLASS=	Set command sets the GPRS class according to <class> parameter.</class>
[<class>]</class>	
	Parameter:
	<class> - GPRS class</class>
	- WCDMA (factory default)
	Note: the setting is saved in NVM (and available on following reboot).
AT+CGCLASS?	Read command returns the current value of the GPRS class in the format: +CGLASS: <class></class>
AT+CGCLASS=?	Test command reports the range for the parameter <class></class>
Reference	3GPP Only



4.3.3.7.2 GPRS Attach or Detach - +CGATT

+CGATT – GPRS Attach Or Detach	
AT+CGATT= [≤state>]	Execution command used to attach the terminal to, or detach the terminal from, the GPRS service depending on the parameter <state>.</state>
-	Parameter: - <state> - state of GPRS attachment - 0 - detached</state>
ATT. CCC ATTTO	1 - attached
AT+CGATT?	Read command returns the current GPRS service state.
AT+CGATT=?	Test command requests information on the supported GPRS service states.
Example	AT+CGATT? +CGATT: 0 OK AT+CGATT=? +CGATT: (0,1) OK AT+CGATT=1 OK
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.7.3 GPRS Event Reporting - +CGEREP

+CGEREP – GPRS Event Reporting	
AT+CGEREP=	Set command enables or disables sending of unsolicited result codes +CGEV: XXX
[<mode> [,<bfr>]]</bfr></mode>	(see below) from TA to TE in the case of certain events occurring in the TA or the network regarding GPRS events.
	Parameters:
	<mode> - controls the processing of URCs specified with this command.</mode>
	0 - Buffer unsolicited result codes in the TA. If TA result code buffer is full, the oldest one may be discarded. No codes are forwarded to the TE.
	1 - Discard unsolicited result codes when TA-TE link is reserved (e.g. in on- line data mode); otherwise forward them directly to the TE.
	2 - Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when TA-TE link
	becomes available, otherwise forward them directly to the TE.



+CGEREP – GPRS Event Reporting

<bfr> - controls the effect on buffered codes when <mode> 1 or 2 is entered:

0 - TA buffer of unsolicited result codes defined within this command is

cleared when <mode>=1 or 2 is entered.

1 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=1 or 2 is entered (OK response shall be given before flushing the codes).

Unsolicited Result Codes

The following unsolicited result codes and the corresponding events are defined:

+CGEV: REJECT <PDP_type>, <PDP_addr>

A network request for PDP context activation occurred when the TA was unable to report it to the TE with a +CRING unsolicited result code and was automatically rejected.

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

The network has requested a context reactivation. The <cid> that was used to reactivate the context is provided if known to TA.

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

The network has forced a context deactivation. The <cid> that was used to activate the context is provided if known to TA.

+CGEV: ME DEACT <PDP_type>, <PDP_addr>, [<cid>]

The mobile equipment has forced a context deactivation. The <cid> that was used to activate the context is provided if known to TA.

+CGEV: NW DETACH

The network has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately.

+CGEV: ME DETACH

The mobile equipment has forced a GPRS detach. This implies that all active contexts have been deactivated. These are not reported separately.

+CGEV: ME CLASS <class>

The mobile equipment has forced a change of MS class. The highest available class is reported (see +CGCLASS)

AT+CGEREP? Read command returns the current <mode> and <bfr> settings, in the format:

+CGEREP: <mode>,<bfr>



+CGEREP – GPRS Event Reporting		
	Test command reports the supported range of values for the +CGEREP command parameters.	
Reference	3GPP TS 27.007(3GPP Only)	

4.3.3.7.4 EPS Network Registration Status - +CEREG

+CEREG EPS	Network Registration Status
+CEREG=[<n>]</n>	The set command controls the presentation of an unsolicited result code
	+CEREG: <stat> when <n>=1 and there is a change in the MT's EPS network registration status in E-UTRAN, or unsolicited result code.</n></stat>
	+CEREG: <stat>[,[<tac>],[<ci>],[<act>]] when <n>=2 and there is a change of the network cell in E-UTRAN. The parameters <act>, <tac> and <ci> are sent only if available.</ci></tac></act></n></act></ci></tac></stat>
	The value <n>=3 further extends the unsolicited result code with [,<cause_type>,<reject_cause>], when available, when the value of <stat> changes. Refer subclause 9.2 for possible <err>> values. Current version cannot support <n>=3.</n></err></stat></reject_cause></cause_type></n>
	Note:
	If the EPS MT in GERAN/UTRAN/E-UTRAN also supports circuit mode services and/or GPRS services, the +CREG command and +CREG: result codes and/or the
	+CGREG command and +CGREG: result codes apply to the registration status and location information for those services.
	Possible response(s): +CME ERROR: <err></err>



+CEREG	EPS	Network Registration Status
+CEREG?		Defined values:
		<n>: integer type</n>
		0 - disable network registration unsolicited result code
		1 - enable network registration unsolicited result code +CEREG: <stat></stat>
		2 - enable network registration and location information unsolicited result code +CEREG: <stat>[,[<tac>],[<ci>],[<act>]]</act></ci></tac></stat>
		*3 - enable network registration, location information and EMM cause value information unsolicited result code. Current version cannot support <n>=3.</n>
		+CEREG: <stat>[,[<tac>],[<ci>],[<act>][,<cause_type>,<reject_cause>]]</reject_cause></cause_type></act></ci></tac></stat>
		<stat>: integer type; indicates the EPS registration status</stat>
		0 - not registered, MT is not currently searching an operator to register to. 1 - registered, home network.
		2 - not registered, but MT is currently trying to attach or searching an operator to register to.
		3 - registration denied.
		4 - unknown (e.g. out of E-UTRAN coverage).
		5 - registered, roaming.
		6 - registered for "SMS only", home network (not applicable)
		7 - registered for "SMS only", roaming (not applicable).
		8 - attached for emergency bearer services only (See NOTE 2).
		9 - registered for "CSFB not preferred", home network (not applicable). 10- registered for "CSFB not preferred", roaming (not applicable).
		Note 2: 3GPP TS 24.008 [8] and 3GPP TS 24.301 [83] specify the condition when the MS is considered as attached for emergency bearer services.
		<tac>: string type; two byte tracking area code in hexadecimal format (e.g. "00C3" equals 195 in decimal).</tac>
		<ci>: string type; four byte E-UTRAN cell ID in hexadecimal format.</ci>
		<act>: integer type; indicates the access technology of the serving cell.</act>
		0 - GSM (not applicable)
		1 - GSM Compact (not applicable)
		2 - UTRAN (not applicable)
		3 - GSM w/EGPRS (see NOTE 3) (not applicable)



+CEREG	EPS	Network Registration Status
		the information about whether the serving cell supports EGPRS.
		Note 4: 3GPP TS 25.331 [74] specifies the System Information blocks which give the information about whether the serving cell supports HSDPA or HSUPA.
		<pre><cause_type>: integer type; indicates the type of <reject_cause>.</reject_cause></cause_type></pre>
		0 - Indicates that <reject_cause> contains an EMM cause value, see 3GPP TS 24.301 [83] Annex A.</reject_cause>
		1 - Indicates that <reject_cause> contains a manufacturer-specific cause.</reject_cause>
		<pre><reject_cause>: integer type; contains the cause of the failed registration. The value is of type as defined by <cause_type>.</cause_type></reject_cause></pre>
		+CEREG: <n>,<stat>[,[<tac>],[<ci>],[<act>[,<cause_type>,<reject_cause>]]]</reject_cause></cause_type></act></ci></tac></stat></n>
+CEREG=?	?	Test command returns values supported as a compound value.
		+CEREG: (list of supported <n>s)</n>
Reference		3GPP TS 27.007(3GPP Only)



4.3.3.7.5 GPRS Network Registration Status - +CGREG

+CGREG – GPRS Ne	etwork Registration
AT+CGREG= [<n>]</n>	Set command controls the presentation of an unsolicited result code regarding GPRS network registration state
	+CGREG: (see format below).
	Parameter:
	<n> - result code presentation mode</n>
	0 - disable network registration unsolicited result code
	1 - enable network registration unsolicited result code; if there is a change in the terminal GPRS network registration statusthe unsolicited result
	code is issued
	2 - enable network registration and location information unsolicited result code
	+CGREG: <stat></stat>
	where:
	<stat> - registration status</stat>
	0 - not registered, terminal is not currently searching a new operator to register to
	1 - registered, home network
	2 - not registered, but terminal is currently searching a new operator to register to
	3 - registration denied
	4 - unknown
	5 - registered, roaming
	If <n>=2 - enable network registration and location information unsolicited result code if there is a change of the network cell, it is issued the unsolicited result code</n>
	+CGREG: <stat>[,<lac>,<ci>,<act>,<rac>] where:</rac></act></ci></lac></stat>
	<stat> - registration status (see above for values)</stat>
	<a><lac> - location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal)</lac>
	<ci>- cell ID in hexadecimal format.</ci>
	<act>: integer type; access technology of the serving cell</act>



+CGREG – GPRS 1	Network Registration
	3 - GSM w/EGPRS
	4 - UTRAN w/HSDPA
	5 - UTRAN w/HSUPA
	6 - UTRAN w/HSDPA and HSUPA
	7 - E-UTRAN
	<rac> - string type; one byte routing area code in hexadecimal format.</rac>
AT+CGREG?	Read command returns the status of result code presentation mode <n> and the integer <stat> which shows whether the network has currently indicated the registration of the terminal in the format:</stat></n>
	+CGREG: <n>,<stat></stat></n>
AT+CGREG=?	Test command returns supported values for parameter <n></n>
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.7.6 Printing IP Address Format - +CGPIAF

+CGPIAF – Printing IP Address Format		
AT+CGPIAF=	Set command decides what the format to print IPv6 address parameter.	
rmat\	O Use IPv4-like dot-notation. IP addresses, and subnetwork mask if applicable, are	
	<ipv6_subnetnotation> - decides the subnet-notation for <remote address="" and="" mask="" subnet=""> Setting does not apply if IPv6 address format <ipv6_addressformat> = 0. 0 Both IP address and subnet mask are stated explicitly, separated by a space. 1 The printout format applies /(forward slash) subnet-prefix Classless Inter-Domain Routing (CIDR) notation.</ipv6_addressformat></remote></ipv6_subnetnotation>	
0	<ipv6_leadingzeros> - decides whether leading zeros are omitted or not. Setting does not apply for IPv6 address format <ipv6_addressformat> = 0. 0 Leading zeros are omitted. 1 Leading zeros are included.</ipv6_addressformat></ipv6_leadingzeros>	



+CGPIAF – Printing IP Address Format	
	<ipv6_compresszeros>: integer type, decides whether 1-n instances of 16-bit zero-values are replaced by only '::'. This applies only once. Setting does not apply if <ipv6_addressformat> = 0. 0 No zero compression. 1 Use zero compression.</ipv6_addressformat></ipv6_compresszeros>
AT+CGPIAF?	Read command returns the current parameter setting.
AT+CGPIAF=?	Test command returns values supported as compound parameter setting.
Example	AT+CGPIAF=0,0,0,0 OK at+CGPIAF=1,0,0,0 OK
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.7.7 Define PDP Context - +CGDCONT

+CGDCONT – Dfine I	PDP
AT+CGDCONT=	Set command specifies PDP context parameter values for a PDP context identified by the (local)
[<cid>[,<pdp_type></pdp_type></cid>	contextidentificationparameter <cid>.</cid>
[, <apn></apn>	
[, <pdp_addr></pdp_addr>	Parameters:
[, <d_comp></d_comp>	<cid>-(PDPContext Identifier) numeric parameter which specifies a particular PDP context</cid>
[, <h_comp> [,<pd1></pd1></h_comp>	definition.
[,[,pdN]]]]]]]	1max - where the value of max is returned by the Test command.
	<pdp_type>-(Packet Data Protocol type) a string parameter which specifies the type of packet data</pdp_type>
	protocol.
	"IP" - Internet Protocol
	"PPP" -PointtoPointProtocol
	"IPV6" - Internet Protocol, Version 6
	"IPV4V6" - Virtual < PDP_type > introduced to handle dual IP stack UE capability.



+CGDCONT – Dfine PDP		
	(ADN) (Access Deint Name) a string proposed and the first factor of the factor	
	<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. CRDD address a string parameter that identifies the terminal in the address are second included.</apn>	
	<pdp_addr> - a string parameter that identifies the terminal in the address space applicable to the PDP. The allocated address may be readusing the +CGPADDR command. <d_comp> - numeric parameter that controls PDP data compression.</d_comp></pdp_addr>	
	0 - off (default if value is omitted) 1 - on	
	2 - V.42bis	
	Other values are reserved	
	<h_comp> - numeric parameter that controls PDP header compression. 0-off(default if value is omitted)</h_comp>	
	1 - on 2 - RFC1144(applicable for SNDCP only)	
	3-RFC2507	
	4-RFC3095 (applicable for PDCP only)	
	<pd1> <pdn> - zero to N string parameters whose meanings are specific to the <pdp_type></pdp_type></pdn></pd1>	
	Note: a special form of the Set command, +CGDCONT= <cid>, causes the values for context number <cid> to become undefined.</cid></cid>	
, in the second		
AT+CGDCONT?	Read command returns the current settings for each defined context in the format:	
	+CGDCONT: <cid>,<pdp_type>,<apn>,<pdp_addr>,<d_comp>, <h_comp>[,<pd1>[,[,pdN]]][<cr><lf>+CGDCONT: <cid>,</cid></lf></cr></pd1></h_comp></d_comp></pdp_addr></apn></pdp_type></cid>	
	<pdp_type>,<apn>,<pdp_addr>,<d_comp>,<h_comp></h_comp></d_comp></pdp_addr></apn></pdp_type>	
	[, <pd1>[,[,pdN]]][]]</pd1>	
AT+CGDCONT=?	Test command returns values supported as a compound value	
Reference	3GPP TS 27.007(3GPP Only)	



4.3.3.7.8 Define Secondary PDP Context - +CGDSCONT

+CGDSCONT Parameter Command Syntax		
AT+CGDSCONT=	Possible response(s): OK	
[<cid> ,<p_cid> [,<d_comp> [,<h_comp>]]]</h_comp></d_comp></p_cid></cid>	ERROR	
	Description:	
	The set command specifies the PDP context parameter values for a Secondary PDP context identified by the (local) context Identification parameter, <cid>.</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.	
	In EPS the command is used to define traffic flows.	
	A special form of the set command, +CGDSCONT= <cid> causes the values for context number <cid> to become undefined.</cid></cid>	
	The read command returns the current settings for each defined context.	
	Defined values:	
	<cid>: 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.</cid>	
	<p_cid>: a numeric parameter which specifies a particular PDP context definition which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface. The list of permitted values is returned by the test form of the command.</p_cid>	
	<d_comp>: a numeric parameter that controls PDP data compression (applicable for SNDCP only) (refer 3GPP TS 44.065 [61])</d_comp>	
	0 - off (default if value is omitted)	
	1 - on (manufacturer preferred compression)	
	2 - V.42bis	
	3 - V.44	
	Other values are reserved.	



+CGDSCONT Parameter Command Syntax	
	<h_comp>: a numeric parameter that controls PDP header compression (refer 3GPP TS 44.065 [61] and</h_comp>
	3GPP TS 25.323 [62])
	0 - off (default if value is omitted)
	1 - on (manufacturer preferred compression)
	2 - RFC1144 (applicable for SNDCP only)
	3 - RFC2507
	4 - RFC3095 (applicable for PDCP only) Other values are reserved.
AT+CGDSCONT?	AT+CGDSCONT: <cid>, <p_cid>, <d_comp>,<h_comp>[<cr><lf>+CGDSCONT:</lf></cr></h_comp></d_comp></p_cid></cid>
	<cid>, <p_cid>, <d_comp>, <h_comp> []]</h_comp></d_comp></p_cid></cid>
AT+CGDSCONT=?	AT+CGDSCONT: (range of supported <cid>s), (list of <cid>s for active primary</cid></cid>
	contexts), (list of supported <d_comp>s), (list of supported <h_comp>s)</h_comp></d_comp>
Reference	3GPP Only

4.3.3.7.9 Traffic Flow Template +CGTFT

+CGTFT Parameter Command Syntax	
AT+CGTFT=	Possible Response(s): OK
[<cid>,</cid>	ERROR
<pre><evaluation index="" precedence="">[,<source address="" and="" mask="" subnet=""/> [,<protocol (ipv4)="" (ipv6)="" header="" next="" number=""> [,<destination port="" range=""> [,<source port<="" pre=""/></destination></protocol></evaluation></pre>	This command allows the TE to specify a Packet Filter (PF) for a Traffic Flow Template (TFT) that is used in the GGSN in UMTS/GPRS and Packet GW in EPS for routing of packets onto different QoS flows towards the TE. The concept further described in the 3GPP TS 23.060 [47].
security parameter index (spi)> [, <type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic=""> [,<flow< td=""><td>The set command specifies a Packet Filter that is added to the TFT stored in the MT</td></flow<></type>	The set command specifies a Packet Filter that is added to the TFT stored in the MT



+CGTFT Parameter Command Syntax

label (ipv6)>a number of parameters, each of which may be set to a separate value.

[,<direction>]]]]]]]]]

A special form of the set command, +CGTFT= <cid> causes all of the Packet Filters in the TFT for context number <cid> to become undefined.

At any time there may exist only one PDP context with no associated TFT amongst all PDP contexts associated to one PDP address. At an attempt to delete a TFT, which would violate this rule, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.

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 3GPP TS 23.060 [47]:

<packet filter identifier>: a numeric parameter, value range from 1 to 16.

<evaluation precedence index>: a numeric parameter. The value range is from 0 to 255.

<source address and subnet mask>: string type. The string is given as dot-separated numeric (0-255)parameters on the form: "a1.a2.a3.a4.m1.m2.m3.m4", for IPv4 or "a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.m1.m2.m3.m4.m5.

m6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16", for IPv6.

of number (ipv4) / next header (ipv6)>: a numeric parameter, value range
from 0 to 255.

<destination port range>: string type. The string is given as dot-separated numeric (0-65535) parameters in the form "f.t".

<source port range>:string type. The string is given as dot-separated numeric (0-65535) parameters in the form "f.t".

<ipsec security parameter index (spi)>: numeric value in hexadecimal format. The value range is from 00000000 to FFFFFFFF.



+CGTFT Parameter Command Syntax	
	in the form "t.m".
	<flow (ipv6)="" label="">: numeric value in hexadecimal format. The value range is from 00000 to FFFFF. Valid for IPv6 only.</flow>
	<direction>: a numeric parameter which specifies the transmission direction in which the packet filter shall be applied.</direction>
	0 - Pre-Release 7 TFT filter (see 3GPP TS 24.008 [8], table 10.5.162)
	- Uplink
	- Downlink
	- Birectional (Up & Downlink) (default if omitted)
	Some of the above listed attributes may coexist in a Packet Filter while others mutually exclude each other, the possible combinations are shown in 3GPP TS 23.060 [47].
AT+CGTFT?	The read command returns the current settings for all Packet Filters for eac h defined context.
	AT+CGTFT: <cid>, <packet filter="" identifier="">, <evaluation index="" precedence="">,</evaluation></packet></cid>
	<source address="" and="" subnet<="" td=""/>
	mask>, <protocol (ipv4)="" (ipv6)="" header="" next="" number="">, <destination port="" range="">, <source port="" range=""/>, <ipsec< td=""></ipsec<></destination></protocol>
	security parameter index (spi)>, <type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic="">, <flow< td=""></flow<></type>
	label (ipv6)>, <direction> [<cr><lf>+CGTFT: <cid>, <packet filter="" identifier="">,</packet></cid></lf></cr></direction>
	<evaluation precedence<="" td=""></evaluation>
	index>, <source address="" and="" mask="" subnet=""/> , <pre>, <pre>protocol number (ipv4) / next header (ipv6)>, <destination port<="" pre=""></destination></pre></pre>
	range>, <source port="" range=""/> , <ipsec (spi)="" index="" parameter="" security="">, <type (ipv4)="" (tos)="" <="" and="" mask="" of="" service="" td=""></type></ipsec>
	traffic class (ipv6) and mask>, <flow (ipv6)="" label="">, <direction>[]]</direction></flow>
AT+CGTFT=?	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 r eturned on a separate line. TFTs shall be used for PDP-type IP and PPP only. For PDP-type PPP a TFT is applicable only when IP traffic is carried over PP
	P. If PPP carries header-compressed IP packets, then a TFT cannot be used.
	AT+CGTFT: <pdp_type>, (list of supported <packet filter="" identifier="">s), (list of supported <evaluation index="" precedence="">s), (list of supported <source address="" and="" mask="" subnet=""/>s), (list of supported <pre><pre>protocol number (ipv4) / next header (ipv6)>s), (list of supported <destination port="" range="">s), (list of</destination></pre></pre></evaluation></packet></pdp_type>



+CGTFT Parame	eter Command Syntax
	supported <source port="" range=""/> s), (list of supported <ipsec (spi)="" index="" parameter="" security="">s), (list of supported <type (ipv4)="" (tos)="" and="" class(ipv6)="" mask="" of="" service="" traffic="">s), (list of supported <flow (ipv6)="" label="">s), (list of supported <direction>s [<cr><lf></lf></cr></direction></flow></type></ipsec>
	AT+CGTFT: <pdp_type>, (list of supported <packet filter="" identifier="">s), (list of supported <evaluation index="" precedence="">s), (list of supported <source address="" and="" mask="" subnet=""/>s),(list of supported <pre><pre>protocol number (ipv4) / next header (ipv6)>s) (list of supported <destination port="" range="">s), (list of supported <source port="" range=""/>s) (list of supported <ipsec (spi)="" index="" parameter="" security="">s),(list of supported <type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic="">s), (list of supported <flow label<="" pre=""></flow></type></ipsec></destination></pre></pre></evaluation></packet></pdp_type>
	(ipv6)>s), (list of support <direction>s)[]]</direction>
Reference	3GPP Only

4.3.3.7.10 Quality of Service Profile (Minimum Acceptable) - +CGQMIN

+CGQMIN – Quality Of Service Profile (minimum Acceptable)	
[<cid> [<nrecedence></nrecedence></cid>	message.
	If a value omitted for a particular class then this class is not checked. Note: a special form of the Set command, +CGQMIN= <cid> causes the requested profile for context number <cid> to become undefined.</cid></cid>
AT+CGQMIN?	Read command returns the current settings for each defined context in the format: +CGQMIN: <cid>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre>,<pre< td=""></pre<></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></cid>
	If no PDP context is defined, it has no effect and OK result code returned.



CCOMPI O 13		
+CGQMIN - Quality	+CGQMIN – Quality Of Service Profile (Minimum Acceptable)	
AT+CGQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format:	
	+CGQMIN: <pdp_type>,(list of supported <pre><pre>cedence>s),</pre></pre></pdp_type>	
	(list of supported <delay>s),(list of supported <reliability>s),(list of supported <peak>s),(list of supported <mean>s)</mean></peak></reliability></delay>	
	Note: only the "IP" PDP_Type currently supported.	
Example	AT+CGQMIN=1,0,0,3,0,0 OK	
	AT+CGQMIN?	
	+CGQMIN: 1,0,0,5,0,0	
	OK AT+CGQMIN=?	
	+CGQMIN: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	+CGQMIN: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	+CGQMIN: "IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	OK	
Reference	3GPP TS 27.007; 3GPP TS 03.60/23.060(3GPP Only)	

$\textbf{4.3.3.7.11\ 3G\ Quality\ of\ Service\ Profile\ (Minimum\ Acceptable) - + CGEQMIN}$

+CEGQMIN 3G Quality Of Service Profile (Minimum Acceptable)	
AT+CGEQMIN=	Set command allows specify a 3G quality of service profile for the context
[<cid></cid>	identified by the (local) context identification parameter <cid> that is checked by</cid>
[, <traffic class=""></traffic>	the MT against the negotiated profile returned in the Activate/Modify PDP Context Accept Message.
[, <maximum bitrate="" ul=""></maximum>	Parameters:
[, <maximum bitrate="" dl=""></maximum>	<cid> - PDP context identification (see +CGDCONT command). <traffic class=""> - Traffic class 0 - conversational</traffic></cid>
[, <guaranteed bitrate="" ul=""></guaranteed>	2 - interactive
[, <guaranteed bitrate="" dl=""></guaranteed>	3 - background4 - subscribed value
[, <delivery order=""> [,<maximum sdu<br="">size></maximum></delivery>	<maximum bitrate="" ul=""> - Maximum bitrate Up Link (kbits/s)</maximum>



```
0 - subscribed value
[,<SDU error ratio>
                         1...11520
(,<Residual bit error</pre>
ratio> [,<Delivery of
                        <Maximum bitrate DL> - Maximum bitrate down link (kbits/s)
erroneous SDUs>
                        0 – subscribed value 1...42200
[,<Transfer delay>
(,<Traffic handling)</p>
priority>]]]]]]]]]]]
                        <Guaranteed bitrate UL> - the guaranteed bitrate up link(kbits/s)
                        0 - subscribed value
                                               11520
                        <Guaranteed bitrate DL> - the guaranteed bitrate down link(kbits/s)
                        0 - subscribed value
                        <Delivery order> SDU Delivery oreder
                        0
                                - no
                           - yes
                           - subscribed value
                        <Maximum SDU size> Maximum SDU size in octets
                        0 - subscribed value 1...1520
                        <SDU error ratio> SDU error ratio
                        - mEe mean m*10-e, for example 1E2 mean 1*10-2
                        "0E0"
                        "1E1"
                        "1E1"
                        "7E3"
                        "1E1"
                        "1E1"
                        "1E1"
                        "1E1"
                        <Residual bit error ratio> Residual bit error ratio
                        - mEe mean m*10-e, for example 1E2 mean 1*10-2
                        "0E0"
                        "5E2"
                        "1E1"
                        "5E2"
                        "4E3"
                        "1E1"
                        "1E1"
                        "1E1"
                        "1E1"
                        "6E8"
```



	<delivery erroneous="" of="" sdus=""> Delivery of erroneous SDUs 0 - no</delivery>
	1 - yes
	2 - nodetect
	3 - subscribed value
	<transferdelay>Transferdelay(milliseconds)</transferdelay>
	0 - subscribed value 1004000
	<traffic handling="" priority=""> Traffic handling priority 00 - subscribed value 13</traffic>
	Note: aspecial formof the Set command, +CGEQMIN= <cid>causes the requested profile for context number < cid> to become undefined.</cid>
AT+CGEQMIN?	Read command returns the current settings for each defined context in the format:
	[+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 erroneous="" of="" sdus="">,<transfer delay="">,<traffic handling=""><cr><lf>] [+CGEQMIN:]</lf></cr></traffic></transfer></delivery></residual></sdu></maximum></delivery></guaranteed></guaranteed></maximum></maximum></traffic></cid>
	If no PDP context defined, it has no effect and OK result code returned.
AT+CGEQMIN=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format:
	+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 erroneous="" of="" sdus="">s),(list of supported <traffic handling<="" td=""></traffic></delivery></residual></sdu></maximum></delivery></guaranteed></guaranteed></maximum></maximum></traffic></pdp_type>
	priority>s
Reference	3GPP Only



4.3.3.7.12 Quality of Service Profile (Requested) - +CGQREQ

+CGQREQ – Quality Of Service Profile (Requested)		
AT+CGQREQ= [<cid>[,</cid>	Set command allows to specify a Quality of Service Profile that is used when the terminal sends an Activate PDP Context Request message to the network.	
<pre><pre><pre><pre></pre></pre></pre></pre>	It specifies a profile for the context identified by the (local) context identification parameter, <cid>.</cid>	
, <reliability>[,</reliability>	Parameters:	
[, <mean>]]]]]]</mean>	<cid> - PDP context identification (see +CGDCONT command).</cid>	
	<pre><pre><pre><pre>< - precedence class</pre></pre></pre></pre>	
	<delay> - delay class</delay>	
	<reliability> - reliability class</reliability>	
	<pre><peak> - peak throughput class</peak></pre>	
	<mean> - mean throughput class</mean>	
	If a value is omitted for a particular class then this class is not checked.	
	Note: a special form of the Set command, +CGQREQ= <cid> causes the requested profile for context number <cid> to become undefined.</cid></cid>	
AT+CGQREQ?	Read command returns the current settings for each defined context in the format:	
	+CGQREQ: <cid>,<pre>,<reliability>,<peak>,</peak></reliability></pre></cid>	
	<mean>[<cr><lf>+CGQREQ: <cid>,<pre>,<pre>,</pre></pre></cid></lf></cr></mean>	
	<delay>,<reliability>,<peak>,<mean>[]]</mean></peak></reliability></delay>	
	If no PDP context defined, it has no effect and OK result code returned.	
AT+CGQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format:	
	+CGQREQ: <pdp_type>,(list of supported <pre><pre>cedence>s),</pre></pre></pdp_type>	
	(list of supported <delay>s),(list of supported <reliability>s),(list of supported</reliability></delay>	
	<pre><peak>s),(list of supported <mean>s)</mean></peak></pre>	
	Note: is supported.	
Example	AT+CGQREQ?	
	+CGQREQ: 1,0,0,3,0,0	
	OK	
	AT+CGQREQ=1,0,0,3,0,0	
	OK	
	AT+CGQREQ=?	
	+CGQREQ: "IP",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	+CGQREQ: "PPP",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	+CGQREQ: "IPV6",(0-3),(0-4),(0-5),(0-9),(0-18,31)	
	OK	
Reference	3GPP TS 27.007; 3GPP TS 03.60/23.060(3GPP Only)	



4.3.3.7.13 3G Quality of Service Profile (Requested) - +CGEQREQ

	(requested)
+CGEQREQ 3G Quality	Of Service Profile (Requested)
[/cid\[/Traffic class\	Set command allows to specify a 3G quality of service profile for the context identified by the(local) context identification parameter <cid> which is used when the MT sends an Activate PDP Context Request message to the network.</cid>
	Parameters:
	Parameters: <id><id>>-PDPcontextidentification(see+CGDCONTcommand). <traffic class=""> - Traffic class 0 - conversational 1 - streaming 2 - interactive 3 - background 4 - subscribed value 4 - subscribed value <maximum bitrate="" ul=""> - Maximum bitrate UpLink (kbits/s) 0 - subscribed value 1 11520 <maximum bitrate="" dl=""> - Maximum bitrate down link (kbits/s) 0 - subscribed value 1 11520 <guaranteed bitrate="" ul=""> - the guaranteed bitrate up link(kbits/s) 0 - subscribed value 1 11520 <guaranteed bitrate="" dl=""> - the guaranteed bitrate down link(kbits/s) 0 0 - subscribed value 1 42200 <delivery order=""> SDU Delivery oreder 0 - no 1 - yes 2 - subscribed value 4 ximum SDU size> Maximum SDU size inctets 0 - subscribed value 4 ximum SDU size> Maximum SDU size inctets 0 - subscribed value <sdu error="" ratio=""> SDU error ratio- mEe mean m*10-e, for example 1E2 mean 1*10-2 1 TEI" "IEI" "IEI" "IEI" "IEI" "IEI" "IEI" "IEI" "IEI"</sdu></delivery></guaranteed></guaranteed></maximum></maximum></traffic></id></id>
	<residual bit="" error="" ratio=""> Residual bitt error ratio</residual>



+CGEQREQ	3G Qua	ality Of Service Profile (Requested)
		- mEe mean m*10-e , for example 1E2 mean 1*10-2
		"0E0"
		"5E2"
		"1E1" "5E2"
		"4E3"
		"1E1"
		"6E8"
		<delivery erroneous="" of="" sdus=""> Delivery of erroneous SDUs 0 - no</delivery>
		- yes - no detect
		- no detect - subscribed value
		- Subscribed value
		<transfer delay=""> Transfer delay (milliseconds)</transfer>
		0 - subscribed value 1004000
		<traffic handling="" priority=""> Traffic handling priority 0</traffic>
		1 – subscribed value 13
		Control Challeton Description
		<source descriptor="" statistics=""/> A numeric parameter that specifies characteristics of the source of the submitted SDUs for a
		PDP context. This parameter should be provided if the Traffic class is specified as
		conversational or streaming (refer 3GPP TS 24.008 [8] subclause 10.5.6.5).
		0 - Characteristics of SDUs unknown (default value)
		1 - Characteristics of SDUs corresponds to a speech source
		Cincolling Indications
		<signalling indication=""> A numeric parameter used to indicate signalling content of submitted SDUs for a PDP context.</signalling>
		This parameter should be provided if the Traffic class is specified as interactive (refer 3GPP TS
		24.008 [8] subclause 10.5.6.5).
		0 - PDP context is not optimized for signalling (default value)
		1 - PDP context is optimized for signalling



+CGEQREQ 3G Qualit	ty Of Service Profile (Requested)
	Note: aspecial form of the Set command, +CGEQREQ= <cid>causes the requested profile for context number < cid>to become undefined.</cid>
AT+CGEQREQ?	Read command returns the current settings for each defined context in the format:
	[+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 erroneous="" of="" sdus="">,<transfer delay="">,<traffic handling="">,<source descriptor="" statistics=""/> ,<signalling indication=""><cr><lf>] [] If no PDP context defined, it has no effect and OK result code returned.</lf></cr></signalling></traffic></transfer></delivery></residual></sdu></maximum></delivery></guaranteed></guaranteed></maximum></maximum></traffic></cid>
AT+CGEQREQ=?	Test command returns as a compound value the type of the current PDP context and the supported values for the subparameters in the format:
	+CGQREQ: <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 erroneous="" of="" sdus="">s),(list of supported <transfer delay="">s),(list of supported <traffic handling="" priority="">s ,(list of supported <source descriptor="" statistics=""/>s) ,(list of supported <signalling indication="">s) E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3),(0,1),(0,1)</signalling></traffic></transfer></delivery></residual></sdu></maximum></delivery></guaranteed></guaranteed></maximum></maximum></traffic></pdp_type>
	+CGEQREQ: "IPV6",(0-4),(0-5760),(0-42200),(0-5760),(0-42200),(0-2),(0-1520),("0E0","1E1","1E2","7E3","1E4","1E5","1E6"),("0E0","5E2","1E2","5 E3","4E3","1E4","1E5","1E6",(6E8"),(0-3),(0,100-4000),(0-3),(0,1),(0,1)
	+CGEQREQ: "IPV4V6",(0-4),(0-5760),(0-42200),(0-5760),(0-42200),(0-2),(0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"),("0E0","5E2","1E2","5 E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3),(0,1),(0,1) OK
-0)	
Reference	3GPP TS 27.007; 3GPP TS 03.60/23.060; 3GPP TS 24.008(3GPP Only)



4.3.3.7.14 PDP Context Activate or Deactivate - +CGACT

+CGACT – PDP C	ontext Activate Or Deactivate
AT+CGACT=	Execution command is used to activate or deactivate the specified PDP context(s)
[<state> [,<cid></cid></state>	
	Parameters:
	<state> - indicates the state of PDP context activation</state>
	0 - deactivated
	1 - activated
	<cid> - a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command)</cid>
	Note: if no <cid> are specified the activation /deactivation form of the command activates/deactivates all defined contexts.</cid>
AT+CGACT?	Read command returns the current activation state for all the defined PDP contexts in the format:
	+CGACT: <cid>, <state>[<cr><lf>+CGACT:<cid>,<state>[]]</state></cid></lf></cr></state></cid>
AT+CGACT=?	Test command reports information on the supported PDP context activation states parameters in the format:
	+CGACT: (0,1)
Example	AT+CGACT=1,1
	OK
	AT+CGACT?
	+CGACT: 1,1
	ОК
Reference	3GPP TS 27.007(3GPP Only)



4.3.3.7.15 PDP Context Modify - +CGCMOD

+CGCMOD Action Command Syntax		
AT+CGCMOD=	Possible Response(s): OK	
[<cid> [,<cid></cid></cid>	ERROR	
	The execution command used to modify the specified PDP context (s) with repect to QoS profiles and TFTs.	
	After the command has completed, the MT returns to V.250 online data state. If the requested modification for any specified context cannot be achieved, an ERROR or +CME ERROR response is returned. Extended error responses are enabled by the +CMEE command.	
	For EPS, the modification request for an EPS bearer resource will be answered by the network by an EPS bearer modification request. A request must be accepted by the MT, before the PDP context is effectively changed.	
	If no <cid> is specified an activation form of the command modifies all active contexts.</cid>	
	The test command returns a list of <cid>s associated with active contexts. Defined Values</cid>	
	<cid>: a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT and +CGDSCONT commands).</cid>	
AT+CGCMOD=?	+CGCMOD: (list of <cid>s associated with active contexts)</cid>	
Reference	3GPP Only	

4.3.3.7.16 Show PDP Address - +CGPADDR

+CGPADDR - Show PD	P Address
AT+CGPADDR= [<cid>[,]]]</cid>	Execution command returns a list of PDP addresses for the specified context identifiers in the format: +CGPADDR: <cid>,<pdp_addr>[<cr><lf>+CGPADDR: <cid>,<pdp_addr>[]]</pdp_addr></cid></lf></cr></pdp_addr></cid>
	Parameters: <cid> - a numeric parameter which specifies a particular PDP context definition (see +CGDCONT command). If no <cid> is specified, the addresses for all defined contexts are returned. <pdp_addr> - a string that identifies the terminal in an address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT command when the context was defined. For a dynamic address it will be the one assigned during the last PDP context activation that used the context definition referred to by <cid>;<pdp_addr> is omitted if none is available</pdp_addr></cid></pdp_addr></cid></cid>
AT+CGPADDR=?	Test command returns a list of defined <cid>s.</cid>



+CGPADDR - S	ow PDP Address	
Example	AT#GPRS=1	
	+IP: xxx.yyy.zzz.www	
	OK AT+CGPADDR=1	
	OK AT+CGPADDR=?	
	+CGPADDR: (1) OK	
Reference	3GPP TS 27.007(3GPP Only)	

4.3.3.7.17 Set Mode of Operator for EPS - +CEMODE

+CEMODE Set Mode Of C	Operation For EPS
AT+CEMODE= <mode></mode>	Set command configures the mode of operation for EPS
	Parameter:
	<mode>: a numeric parameter which indicates the mode of operation</mode>
	0 - PS mode 2 of operation
	1 - CS/PS mode 1 of operation
	2 - CS/PS mode 2 of operation
	3 - PS mode 1 of operation
	Note: the definition for UE modes of operation can be found in 3GPP TS 24.301 [83]
	Other values are reserved and will result in an ERROR response to the set command.
AT+CEMODE?	Read command returns the currently configured values, in the format:
	+CEMODE: < mode >
	Note: The read command will return correct values after the set command. But effectively the mode of operation changes after each power cycle.
AT+CEMODE =?	Test command returns the supported range of values of parameters < mode>
	+CEMODE: (0-3)
Note	Command supported in multimode or LTE-enabled targets.
	CS/PS mode is supported only when CSFB feature is present;
	only query and test command supported
Example	AT+CEMODE=1 OK AT+CEMODE?
	+CEMODE: 1 OK
Reference	3GPP Only



4.3.3.7.18 Enter Data State - +CGDATA

+CGDATA – Enter	Data State
AT+CGDATA= [<l2p>,[<cid></cid></l2p>	Execution command causes to perform whatever actions are necessary to establish a communication with the network using one or more GPRS PDP types.
	Parameters:
	<l2p> - string parameter that indicates the layer 2 protocol to be used "PPP" - PPP Point-to-point protocol</l2p>
	<cid> - numeric parameter which specifies a particular PDP context definition (see +CGDCONT command).</cid>
	Note: if parameter <l2p> is omitted, the layer 2 protocol is unspecified</l2p>
AT+CGDATA=?	Test command reports information on the supported layer 2 protocols.
Example	AT+CGDATA=? +CGDATA:["PPP"]
	OK
Reference	3GPP TS 27.007(3GPP Only)

4.3.3.7.19 PDP Context Read Dynamic Parameters - +CGCONTRDP

CCCCVEDDDD	2 13	
+CGCONTRDP Parar	+CGCONTRDP Parameter Command Syntax	
AT+CGCONTRDP=	Possible response(s):	
[<p_cid>]</p_cid>	+CGCONTRDP: <p_cid>,<bearer_id>,<apn>[,<ip_addr>,</ip_addr></apn></bearer_id></p_cid>	
	<subnet_mask>[,<gw_addr>[,<dns_prim_addr>[,<dns_sec_addr> [,<p-cscf_prim_addr>[,<p-cscf_sec_addr>]]]]]][<cr><lf></lf></cr></p-cscf_sec_addr></p-cscf_prim_addr></dns_sec_addr></dns_prim_addr></gw_addr></subnet_mask>	
	+CGCONTRDP: <p_cid>,<bearer_id>,<apn>[,<ip_addr>,</ip_addr></apn></bearer_id></p_cid>	
· ·	<subnet_mask>[,<gw_addr>[,<dns_prim_addr>[,<dns_sec_addr> [,<pcscf_prim_addr>[,<pcs< td=""></pcs<></pcscf_prim_addr></dns_sec_addr></dns_prim_addr></gw_addr></subnet_mask>	
	Description:	
	The execution command returns the relevant information:	
	 <bearer_id>, <apn>, <ip_addr>, <subnet_mask>,<gw_addr>, <dns_prim_addr>,</dns_prim_addr></gw_addr></subnet_mask></ip_addr></apn></bearer_id>	
	<dns_sec_addr>, <p-cscf_prim_addr> and <p-cscf_sec_addr> for a non-secondary PDP Context established by the network with the primary context identifier <p_cid>. If the context can t be found an ERROR response is returned. If the parameter <p_cid> omitted, the relevant information for all established PDP contexts returned.</p_cid></p_cid></p-cscf_sec_addr></p-cscf_prim_addr></dns_sec_addr>	
	NOTE: The dynamic part of the PDP context will only exist if established by the network.	
	The test command returns a list of <p_cid>s associated with active contexts.</p_cid>	



+CGCONTRDP Parameter Command Syntax

Defined values:

<p_cid> - a numeric parameter specifies a particular non secondary PDP context definition. The parameter is local to the TE-MT interface and used in other PDP context-related commands.

<bearer_id> - a numeric parameter identifies the bearer, EPS Bearer in EPS and NSAPI in UMTS/GPRS.

<APN> - a string parameter which is a logical name that was used to select the GGSN or the external packet data network.

<ip_addr> - a string parameter shows the IP Address of the MT. The string is given as dot-separated numeric (0-255) parameters in the form: "a1.a2.a3.a4" for IPv4 or "a1.a2.a3.a4.a5.a6.a7.a8" for IPv6.

If the MT has dual stack capabilities the string shows first the dot separated IPv4 Address followed by the dot separated IPv6 Global Prefix Address. The IPv4 address and the IPv6 address parameters are separated by one space: "a1.a2.a3.a4 a1:a2:a3:a4:a5:a6:a7:a8"

<subnet_mask> - a string parameter shows the subnet mask for the IP Address of the MT. The string is given as dot-separated numeric (0-255) parameters.

If the MT has dual stack capabilities the string shows the dot separated IPV4 subnet mask followed by the dot separated IPV6 subnet mask. The subnet masks are separates by space.

<gw_addr> - a string parameter shows the Gateway Address of the MT. The string is given as dot-separated numeric (0-255) parameters.

If the MT has dual stack capabilities the parameter shows first the dot separated IPV4 Gateway address followed by the dot separated IPV6 Gateway Address. The gateway addresses are separated by one space.

<DNS_prim_addr> - a string parameter which shows the IP Address of the primary DNS Server. If the MT has dual stack capabilities the parameter shows first the dot separated IPV4 Address, followed by the dot separated IPV6 Address of DNS Server.

<DNS_sec_addr> - a string parameter which shows the IP address of the secondary DNS Server. If the MT has

dual stack capabilities the parameter shows first the dot separated IPV4 Address, followed by the dot separated IPV6 Address of DNS Server.

<P_CSCF_prim_addr> - a string parameter which shows the IP Address of the primary P-CSCF Server. If the MT has dual stack capabilities the parameter shows first the dot separated IPV4 Address, followed by the dot separated IPV6



+CGCONTRDP Para:	meter Command Syntax
	primary Address of P-CSCF Server.
	<p_cscf_sec_addr> - a string parameter which shows the IP Address of the secondary P-CSCF Server. If the MT has dual stack capabilities the parameter shows first the dot separated IPV4 Address, followed by the dot separated IPV6 Address of P-CSCF Server.</p_cscf_sec_addr>
+CGCONTRDP=?	+CGCONTRDP: (list of <p_cid>s associated with active contexts)</p_cid>
Reference	3GPP Only

4.3.3.7.20 Secondary PDP Context Read Dynamic Parameters - +CGSCONTRDP

	·
+CGSCONTRDP - Par	rameter Command Syntax
AT+CGSCONTRDP	Possible response(s):
=	+CGSCONTRDP: <cid>,<p_cid>,<bearer_id>[<cr><lf></lf></cr></bearer_id></p_cid></cid>
[<cid>]</cid>	+CGSCONTRDP: <cid>, <p_cid>, <bearer_id>[]]</bearer_id></p_cid></cid>
	The execution command returns <p_cid> and <bearer_id> for a given <cid>. If the context cannot be found an ERROR response returned. If the parameter</cid></bearer_id></p_cid>
	<cid> is omitted, the <cid>, <p_cid> and <bearer_id> are returned for all established PDP contexts.</bearer_id></p_cid></cid></cid>
	In EPS, the Traffic Flow parameters are returned.
	NOTE: Parameters for network initiated PDP contexts are returned as well. The dynamic part of the PDP context will only exist if established by the network.
	Defined values:
	<cid> a numeric parameter which specifies a particular PDP context or Traffic Flows definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands.</cid>
	<p_cid> a numeric parameter which specifies a particular PDP context definition or default EPS context Identifier which has been specified by use of the +CGDCONT command. The parameter is local to the TE-MT interface.</p_cid>
	<bearer_id> a numeric parameter which identifies the bearer, EPS Bearer in EPS and NSAPI in UMTS/GPRS.</bearer_id>
	+CGSCONTRDP: (list of <cid>s associated with active contexts) The test command returns a list of <cid>s associated with active contexts.</cid></cid>
Reference	3GPP Only



4.

+CGTFTRDP - Para	meter Command Syntax
AT+CGTFTRDP=	Possible Response(s):
<cid>]</cid>	+CGTFTRDP: <cid>, <packet filter="" identifier="">, <evaluation index="" precedence="">,<source address="" and="" mask="" subnet=""/>, <protocol (ipv4)="" header(ipv6)="" nex="" number="">,<destination port="" range="">, <source port="" range=""/>, <ipsec (spi)="" index="" paramete="" security="">, <type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic=""> <flow ipv6)="" label="">, <direction>, <nw filter="" identifier="" packet="">[<cr><lf></lf></cr></nw></direction></flow></type></ipsec></destination></protocol></evaluation></packet></cid>
	+CGTFTRDP: <cid>, <packet filter="" identifier="">, <evaluation index="" precedence="">,<source address="" and="" mask="" subnet=""/>, <pre>, <pre>protocol number (ipv4) / next heade (ipv6)>, <destination port="" range="">, <source port="" range=""/>, <ipsec (spi)="" index="" parameter="" security="">, <type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic="">, <flow (ipv6)="" label="">, <direction>,<nw filter="" identifier="" packet=""></nw></direction></flow></type></ipsec></destination></pre></pre></evaluation></packet></cid>
	[]] The execution command returns the relevant information about Traffic Flow.Template of <cid> together with the additional network assigned values when established by the network. If the context can t be found, an ERROR response is returned.</cid>
	If the parameter <cid> omitted, the Traffic Flow Templates for all established PDI contexts returned.</cid>
	Parameters of both network and MT/TA initiated PDP contexts returned.
	<cid>: a numeric parameter which specifies a particular PDP context</cid>
	definition or Traffic Flows definition (see +CGDCONT and +CGDSCONT
	commands).
	The following parameters are defined in 3GPP TS 23.060 [47].
	<packet filter="" identifier="">: a numeric parameter. The value range is from 1 to 16.</packet>
	<evaluation index="" precedence="">: a numeric parameter. The value range is from 0 to 255.</evaluation>
	<source address="" and="" mask="" subnet=""/> : string type. The string is given as dot- separated numeric (0-255) parameters on the form:
	"a1.a2.a3.a4.m1.m2.m3.m4" for IPv4 or
	"a1.a2.a3.a4.a5.a6.a7.a8.a9.a10.a11.a12.a13.a14.a15.a16.m1.m2.m3.m4.m5.m
	6.m7.m8.m9.m10.m11.m12.m13.m14.m15.m16" for IPv6.
	<pre><pre><pre><pre><pre><pre><pre>protocol number (ipv4) / next header (ipv6)>: a numeric parameter, value</pre></pre></pre></pre></pre></pre></pre>
	range from 0 to 255.
	<destination port="" range="">: string type. The string is given as dot-separated</destination>
	numeric (0-65535) parameters in the form "f.t".



+CGTFTRDP - Par	ameter Command Syntax
	<source port="" range=""/> :string type. The string is given as dot-separated numeric (0-65535) parameters on the form "f.t".
	<ipsec (spi)="" index="" parameter="" security="">: numeric value in hexadecimal format. The value range is from 00000000 to FFFFFFFF.</ipsec>
	<type (ipv4)="" (ipv6)="" (tos)="" and="" class="" mask="" of="" service="" traffic="">: string type. The string is given as dot-separated numeric (0-255) parameters in the form "t.m".</type>
	<flow (ipv6)="" label="">: numeric value in hexadecimal format. The value range is from 00000 to FFFFF. Valid for IPv6 only.</flow>
	<direction> a numeric parameter which specifies the transmission direction in which the Packet Filter shall be applied.</direction>
	0 Pre Release 7 TFT Filter (see 3GPP TS 24.008 [8], table 10.5.162)
	- Uplink
	- Downlink
	- Bidirectional (Used for Uplink and Downlink)
	<nw filter="" identifier="" packet=""> a numeric parameter. The value range is from 1 to 16. In EPS the value is assigned by the network when established</nw>
	NOTE: Some of the above listed attributes can coexist in a Packet Filter while others mutually exclude each other. The possible combinations listed on 3GPP TS 23.060 [47].
AT+CGTFTR=?	+CGTFTRDP: (list of <cid>s associated with active contexts) The test command returns a list of <cid>s associated with active contexts.</cid></cid>
Reference	3GPP Only



4.3.3.7.22 Define EPS Quality of Service +CGEQOS

+CGEQOS – Parameter Command Syntax		
	Possible Response(s):	
	+CME ERROR: <err></err>	
	The set command allows the TE to specify the EPS Quality of Service parameters <cid>, <qci>, [<dl_gbr> and</dl_gbr></qci></cid>	
	<ul_gbr>] and [<dl_mbr> and <ul_mbr>] for a PDP context or Traffic Flows. When in UMTS/GPRS the MT applies a mapping function to UTMS/GPRS Quality of Service. Refer subclause 9.2 for <err> values.</err></ul_mbr></dl_mbr></ul_gbr>	
	A special form of the set command, +CGEQOS= <cid> causes the values for context number <cid> to become undefined.</cid></cid>	
	<cid> a numeric parameter which specifies a particular EPS Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS.</cid>	
	<qci> a numeric parameter specifies a class of EPS QoS. (see 3GPP TS 23.203 [85])</qci>	
	0 - QCI is selected by network	
	[1 4] - value range for guranteed bit rate Traffic Flows	
	[5 9] - value range for non-guarenteed bit rate Traffic Flows	
	<dl_gbr> a numeric parameter that indicates DL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</dl_gbr>	
	<ul_gbr> a numeric parameter that indicates UL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</ul_gbr>	
	<dl_mbr> a numeric parameter, indicates DL MBR in case of GBR QCI. The value is in kbit/s. This parameter omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</dl_mbr>	
	<ul_mbr> a numeric parameter, indicates UL MBR in case of GBR QCI. The value is in kbit/s. This parameter omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</ul_mbr>	
AT+CGEQOS?	The read command returns the current settings for each defined QoS.	
	+CGEQOS: <cid>,<qci>,[<dl_gbr>,<ul_gbr>],[<dl_mbr>,<ul_mbr>][<c< td=""></c<></ul_mbr></dl_mbr></ul_gbr></dl_gbr></qci></cid>	
	>LF>+CGEQOS: <cid>,<qci>,[<dl_gbr>,<ul_gbr>], [<dl_mbr>,</dl_mbr></ul_gbr></dl_gbr></qci></cid>	
	<ul_mbr>][]]</ul_mbr>	
AT+CGEQOS=?	The test command returns the ranges of the supported parameters.	
	+CGEQOS: (range of supported <cid>s) ,(list of supported <qci>s) ,(list of supported <dl_gbr>s),</dl_gbr></qci></cid>	
	(list of supported <ul_gbr>s), (list of supported <dl_mbr>s) ,(list of supported <ul_mbr>s)</ul_mbr></dl_mbr></ul_gbr>	
Reference	3GPP Only	



4.3.3.7.23 EPS Quality of Service Read Dynamic Parameters - +CGEQOSRDP

+CGEQOSRDP – Param	eter Command Syntax
AT+CGEQOSRDP=	Possible Response(s):
[<cid>]</cid>	+CGEQOSRDP: <cid>,<qci>,[<dl_gbr>,<ul_gbr>],[<dl_mbr>,<ul_mbr>][<cr>>LF></cr></ul_mbr></dl_mbr></ul_gbr></dl_gbr></qci></cid>
	+CGEQOSRDP: <cid>,<qci>,[<dl_gbr>,<ul_gbr>],[<dl_mbr>,<ul_mb r="">][]]</ul_mb></dl_mbr></ul_gbr></dl_gbr></qci></cid>
	Description:
	The execution command returns the Quality of Service parameters <qci>,[<dl_gbr> and <ul_gbr>] and [<dl_mbr> and <ul_mbr>] of the established PDP Context associated to the provided context identifier</ul_mbr></dl_mbr></ul_gbr></dl_gbr></qci>
	<cid>. If the context cannot be founded an ERROR response is returned.</cid>
	If the parameter <cid> is omitted, the Quality of Service parameters for all established PDP contexts are returned.</cid>
	Defined values:
	<cid> a numeric parameter which specifies a particular Traffic Flows definition in EPS and a PDP Context definition in UMTS/GPRS.</cid>
	<qci> a numeric parameter that specifies a class of EPS QoS. (see 3GPP TS 23.203 [85])</qci>
	0 - QCI is selected by network
	[1 4] - value range for guranteed bit rate Traffic Flows
	[5 9] - value range for non-guarenteed bit rate Traffic Flows.
	<dl_gbr>:a numeric parameter, which indicates DL GBR in case of GBR QCI. The value is in kbit/s. This parameter is omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</dl_gbr>
	<ul_gbr> a numeric parameter indicates UL GBR in case of GBR QCI. The value is in kbit/s. This parameter omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</ul_gbr>
	<dl_mbr> a numeric parameter indicates DL MBR in case of GBR QCI. The value is in kbit/s. This parameter omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</dl_mbr>
	<ul_mbr>: a numeric parameter indicates UL MBR in case of GBR QCI. The value is in kbit/s. This parameter omitted for a non-GBR QCI. (see 3GPP TS 24.301 [83])</ul_mbr>
AT+CGEQOSRDP=?	+CGEQOSRDP: (list of <cid>s associated with active contexts)</cid>
	The test command returns a list of <cid>s associated with active contexts. Parameters of both network and MT/TA initiated PDP contexts returned.</cid>
Reference	3GPP Only



4.3.3.8 Commands for Battery Charger

4.3.3.8.1 Battery Charge - +CBC

+CBC – Battery C	-CBC – Battery Charge		
AT+CBC	Execution command returns the current Battery Charge status in the format:		
	+CBC: <bcs>,<bcl> where:</bcl></bcs>		
	 bcs> - battery status		
	0 - ME is powered by the battery		
	1 - ME has a battery connected, and charger pin is being powered		
	2 - ME does not have a battery connected		
	3 - Recognized power fault, calls inhibited		
	<bcl> - battery charge level</bcl>		
	0 - battery is exhausted, or ME does not have a battery connected		
	25 - battery charge remained is estimated to be 25%		
	50 - battery charge remained is estimated to be 50%		
	75 - battery charge remained is estimated to be 75% 100 - battery is fully charged.		
4	Note: <pre></pre>		
	Note: without battery/power connected on VBATT pins or during a power		
	fault the unit is not working, therefore values bcs>=2 and bcs>=3 will never appear.		
AT+CBC=?	Test command returns parameter values supported as a compound value.		
	+CBC: (0-3),(0-100) Note: although +CBC is an execution command, 3gpp TS 27.007 requires the Test command to be defined.		
Example	AT+CBC		
	+CBC: 0,75		
	ок		
Note	The ME does not make differences between being powered by a battery or by a power supply on the VBATT pins, so it is not possible to distinguish between these two cases.		
Reference	3GPP TS 27.007		



4.3.4 3GPP TS 27.005 AT Commands for SMS and CBS

4.3.4.1 General Configuration

4.3.4.1.1 Select Message Service - +CSMS

+CSMS – Select M	lessage Service
<service></service>	Set command selects messaging service <service>. It returns the types of messages supported by the ME:</service>
	Parameter:
	<service></service>
	0 - The syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2 version 4.7.0 (factory default)
	1 - The syntax of SMS AT commands is compatible with 3GPP TS 27.005 Phase 2+version.
	Set command returns the types of messages supported by the ME:
	+CSMS: <mt>,<mo>,<bm> where:</bm></mo></mt>
	<mt> - mobile terminated messages support</mt>
	0 - type not supported
	1 - type supported
	<mo> - mobile originated messages support</mo>
	0 - type not supported
	1 - type supported
	 bm> - broadcast type messages support
	0 - type not supported
	1 - type supported
AT+CSMS?	Read command reports current service setting along with supported message types in the format:
	+CSMS: <service>,<mt>,<mo>,<bm> where:</bm></mo></mt></service>
	<service> - messaging service (see above)</service>
	<mt> - mobile terminated messages support (see above)</mt>
	<mo> - mobile originated messages support (see above)</mo>
AT+CSMS=?	Test command reports the supported value of the parameter <service>.</service>
	AT+CSMS=1
	+CSMS: 1,1,1
Example	ОК
	AT+CSMS?
	+CSMS: 1,1,1,1
	ОК
Reference	3GPP TS 27.005; 3GPP TS 03.40/23.040; 3GPP TS 03.41/23.041(3GPP Only)



4.3.4.1.2 Preferred Message Storage - +CPMS

+CPMS – Preferred	Message Storage
AT+CPMS= <memr>[,<memw< td=""><td>Set command selects memory storages <memr>, <memw> and <mems> to be used for reading, writing, sending and storing SMs.</mems></memw></memr></td></memw<></memr>	Set command selects memory storages <memr>, <memw> and <mems> to be used for reading, writing, sending and storing SMs.</mems></memw></memr>
> (mem.)	Parameters:
[, <mems>]]</mems>	<memr> - memory from which messages are read and deleted SMS memory storage in Flash</memr>
	"ME" - SMS memory storage in Flash
	"SM" - SMS memory storage (default)
	"SR" - Status Report message storage (in SIM EF-SMSR file exists otherwise in the RAM volatile memory)
	Note: "SR" non volatile memory is cleared when another SIM card is inserted. It is kept, even after a reset, when the same SIM card is inserted.
	<memw> - memory to which writing and sending operations are made "ME" - SMS memory storage in Flash</memw>
	"SM" - SIM SMS memory storage (default)
	<mems> - memory to which received SMs are preferred to be stored "ME" - SMS memory storage in Flash</mems>
	"SM" - SIM SMS memory storage (default)
	The command returns the memory storage status in the format:
	+CPMS: <usedr>,<totalr>,<usedw>,<totalw>,<useds>,<totals></totals></useds></totalw></usedw></totalr></usedr>
	<usedr> - number of SMs stored into <memr></memr></usedr>
	<totalr> - max number of SMs that <memr> can contain</memr></totalr>
	<usedw> - number of SMs stored into <memw></memw></usedw>
	<totalw> max number of SMs that <memw> can contain</memw></totalw>
	<totals> - max number of SMS that <mems> can contain</mems></totals>
AT+CPMS?	Read command reports the message storage status in the format:
	+CPMS: <memr>,<usedr>,<totalr>,<memw>,<usedw>,<totalw>,</totalw></usedw></memw></totalr></usedr></memr>
	<mems>,<useds>,<totals></totals></useds></mems>
	Where: <memr>, <memw> and <mems> are the selected storage memories for reading writing and storing respectively.</mems></memw></memr>
AT+CPMS=?	Test command reports the supported values for parameters <memr>,</memr>
	<memw> and <mems></mems></memw>
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.1.3 Message Format - +CMGF

+CMGF – Messag	-CMGF – Message Format	
AT+CMGF= [<mode>]</mode>	Set command selects the format of messages used with send, list,-read and write commands.	
	Parameter:	
	<mode></mode>	
	0 - PDU mode, as defined in 3GPP TS 3.40/23.040 and 3GPP TS 3.41/23.041 (factory default)	
	1 - text mode	
AT+CMGF?	Read command reports the current value of the parameter <mode>.</mode>	
AT+CMGF=?	Test command reports the supported value of <mode> parameter.</mode>	
Example	AT+CMGF=1	
	OK	
Reference	3GPP TS 27.005(3GPP Only)	



4.3.4.2 Message Configuration

4.3.4.2.1 Service Center Address - +CSCA

+CSCA – Service Cer	CSCA – Service Center Address		
AT+CSCA= <number> [,<type>]</type></number>	Set command sets the Service Center Address to be used for mobile originated SMS transmissions.		
	Parameter:		
	<number> - SC phone number in the format defined by <type></type></number>		
	<type> - the type of number</type>		
	129 - national numbering scheme		
	145 - international numbering scheme (contains the character "+")		
	Note: to use the SM service, it is mandatory to set a Service Center Address to which service requests are directed. Note: in Text mode the settings are used by send & write commands; in PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into the <pdu> parameter equals zero.</pdu>		
AT+CSCA?	Read command reports the current value of the SCA in the format: +CSCA: <number>,<type> Note: If SCA is not present, the device reports an error message.</type></number>		
AT+CSCA=?	Test command returns the OK result code.		
Reference	3GPP TS 27.005(3GPP Only)		



4.3.4.2.2 Select service for MO SMS services - +CGSMS

-CGSMS Select Service For MO SMS Services	
AT+CGSMS= [<service>]</service>	The set command used to specify the service or service preference that the MT will us e to send MO SMS messages.
	Parameters:
	<service> -a numeric parameter which indicates the service or service preference to be used.</service>
	0 - Packet Domain
	1 - Circuit switched
	2 - Packet Domain preferred (use circuit switched if GRPS is not available) (factory default)
	3 - Circuit switched preferred (use Packet Domain if circuit switched not available)
	Note: If SMS transfer via Packet Domain fails, <service> parameter automatically res et to Circuit switched.</service>
AT+CGSMS?	Read command reports the currently selected service or service preference :
	+CGSMS: <service></service>
AT+CGSMS=?	Test command reports the supported range of values for parameter
	<service></service>
Reference	3GPP TS 27.007(3GPP Only)

4.3.4.2.3 Set Text Mode Parameters - +CSMP

+CSMP – Set Text Mode Parameters		
AT+CSMP= [<fo> [,<vp> [,<pid; [,<dcs>]]]]</dcs></pid; </vp></fo>	Set command is used to select values for additional parameters for storing and sending SMs when the text mode is used (AT+CMGF=1)	
	Parameters:	
	<fo> - depending on the command or result code:</fo>	
	first octet of 3GPP TS 03.40/23.040 SMS-DELIVER, SMS-SUBMIT	
	(default 17), SMS-STATUS-REPORT, or SMS-COMMAND (default 2) in integer format.	
	<vp>- depending on SMS-SUBMIT <fo> setting:</fo></vp>	
	3GPP TS 03.40/23.040 TP-Validity-Period either in integer format (default 167) or in quoted time-string format.	
	<pid>- 3GPP TS 03.40/23.040 TP-Protocol-Identifier in integer format.</pid>	
	<dcs> - depending on the command or result code:</dcs>	
	3GPP TS 03.38/23.038 SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme.	
	Note: the current settings are stored through +CSAS	



+CSMP – Set Text Mode Parameters	
AT+CSMP?	Read command reports the current setting in the format:
	+CSMP: < fo>, <vp>,<pid>,<dcs></dcs></pid></vp>
AT+CSMP=?	Test command returns the OK result code.
Example	Set the parameters for an outgoing message with 24 hours of validity period and default properties:
	AT+CSMP=17,167,0,0
	ОК
Reference	3GPP TS 27.005; 3GPP TS 03.40/23.040; 3GPP TS 03.38/23.038(3GPP Only)

4.3.4.2.4 Show Text Mode Parameters - +CSDH

+CSDH – Show Text Mode Parameters	
AT+CSDH=	Set command controls whether detailed header information is shown in text mode
[<show>]</show>	(AT+CMGF=1) result codes.
	Parameter:
	<show></show>
	0 - do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or</toda></length></dcs></pid></vp></fo></tosca></sca>
	<tooa> in +CMT, +CMGL, +CMGR result codes for SMS-DELIVERs and SMS-SUBMITs in text mode. For SMS-COMMANDs in +CMGR result code do not show <pid>, <mn>, <da>, <toda>, <length> or <cdata></cdata></length></toda></da></mn></pid></tooa>
	1 - show the values in result codes
AT+CSDH?	Read command reports the current setting in the format:
	+CSDH: <show></show>
AT+CSDH=?	Test command reports the supported range of values for parameter
	<show></show>
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.2.5 Select Cell Broadcast Message Types - +CSCB

+CSCB – Select Cell Broadcast Message Types		
AT+CSCB= [<mode> [,<dcss>]]]</dcss></mode>	[, <mids></mids>	Set command selects which types of Cell Broadcast Messages received by the device.
		Parameters:
		<mode></mode>
		0 - the message types defined by <mids> and <dcss> are accepted (factory default)</dcss></mids>
		1 - the message types defined by <mids> and <dcss> are rejected</dcss></mids>
		<mids> - Message Identifiers, string type: all different possible combinations of the CBM message identifiers; default is empty string ("")</mids>
		<dcss> - Data Coding Schemes, string type: all different possible combinations of CBM data coding schemes; default is empty string ("")</dcss>
		Note: the current settings are stored through +CSAS
AT+CSCB?		Read command reports the current value of parameters <mode>, <mids> and <dcss>.</dcss></mids></mode>
AT+CSCB=?		Test command returns the range of values for parameter <mode>.</mode>
Reference		3GPP TS 27.005, 3GPP TS 03.41/23.041, 3GPP TS 03.38/23.038.(3GPP Only)

4.3.4.2.6 Save Settings - +CSAS

+CSAS – Save Settin	ngs
AT+CSAS[=	Execution command saves settings which have been made by the +CSCA,
<pre><pre>cprofile>]</pre></pre>	+CSMP and +CSCB commands in local non volatile memory.
	Parameter:
	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>
	0 - settings saved to NVM (factory default).
	*1n - SIM profile number; the value of n depends on the SIM
C	Note: certain settings may not be supported by the SIM. Therefore, the settings are always saved to the NVM, regardless the value of <pre><pre>cprofile</pre>.</pre>
	Note: If parameter is omitted the settings are parameter is 0
AT+CSAS=?	Test command returns the possible range of values for the parameter
	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.2.7 Restore Settings - +CRES

+CRES – Restore Settings		
AT+CRES[= <profile>]</profile>	Execution command restores message service settings saved by +CSAS command from either NVM or SIM.	
	Parameter:	
	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>	
	0 - message service settings are restored from NVM.	
	1n - message service settings are restored from SIM. The value of n depends on the SIM (L506 allows to store up to 5).	
	Note: certain settings may not be support by the SIM and therefore they are always restored from NVM, regardless the value of <pre><pre>cprofile></pre>.</pre>	
	Note: If parameter is omitted the command restores message service settings from NVM.	
AT+CRES=?	Test command returns the possible range of values for the parameter	
	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>	
Reference	3GPP TS 27.005(3GPP Only)	



4.3.4.3 Message Receiving and Reading

4.3.4.3.1 New Message Indications to Terminal Equipment - +CNMI

+CNMI – New Message Indications To Terminal Equipment		
AT+CNMI= [<mode></mode>	Set command selects the behaviour of the device on how the receiving of new messages from the network is indicated to the DTE.	
[, <mt>[,<bm> [,<ds> [,<bfr>]]]]]</bfr></ds></bm></mt>		
L, 44 31111	Parameter:	
	<mode> - unsolicited result codes buffering option</mode>	
	0 - Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications may be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications.	
	1 - Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved, otherwise forward them directly to the TE.	
	2 - Buffer unsolicited result codes in the TA in case the DTE is busy and flush them to the TE after reservation. Otherwise, forward them directly to the TE.	
	3 - if <mt> is set to 1 an indication by means of a 100 ms break is issued when an SMS is received while the module is in GPRS online mode. It enables the hardware ring line for 1 s. too.</mt>	
	Note: In <mode>field,"3" not supported.</mode>	
	John III Jacob I	
	<mt> - result code indication reporting for SMS-DELIVER</mt>	
	0 - No SMS-DELIVER indications are routed to the TE and message is stored.	
	1 - If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using the following unsolicited result code:	
	+CMTI: <memr>, <index> where:</index></memr>	
	<memr> - memory storage where the new message is Stored: "SM" , "ME"</memr>	
	<index> - location on the memory where SMS is stored.</index>	
	*2 - SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group) are routed directly to the TE using the following unsolicited result code:	
	(PDU Mode)	
	+CMT: <alpha>,<length><cr><lf><pdu></pdu></lf></cr></length></alpha>	



+CNMI - New Message Indications To Terminal Equipment

where:

<alpha> - alphanumeric representation of originator/destination number corresponding to the entry found in MT phonebook. Used character set should be the one selected with command +CSCS.

length> - PDU length

<pdu> - PDU message

(TEXT Mode)

+CMT:<oa>,<alpha>,<scts>[,<tooa>,<fo>,<pid>,<dcs>,

<sca>,<tosca>,<length>]<CR><LF><data> (the information written in italics will be present depending on +CSDH last setting)

where:

<oa> - originating address, string type converted in the currently selected character set (see +CSCS)

<alpha> - alphanumeric representation of <oa>, used character set should be the one selected with command +CSCS.

<scts> - arrival time of the message to the SC

<tooa>, <tosca> - type of number <oa> or <sca>:

129 - number in national format

145 - number in international format(contains the "+")

<fo> - first octet of 3GPP TS 03.40/23.040

<pid><pid> - Protocol Identifier

<dcs> - Data Coding Scheme

<sca> - Service Centre address, string type, converted in the currently selected character set (see +CSCS)

<length> - text length

<data> - TP-User-Data

If <dcs> indicates that GSM03.38/23.038 default alphabet is used and <fo> indicates that GSM03.40/23.040 TP-User-Data-Header- Indication is not set (bit 6 of <fo> is 0), each character of GSM/WCDMA alphabet will be converted into current TE character set (see +CSCS)

If <dcs> indicates that 8-bit or UCS2 data coding scheme is used or

<fo> indicates that GSM03.40/23.040 TP-User-Data-Header- Indication is set (bit 6 of <fo> is 1), each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)

Class 2 messages and messages in the message waiting indication group (stored message) result in indication as defined in <mt>=1.



+CNMI - New Message Indications To Terminal Equipment

Acknowledge for the received SMS-DELIVER SM is sent to network immediately when +CSMS <service> is set to '0' or when +CSMS <service> is set to '1'. Acknowledge is sent via +CNMA command during predefine time- out, an error is sent to network in case timeout expire, Next +CMT response depends on acknowledge of current received +CMT response in case +CSMS

<service> parameter set to '1'.

*3 - Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages of other data coding schemes result in indication as defined in <mt>=1.

bm> - broadcast reporting option

0 - Cell Broadcast Messages are not sent to the DTE

2 - New Cell Broadcast Messages are sent to the DTE with the unsolicited result code:

(PDU Mode)

+CBM: <length><CR><LF><PDU>

where:

<length> - PDU length

<PDU> - message PDU

(TEXT Mode)

+CBM:<sn>,<mid>,<dcs>,<pag>,<pags><CR><LF><data> where:

<sn> - message serial number

<mid> - message ID

<dcs> - Data Coding Scheme

<pag> - page number

<pags> - total number of pages of the message

<data> - CBM Content of Message

If <dcs> indicates that GSM03.38/23.038 default alphabet is used, each character of GSM/WCDMA alphabet will be converted into current TE character set (see +CSCS)

If <dcs> indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)

<ds> - SMS-STATUS-REPORTs reporting option

0 - status report receiving is not reported to the DTE and messages are stored

1 - the status report is sent to the DTE with the following unsolicited result



+CNMI - New Message	e Indications To Terminal Equipment
	code:
	(PDU Mode)
-	+CDS: <length><cr><lf><pdu></pdu></lf></cr></length>
,	where:
	<length> - PDU length</length>
	<pdu> - message PDU</pdu>
	(TEXT Mode)
	+CDS: <fo>,<mr>,<ra>,<tora>,<scts>,<dt>,<st> where:</st></dt></scts></tora></ra></mr></fo>
	<fo> - first octet of the message PDU</fo>
	<mr> - message Reference number</mr>
	<ra> - recipient address, string type, represented in the currently selected character set (see +CSCS)</ra>
	<tora> - type of number <ra></ra></tora>
	<scts> - arrival time of the message to the SC</scts>
1	<dt> - sending time of the message</dt>
	<st> - message status as coded in the PDU</st>
	Acknowledge for the received SMS-STATUS-REPORT SM is sent to network immediately when +CSMS <service> is set to '0' or when +CSMS <service> is set to '1'. Acknowledge is sent via +CNMA command during pre-defined timeout, an error is sent to network in case timeout expire, next +CDS response depends on acknowledge of current received +CDS response in case</service></service>
-	+CSMS <service> parameter set to '1'.</service>
	*2 - if a status report is stored, then the following unsolicited result code is sent:
	+CDSI: <memr>,<index></index></memr>
	where:
	<memr> - memory storage where the new message is stored "SR"</memr>
	<index> - location on the memory where SMS is stored</index>
	 bfr> - buffered result codes handling method:
	0 - TA buffer of unsolicited result codes defined within this command is flushed to the TE when <mode>=13 is entered (OK response shall be given before flushing the codes)</mode>
	1 - TA buffer of unsolicited result codes defined within this command is cleared when <mode>=13 is entered.</mode>
AT+CNMI?	Read command returns the current parameter settings for +CNMI command
+CNMI - New Messag	ge Indications To Terminal Equipment



	in the form: +CNMI: <mode>.<mt>.<ds>.<df>></df></ds></mt></mode>
	+CNMI: <mode>,<mt>,<bs>,<bfr></bfr></bs></mt></mode>
AT+CNMI=?	Test command reports the supported range of values for the +CNMI command parameters.
Reference	3GPP TS 27.005(3GPP Only)
Note	DTR signal is ignored, hence the indication is sent even if the DTE is inactive (DTR signal is Low). In this case the unsolicited result code may be lost so if MODULE remains active while DTE is not, at DTE startup it is suggested to check whether new messages have reached the device meanwhile with command AT+CMGL=0 that lists the new messages received.

4.3.4.3.2 List Messages - +CMGL

+CMGL - List Message	S
AT+CMGL	Execution command reports the list of all the messages with status value
[= <stat>]</stat>	<stat> stored into <memr> message storage (<memr> is the message storage for read and deleted SMS as last settings of command +CPMS).</memr></memr></stat>
	The parameter type and the command output depend on the last settings of command +CMGF (message format to be used)
	(PDU Mode)
	Parameter:
	<stat></stat>
	0 - new message
	1 - read message
	2 - stored message not yet sent
	3 - stored message already sent
	4 - all messages.
	Each message to be listed is represented in the format:



+CMGL - List Messages

+CMGL: <index>,<stat>,<alpha>,<length><CR><LF><pdu>

where:

<index> - message position in the memory storage list.

<stat> - status of the message

<alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS.

<length> - length of the PDU in bytes

<pdu> - message in PDU format according to 3GPP TS 3.40/23.040

(Text Mode) Parameter:

<stat>

"REC UNREAD" - new message

"REC READ" - read message

"STO UNSENT" - stored message not yet sent

"STO SENT" - stored message already sent

"ALL" - all messages.

Each message to be listed is represented in the format (the information written in italics will be present depending on +CSDH last setting):

+CMGL: <index>,<stat>,<oa/da>,<alpha>,<scts>[,<tooa/toda>,

<length>]<CR><LF> <data>

Where:

<index> - message position in the storage

<stat> - message status

<oa/da> - originator/destination address, string type, represented in the currently selected character set (see +CSCS)

<alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS.

<scts> - TP-Service Centre Time Stamp in Time String Format

<tooa/toda> - type of number <oa/da>

129 - number in national format

145 - number in international format (contains the "+")

<length> - text length

<data> - TP-User-Data

If <dcs> indicates that GSM03.38/23.038 default alphabet is used, each character of GSM/WCDMA alphabet will be converted into current TE



+CMGL – List Me	-CMGL – List Messages	
	character set (see +CSCS)	
	If <dcs> indicates that 8-bit or UCS2 data coding scheme is used, each 8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)</dcs>	
	Each message delivery confirm is represented in the format:	
	+CMGL: <index>,<stat>,<fo>,<mr>,,,<scts>,<dt>,<st>Where:</st></dt></scts></mr></fo></stat></index>	
	<index> - message position in the storage</index>	
	<stat> - message status</stat>	
	<fo> - first octet of the message PDU</fo>	
	<mr> - message Reference number</mr>	
	<scts> - arrival time of the message to the SC</scts>	
	<dt> - sending time of the message</dt>	
	<st> - message status as coded in the PDU</st>	
AT+CMGL=?	Test command returns a list of supported <stat>s</stat>	
Reference	3GPP TS 27.005(3GPP Only)	



4.3.4.3.3 Read Message - +CMGR

age
Execution command reports the message with location value <index>from</index>
<memr> message storage (<memr> is the message storage for read and delete SMS as last settings of command +CPMS).</memr></memr>
Parameter:
<index> - message index.</index>
The output depends on the last settings of command +CMGF (message format to be used)
(PDU Mode)
The output has the following format:
+CMGR: <stat>,<alpha>,<length><cr><lf><pdu> Where:</pdu></lf></cr></length></alpha></stat>
<stat> - status of the message</stat>
0 - new message
1 - read message
2 - stored message not yet sent
3 - stored message already sent
<alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS.</oa></da></alpha>
<length> - length of the PDU in bytes.</length>
<pdu> - message in PDU format according to 3GPP TS 3.40/23.040.</pdu>
The status of the message and entire message data unit <pdu> returned.</pdu>



+CMGR - Read Message Text Mode) Output format for received messages (the information written in italics will be present depending on +CSDH last setting): +CMGR: <stat>,<oa>,<alpha>,<scts>[,<tooa>,<fo>,<pid>, <dcs>,<sca>,<tosca>,<length>]<CR><LF><data> Output format for sent messages: +CMGR: <stat>, <da>, <alpha>[, <toda>, <fo>, <pid>, <dcs>,, <sca>,<tosca>,<length>]<CR><LF><data> Output format for message delivery confirm: +CMGR: <stat>,<fo>,<mr>,,,<scts>,<dt>,<st> where: <stat> - status of the message 'REC UNREAD" - new received message unread "REC READ" - received message read "STO UNSENT" - message stored not yet sent "STO SENT" - message stored already sent <fo> - first octet of the message PDU <mr> - message Reference number <scts> - arrival time of the message to the SC <dt> - sending time of the message <st> - message status as coded in the PDU <pid> - Protocol Identifier <dcs> - Data Coding Scheme <oa> - Originator address, string type represented in the currently selected character set (see +CSCS) <a> - Destination address, string type represented in the currently selected character set (see +CSCS) <alpha> - string type alphanumeric representation of <da> or <oa>, corresponding to an entry found in the phonebook; used character set is the one selected with command +CSCS. <sca> - Service Centre number <tooa>,<toda>,<tosca> - type of number <oa>,<da>,<sca> 129 - number in national format 145 - number in international format (contains the "+") <length> - text length <data> - TP-User_data



+CMGR - Read Me	essage
	If <dcs> indicates that GSM03.38/23.038 default alphabet is used, each character of GSM/WCDMA alphabet will be converted into current TE character set (see +CSCS)</dcs>
	If <dcs> indicates that 8-bit or L506 data coding scheme is used, each</dcs>
-	8-bit octet will be converted into two IRA character long hexadecimal number (e.g. octet 0x2A will be converted as two characters 0x32 0x41)
	Note: in both cases if status of the message is 'received unread', status in the storage changes to 'received read'.
AT+CMGR=?	Test command returns the OK result code
Reference	3GPP TS 27.005(3GPP Only)

4.3.4.3.4 New Message Acknowledgement to ME/TA - +CNMA

+CNMA New Message	Acknowledgement
(PDU Mode) AT+CNMA[= <n></n>	Execution command confirms correct reception of a new message (SMS- DELIVER or SMS-STATUS-REPORT) which is routed directly to the TE.
[, <length> [<cr>PUI</cr></length>	
is [<ck>PUL</ck>	Acknowledge with +CNMA is possible only if the +CSMS parameter is set to
given <ctrl-z esc]]]<="" td=""><td>1(+CSMS=1) when a +CMT or +CDS indication is show.</td></ctrl-z>	1(+CSMS=1) when a +CMT or +CDS indication is show.
	If no acknowledgement is given within the network timeout, an RP-ERROR is sent to the network, the <mt> and <ds> parameters of the +CNMI command are then reset to zero (do not show new message indication).</ds></mt>
	Either positive (RP-ACK) or negative (RP-ERROR) acknowledgement to the network is possible.
	Parameter:
	<n> - Type of acknowledgement in PDU mode</n>
	0 - send RP-ACK without PDU (same as TEXT mode)
	1 - send RP-ACK with optional PDU message.
	2 - send RP-ERROR with optional PDU message.
	<length> : Length of the PDU message.</length>
	Note: Refer to 3GPP TS 23.040 Recommendation for other PDU negative acknowledgement codes.
(Text Mode)	Only positive acknowledgement to network (RP-ACK) is possible.
AT+CNMA	
(PDU Mode)	Test command returns the possible range of values for the parameter <n></n>
AT+CNMA=?	
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.4 Message Sending and Writing

4.3.4.4.1 Send Message - +CMGS

+CMGS - Send Me	ssage
(PDU Mode)	(PDU Mode)
AT+CMGS=	Execution command sends to the network a message.
<length></length>	
	Parameter:
	<length> - length of the PDU to be sent in bytes (excluding the SMSC address octets)</length> 7164
	After command line is terminated with <cr>, the device responds sending a four character sequence prompt:</cr>
	<cr><lf><greater_than><space> (IRA 13, 10, 62, 32) and waits for the specified number of bytes.</space></greater_than></lf></cr>
	Note: the DCD signal shall be in ON state while PDU is given.
	Note: the echoing of received characters back to the TA is controlled by echo command E
	Note: the PDU shall be hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one line.
	when the octet length of the SMSC address (given in the PDU) equals zero, the SMSC address set with command +CSCA is used. In this case, the SMSC Type-of-Address octet shall not be present in the PDU.
	To send the message issue Ctrl-Z char (0x1A hex).
	To exit without sending the message issue ESC char (0x1B hex).
	If message is successfully sent to the network, then the result is sent in the format:
	Note: Optionally (when +CSMS <service> value is 1 and network supports)</service>
	<scts> is returned:</scts>
	+CMGS: <mr>[, <scts>]</scts></mr>
	Where:
	<mr> - message Reference number.</mr>
	<scts> - TP-Service Centre Time Stamp in Time String Format.</scts>
	Note: if message sending fails for some reason, an error code reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.



+CMGS - Send Message	
(Text Mode)	(Text Mode)
AT+CMGS=	Execution command sends to the network a message. Parameters:
<da> [,<toda>]</toda></da>	<da> - destination address, string type represented in the currently selected character set (see +CSCS).</da>
	<toda> - type of destination address 129 - number in national format</toda>
	145 - number in international format(contains the "+")
	After command line is terminated with <cr>, the device responds sending a four character sequence prompt:</cr>
	<cr><lf><greater_than><space> (IRA 13, 10, 62, 32)</space></greater_than></lf></cr>
	After this prompt text can be entered; the entered text should be formatted as follows:
	if current <dcs> (see +CSMP) indicates that GSM03.38/23.038 default alphabet is used and current <fo> (see +CSMP) indicates that 3GPP TS 03.40/23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM/WCDMA alphabet, according to 3GPP TS 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used.</fo></dcs>
	if current <dcs> (see +CSMP) indicates that 8-bit or</dcs>
	UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 03.40/23.040 TP-User-</fo>
	Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. thewill be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A)
	Note: the DCD signal shall be in ON state while text entered.
	Note: the echoing of entered characters back from the TA is controlled by echo command E
	To send the message issue Ctrl-Z char (0x1A hex).
	To exit without sending the message issue ESC char (0x1B hex).
	If message is successfully sent to the network, then the result is sent in the format:



+CMGS - Send Messa	nge
	Note: Optionally (when +CSMS <service> value is 1 and network supports)</service>
	<scts> is returned:</scts>
	+CMGS: <mr>[, <scts>]</scts></mr>
	Where:
	<mr> - message Reference number.</mr>
	<scts> - TP-Service Centre Time Stamp in Time String Format.</scts>
	Note: if message sending fails for some reason, an error code reported. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
	Note: it is possible to send a concatenation of at most 10 SMs; the maximum number of chars depends on the <dcs>: 1530 chars if 3GPP TS 03.38/23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used</dcs>
ATT. CD ACC. 2	
AT+CMGS=?	Test command resturns the OK result code.
Note	To avoid malfunctions is suggested to wait for the +CMGS: <mr> or +CMS ERROR: <err> response before issuing further commands.</err></mr>
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.4.2 Send Message from Storage - +CMSS

+CMSS - Send Message	e From Storage
AT+CMSS= <index>[,<da></da></index>	Execution command sends to the network a message which is already stored in the <memw> storage (see +CPMS) at the location <index>. Parameters:</index></memw>
[, <toda>]]</toda>	<index> - location value in the message storage <memw> of the message to send</memw></index>
	<da> - destination address - string type represented in the currently selected character set (see +CSCS). if it is given it shall be used instead of the one stored with the message.</da>
	<toda> - type of destination address 129 - number in national format</toda>
	145 - number in international format (contains the "+")
	If message is successfully sent to the network then the result is sent in the format: +CMSS: <mr>[, <scts>]</scts></mr>
	(Note: Optionally (when +CSMS <service> value is 1 and network supports)</service>
	<scts> is returned)</scts>
	where:
	<mr> - message Reference number.</mr>
	<scts> - TP-Service Centre Time Stamp in Time String Format.</scts>
	If message sending fails for some reason, an error code is reported:
	+CMS ERROR: <err></err>
	Note: to store a message in the <memw> storage see command +CMGW. Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.</memw>
AT+CMSS=?	Test command resturns the OK result code.
Note	To avoid malfunctions is suggested to wait for the +CMSS: <mr> or +CMS ERROR: <err> response before issuing further commands.</err></mr>
Reference	3GPP TS 27.005(3GPP Only)



4.3.4.4.3 Write Message to Memory - +CMGW

+CMGW - Write Messag	ge To Memory
	(PDU Mode)
AT+CMGW=	Execution command writes in the <memw> memory storage a new message.</memw>
<length> [,<stat>]</stat></length>	
	Parameter:
	<length> - length in bytes of the PDU to be written. 7164</length>
	<stat> - message status.</stat>
	0 - new message
	1 - read message
	2 - stored message not yet sent (default)
	3 - stored message already sent
	The device responds to the command with the prompt '>' and waits for the specified number of bytes.
	To write the message issue Ctrl-Z char (0x1A hex).
	To exit without writing the message issue ESC char (0x1B hex).
	If message is successfully written in the memory, then the result is sent in the format:
	+CMGW: <index> where:</index>
	<index> - message location index in the memory <memw>.</memw></index>
	If message storing fails for some reason an error code is reported.
	Note: care must be taken to ensure that during the command execution, no other SIM interacting commands are issued.



+CMGW - Write Messa	age To Memory
(Text Mode)	(Text Mode)
AT+CMGW[= <da></da>	Execution command writes in the <memw> memory storage a new message.</memw>
[, <toda> [,<stat>]]]</stat></toda>	
	Parameters:
	<da> - destination address, string type represented in the currently selected character set (see +CSCS).</da>
	<toda> - type of destination address.</toda>
	129 - number in national format
	145 - number in international format (contains the "+")
	<stat> - message status.</stat>
	"REC UNREAD" - new received message unread
	"REC READ" - received message read
	"STO UNSENT" - message stored not yet sent (default)
	"STO SENT" - message stored already sent
	After command line is terminated with <cr>, the device responds by sending a four character sequence prompt: <cr><lf><greater_than><space> (IRA 13, 10, 62, 32) After this prompt, text can be entered; the entered text should be formatted as follows: if current <dcs> (see +CSMP) indicates that GSM03.38/23.038 default alphabet is</dcs></space></greater_than></lf></cr></cr>
	used and current <fo> (see +CSMP) indicates that 3GPP TS 03.40/23.040 TP-User-Data-Header-Indication is not set, then ME/TA converts the entered text into GSM/WCDMA alphabet, according to 3GPP TS 27.005, Annex A; backspace can be used to delete last character and carriage returns can be used.</fo>
	if current <dcs> (see +CSMP) indicates that 8-bit or UCS2 data coding scheme is used or current <fo> (see +CSMP) indicates that 3GPP TS 03.40/23.040 TP-User-Data-Header-Indication is set, the entered text should consist of two IRA character long hexadecimal numbers which ME/TA converts into 8-bit octet (e.g. the "asterisk" will be entered as 2A (IRA50 and IRA65) and this will be converted to an octet with integer value 0x2A)</fo></dcs>
	Note: the DCD signal shall be in ON state while text entered.



+CMGW – Write Messa	age To Memory		
	To write the message issue Ctrl-Z char (0x1A hex).		
	To exit without writing the message issue ESC char (0x1B hex).		
	If message is successfully written in the memory, then the result is sent in the format:		
	+CMGW: <index> where:</index>		
	<index> - message location index in the memory <memw>.</memw></index>		
	If message storing fails for some reason, an error code is reported.		
	Note: care must taken to ensure that during the command execution, no other SIM interacting commands are issued.		
	Note: it is possible to save a concatenation of at most 10 SMS; the maximum number of chars depends on the <dcs>: 1530 chars if 3GPP TS 03.38/23.038 default alphabet is used, 1340 chars if 8-bit is used, 670 chars if UCS2 is used</dcs>		
AT+CMGW=?	Test command returns the OK result code.		
Reference	3GPP TS 27.005(3GPP Only)		
Note	To avoid malfunctions is suggested to wait for the +CMGW: <index> or</index>		
	+CMS ERROR: <err> response before issuing further commands.</err>		



4.3.4.4.4 Delete Message - +CMGD

+CMGD - Delete Message			
AT+CMGD=	Execution command deletes from memory <memr> the message(s)</memr>		
<index> [,<delflag>]</delflag></index>	Parameter:		
	<index> - message index in the selected storage <memr></memr></index>		
	<delflag> - an integer indicating multiple message deletion request. 0 (or omitted) - delete message specified in <index></index></delflag>		
	1 - delete all read messages from <memr> storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched</memr>		
	2 - delete all read messages from <memr> storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched</memr>		
	3 - delete all read messages from <memr> storage, sent and unsent mobile originated messages, leaving unread messages untouched</memr>		
	4 - Delete all messages from <memr> storage.</memr>		
	Note: if <delflag> is present and not set to 0 then <index> is ignored and ME shall follow the rules for <delflag> shown above.</delflag></index></delflag>		
	if the location to be deleted is empty, an error message is reported.		
AT+CMGD=?	Test command shows the valid memory locations and optionally the supported values of <delflag>.</delflag>		
	+CMGD: (supported <index>s list)[,(supported <delflag>s list)]</delflag></index>		
Reference	3GPP TS 27.005(3GPP Only)		

4.3.4.4.5 More Message to Send - +CMMS

+CMMS More Message to Send		
AT+CMMS=[<n>]</n>	Set command controls the continuity of SMS relay protocol link. Multiple messages can be sent much faster when the link is kept open. Parameter: N Disable (factory default) 1 - Keep link opened while messages are sent. If the delay between two messages exceeds 3 seconds, the link is closed and the parameter N is automatically reset to 0: the feature is disabled. 2 - Keep link opened while messages are sent. If the delay between two messages exceeds 3 seconds, the link is closed but the parameter N remains set to 2 - the feature is still enabled.	
AT+CMMS?	Read command reports the current value of the parameter < n>.	
AT+CMMS=?	Test command reports the supported value of <n> parameter.</n>	
Reference	3GPP TS 27.005(3GPP Only)	



4.3.4.4.6 More Message to Send - +CMGC

CMCC G 10MG 1					
+CMGC - Send SMS command					
(PDU Mode) AT+CMGC=	(PDU Mode) Execution command sends command message from a TE to the network				
<length><cr></cr></length>		(SMS-COMMAND).			
PDU is given < Ctrl-Z /ESC>	Parameter: <length> - Length of the actual TP data unit in octets. (excluding the SMSC address octets).</length>				
CCIT-Z/ESC>					ng the SMSC address
	< <u>PDU> - Mo</u> Reference	essage header Description	and contents in	n PDU mode forma	t. See description in Length
	<sca></sca>	Service Cente	er address:		1, 3-12
		1 BYTE: leng	gth (number of t	followed	BYTES
+ CMGC			latory 1 BYT	E: <tosca> - value</tosca>	
	<fo></fo>	First Octet.			1 BYTE
		Bit/s	Reference	Description	
		0-1	Message-Type	Parameter describing	<u> </u>
			- Indicator	the message type.	7
				1 0 SMS-COMMAN	VD (in
				the direction MS to S	SC)
		5	TP-Status-Rep ort- Request	Parameter indicating requested by the MS	g if a status report is
		·		0 A status report is n	ot requested
				1 A status report is re	equested
		6	TP-User-Data- Header-Indicat or	beginning of the Use a Header in addition or contains only the 0 The TP-UD field short message 1 The beginning of	er Data field contains to the short message
				1	



+CMGC - Send SMS command		
<tp-mr></tp-mr>	Message Reference. An integer representation of a reference number of the SM submitted to the SC by the MS. Values between 0-255.	1 BYTE
<tp-pid></tp-pid>	Protocol-Identifier. Values between 0- 255.	1 BYTE
<tp-ct></tp-ct>	Command Type	1 BYTE
<tp-mn></tp-mn>	Message Number	1 BYTE
<tp-da></tp-da>	Destination address formatted according to the	2-12 BYTES
<tp-cdl></tp-cdl>	Command data length	1 BYTE
<tp-cd></tp-cd>	Command data	0-156 BYTES
After comm	and line is terminated with <cr>, the device responds se</cr>	nding a



+CMGC - Send SMS co	mmand
	four character sequence prompt:
	<cr><lf><greater_than><space> (IRA 13, 10, 62, 32) and waits for the specified number of bytes.</space></greater_than></lf></cr>
	Note: the DCD signal shall be in ON state while PDU is given.
	Note: echoing given characters back from the TA is controlled by echo command E
	Note: the PDU shall be hexadecimal format (each octet of the PDU is given as two IRA character long hexadecimal number) and given in one line.
	Note: when the length octet of the SMSC address (given in the PDU) equals zero, the SMSC address set with command +CSCA is used; in this case the SMSC Type-of-Address octet shall not be present in the PDU.
	To send the message issue Ctrl-Z char (0x1A hex).
	To exit without sending the message issue ESC char (0x1B hex).
	Note: Optionally (when +CSMS <service> value is 1 and network supports it)</service>
	<scts> is returned:</scts>
	If message is successfully sent to the network, then the result is sent in the format:
	+CMGC: <mr>[, <ackpdu>] Where:</ackpdu></mr>
	<mr> - TP-Message-Reference in integer format.</mr>
	<ackpdu> - RP-User-Data element of RP-ACK PDU (When +CSMS <service> value is 1 and network supports).</service></ackpdu>
	Note: if message sending fails for some reason, an error code reported.
	Note: care must be taken to ensure that during the command execution, which may take several seconds, no other SIM interacting commands are issued.
(Text Mode) AT+CMGC=	(Text Mode) Execution command sends to the network a message.
<fo>,<ct>[, <pid>[,<mn>[,</mn></pid></ct></fo>	Parameters:
<da>[,<toda>]]]]><c< td=""><td><fo> - First octet of 3GPP TS 23.040 SMS-COMMAND in integer format.</fo></td></c<></toda></da>	<fo> - First octet of 3GPP TS 23.040 SMS-COMMAND in integer format.</fo>
R>Text can be	<ct> - TP-Command-Type in integer format specified in 3GPP TS 23.040.</ct>



entered <ctrl- esc="" z=""></ctrl->	Default value is 0.
	<pid> - TP-Protocol-Identifier in integer format. Range 0-255. Default value is 0.</pid>
	<mr> - TP-Message-Number in integer format.</mr>
	<da> - TP-Destination-Address-Value field in string format represented in the currently selected character set (see +CSCS).</da>
	<toda> - TP-Destination-Address Type-of-Address octet: 129 - number in national format</toda>
	145 - number in international format (contains the "+")
	After command line is terminated with <cr>, the device responds sending a four character sequence prompt:</cr>
	<cr><lf><greater_than><space> (IRA 13, 10, 62, 32) Note: the DCD signal shall be in ON state while text entered.</space></greater_than></lf></cr>
	Note: echoing entered characters back from the TA is controlled by echo command E
	To send the message issue Ctrl-Z char (0x1A hex).
	To exit without sending the message issue ESC char (0x1B hex).
	Note: Optionally (when +CSMS <service> value is 1 and network supports it)</service>
	<scts> is returned:</scts>
	If message is successfully sent to the network, then the result is sent in the format: +CMGC: <mr>[, <scts>] Where:</scts></mr>
	<pre><mr> - TP-Message-Reference in integer format.</mr></pre>
	<scts> - TP-Service Centre Time Stamp in Time String Format.</scts>
	Note: if message sending fails for some reason, an error code reported.
AT+CMGC=?	Test command returns the OK result code.
Note	To avoid malfunctions is suggested to wait for the +CMGC: <mr> or +CMS</mr>
	ERROR: <err> response before issuing further commands.</err>
Reference	3GPP TS 27.005(3GPP Only)



4.3.5 Mobiletek extended AT Commands

4.3.5.1 General

4.3.5.1.1 System config - ^SYSCONFIG

^SYSCONFIG - System configuration command				
AT^SYSCONFIG	This command set system configuration.			
= <mode>,</mode>	☐ <mode> system mode reference:</mode>			
<acqorder>,</acqorder>	☐ 2— Automatically select			
acquiuci>,	13 – GSM ONLY			
<roam>,</roam>	14 – WCDMA only			
<srvdomain></srvdomain>	□ 15 – TD-SCDMA only			
Si v domani	☐ 16 – No change 18 – LTE only			
	□ <acqorder> – network accessing order reference</acqorder>			
	□ 0 – Automatically			
	☐ 1 – GSM first, UTRAN second			
	2 – UTRAN first, GSM second			
	☐ 3 – No change ☐ <roam> – roaming support</roam>			
	□ (roann) – roanning support			
	□ 1 – Can roam			
	2 – No change			
	<srvdomain> – Domain configuration</srvdomain>			
	□ 0 – CS_ONLY □ 1 – PS_ONLY			
	$\square 3 - ANY$			
	4 – No change			
AT^SYSCONFIG?	Read the system config.			
	☐ <mode> system mode reference:</mode>			
	2 – Automatically select			
	□ 13 – GSM ONLY			
	14 – WCDMA only			
	☐ 15 – TD-SCDMA only ☐ 16 – No change			
	17 – Mode unknown			
	18 – LTE only			
	<acqorder> - network accessing order reference</acqorder>			
	0 – Automatically			
	☐ 1 – GSM first, UTRAN second ☐ 2 – UTRAN first, GSM second			
	3 – No change			
	4 – Order unknown			
	□ <roam> – roaming support</roam>			
	□ 0 – Not support □ 1 – Can roam			
	□ 2 – No change			
	3 – Roam unknown			
	<srvdomain> - Domain configuration</srvdomain>			
	0 - CS_ONLY			
	□ 1 – PS_ONLY □ 2 – CS_PS			
	$\square 4$ – No change			
	5 – Domain unknown			
AT^SYSCONFIG =?	Test command returns supported values of <reporting> parameter.</reporting>			



4.3.5.1.2 Setup RmNet call - \$QCRMCALL

AT\$QCRMCALL	,
	Command triggers an RmNet call based on <action> parameter which is typically a start of</action>
<pre>L =<action>, <instance> [,<ip< pre=""></ip<></instance></action></pre>	an RmNet Call or stop of a RmNet call.
Type> [, <tech< th=""><th></th></tech<>	
	< Action >
profile number>	
[, <cdma number="" profile=""></cdma>	\square 1 – Start
[, <apn>]]]]]</apn>	<instance></instance>
	1 to 8
	<ip type=""></ip>
	□ 1 – Ipv4
	□ 2 – Ipv6
	□ 3 – Ipv4v6
	<tech pref=""></tech>
	\square 1 – 3GPP2
	□ 2 – 3GPP
	<umts_profile> 1 to 24</umts_profile>
	* <cdma profile=""> 100 to 179</cdma>
	<apn></apn>
	String type, maximum length is 100
AT\$QCRMCAL	Read the current RmNet type.
L?	
Example	AT\$QCRMCALL=1,1,1,2,1,,
	OK



4.3.5.1.3 Inquires the current system message - ^SYSINFO

AT^SYSINFO	
AT^SYSINFO	The command inquires the current system message. Such as
	system service status, domain, roam, system mode, UIM card status, etc.
	<pre><srv_status> system service status, values as follows:</srv_status></pre>
	0 no service
	1 limited service
	2 service available
	3 limited area service
	4 power saving and dormancy status.
	<pre><srv_domain> system service, values as follows:</srv_domain></pre>
	0 no service
	1 only CS service
	2 only PS service
	3 PS+CS service
	4 CS and PS don't register and are in the status of serching.
	255 CDMA doesn't support.
	<roam_status> roaming status, values as follows:</roam_status>
	0 non-roaming status.
	1 roaming status.
	<sys_mode> system mode, values as follows:</sys_mode>
	0 no service
	1 AMPS mode (not use provisionally)
	2 CDMA mode
	3 GSM/GPRS mode
	4 HDR mode
	5 WCDMA mode
	6 GPS mode
	7 GSM/WCDMA
	8 CDMA/HDR HYBRID
	9 LTE mode
	10 GSM, WCDMA, and LTE mode



AT^SYSINFO	
	<pre><sim_stat> UIM card status, values as follows: 1 UIM card status available 240 ROMSIM version 255 UIM card doesn't exist Execution command responses: ^SYSINFO:< srv_status>, <srv_domain>,<roam_status>,<sys_mode>,<sim_state></sim_state></sys_mode></roam_status></srv_domain></sim_stat></pre>
Example	AT^SYSINFO ^SYSINFO: 2,1,0,3,1
Reference	Vendor

4.3.5.1.4 SIM Card HotSwap Control - +ESIMS

+ESIMS - SIM Card HotSwap Control command		
AT+ESIMS= <action></action>	This command is used to control SIM card hotswap effective or not. Parameter: Action = 0> SIM card hotswap is not effective.	
	Action = 1> SIM card hotswap is effective. Note: After execute this command, must reboot device, then SIM card hotswap take effect.	
AT+ESIMS?	Read command is used to query SIM card hotswap status.	
AT+ESIMS=?	Query command is used to query SIM card hotswap range.	
Example	AT+ESIMS? +ESIMS:0 OK AT+ESIMS=1 OK	
	AT+ESIMS? +ESIMS:1 OK AT+ESIMS=?	
	+ESIMS:(0-1) OK	



4.3.5.2 AT Commands for FTP

4.3.5.2.1 Set FTP parameters - +FTPSRV

+FTPSRV set FTP parameters	
>, <password>,</password>	The command is used to set the FTP username, password of the user and the server address, server port, transfer mode of FTP server:
<ip>,<port>,<type></type></port></ip>	
	Parameter:
	<username>: string</username>
	<pre><password>:string</password></pre>
	<ip>:string</ip>
	<port>: numeric parameter 1~65535</port>
	<type>: numeric parameter 0:ASCII 1:binary</type>
AT+FTPSRV?	Read command:
	+FTPSERV: (username), (password),(ip),(port),(type)
AT+FTPSRV=?	Return OK, Support this command
Example	AT+FTPSRV="mobiletek","123456","198.1.1.50",2112,1
	OK

4.3.5.2.2 Set FTP mode - +FTPMODE

+ FTPMODE set the F	TP transmission mode
+FTPMODE	The command is used to set the FTP mode:
= <mode></mode>	
	Parameter:
	<mode>: numeric parameter 0: non-transparent transmission</mode>
	1: transparent transmission
AT+FTPMODE?	Read command:
	+ FTPMODE: mode
AT+FTPMODE=?	Return OK, Support this command
Example	AT+FTPMODE=1
	ок



4.3.5.2.3 Set FTP upload file name - +FTPPUTNAME

+ FTPPUTNAME set FTP upload file name	
+FTPPUTNAME=	set the FTP upload file name, the file must exist in the modem, length should not
< filename >	exceed 100:
	Parameter:
	<pre><filename>: string (Length should not exceed 100)</filename></pre>
AT+ FTPPUTNAME?	Read command:
	+FTPPUTNAME: filename
AT+FTPPUTNAME =?	Return OK, Support this command
Example	AT+FTPPUTNAME="test.txt"
	OK

4.3.5.2.4 Set FTP upload file path - + FTPPUTPATH

THE PARTY OF THE P	1 1 61 1
+FTPPUTPATH set FTP	upload file path
+FTPPUTPATH =	The command is used to set the FTPupload file path, the path is in the modem, the
< filepath>	path must start with "/" and end with "/", length should not exceed 100:
Thepauls	Parameter:
	<filepath>: string</filepath>
AT+FTPPUTPATH?	Read command:
	+FTPPUTPATH: filepath
AT+FTPPUTPATH =?	Return OK, Support this command
Example	AT+FTPPUTPATH ="/test/test1/"
	ОК



4.3.5.2.5 Set FTP load file name - +FTPGETNAME

+FTPGETNAME set FTI	Pupload file name
< filename >	set the FTP load file name, the file must exist in the server, length should not exceed 100: Parameter: <filename>: string (Length should not exceed 100)</filename>
AT+FTPGETNAME?	Read command: + FTPGETNAME: filename
AT+FTPGETNAME =?	Return OK, Support this command
Example	AT+ FTPGETNAME ="test.txt" OK

4.3.5.2.6 Set FTP load file path - + FTPGETPATH

+FTPGETPATH set FTP load file path		
+FIFOLIFAIN set FIF	load the path	
+FTPGETPATH= < filenptah>	The command is used to set the FTP load file path,the path is in the server, the path must start with "/" and end with "/", length should not exceed 100:	
	Parameter:	
	<filepath>: string</filepath>	
AT+FTPGETPATH?	Read command:	
	+ FTPPUTPATH: filepath	
AT+FTPGETPATH=?	Return OK, Support this command	
Example	AT+ FTPGETPATH ="/test/test1/"	
	OK	



4.3.5.2.7 Active PDP setup load link - + FTPGET

+FTPGET set FTP load fi	le path
	The command is used to active the PDP, setup the FTP load socket connection and load file.
	Parameter:
	< num >: PDP index
AT+FTPGET?	Read command:
	+FTPGET: num
AT+FTPGET=?	+FTPGET: (1-5)
	OK
Example	AT+FTPPUTNAME="file.txt"
	OK
	AT+FTPPUTPATH="/h/"
	OK
	AT+FTPGETNAME="file.txt"
	OK
	AT+FTPSRV="yijing","123456","198.246.1.50",2122,1
	OK
	AT+FTPGETPATH="/f/"
	OK
	AT+FTPGET=1
	Create Dir OK
	FTPDATA:512,11111111111111111111111111111111111
	222222222222222222222222222222222222222
	333333333333333333333333333333333333333
	444444444444444444444444444444444444444
	FTPDATA:126,999999999999999999999999999999999999
	GET FILE SIZE:638
	AT+FTPQUIT=1
	OK



4.3.5.2.8 Active PDP setup upload link - + FTPPUT

+FTPPUT set FTP load	d file path
+FTPPUT= <num></num>	The command is used to active the PDP, setup the FTP upload socket connection and upload file.
	In transparent mode(FTPMODE=1), You can keep the input, <ctrl+z> is 0x1A,use to exit transparent model, and the input sent to the server.</ctrl+z>
	Parameter:
	< num >: PDP index
AT+FTPPUT?	Read command:
	+ FTPPUT: num
AT+FTPPUT=?	+FTPGET: (1-5)
	ОК
Example	AT+FTPPUTNAME="file.txt"
	OK
	AT+FTPPUTPATH="/h/"
	OK
	AT+FTPGETNAME="file.txt"
	OK
	AT+FTPSRV="yijing","123456","198.246.1.50",2122,1
	OK
	AT+FTPGETPATH="/f/"
	OK
	AT+FTPPUT=1
	File Size Is:638 bytes
	FTPSENDDATA:400,11111111111111111111111111111111111
	FTPSENDDATA:238,777777777777777777777777777777777777
	888888888888888888888888888888888888888
	999999999999999999999999999999999999999
	ааааааааааааааааааааааааааааааааааааааа
	FTP TRANSFER COMPLETE!
	AT+FTPQUIT=1
	OK



4.3.5.2.9 Close FTP connection - + FTPQUIT

+FTPQUIT close FTP connection	
+FTPQUIT= <num></num>	The command is used to close the ftp socket connection:
	< num >: numeric parameter
AT+FTPQUIT?	Read command:
	+ FTPQUIT: num
AT+FTPQUIT=?	+ FTPQUIT: (1-1)
	ОК
Example	AT+FTPQUIT=1
	OK

4.3.5.2.10 Manage FTP file - + FTPLOCAL

+FTPLOCAL close FTP connection	
+FTPLOCAL = <num></num>	The command is used to manase FTP file:
	< num >: numeric parameter
	<0>:get the mode system store information
	<1>:find the file in the modem
	<2>:delete the file in the modem
AT+FTPLOCAL?	Read command:
	+FTPLOCAL: num
AT+FTPLOCAL =?	+FTPLOCAL: (0-2)
	ОК
Example	AT+FTPLOCAL=0
	SerialNumber:xxxxx
	TotalClusters:xxx
	FreeClusters:xxx
	FreeChains:x
	ОК



4.3.5.3 TCP/IP TOOLKIT

4.3.5.3.1 Creat network connect - \$ZIPCALL

AT\$ZIPCALL	
AT\$ZIPCALL=	The set command activate or deactivate PS call.
<state></state>	
	< State >
	□ 0 –deactivate
	☐ 1 −activate
	AT +ZIPCALL = <state></state>
	+ ZIPCALL:[SP]< State > ERROR
	ERROR
AT\$ZIPCALL?	Read the current State value
Example	AT\$ZIPCALL=1
	+ ZIPCALL:1

4.3.5.3.2 Creat socket and connect to sever - \$ZIPOPEN

AT\$ZIPOPEN	
AT\$ZIPOPEN=	The set command create TCP/UDP socket connection.
<socketid>,<r< td=""><td>Family: Address Family</td></r<></socketid>	Family: Address Family
emoteIP>, <re< td=""><td>1~2:valid address family type</td></re<>	1~2:valid address family type
moteport>, <fa< td=""><td>1: Address Family – Internet</td></fa<>	1: Address Family – Internet
mily>, <type></type>	2: Address Family - Internet v6
	Type: Socket types
· ·	0~1:va lid socket type
	0: TCP - streaming socket
	1: UDP - datagram socket
AT+ZIPOPEN	+ZIPOPEN: <socket id="">,<connect state=""></connect></socket>
?	The of Mr. (Societies), (Connect State)
Example	AT\$ZIPOPEN=1," 182.150.28.206",6800,1,0
	+ZIPOPEN: socketindex= 1, socket state= 1



4.3.5.3.3 Send data to sever - \$ZIPSEND

AT\$ZIPSEND	
	This command used to TCP/UDP data send
id>,	<socket id="">: Socket Connection indication</socket>
<data></data>	0: Invalid Socket id
	1∼5: Valid Socket id
AT\$ZIPSEND?	Read the send data size and which socket used to send data
Example	Command: AT\$ZIPSEND=1,32302D46696C
	Response: \$ZIPSEND: socketid=1, data_size=12

4.3.5.3.4 Auto receive, this not a command - \$ZIPRECV

\$ZIPRECV	
\$ZIPRECV:	TCP/UDP data receive auto
<socketid>,</socketid>	<socket id="">: Socket Connection indication</socket>
<remoteip>,</remoteip>	0: Invalid Socket id
<remoteport>,</remoteport>	$1\sim$ 5: Valid Socket id
<data len="">,</data>	<remote ip="">: Server IP of Remote server</remote>
<data></data>	< Remote port>: Remote port, range: 1-65535
	<data len="">: The length of received data, should less than 1024Bytes.</data>
Example	\$ZIPRECV:socketid=1,remote_ip=182.150.28.206, remote_port=6969, data_len=3, data=abc

4.3.5.3.5 Query the socket stat - \$ZIPSTAT

AT\$ZIPSTAT	
AT\$ZIPSTAT=	This command get the socket stat
<socketid></socketid>	<socket id="">: Socket Connection indication</socket>
	0: Invalid Socket id
AT\$ZIPSTAT=?	Query the range of stat
	Status>: State of Socket Connection
	0: Socket connection closed.
Example	Command: AT\$ZIPSTAT=1
	Response: \$ZIPSTAT: socketid=1, STAT=1



4.3.5.3.6 Close connect and release resource - \$ZIPCLOSE

AT\$ZIPCLOSE	
AT\$ZIPCLOSE=	This command close TCP/UDP connect and update stat
<socketid></socketid>	<socket id="">: Socket Connection indication</socket>
	0: Invalid Socket id
AT\$ZIPCLOSE?	Query all the socket stat
AT\$ZIPCLOSE=?	Query range of valid socket
Example	Command: AT\$ZIPCLOSE=1
	Response: \$ZIPCLOSE: socketid=1, STAT=1





4.3.5.4 HTTP AT Commands

4.3.5.4.1 Open HTTP Service - \$HTTPOPEN

\$HTTPOPEN Open	HTTP Service
\$HTTPOPEN	The command is used to open HTTP service. To use HTTP, you must execute the command in the first.In the last, execute \$HTTPCLOSE to close HTTP service.
AT\$HTTPOPEN?	Response:
	\$HTTPOPEN: <opened_or_not></opened_or_not>
	OK
	Return HTTP service is open or not.
	1: HTTP service is opened.
	0: HTTP service is not opened.
Example	Example 1:
	AT\$HTTPOPEN
	OK
	Example 2:
	AT\$HTTPOPEN
	\$HTTPERROR: <errno></errno>
	ERROR



4.3.5.4.2 Close HTTP Service - \$HTTPCLOSE

\$HTTPCLOSE Close	HTTP Service
\$HTTPCLOSE	The command is used to close HTTP service. After execute this command, HTTP will unavailable.
AT\$HTTPCLOSE?	Response:
	\$HTTPCLOSE: <closed_or_not></closed_or_not>
	ОК
	Return HTTP service is closed or not.
	1: HTTP service is closed.
	0: HTTP service is not closed.
Example	Example 1:
	AT\$HTTPCLOSE
	OK
	Example 2:
	AT\$HTTPCLOSE
	\$HTTPERROR: <errno></errno>
	ERROR



4.3.5.4.3 Set HTTP Header Fields - \$HTTPRQH

\$HTTPRQH Set HT	ΓP header fields
\$HTTPRQH= <param Key>,<paramvalue></paramvalue></param 	The command is used to set HTTP request header fielder and entity header fielder.
	Parameter:
	<paramkey>: HTTP request or entity header fielder's Key. If there are special characters, please add quotes.</paramkey>
	<paramvalue>: HTTP request or entity header fielder's Value. If there are special characters, please add quotes.</paramvalue>
	Refer to: " IETP-RFC 2616"
AT\$HTTPRQH=?	Response:
	\$HTTPRQH= <paramkey>,<paramvalue></paramvalue></paramkey>
	ОК
AT\$HTTPRQH?	Return current HTTP request header fielder and entity header fielder.
Example	Example 1:
	AT\$HTTPRQH=Host,182.150.28.206
	OK
	AT\$HTTPRQH=Connection,keep-alive
	OK
	Example 2:
	AT\$HTTPRQH?
	Host:182.150.28.206 Connection :keep-alive
	ОК
	Example 3:
	AT\$HTTPRQH=User-Agent,"Mozilla/5.0 (X11;Ubuntu; Linux x86_64; rv:38.0) Gecko/20100101 Firefox/38.0"
	ОК



4.3.5.4.4 Set HTTP Request URL And Port- \$HTTPPARA

\$HTTPPARA Set H	TTP Request URL And Port
\$HTTPPARA= <url>,<</url>	The command is used to set HTTP request url and port.
port>	
	Parameter:
	<url>:The HTTP request's url, such as "http://182.150.28.206:8182/ httpdemo/http".</url>
	<port>:The HTTP request's port.The default port is 80.</port>
AT\$HTTPPARA=?	Response:
	\$HTTPPARA= <url>,<port></port></url>
	ок
AT\$HTTPPARA?	Return current HTTP request's host,uri,and port,such as:
	AT\$HTTPPARA?
	Host : "182.150.28.206"
	URI : "/httpdemo/http"
	Port : 8182
Example	Example 1:
	AT\$HTTPPARA=http://182.150.28.206:8182/httpdemo/http,8182
	OK
	Example 2:
	AT\$HTTPPARA=www.baidu.com,80
	OK
	Example 3:
	AT\$HTTPPARA=www.baidu.com,
	ОК
	Example 4:
	AT\$HTTPPARA=http://182.150.28.206:8182/httpdemo/http?name=mobiletek&pass =123456,8182
	ОК



4.3.5.4.5 Clear HTTP Related Parameters - \$HTTPCLEAR

\$HTTPCLEAR Clea	ar HTTP Related parameters
\$HTTPCLEAR	The command is used to clear HTTP parameters. Such as HTTP header fielder ,URL and port.
AT\$HTTPCLEAR?	Response: \$HTTPCLEAR: <cleared_or_not> OK</cleared_or_not>
	Return HTTP parameters is cleared or not.
	1: HTTP parameters is cleared.0: HTTP parameters is not cleared.
Example	Example 1: AT\$HTTPCLEAR OK Example 2:
	AT\$HTTPCLEAR \$HTTPERROR: <errno> ERROR</errno>



4.3.5.4.6 Send HTTP Request - \$HTTPACTION

\$HTTPACTION Send	d HTTP Request
\$HTTPACTION= <req< td=""><td>The command is used to send HTTP Request. Support request include GET, POST and</td></req<>	The command is used to send HTTP Request. Support request include GET, POST and
uest>	GET.
	Parameter:
	<request>:HTTP request type ,available data include 0,1,2.</request>
	0: GET request
	1: POST request
	2: HEAD request
	Return:
	\$HTTPRECV:DATA, <len></len>
	\$HTTPRECV:DATA,2
	<\r><\n>
	\$HTTPRECV:DATA, <len></len>
	\$HTTPRECV:DATA, <len></len>
	This command will return HTTP response header fielder and file path which storage HTML text or download file if request success. If request fail, this command just return response header fielder. Specially, the HEAD request only return response header fielder. For POST, must set Conten-Length header item and POST's content data.
AT\$HTTPACTION?	Read command:
	Usage: AT\$HTTPACTION=<[0,1,2]>
AT\$HTTPACTION=?	Unavailable
Example	Example 1:
	AT\$HTTPACTION=0
	\$HTTPRECV:DATA,153
	HTTP/1.1 200 OK
	Server: Apache-Coyote/1.1
	Content-Type: text/html;charset=ISO-8859-1
	Transfer-Encoding: chunked
	Date: Tue, 20 Sep 2016 05:27:29 GMT
	\$HTTPRECV:DATA,2
	\$HTTPRECV:DATA,178



```
$HTTPACTION
              Send HTTP Request
                   <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
                   <HTML>
                     <HEAD><TITLE>A Servlet</TITLE></HEAD>
                     <BODY>
                   GET:Name or pass is wrong.
                     </BODY>
                   </HTML>
                   $HTTPRECV:DATA,5
                   0
                   OK
                   Example 2:
                   AT$HTTPACTION=1
                   OK
                   AT$HTTPDATA=13
                   >> name=mobilete
                   OK
                   AT$HTTPSEND
                   OK
                   AT$HTTPDATA=13
                   >> k&pass=123456
                   OK
                   AT$HTTPSEND
                   OK
                   AT$HTTPDATA=0
                   OK
                   AT$HTTPSEND
                   $HTTPRECV:DATA,153
                   HTTP/1.1 200 OK
                   Server: Apache-Coyote/1.1
                   Content-Type: text/html;charset=ISO-8859-1
                   Transfer-Encoding: chunked
                   Date: Tue, 20 Sep 2016 05:37:48 GMT
                   $HTTPRECV:DATA,2
```



\$HTTPACTION Sen	d HTTP Request
	\$HTTPRECV:DATA,195
	b8
	HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
	<html></html>
	<head><title>A Servlet</title></head>
	<body></body>
	POST: Name is mobiletek,pass is 123456
	0
	ок
	Example 3:
	AT\$HTTPACTION=2
A	HTTP/1.1 200 OK
	Server: Apache-Coyote/1.1
	Content-Type: text/html
	Content-Length: 172
	Date: Tue, 20 Sep 2016 05:29:33 GMT
	OK



4.3.5.4.7 Set HTTP Post Request's Data - \$HTTPDATA

\$HTTPDATA Set H7	TP Post Request's Data
\$HTTPDATA= <data_1< td=""><td>The command is used to set HTTP post request's content. This command effective only</td></data_1<>	The command is used to set HTTP post request's content. This command effective only
en>	to POST.
	Parameter: <data_len>:The post request's content length.The length between 0 and 1024.</data_len>
	0 mean data write end. The data end with Ctrl+Z. After this,must use \$HTTPSEND to send data every time.
AT\$HTTPDATA?	Response:
	\$HTTPDATA: <data_len></data_len>
	ок
AT\$HTTPDATA=?	Response:
	\$HTTPDATA:(0-1024)
	ОК



4.3.5.4.8 Send HTTP Post Content Data - \$HTTPSEND

\$HTTPSEND Send F	HTTP Post Content Data
	The command is used to send HTTP post request's content. This command effective only to POST.After data send complete, will receive response.
Example	AT\$HTTPACTION=1
	ок
	AT\$HTTPDATA=13
	>> name=mobilete
	ок
	AT\$HTTPSEND
	ок
	AT\$HTTPDATA=13
	>> k&pass=123456
	OK
	AT\$HTTPSEND
	OK
	AT\$HTTPDATA=0
	ок
	AT\$HTTPSEND
	\$HTTPRECV:DATA,153
	\$HTTPRECV:DATA,2
	\$HTTPRECV:DATA,195
	b8
	HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" <html></html>
	<head><title>A Servlet</title></head>
	<body></body>
	POST: Name is mobiletek,pass is 123456
	0
	ок



4.3.5.4.9 HTTP Error Code

Subsystem established and available Subsystem establishment in progress. Network subsystem unavailable. PPP is closing. Existing net subsystem resources. Physlink going dormant. HTTP service is not opened. HTTP service has opened. AT parameter error. DNS error. Action error. Request timeout. Downloading file. URL not set. Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data. Unknown HTTP error	Numeric Format	Verbose Format General errors:
Network subsystem unavailable. PPP is closing. Existing net subsystem resources. Physlink going dormant. HTTP service is not opened. HTTP service has opened. AT parameter error. DNS error. Action error. Request timeout. Downloading file. URL not set. Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data.	200	Subsystem established and available
203 PPP is closing. 204 Existing net subsystem resources. 205 Physlink going dormant. 300 HTTP service is not opened. 301 HTTP service has opened. 302 AT parameter error. 303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	201	Subsystem establishment in progress.
Existing net subsystem resources. Physlink going dormant. HTTP service is not opened. HTTP service has opened. AT parameter error. DNS error. Action error. Request timeout. Downloading file. URL not set. Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data.	202	Network subsystem unavailable.
205 Physlink going dormant. 300 HTTP service is not opened. 301 HTTP service has opened. 302 AT parameter error. 303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	203	PPP is closing.
300 HTTP service is not opened. 301 HTTP service has opened. 302 AT parameter error. 303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	204	Existing net subsystem resources.
301 HTTP service has opened. 302 AT parameter error. 303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	205	Physlink going dormant.
302 AT parameter error. 303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	300	HTTP service is not opened.
303 DNS error. 304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	301	HTTP service has opened.
304 Action error. 305 Request timeout. 306 Downloading file. 307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	302	AT parameter error.
Request timeout. Downloading file. URL not set. Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data.	303	DNS error.
Downloading file. URL not set. Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data.	304	Action error.
307 URL not set. 308 Header fielder's number exceeds the limit 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data.	305	Request timeout.
 Header fielder's number exceeds the limit Unsupported header fielder. Header response error(Exception). Is sending post data. 	306	Downloading file.
 309 Unsupported header fielder. 310 Header response error(Exception). 311 Is sending post data. 	307	URL not set.
Header response error(Exception). Is sending post data.	308	Header fielder's number exceeds the limit
311 Is sending post data.	309	Unsupported header fielder.
	310	Header response error(Exception).
Unknown HTTP error	311	Is sending post data.
	350	Unknown HTTP error



4.3.5.5 HTTPS AT Commands

4.3.5.5.1 Acquire HTTPS protocol stack - +CHTTPSSTART

+CHTTPSSTART T	This command is used to acquire HTTPS protocol stack.
+CHTTPSSTART	This command is used to acquire HTTPS protocol stack.
	Response:
	OK
	ERROR
Example	Example 1:
	AT+CHTTPSSTART
	OK
	Example 2:
	AT+CHTTPSSTART
	ERROR
L	

$\bf 4.3.5.5.2~Stop~HTTPS~protocol~stack~-+CHTTPSSTOP$

+CHTTPSSTOP This	s command is used to stop HTTPS protocol stack.
+CHTTPSSTOP	This command is used to stop HTTPS protocol stack.
	Response:
	OK
	ERROR
Example	Example 1:
	AT+CHTTPSSTOP
	OK
	Example 2:
	AT+CHTTPSSTOP
	ERROR



4.3.5.5.3 Open HTTPS session - +CHTTPSOPSE

+CHTTPSOPSE Ope	en HTTPS session.
+CHTTPSOPSE=	This command is used to open a new HTTPS session. Every time, AT+CHTTPSSTART
•	command must be executed before executing AT+CHTTPSOPSE command.
_type>	
	Parameter:
	<host>:</host>
	The host address.
	<pre><port> :</port></pre>
	The host listening port for SSL. For HTTPS, the default is 443; For HTTP, the
	default is 80.
	<pre><server_type> :</server_type></pre>
	The type of server: 1: HTTP server.
	2 : HTTPS server with SSL3.0/TLS1.0 supported.
	2.111115 Server Wall SSES. S. TESTIS Supported.
	Response:
	OK
	ERROR
Example	Example 1:
	AT+CHTTPSOPSE=www.baidu.com,443,2
	OK
	Example 2:
	AT+CHTTPSOPSE=www.baidu.com,0,1
	OK
	Example 3:
	AT+CHTTPSOPSE= www.baidu.com,80,2
	ERROR



4.3.5.5.4 Close HTTPS session - +CHTTPSCLSE

+CHTTPSCLSE This command is used to close the opened HTTPS session.	
+CHTTPSCLSE	This command is used to close the opened HTTPS session.
	Response:
	OK
	ERROR
Example	Example 1:
	AT+CHTTPSCLSE
	OK
	Example 2:
	AT+ CHTTPSCLSE
	ERROR



4.3.5.5.5 Send HTTPS request - +CHTTPSSEND

+CHTTPSSEND Ser	nd HTTPS request.
	This command is used to send HTTPS request. The AT+CHTTPSSEND= <len> is used</len>
x_len>	to download the data to be sent. The AT+CHTTPSSEND is used to wait the result of sending.
	Parameter:
	< max_len > : The max length of the data to send.
	Response:
	>>
	ОК
	ERROR The data end with Ctrl+Z.
AT+CHTTPSSEND?	Response : +CHTTPSSEND: <unsent_len> OK</unsent_len>
	Parameter: < unsent_len > :
	The length of the data in the sending buffer which is waiting to be sent.
AT+CHTTPSSEND	Response:
=?	+CHTTPSSEND: (1-4096) OK



AT+CHTTPSSEND	Response:
	+CHTTPSSEND: <result></result>
	OK
	ERROR
	Parameter:
	< result > : The final result of the sending.
	0 : Success
	1 : Unknown error
	2 : Network error
	3 : DNS query error
	4 : Socket connection error
	5 : SSL error
	6 : Response header error
	7 : Network is down
	8 : HTTP response authentication mismatch
Example	Example 1:
	AT+CHTTPSSEND=1000
	>> GET / HTTP/1.1
	Host: www.baidu.com
	<ctrl+z></ctrl+z>
	OK
	AT+CHTTPSSEND?
	+CHTTPSSEND: 36
	OV.
	OK AT: CHTTPGGEND
	AT+CHTTPSSEND
	+CHTTPSSEND: 0
	OK
	Example 2:
	AT+CHTTPSSEND=10
	>> GET / HTTP/1.1
	Host:www.baidu.com
	ERROR



4.3.5.5.6 Receive HTTPS response - +CHTTPSRECV

+CHTTPSRECV Th	is command is used to receive HTTPS response after sending HTTPS request.
	This command is used to receive HTTPS response after sending HTTPS request.
x_recv_len>	Response:
	+CHTTPSRECV: DATA, <len></len>
	+CHTTPSRECV: <result></result>
	ок
	ERROR
	Parameter:
	< max_recv_len>:
	Maximum bytes of data to receive in the current AT+CHTTPSRECV calling. Minimum is 1.
	<len>:</len>
	The length of the data received.
	<result>:</result>
	The final result of the receiving.
	0 : Success
	1 : Unknown error
	2 : Network error
	3 : DNS query error
	4 : Socket connection error
	5 : SSL error
	6 : Response header error
	7 : Network is down
	8 : HTTP response authentication mismatch
GIALLED DE CATA	
+CHTTPSRECV?	Response:
	+CHTTPSRECV: LEN, <cache_len></cache_len>
	OK
	ERROR
	Parameter:
	<cache_len>: The cache length.</cache_len>



Example 1:
AT+CHTTPSRECV?
+CHTTPSRECV: LEN, 903
OK
AT+CHTTPSRECV=2000
+CHTTPSRECV: DATA,903
HTTP/1.1 200
/https/temp
+CHTTPSRECV: 0
ОК



4.3.5.5.7 Get the state of HTTPS request - +CHTTPSSTATE

	nis command is used to get the state of HTTPS request.
+CHTTPSSTATE	This command is used to get the state of HTTPS request.
	Response:
	+CHTTPSSTATE: <state></state>
	OK
	ERROR
	Parameter:
	<state>: The state of HTTPS request.</state>
	0 : OK
	1 : AT command error.
	2: HTTPS stack has started.
	3 : HTTPS stack has stoped.
	4 : Session has closed.
	5 : Request type error.
	6 : Open session error.
	7 : Request data error.
	8 : Request header error.
	o . Request header cirol.
Example	Example 1:
Example	AT+CHTTPSSTATE
	AFCITIISSIALE
	CHITEDGGTATIC
	+CHTTPSSTATE:0
	OK



4.3.5.6 EMAIL AT Command

4.3.5.6.1 Set SMTP server address and port number - +SMTPSRV

AT+SMTPSRV - Set SMTP server address and port number	
	+SMTPSRV command is used to set SMTP server address and port number, then make DNS parse and connect to SMTP server. SMTP server address and port number will not be cleared until execute AT+SMTPSRV command with empty parameter.
	Parameters:
	<s_addr>- Mandatory parameter. SMTP server address, non empty string with double quotes, ASCII text string up to 128 characters.</s_addr>
	<n_port>- Mandatory parameter. Port number of SMTP server in decimal format, from 1 to 65535, and default port is 25 for SMTP.</n_port>
	<n_type>- Optional parameter. SMTP connect type.</n_type>
	SMTP server: n_type=1
	SMTP server with SSL/TLS: n_type=2
	SMTP server with STARTTLS: n_type=3
AT+SMTPSRV?	Read command returns the current configuration value of the parameter
AT+SMTPSRV=?	Test command returns range of the parameters.
AT+SMTPSRV	Execute command will set SMTP server address and port number to default value.
Example	AT+SMTPSRV=? +SMTPSRV:"",(1-65535),(1-3)
	OK
	AT+SMTPSRV="smtp.126.com",25,1 250-mail
	250-PIPELINING
	250-AUTH LOGIN PLAIN
	250-AUTH=LOGIN PLAIN
	250-coremail 1Uxr2xKj7kG0xkI17xGrU7I0s8FY2U3Uj8Cz28x1UUUUU7Ic2I0Y2UFwxJ3zUCa0xDr
	uuuuj
	250-STARTTLS
	250 8BITMIME
	ок
	AT+SMTPSRV? +SMTPSRV:"smtp.126.com",25,1
	ок
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.2 SMTP server authentication - +SMTPAUTH

AT+SMTPAUTH - SMTP server authentication	
	+SMTPAUTH command is used to authenticate with SMTP server by correct authentication type, username, password. Authentication type, username, password will not be cleared until execute AT+SMTPAUTH command with empty parameter.
	Parameters:
	<n_type>- Mandatory parameter. SMTP server authentication type, currently support below authentication types:</n_type>
	AUTH LOGIN: n_type=0
	AUTH PLAIN: n_type=1
	AUTH NTLM: n_type=2
	AUTH CRAM_MD5: n_type=3
	<s_name>- Mandatory parameter. Username to be used for SMTP authentication, non empty string with double quotes and up to 128 characters.</s_name>
	<s_pass>- Mandatory parameter. Password to be used for SMTP authentication, string with double quotes and up to 128 characters.</s_pass>
	Note: If you want to change another type to authenticate with SMTP server, need to do the following:
	1. AT+SMTPSTOP
	2. AT+SMTPSRV= <s_addr>[,<n_port>]</n_port></s_addr>
	3. AT+SMTPAUTH= <n_type>,<s_name>,<s_pass></s_pass></s_name></n_type>
AT+SMTPAUTH?	Read command returns the current configuration value of the parameter
AT+SMTPAUTH=?	Test command returns range of the parameters.
AT+SMTPAUTH	Execute command will set SMTP server address and port number to default value.
Example	AT+SMTPAUTH=? +SMTPAUTH:(0-3),"",""
	ок
	AT+SMTPAUTH=0,"mobileTest2016","MT123456" OK
	AT+SMTPAUTH? +SMTPAUTH:0,"mobileTest2016","MT123456"
	ок
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.3 Set sender address and name - +SMTPFROM

AT+SMTPFROM - S	et sender address and name
s_addr>[, <s_name>]</s_name>	+SMTPFROM command is used to set sender's address and name, which are used to construct e-mail header. Sender address and name will not be cleared until execute AT+SMTPFROM command with empty parameter.
	Parameters:
	<s_addr>- Mandatory parameter. E-mail sender address, non empty string with double quotes, ASCII text up to 128 characters.</s_addr>
	<s_name>- Optional parameter. E-mail sender name, string with double quotes, and alphanumeric ASCII text up to 64 characters.</s_name>
AT+SMTPFROM?	Read command returns the current configuration value of the parameter
AT+SMTPFROM=?	Test command returns range of the parameters.
AT+SMTPFROM	Execute command will set sender address and sender name to default value.
	AT+SMTPFROM=? +SMTPFROM:"","" OK AT+SMTPFROM="mobileTest2016@126.com","mobileTest" OK AT+SMTPFROM? +SMTPFROM:"mobileTest2016@126.com","mobileTest"
	OK
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.4 Set recipient type(TO/CC/BCC), address and name - +SMTPRCPT

AT+SMTPRCPT - Set recipient type(TO/CC/BCC), address and name.	
_type>, <s_addr>[,<s< td=""><td>+SMTPRCPT command is used to set recipient address/name and type (TO/CC/BCC). After an Email is sent, all recipient list will be cleared, or execute AT+SMTPRCPT with empty parameter can clear all recipient list.</td></s<></s_addr>	+SMTPRCPT command is used to set recipient address/name and type (TO/CC/BCC). After an Email is sent, all recipient list will be cleared, or execute AT+SMTPRCPT with empty parameter can clear all recipient list.
	Parameters:
	<n_type>- Mandatory parameter. Recipient type:</n_type>
	TO: n_type=0
	CC: n_type=1
	BCC: n_type=2
	<s_addr>- Mandatory parameter. Recipient address, non empty string with double quotes, ASCII text up to 128 characters.</s_addr>
	<s_name>- Optional parameter. Recipient name, string with double quotes, and alphanumeric ASCII text up to 64 characters.</s_name>
AT+SMTPRCPT?	Read command returns the current configuration value of the parameter
	Test command returns range of the parameters.
	Execute command will clear all recipient list.
Example	AT+SMTPRCPT=?
	+SMTPRCPT:(0-2),"",""
	OK
	AT+SMTPRCPT=0,"hp.li@mobiletek.cn","tester_to" OK
	AT+SMTPRCPT=1,"dg.yang@mobiletek.cn","tester_cc" OK
	AT+SMTPRCPT=2,"xt.qin@mobiletek.cn","tester1_bcc" OK
	AT+SMTPRCPT? +SMTPRCPT:0,"hp.li@mobiletek.cn","tester_to"
	+SMTPRCPT:1,"dg.yang@mobiletek.cn","tester_cc"
	+SMTPRCPT:2,"xt.qin@mobiletek.cn","tester1_bcc"
	ОК
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.5 Set Email subject -+SMTPSUB

AT+SMTPSUB - Set	AT+SMTPSUB - Set Email subject.	
AT+SMTPSUB= <s_ subject></s_ 	+SMTPSUB command is used to set the subject of e-mail, which is used to construct e-mail header. After an Email is sent, Email subject will be cleared, or execute AT+SMTPSUB with empty parameter can clear Email subject.	
	Parameters: <s_subject>- Mandatory parameter. Email subject, string with double quotes, and ASCII text up to 512 characters. Currently, it only support ASCII code characters.</s_subject>	
AT+SMTPSUB?	Read command returns the current configuration value of the parameter	
AT+SMTPSUB=?	Test command returns range of the parameters.	
AT+SMTPSUB	Execute command will clear Email subject.	
Example	AT+SMTPSUB=? +SMTPSUB:"" OK AT+SMTPSUB="smtp email test 0412" OK AT+SMTPSUB? +SMTPSUB:"smtp email test 0412" OK	
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL	



4.3.5.6.6 Set Email body - +SMTPBODY

AT+SMTPBODY - S	AT+SMTPBODY - Set Email body.	
	+SMTPBODY command is used to set the body of e-mail, After an Email is sent, Email body will be cleared, or execute AT+SMTPBODY with empty parameter can clear Email body.	
	Parameters: <s_body>- Mandatory parameter. E-mail body, string with double quotes, and ASCII text up to 5120 characters. Currently, it only support ASCII code characters.</s_body>	
AT+SMTPBODY?	Read command returns the current configuration value of the parameter	
	Test command returns range of the parameters.	
AT+SMTPBODY	Execute command can input non-ASCII character string.	
	AT+SMTPBODY=? +SMTPBODY:"" OK AT+SMTPBODY="this is an email test body" OK AT+SMTPBODY? +SMTPBODY:"this is an email test body" OK AT+SMTPBODY:"this is an email test body" OK AT+SMTPBODY >> 邮件内容中文测试 OK	
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL	

4.3.5.6.7 Set Email body character set - +SMTPBCH

AT+SMTPBCH - Set Email body character set.	
AT+SMTPBCH= <s_< td=""><td>+SMTPBCH command is used to set the body character set of e-mail.</td></s_<>	+SMTPBCH command is used to set the body character set of e-mail.
bch>	
	Parameters:
	<s_bch>- Mandatory parameter. Email body character set, string with double quotes. By default, it is "utf-8". The maximum length is 32 bytes.</s_bch>
AT+SMTPBCH?	Read command returns the current configuration value of the parameter
AT+SMTPBCH=?	Test command returns range of the parameters.
AT+SMTPBCH	Execute command will set Email body character set to default
Example	Current this command is not supported as SMTP can only support ASCII code.
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.8 Add Email attachment file - +SMTPFILE

AT+SMTPFILE - Add Email attachment file.	
index>, <s_filename></s_filename>	+SMTPFILE command is used to add Email attachment files. After an Email is sent, all attachment files will be cleared, or clear all attachment file list by execute AT+SMTPFILE with empty parameter. Parameters: <n_index>- Mandatory parameter. Index for attachment files, from 1 to 10. <s_filename>- Mandatory parameter. String type with double quotes, the name of a file which is under current directory. SMTP client doesn't allow two attachments with the same file name. The total size of all attachments can't exceed 10MB.</s_filename></n_index>
AT+SMTPFILE?	Read command returns the current configuration value of the parameter
	Test command returns range of the parameters.
AT+SMTPFILE	Execute command will clear all attachment file list.
	AT+SMTPFILE=? +SMTPFILE:(1-10),"" OK AT+SMTPFILE=1,"/email/parsed/Email20160412030509000.txt" OK AT+SMTPFILE=2,"/email/parsed/Email20160412030539000.txt" OK AT+SMTPFILE:"/email/parsed/Email20160412030509000.txt" +SMTPFILE:"/email/parsed/Email20160412030539000.txt" +SMTPFILE:"/email/parsed/Email20160412030539000.txt" OK
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.9 Send an Email - +SMTPSEND

AT+SMTPSEND - Send an Email.	
AT+SMTPSEND	+SMTPSEND command is used to initiate TCP session with SMTP server and send an Email after all mandatory parameters have been set correctly.
	Parameters: NONE
Example	AT+SMTPSEND OK
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL

4.3.5.6.10 Close SMTP connection - SMTPSTOP

AT+SMTPSTOP - Close SMTP connection.	
AT+SMTPSTOP	+SMTPSTOP command is used to close SMTP connection.
	Parameters:
	NONE
Example	AT+SMTPSTOP OK
Reference	RFC821 SIMPLE MAIL TRANSFER PROTOCOL



4.3.5.6.11 Set POP3 server address, username, password, port - +POP3SRV

AT+POP3SRV - Set F	AT+POP3SRV - Set POP3 server address, username, password, port.	
	+POP3SRV command is used to set POP3 server address, username, password, port number. All parameters will not be cleared until execute AT+POP3SRV command with empty parameter.	
	Parameters:	
	<s_server>- Mandatory parameter. POP3 server address, non empty string with double quotes, ASCII text string up to 128 characters.</s_server>	
	<s_username>- Mandatory parameter. Username to log in POP3 server, non empty string with double quotes, and up to 128 characters.</s_username>	
	<s_password>- Mandatory parameter. Password to log in POP3 server, string with double quotes, and up to 128 characters.</s_password>	
	<n_port>- Optional parameter. Port number of POP3 server in decimal format, from 1 to 65535, and default port is 110 for POP3.</n_port>	
AT+POP3SRV?	Read command returns the current configuration value of the parameter	
AT+POP3SRV=?	Test command returns range of the parameters.	
	Execute command will set POP3 server address, username, password, port number to default value.	
Example	AT+POP3SRV=? +POP3SRV:"","",(1-65535) OK	
	AT+POP3SRV="pop3.126.com","mobileTest2016","MT123456",110 OK	
	AT+POP3SRV? +POP3SRV:"pop3.126.com","mobileTest2016","MT123456",110	
	OK	
Reference	RFC1939 Post Office Protocol - Version 3	



4.3.5.6.12 Login POP3 server - +POP3IN

AT+POP3IN - Login POP3 server.	
AT+POP3IN	+POP3IN command is used to login POP3 server and establish a session after POP3 server and account information are set rightly.
	Parameters: NONE
Example	AT+POP3IN OK
Reference	RFC1939 Post Office Protocol - Version 3

4.3.5.6.13 Get Email number and total size - +POP3NUM

AT+POP3NUM - Get Email number and total size.	
AT+POP3NUM	+POP3NUM command is used to get e-mail number and total size on the specified POP3 server after the POP3 client logs in POP3 server successfully. Parameters: NONE
Example	AT+POP3NUM +OK 7 127120
	OK 7 127120
Reference	RFC1939 Post Office Protocol - Version 3



4.3.5.6.14 List Email ID and size - +POP3LIST

AT+POP3LIST - List Email ID and size.	
	+POP3LIST command is used to get e-mail number and size on the specified POP3 server after the POP3 client logs in POP3 server successfully.
	Parameters: <n_msgid>- Optional parameter. The Email ID.</n_msgid>
AT+POP3LIST	Execute command will list all Email ID and size.
Example	AT+POP3LIST=? +POP3LIST: (1-65535)
	ок
	AT+POP3LIST +OK 5 127120
	1 1812 2 3053
	3 13257
	4 3577
	5 44833
	ок
	AT+POP3LIST=1 +OK 1 1812
	OK
Reference	RFC1939 Post Office Protocol - Version 3



4.3.5.6.15 Get an Email header - +POP3HDR

AT+POP3HDR - Get	AT+POP3HDR - Get an Email header.	
AT+POP3HDR= <n_ msgID></n_ 	+POP3HDR command is used to retrieve e-mail's sender address, date and sender address, which are present in the mail's header.	
	Parameters:	
	<n_msgid>- Mandatory parameter. The Email ID.</n_msgid>	
AT+POP3HDR?	Read command returns the current configuration value of the parameter	
Example	AT+POP3HDR=? +POP3HDR: (1-65535)	
	ок	
	AT+POP3HDR=1 from: Huapinglee huapinglee@163.com	
	subject: Re: this is a test email from lihuaping in r1523	
	date: Tue, 15 Mar 2016 14:50:01 +0800	
	OK	
Reference	RFC1939 Post Office Protocol - Version 3	



4.3.5.6.16 Get an Email - +POP3GET

AT+POP3GET - Get an Email.	
AT+POP3GET= <n_ msgID>[,<n_gettype >]</n_gettype </n_ 	+POP3GET command is used to retrieve an Email from server and save it to local file system.
	Parameters:
	<n_msgid>- Mandatory parameter. The Email ID.</n_msgid>
	<n_gettype>- Optional parameter. The type to save when getting message from POP3 server:</n_gettype>
	-Save parsed body file and attachments: n_gettype=1
	-Save the whole message as a ".eml" file: n_gettype=2
AT+POP3GET?	Read command returns the current configuration value of the parameter
Example	AT+POP3GET=? +POP3GET: (1-65535),(1-2) OK
	AT+POP3GET=1 from: Huapinglee <huapinglee 163.com="" @=""></huapinglee>
	subject: Re: this is a test email from lihuaping in r1523
	date: Tue, 15 Mar 2016 14:50:01 +0800
	/email/received/Email20160412014342.txt
	email/parsed/Email20160412014342000.txt
	OK
Reference	RFC1939 Post Office Protocol - Version 3

4.3.5.6.17 Mark an e-mail to delete from POP3 server - +POP3DEL

AT+POP3DEL - Mark an e-mail to delete from POP3 server.		
msgID>	+POP3DEL command is used to mark an e-mail to delete from POP3 server. The operation only marks an e-mail on the server to delete it, and after POP3 client logs out POP3 server and closes the session normally, the marked e-mail is deleted on the server. Parameters: <n_msgid>- Mandatory parameter. The Email ID.</n_msgid>	
AT+POP3DEL?	Read command returns the current configuration value of the parameter	



Example	AT+POP3DEL=?
	+POP3DEL: (1-65535)
	ОК
	AT+POP3DEL=5
	ОК
Reference	RFC1939 Post Office Protocol - Version 3

4.3.5.6.18 Logout POP3 server - +POP3OUT

AT+POP3OUT - Logout POP3 server.	
AT+POP3OUT	+POP3OUT command is used to log out the POP3 server and close the session, and it there are some e-mails which are marked to delete, it also informs POP3 server to delete the marked e-mails.
	Parameters: NONE
Example	AT+POP3OUT OK
Reference	RFC1939 Post Office Protocol - Version 3

4.3.5.6.19 Force to stop POP3 session - +POP3STOP

AT+POP3STOP - Force to stop POP3 session.	
AT+POP3STOP	+POP3STOP command is used to force to close the session
	Parameters: NONE
Example	AT+POP3STOP
	OK
Reference	RFC1939 Post Office Protocol - Version 3



4.3.5.6.20 Read an e-mail from file system - +POP3READ

AT+POP3READ - Read an e-mail from file system.	
	+POP3READ command is used to read an e-mail from file system.
_location>, <s_filena me>[,<n_startpos>,<</n_startpos></s_filena 	
_	Parameters:
	<n_location>- Mandatory parameter. The location from which TE reads an e-mail. Currently, only support Local system.</n_location>
	-Local system: n_location=0
	-SD card:n_location=1
	<s_filename>- Mandatory parameter. The Email file name, string type with double quotes and including a directory name and a text file name separated by the list separator "/".</s_filename>
	<n_startpos>- Optional parameter. The start position of the file to read.</n_startpos>
	<n_size>- Optional parameter. The num of bytes to read from file.</n_size>
AT+POP3READ?	Read command returns the current configuration value of the parameter
AT+POP3READ=?	Test command returns range of the parameters.
AT+POP3READ	Execute command will read all contents of an Email, but now can only display 256 characters.
Example	AT+POP3READ=? +POP3READ:(0-1),"",(0-65535),(1-65535)
	OK
	AT+POP3READ=0,"/email/received/Email20160412015207.txt",0,512 +OK 4204 octets
	Received: from m97135.qiye.163.com (unknown [220.181.97.135])
	by mx6 (Coremail) with SMTP id JMmowABnXha4XAtXt3GaAA1945S2;
	Mon, 11 Apr 2016 16:13:44 +0800 (CST)
	Received: from Windows-Build3 (unknown [182.150.28.206])
	by smtp1 (C
	ок
	AT+POP3READ? +POP3READ:"0","/email/received/Email20160412015207.txt",0,512
	ок
Reference	RFC1939 Post Office Protocol - Version 3



4.3.5.6.21 Translate input string to base64 character - +EMAILENC

AT+ EMAILENC - Read an e-mail from file system.	
	+EMAILENC command is used to translate input string(specially non-ASCII character string) to BASE64 character string.
	Parameters:
	<s_charset>- Mandatory parameter. Input string charset.</s_charset>
Example	AT+EMAILENC="GB2312"
	>> 中文测试邮件
	=?GB2312?B?1tDOxLLiytTTyrz+?=
Reference	RFC1939 Post Office Protocol - Version 3

4.3.5.6.22 EMAIL AT Command Response Code Definition

0	Email operation succeeded.
1	System busy.
2	Email over size.
3	Attachment duplicate file.
4	Email operation time out.
5	Email transfer failed.
6	Memory error.
7	Email invalid parameter.
8	Network error.
9	EFS operation error.
10	Email server error.
11	Email authentication failed.
255	Unknown error.



4.3.5.7 Network AT Command

4.3.5.7.1 Preferred mode selection - +CNMP

AT+CNMP - This co	mmand is used to select or set the state of the mode preference.		
AT+CNMP= <mode></mode>	Parameters:		
	<mode>- Mandatory parameter. The defined value refer this table end</mode>		
	Write command responses:		
	ок		
	If <mode> not supported by module, this command will return ERROR: ERROR</mode>		
AT+CNMP?	Read command responses:		
	+CNMP: <mode></mode>		
	ОК		
AT+CNMP=?	Test command responses:		
	+CNMP: (list of supported <mode>s)</mode>		
Example	AT+CNMP=62		
	OK		
	AT+CNMP? +CNMP:62		
	ОК		
	AT+CNMP=?		
	+CNMP: (2,9-14,17,19-20,22-23,25-70,73-93)		
	OK		
Reference	Vendor		

AT+CNMP=<mode> Defined mode values:

- 2 Automatic
- 9 CDMA only
- 10 EVDO only
- 11 CDMA and AMPS only
- 12 GPS only
- 13 GSM Only
- 14 WCDMA Only
- 17 Any modes but HDR
- 19 GSM + WCDMA Only



AT+CNMP=<mode> Defined mode values:

- 20 CDMA, GSM, or WCDMA
- 22 CDMA+EVDO Only
- 23 CDMA or AMPS or HDR only
- 25 WLAN only
- 26 CDMA and WLAN only
- 27 HDR and WLAN only
- 28 CDMA, HDR, and WLAN only
- 29 GSM and WLAN only
- 30 WCDMA and WLAN only
- 31 GSM/WCDMA and WLAN only
- 32 GSM and WLAN only
- 34 CDMA, AMPS, HDR and WLAN only
- 35 CDMA, AMPS and WLAN only
- 37 Except HDR and WLAN
- 38 LTE Only
- 39 GSM, WCDMA or LTE
- 40 HDR or LTE only
- 41 CDMA, HDR or LTE only
- 42 CDMA, HDR, GSM or WCDMA only
- 43 CDMA, GSM or WCDMA only
- 44 Except WLAN
- 45 WLAN, GSM or WCDMA, and LTE
- 46 CDMA and LTE
- 47 Except HDR and LTE
- 48 Any modes but LTE
- 49 Non-LTE mode
- 50 Non-LTE, HDR mode
- 51 GSM and LTE only
- 52 CDMA, GSM and LTE only
- 53 HDR, GSM and LTE only
- 54 WCDMA and LTE only
- 55 CDMA, WCDMA and LTE only
- 56 HDR, WCDMA and LTE only
- 57 CDMA, HDR and GSM
- 58 CDMA and GSM
- 59 TDS-CDMA Only



AT+CNMP=<mode> Defined mode values:

- 60 GSM+TDSCDMA Only
- 61 TD-SCDMA, GSM or LTE Only
- 62 TD-SCDMA, GSM, WCDMA or LTE only
- 63 GSM+WCDMA+TDSCDMA Only
- 64 Except HDR, WLAN & LTE
- 65 TD-SCDMA and LTE
- 66 CDMA,GSM,WCDMA&TD-SCDMA
- 67 CDMA+EVDO+GSM+WCDMA+TDSCDMA Only
- 68 CDMA, HDR, GSM, WCDMA and LTE
- 69 CDMA, GSM, WCDMA and LTE
- 70 TD-SCDMA and WCDMA
- 73 TD-SCDMA, WCDMA and LTE
- 74 Except TD-SCDMA
- 75 Except HDR and TDS(TD-SCDMA)
- 76 Except LTE and TDS
- 77 Except HDR, LTE and TDS
- 78 CDMA, HDR, GSM, AMPS
- 79 CDMA, GSM, AMPS
- 80 CDMA, HDR, GSM, GPS, AMPS
- 81 CDMA, GSM, GPS, AMPS
- 82 CDMA, GSM, TDS, HDR, LTE
- 83 GSM, GPS
- 84 WCDMA, GPS
- 85 GSM, WCDMA, GPS
- 86 HDR, GPS
- 87 Except for CDMA and HDR
- 88 GSM, TDS, GPS
- 89 GSM, TDS, WCDMA, GPS
- 90 GSM, TDS, WCDMA, AMPS
- 91 GSM, WCDMA, LTE, AMPS
- 92 GSM, WCDMA, AMPS
- 93 GSM, TDS, WCDMA, GPS



4.3.5.7.2 Preferred band selection - +CNBP

AT+CNBP - This con	nmand is used to select or set the state of the band preference.		
AT+CNBP= <mode>[</mode>	Parameters:		
, <lte_mode>][,<tds_ mode>]</tds_ </lte_mode>	<mode>- Mandatory parameter.</mode>		
-	64bit number, the value is "1" << " <pos>"(see Defined < pos > values for details), then or by bit. Some special mode value declared below:</pos>		
	0x40000000 BAND_PREF_NO_CHANGE		
	<lte_mode>- Optional parameter.</lte_mode>		
	64bit number, the value is "1" << " <lte_pos>" (see Defined < lte_pos > values for details), then or by bit.</lte_pos>		
	<tds_mode>- Optional parameter.</tds_mode>		
	64bit number, the value is "1" << " <tds_pos>" (see Defined < tds_pos > values for details), then or by bit.</tds_pos>		
	Write command responses:		
	OK		
AT+CNBP?	Read command responses:		
1	+CNBP: <mode>[,<lte_mode>][,<tds_mode>]</tds_mode></lte_mode></mode>		
	OK		
Example	AT+CNBP?		
	+CNBP:0x0002000000400180,0x000007ff5bdf3fff,0x000000000000003f		
	OK		
	AT+CNBP=0xFFFFFFFFFFFFFF		
	OK		
	AT+CNBP=0x380		
	+CME ERROR: operation not allowed		
D. C			
Reference	Vendor		

Defined < pos > values:

0xFFFFFFFFFFFFFFFAny (any value)

7	GSM_DCS_1800
8	GSM_EGSM_900
9	GSM_PGSM_900
16	GSM_450
17	GSM_480
18	GSM_750
19	GSM 850



20 GSM_RGSM_900 21 GSM PCS 1900 22 WCDMA_IMT_2000 23 WCDMA_PCS_1900 Defined < pos > values: 24 WCDMA_III_1700 25 WCDMA_IV_1700 26 WCDMA 850 27 WCDMA_800 48 WCDMA_VII_2600 49 WCDMA_VIII_900 WCDMA_IX_1700

Defined < lte pos > values:

50

0x000007FF3FDF3FFF Any (any value)

EUTRAN_BAND1(UL:1920-1980; DL:2110-2170) 0 EUTRAN_BAND2(UL:1850-1910; DL:1930-1990) 1 2 EUTRAN_BAND3(UL:1710-1785; DL:1805-1880) 3 EUTRAN BAND4(UL:1710-1755; DL:2110-2155) 4 EUTRAN_BAND5(UL: 824-849; DL: 869-894) 5 EUTRAN BAND6(UL: 830-840; DL: 875-885) 6 EUTRAN_BAND7(UL:2500-2570; DL:2620-2690) 7 EUTRAN_BAND8(UL: 880-915; DL: 925-960) EUTRAN_BAND9(UL:1749.9-1784.9; DL:1844.9-1879.9) 8 9 EUTRAN_BAND10(UL:1710-1770; DL:2110-2170) 10 EUTRAN_BAND11(UL:1427.9-1452.9; DL:1475.9-1500.9) 11 EUTRAN_BAND12(UL:698-716; DL:728-746) EUTRAN_BAND13(UL: 777-787; DL: 746-756) 12 EUTRAN BAND14(UL: 788-798; DL: 758-768) 13 EUTRAN BAND17(UL: 704-716; DL: 734-746) 16 17 EUTRAN_BAND18(UL: 815-830; DL: 860-875) EUTRAN_BAND19(UL: 830-845; DL: 875-890) 18 19 EUTRAN_BAND20(UL: 832-862; DL: 791-821) 20 EUTRAN_BAND21(UL: 1447.9-1462.9; DL: 1495.9-1510.9) 22 EUTRAN_BAND23(UL: 2000-2020; DL: 2180-2200) 23 EUTRAN_BAND24(UL: 1626.5-1660.5; DL: 1525 -1559) 24 EUTRAN_BAND25(UL: 1850-1915; DL: 1930 -1995)



$Defined < tds_pos > values:$

0x00000000	000003F	Any (any value)
0	TDS Band A (190	00-1920 MHz, 2010-2020 MHz)
1	TDS Band B (18	50-1910 MHz, 1930-1990 MHz)
2	TDS Band C (19	10-1930 MHz)
4	TDS Band E (230	00-2400 MHz)
3	TDS Band D (25	70-2620 MHz)
5	TDS Band F (188	80-1920 MHz)





4.3.5.7.3 Acquisition order preference - +CNAOP

AT+CNAOP - This command is used to reset the state of acquisitions order preference.		
	AT+CNAOP= <mode parameters:<="" td=""></mode>	
>[, <sys_mode1>[,<s ys_mode2>[[,<sys< td=""><td><mode>- Mandatory parameter.</mode></td></sys<></s </sys_mode1>	<mode>- Mandatory parameter.</mode>	
	Defined mode values:	
	0 – Automatic	
	1 – GSM,WCDMA	
	2 – WCDMA,GSM	
	7 – Acquistion by priority order list <sys_moden>s.</sys_moden>	
	<sys_moden>- Optional parameter,n belongs to 1 ~ 7</sys_moden>	
	Defined sys_mode values:	
	2 – CDMA	
	3 – GSM	
	4 – HDR	
	5 – WCDMA	
	9 – LTE	
,	10 – GWL(GSM, WCDMA, and LTE)	
ATT COLL ODG	11 – TDSCDMA	
AT+CNAOP?	Read command responses:	
	+CNAOP: <mode>[,<sys_mode1>[,<sys_mode2>[[,<sys_mode10>]]]]</sys_mode10></sys_mode2></sys_mode1></mode>	
	OK	
×	Test command responses:	
	+CNAOP: (list of supported <mode>s)</mode>	
	OK AT+CNAOP=?	
Example	+CNAOP: (0-2,7),(2-5,9-11),(2-5,9-11),(2-5,9-11),(2-5,9-11),	
	(2-5,9-11),(2-5,9-11)	
	ок	
	AT+CNAOP=7,9,5,11,3	
	ок	
	AT+CNAOP?	
	+CNAOP:7,9,5,11,3,2,4	
	OK	
	AT+CNAOP=2	
	OK	
	AT+CNAOP?	
	+CNAOP:2	
	OK Vandar	
Reference	Vendor	



4.3.5.7.4 Preferred service domain selection - +CNSDP

AT+CNSDP - This co	AT+CNSDP - This command is used to reset the state of the service domain preference.	
AT+CNSDP= <mode< td=""><td colspan="2">AT+CNSDP=<mode parameters:<="" td=""></mode></td></mode<>	AT+CNSDP= <mode parameters:<="" td=""></mode>	
	<mode>- Mandatory parameter.</mode>	
	Defined mode values:	
	0 – CS Only	
	1 – PS Only	
	2-CS+PS	
	Write command responses:	
	OK	
AT+CNSDP?	Read command responses:	
	+CNSDP: <mode></mode>	
	ОК	
AT+CNSDP=?	Test command responses:	
	+CNSDP: (list of supported <mode>s)</mode>	
	ОК	
Example	AT+CNSDP=?	
	+CNSDP: (0-2)	
	OK	
	OK .	
	AT+CNSDP?	
	+CNSDP:2	
	ОК	
	AT+CNSDP=2	
	ОК	
Reference	Vendor	
Reference	VCHQOI	



4.3.5.7.5 Inquiring UE system information - +CPSI

AT+CPSI - This cor	mmand is used to return the UE system information.
AT+CPSI= <time></time>	Parameters:
	<time>- Mandatory parameter.</time>
	The range is 0-255, unit is second, after set <time> will report the system information every the seconds.</time>
	Write command responses:
	OK
	Other:
	ERROR
AT+CPSI=?	Test command responses:
	+CPSI:(scope of <time>)</time>
	OK
AT+CPSI?	Read command responses:
	If camping on a GSM cell: +CPSI: <system mode="">,<operation mode="">,<mcc>-<mnc>,<lac>,</lac></mnc></mcc></operation></system>
	<cell id="">,<absolute ch="" num="" rf="">,<rxlev>,<track adjust="" lo=""/>,<c1< td=""></c1<></rxlev></absolute></cell>
	-C2>
	OK
	If camping on a WCDMA cell: +CPSI: <system mode="">,<operation mode="">,<mcc>-<mnc>,<lac>,</lac></mnc></mcc></operation></system>
	<cellid>,<frequencyband>,<psc>,<freq>,<ssc>,<ec io="">,<rscp>,<qual>,<rxlev>,<txpwr></txpwr></rxlev></qual></rscp></ec></ssc></freq></psc></frequencyband></cellid>
	ОК
	If camping on a TDS-CDMA cell: +CPSI: <system mode="">,<operation mode="">,<mcc>-<mnc>,<lac>,</lac></mnc></mcc></operation></system>
	<cell id="">,<frequency band="">,<uarfcn>,<cpid>,<rscp>,<pathloss>,</pathloss></rscp></cpid></uarfcn></frequency></cell>
	<timingadvance></timingadvance>
	OK
	If camping on a LTE cell: +CPSI: <system mode="">,<operation ode="">,<mcc>-<mnc>,<tac>,</tac></mnc></mcc></operation></system>
	<scellid>,<pcellid>,<frequency band="">,<earfcn>,<dlbw>,<ulbw>,</ulbw></dlbw></earfcn></frequency></pcellid></scellid>
	<rsrq>,<rsrp>,<rssi>,<rssnr></rssnr></rssi></rsrp></rsrq>
	OK



	If camping on a cdma cell: +CPSI: CDMA, <operation mode="">[,<mcc>-<mnc>,<cdma ch="" num="">, <cdma pilot="" pn="">,<cdma 0="" agc="" chain="" rx="">,<cdma 1="" agc="" chain="" rx="">, <cdma agc="" tx="">,<sid>,<nid>,<cdma ec="" io="">] OK</cdma></nid></sid></cdma></cdma></cdma></cdma></cdma></mnc></mcc></operation>
Example	AT+CPSI=? +CPSI: (0-255) OK
AT+CPSI - This com	nmand is used to return the UE system information.
	AT+CPSI=5
	ОК
	AT+CPSI? +CPSI:LTE,Online,460-00,0x8109,3494130972,45472,159,2208741240,0,0,-31360,235 20,-31094,0 OK
Reference	Vendor

AT+CPSI? Defined values:

<system mode=""></system>
System mode, values: "NO SERVICE", "GSM", "WCDMA", "LTE", "TDS"
<operation mode=""></operation>
UE operation mode, values: "Online", "Offline", "Factory Test Mode", "Reset", "Low Power Mode".
<mcc></mcc>
Mobile Country Code (first part of the PLMN code)
<mnc></mnc>
Mobile Network Code (second part of the PLMN code)
<lac></lac>
Location Area Code (hexadecimal digits)
<cell id=""></cell>
Service-cell ID.
<absolute ch="" num="" rf=""></absolute>
AFRCN for service-cell.
<track adjust="" lo=""/>
Track LO Adjust
<c1></c1>
Coefficient for base station selection
<c2></c2>



Coefficient for Cell re-selection
<frequency band=""></frequency>
Frequency Band of active set
<psc></psc>
Primary synchronization code of active set.
<freq></freq>
Downlink frequency of active set.
<ssc></ssc>
Secondary synchronization code of active set
<ec io=""></ec>
Ec/Io value
<rscp></rscp>
Received Signal Code Power
<qual></qual>
Quality value for base station selection
<rxlev></rxlev>
RX level value for base station selection
<txpwr></txpwr>
UE TX power in dBm. If no TX, the value is 500.
<cpid></cpid>
Cell Parameter ID
<pathloss></pathloss>
Path loss
<timingadvance></timingadvance>
Timing advance
<tac></tac>
Tracing Area Code
<pcellid></pcellid>
Physical Cell ID
<earfcn></earfcn>
E-UTRA absolute radio frequency channel number for searching LTE cells
<dlbw></dlbw>
Transmission bandwidth configuration of the serving cell on the downlink
<ulbw></ulbw>
Transmission bandwidth configuration of the serving cell on the uplink
<rsrp></rsrp>



Current reference signal received power in -1/10 dBm. Available for LTE

<RSRQ>

Current reference signal receive quality as measured by L1.

<RSSNR>

Average reference signal signal-to-noise ratio of the serving cell





4.3.5.7.6 Show network system mode - +CNSMOD

AT+CNSMOD - This	AT+CNSMOD - This command is used to return the current network system mode.	
AT+CNSMOD= <n> Parameters:</n>		
	<n>- Mandatory parameter.</n>	
	0 – disable auto report the network system mode information	
	1 – auto report the network system mode information,	
	command: +CNSMOD: <stat></stat>	
	Write command responses:	
	ок	
	Other:	
	ERROR	
	or	
	+CME ERROR: <err></err>	
	Test command responses:	
	+CNSMOD:(list of supported <n>s)</n>	
	OK	
	Read command responses:	
	+CNSMOD: <n>,<stat></stat></n>	
	OK	
	Other:	
	ERROR	
	or	
	+CME ERROR: <err></err>	
	AT+CNSMOD=?	
	+CNSMOD: (0-1) OK	
	AT+CNSMOD?	
	+CNSMOD: 0,8	
	ок	
	AT+CNSMOD=1	
	ок	
Reference	Vendor	
AT+ CNSMOD? Def	anad < stat > values	

AT+ CNSMOD? Defined < stat > values

0 – No service

1 - GSM



- 2 GPRS
- 3 EGPRS (EDGE)
- 4 WCDMA
- 5 HSDPA only(WCDMA)
- 6 HSUPA only(WCDMA)
- 7 HSPA (HSDPA and HSUPA, WCDMA)
- 8-LTE
- 9 TDS-CDMA
- 10 TDS-HSDPA only
- 11 TDS-HSUP only
- 12 TDS-HSPA(HSDPA and HSUPA)
- 13 CDMA
- 14 EVDO
- 15 HYBRID(CDMA and EVDO)



4.3.5.7.7 Show cell system information - +CCINFO

AT+CCINFO=?	Test command responses:
	OK
	Other:
	+CCINFO: NOT IN GSM
AT+ CCINFO	Execution command responses:
	When ME in idle mode for GSM: +CCINFO: [<scell>],ARFCN: <arfcn>,MCC: <mcc>,MNC: <mnc>,LAC: <lac>, ID: <id>,BSIC: <bsic>,RXLev: <rxlev>,C1: <c1>,C2: <c2>,TA: <ta>, TXPWR: <txpwr> +CCINFO: [<ncelln>],ARFCN: <arfcn>,MCC: <mcc>,MNC:<mnc>,LAC: <lac>, ID: <d>,BSIC: <bsic>,RXLev: <rxlev>,C1: <c1>,C2: <c2> []] OK</c2></c1></rxlev></bsic></d></lac></mnc></mcc></arfcn></ncelln></txpwr></ta></c2></c1></rxlev></bsic></id></lac></mnc></mcc></arfcn></scell>
	When ME in dedicated mode for GSM: +CCINFO: [<scell>],ARFCN: <arfcn>,MCC: <mcc>,MNC: <mnc>,LAC: <lac>, ID: <id>,BSIC: <bsic>,RXLev: <rxlev>,C1: <c1>,C2: <c2>,TA: <ta>, TXPWR: <txpwr></txpwr></ta></c2></c1></rxlev></bsic></id></lac></mnc></mcc></arfcn></scell>
	+CCINFO: [<ncelln>],ARFCN: <arfcn>,BSIC: <bsic>,RXLev: <rxlev> [] OK</rxlev></bsic></arfcn></ncelln>
	When ME in CDMA/HDR mode for modem: +CCINFO: [<scell>], MCC: <mcc>,MNC: <mnc>,SID:<sid>,NID:<nid>,BID:<bid>,SCYC:<scyc>,PREV:<pre><pre>,BC: band class>,CH:<cdma ch="" num="">, PN:<cdma pilot="" pn="">, ECIO:<cdma ec="" io="">, RXAGC:<cdma 0="" agc="" chain="" rx="">dbm,<cdma 1="" agc="" chain="" rx="">dbm, TXAGC:<cdma agc="" tx="">dbm<cr><lf> [<cr><lf></lf></cr></lf></cr></cdma></cdma></cdma></cdma></cdma></cdma></pre></pre></scyc></bid></nid></sid></mnc></mcc></scell>
	+CCINFO:[<ncelln>]BC:<band class="">,CH:<cdma ch="" num="">,PN:<cdma pilot="" pn=""><cr><lf>[]] OK</lf></cr></cdma></cdma></band></ncelln>
	When not in GSM or CDMA/HDR for modem: +CCINFO: NOT IN GSM or CDMA OK
	Other: ERROR



Example	AT+CCINFO=?
	OK
	AT+CCINFO
	+CCINFO: NOT IN GSM
	OK
	AT. CONFO
	AT+CCINFO
	+CCINFO: [SCELL],ARFCN: 53,MCC: 460,MNC: 00,LAC: 8109,
	ID: 183,BSIC: 0,RXLev: -67dBm,C1: 30,C2: 140,TA: 4294967295,
	TXPWR: 33
	+CCINFO: [NCELL1],ARFCN: 49,MCC: 000,MNC: 000,LAC: 0,ID: 4294967295,BSIC: 0,RXLev: -73dBm,C1: 0,C2: 0
	+CCINFO: [NCELL2],ARFCN: 47,MCC: 000,MNC: 000,LAC: 0,ID: 4294967295,BSIC: 50,RXLev: -88dBm,C1: 0,C2: 0
	+CCINFO: [NCELL3],ARFCN: 44,MCC: 000,MNC: 000,LAC: 0,ID: 4294967295,BSIC: 30,RXLev: -103dBm,C1: 0,C2: 0
4	+CCINFO: [NCELL4],ARFCN: 46,MCC: 000,MNC: 000,LAC: 0,ID: 4294967295,BSIC: 8,RXLev: -105dBm,C1: 0,C2: 0
	OK
Reference	Vendor

AT+ CCINFO Defined values

<scell></scell>
indicate serving cell
<ncelln></ncelln>
available neighbour cell index
<arfcn></arfcn>
assigned radio channel
<mcc></mcc>
mobile country code
<mnc></mnc>
mobile network code
<lac></lac>
localization area code
<id></id>
cell identifier
<bsic></bsic>



base station identification code
<rxlev></rxlev>
received signal strength in dBm
<ta></ta>
timing advance
<c1></c1>
Coefficient for base station selection
<c2></c2>
Coefficient for Cell re-selection
<txpwr></txpwr>
UE TX power in dBm. If no TX, the value is 0.
<sid></sid>
Current system ID
<nid></nid>
Current network ID
 bid>
Current base ID
<scyc></scyc>
Slot cycle index.
<pre><prev></prev></pre>
Protocol revision number of the mobile station.
<bar> <br< td=""></br<></bar>
CDMA band class
<cdma ch="" num=""></cdma>
CDMA channel number
<cdma pilot="" pn=""></cdma>
CDMA pilot PN offset
<cdma ec="" io=""></cdma>
CDMA EC/IO in dB
<cdma 0="" agc="" chain="" rx=""></cdma>
CDMA RX Chain 0 AGC dBm
<cdma 1="" agc="" chain="" rx=""></cdma>
CDMA RX Chain 1 AGC dBm
<cdma agc="" tx=""></cdma>
CDMA TX AGC dBm



4.3.5.7.8 Inquiring mobile phone system information - +CMGSI

AT+CMGSI - This command is used to inquire mobile phone system information.	
AT+CMGSI=?	Test command responses:
	+CMGSI: (list of supported <mode>s)</mode>
AT+CMGSI= <mode< td=""><td>Parameters:</td></mode<>	Parameters:
>	<mode>- Mandatory parameter.</mode>
	2-GSM
	3 – WCDMA
	4 – LTE
	5 – TDS
	Write command responses:
	If <mode>=2, get GSM signal info: +CMGSI:Main_Info,<mode>,<service_available>,<band>, <channel></channel></band></service_available></mode></mode>
	+CMGSI:RX_Power,0x <rx_div_ind>,RX_Chain0,<is_radio_tuned>,</is_radio_tuned></rx_div_ind>
	<rx_pwr>,RX_Chain1,<is_radio_tuned>,<rx_pwr></rx_pwr></is_radio_tuned></rx_pwr>
	+CMGSI: TX_Power,Not Supported
	+CMGSI: Phy_Cellid, <cellid_valid>,<cellid></cellid></cellid_valid>
	+CMGSI: Log_Sinr10xdb, <sinr_valid>,<sinr></sinr></sinr_valid>
	OK
	If <mode>=3, get WCDMA signal info: +CMGSI:Main_Info,<mode>,<service_available>,<band>, <channel></channel></band></service_available></mode></mode>
	+CMGSI:RX_Power,0x <rx_div_ind>,RX_Chain0,<is_radio_tuned>,</is_radio_tuned></rx_div_ind>
	<rx_pwr>,<ecio>,<rscp>,RX_Chain1,<is_radio_tuned>,<rx_pwr>,</rx_pwr></is_radio_tuned></rscp></ecio></rx_pwr>
	<ecio>,<rscp></rscp></ecio>
	+CMGSI: TX_Power, <is_in_traffic>,<tx_pwr>,<pa_gain_state></pa_gain_state></tx_pwr></is_in_traffic>
	+CMGSI: Phy_Cellid, <cellid_valid>,<cellid></cellid></cellid_valid>
	+CMGSI: Log_Sinr10xdb, <sinr_valid>,<sinr></sinr></sinr_valid>
	ок
	<pre>If <mode>=4, get LTE signal info: +CMGSI:Main_Info,<mode>,<service_available>,<band>, <channel></channel></band></service_available></mode></mode></pre>
	+CMGSI:RX_Power,0x <rx_div_ind>,RX_Chain0,<is_radio_tuned>,</is_radio_tuned></rx_div_ind>
	<rx_pwr>,<ecio>,<rsrp>,<phase>,RX_Chain1,<is_radio_tuned>,</is_radio_tuned></phase></rsrp></ecio></rx_pwr>
	<rx_pwr>,<ecio>,<rsrp>,<phase></phase></rsrp></ecio></rx_pwr>



```
+CMGSI: TX_Power,<is_in_traffic>,<tx_pwr>,<pa_gain_state>
+CMGSI: Phy_Cellid,<cellid_valid>,<cellid>
+CMGSI: Log_Sinr10xdb,<sinr_valid>,<sinr>
OK
If <mode>=5, get TDS-CDMA signal info:
+CMGSI:Main_Info,<mode>,<service_available>,<band>, <channel>
+CMGSI:RX_Power,0x<rx_div_ind>,RX_Chain0,<is_radio_tuned>,
  <rx_pwr>,<ecio>,<rscp>,RX_Chain1,<is_radio_tuned>,<rx_pwr>,
  <ecio>,<rscp>
+CMGSI: TX_Power,<is_in_traffic>,<tx_pwr>,<pa_gain_state>
+CMGSI: Phy_Cellid,<cellid_valid>,<cellid>
+CMGSI: Log_Sinr10xdb,<sinr_valid>,<sinr>
+CMGSI:Freq_DwPTSRssi,<pri_freq>,<scell_pri_freq_rssi_ch0>,
  < scell_pri_freq_rssi_ch1>
+CMGSI:TX_Pwr_Info,<ul_tx_pwr0>,<ul_tx_pwr1>,<ul_tx_pwr2>,
  <ul_tx_pwr3>,<ul_tx_pwr4>,<ul_tx_pwr5>
OK
Oher:
ERROR
+CME ERROR: no network service
```



Example	AT+CMGSI=?
	+CMGSI: (2-5)
	OK
	AT+CMGSI=2
	+CMGSI: Main_Info,2,1,0,53
	+CMGSI: RX_Power,0x081,RX_Chain0,1,-659
	+CMGSI: TX_Power,Not Supported
	+CMGSI: Phy_Cellid,0,65535
	+CMGSI: Log_Sinr10xdb,0,-1
	OK
	AT+CMGSI=4
	+CMGSI: Main_Info,4,1,40,38950
	+CMGSI:RX_Power,0x083,RX_Chain0,1,-481,-32,-712,0,RX_Chain1,1,-826,-75,-1100,
Reference	Vendor

AT+CMGSI Defined values

II TOMOS	n Defined	vai
<service_< td=""><td>_available></td><td></td></service_<>	_available>	

0 – service not available

1 – service is available

<band>

Active band of the current system

<channel>

Active channel of the current system.

<rx_div_ind>

Diversity bitmask to show which Rx chain has valid signal information.

0x00000000 - NO Rx chain available

0x00000001 - Rx chain 0 available

0x00000002 - Rx chain 1 available

0x00000003 - Rx chain 0 and Rx chain 1 available

< is_radio_tuned >

Indicates whether the Rx is tuned to a channel

0 – radio is not tuned, delayed or invalid values are set depending on each technology

1 – radio is tuned, instantaneous values are set for the signal information fields

 $< rx_pwr >$

Rx power value in 1/10 dBm resolution

<ecio>

Ec/Io in -1/10 dBm

< is in traffic >

Indicates whether the device is in traffic

< tx_pwr >

Tx power value in 1/10 dBm. only meaningful when the device is in traffic. When there is no traffic, tx_pwr is invalid



< pa_gain_state > Power amplifier gain state < cellid_valid > Serving cell physical ID is valid 0 – cell ID is invalid 1 – cell ID is valid < cellid > Serving cell physical ID < sinr_valid > Serving cell SINR information measured in decibels 0 – SINR is invalid 1 – SINR is valid < sinr > Serving cell SINR information Received signal code power in -1/10 dBm. Available for WCDMA < rsrp > Current reference signal received power in -1/10 dBm. Available for LTE < phase > Current phase in 1/100 degrees. Range: 0.00 to 360.00. Available for LTE only



4.3.5.7.9 Gets the neighbor measurement information -+ CMGRMI

AT+CMGRMI - This command is used to select or set the state of the mode preference.		
AT+ CMGRMI =?	Test command responses:	
	+CMGRMI: (list of supported <mode>s)</mode>	
	OK	
AT+CMGRMI= <mo de>,[<info_type>]</info_type></mo 	Parameters:	
de>,[<iiiio_type>]</iiiio_type>	<mode>- Mandatory parameter.</mode>	
	3 – WCDMA	
	4 – LTE	
	5 – TDS	
	<info_type>- Optional parameter.</info_type>	
	32bit number, the value is "1" << " <pos>"(see subclause 1.9.1</pos>	
	for details), then or by bit. If <mode> is TDS, returned into will</mode>	
	be as WCDMA.	
	Write command responses:	
	If <mode>=4, get LTE signal info: [+CMGRMI:Main_Info,<mode>,<service_available>,<valid>,</valid></service_available></mode></mode>	
	<idle>,<ra_rnti>,<c_rnti>,<cqi_wb>,<enb_num_tx_antenna>]</enb_num_tx_antenna></cqi_wb></c_rnti></ra_rnti></idle>	
	[+CMGRMI:Serving_Cell, <earfcn>,<mcc>,<tac>,</tac></mcc></earfcn>	
	<num_mnc_digits>,<serving_cell_id>,<freq_band_ind>,</freq_band_ind></serving_cell_id></num_mnc_digits>	
	<dl_bandwidth>,<ul_bandwidth>,<serv_rssnr>,<cell_pci>,</cell_pci></serv_rssnr></ul_bandwidth></dl_bandwidth>	
Ť	<cell_rsrq>,<cell_rsrp>,<cell_rssi>,<cell_idle_srxlev>]</cell_idle_srxlev></cell_rssi></cell_rsrp></cell_rsrq>	
	[+CMGRMI:LTE_Intra, <sib3_received>,<earfcn>,<serving_cell_id>,</serving_cell_id></earfcn></sib3_received>	
	<num_lte_cells></num_lte_cells>	
	[+CMGRMI:LTE_Intra_Cell1, <cell_pci>,<cell_rsrq>,<cell_rsrp>,</cell_rsrp></cell_rsrq></cell_pci>	
	<cell_rssi>,<cell_idle_srxlev></cell_idle_srxlev></cell_rssi>	
	[+CMGRMI:LTE_Intra_Cell2, <cell_pci>,<cell_rsrq>,<cell_rsrp>,</cell_rsrp></cell_rsrq></cell_pci>	
	<cell_rssi>,<cell_idle_srxlev></cell_idle_srxlev></cell_rssi>	
	[
	[+CMGRMI:LTE_Intra_Cell8, <cell_pci>,<cell_rsrq>,<cell_rsrp>,</cell_rsrp></cell_rsrq></cell_pci>	
	<cell_rssi>,<cell_idle_srxlev></cell_idle_srxlev></cell_rssi>	
	[+CMGRMI:LTE_Inter, <num_freqs>,Freq1,<earfcn>,<num_lte_cells>,</num_lte_cells></earfcn></num_freqs>	
	<idle_threshx_low>,<idle_threshx_high>,<idle_cell_resel< td=""></idle_cell_resel<></idle_threshx_high></idle_threshx_low>	
	priority>,Freq2, <earfcn>,<num_lte_cells>,<idle_threshx_low>,</idle_threshx_low></num_lte_cells></earfcn>	
	<idle_threshx_high>,<idle_cell_resel_priority></idle_cell_resel_priority></idle_threshx_high>	
	[+CMGRMI:LTE_InterFreq1_Cell1, <cell_pci>,<cell_rsrq>,<cell_rsrp>,</cell_rsrp></cell_rsrq></cell_pci>	
L	F - 1 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	



```
[+CMGRMI:LTE_InterFreq2_Cell8, <cell_pci>,<cell_rsrq>,<cell_rsrp>,
   <cell_rssi>,<cell_idle_srxlev>
]]]]]]
[+CMGRMI: GSM_Info, <num_freq_groups>,Freq_Group1,
   <nu m_gsm_arfcn>,<idle_cell_resel_priority>,
   <idle_thresh_gsm_high>,<idle_thresh_gsm_low>,
   <idle_ncc_permitted>,Freq_Group2, <num_gsm_arfcn>,
   <idle_cell_resel_priority>,<idle_thresh_gsm_high>,
   <idle_thresh_gsm_low>,<idle_ncc_permitted>
[+CMGRMI: GSM_InfoFreq1_Cell1,<cell_arfcn>,<cell_band_1900>,
   <cell_id_valid>,<cell_bsic_id>,<cell_rssi>,<cell_idle_srxlev>
[+CMGRMI: GSM_InfoFreq1_Cell2,<cell_arfcn>,<cell_band_1900>,
   <cell_id_valid>,<cell_bsic_id>,<cell_rssi>,<cell_idle_srxlev>
[+CMGRMI: GSM_InfoFreq1_Cell8,<cell_arfcn>,<cell_band_1900>,
  <cell id valid>,<cell bsic id>,<cell rssi>,<cell idle srxlev >
]]]]
[+CMGRMI: GSM_InfoFreq2_Cell1,<cell_arfcn>,<cell_band_1900>,
   <cell_id_valid>,<cell_bsic_id>,<cell_rssi>,<cell_idle_srxlev>
+CMGRMI: GSM_InfoFreq2_Cell2,<cell_arfcn>,<cell_band_1900>,
   <cell_id_valid>,<cell_bsic_id>,<cell_rssi>,<cell_idle_srxlev>
[+CMGRMI: GSM_InfoFreq2_Cell8,<cell_arfcn>,<cell_band_1900>,
   <cell_id_valid>,<cell_bsic_id>,<cell_rssi>,<cell_idle_srxlev>
]]]]]
+CMGRMI: WCDMA_Info,<num_wcdma_freqs>,Freq1,<uarfcn>,
   <num wcdma cells>,<idle cell resel priority>,
   <idle_thresh_Xhigh>,<idle_thresh_Xlow>,Freq2,<uarfcn>,
   <num_wcdma_cells>,<idle_cell_resel_priority>,
   <idle_thresh_Xhigh>,<idle_thresh_Xlow>
[+CMGRMI: WCDMA_InfoFreq1_Cell1,<cell_psc>,<cell_cpich_rscp>,
   <cell_cpich_ecno>,<cell_idle_srxlev>
[+CMGRMI: WCDMA_InfoFreq1_Cell2,<cell_psc>,<cell_cpich_rscp>,
   <cell_cpich_ecno>,<cell_idle_srxlev>
[+CMGRMI: WCDMA InfoFreq1 Cell8,<cell psc>,<cell cpich rscp>,
   <cell_cpich_ecno>,<cell_idle_srxlev>
```



```
[+CMGRMI: CDMA1x_InfoFreq1_Cell8,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
]]]]]
[+CMGRMI: CDMA1x_InfoFreq2_Cell1,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
[+CMGRMI: CDMA1x_InfoFreq2_Cell2,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
[+CMGRMI: CDMA1x_InfoFreq2_Cell8,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
]]]]]]
[+CMGRMI:CDMAprpd_Info,<num_cdma_freqs>,Freq1,
   <channel_num>,<band_class>,<num_cdma_cells>,Freq2,
   <channel_num>,<band_class>,<num_cdma_cells>
[+CMGRMI: CDMAprpd_InfoFreq1_Cell1,<pilot_pn_offset>,
  <pilot_pn_phase>,<pilot_strength>
[+CMGRMI: CDMAprpd_InfoFreq1_Cell2,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
+CMGRMI: CDMAprpd_InfoFreq1_Cell8,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
1111
[+CMGRMI: CDMAprpd_InfoFreq2_Cell1,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
+CMGRMI: CDMAprpd_InfoFreq2_Cell2,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
+CMGRMI: CDMAprpd_InfoFreq2_Cell8,<pilot_pn_offset>,
   <pilot_pn_phase>,<pilot_strength>
111111
[+CMGRMI: CDrx_Cfg,<drx_enable>,<on_duration_timer>,
   <inactivity_timer>,<retx_timer>,<long_drx_cycle>,
   <long_drx_cycle_offset>,<short_drx_cycle_enable>,
   <short_drx_cycle>,<short_drx_cycle_timer>]
[+CMGRMI: Cqi_Cfg,<cqi_enable>,
   <cqi_reporting_mode_aperiodic_enable>,
   <cqi_reporting_mode_aperiodic>,<nom_pdsch_rs_epre_offset>,
```



```
If <mode>=3 or 5, get WCDMA signal info:
[+CMGRMI:Main_Info,<mode>,<service_available>,<valid>,
   <s_intra_search >,<s_inter_search >,< s_search_RAT>]
[+CMGRMI: WCDMA_Intra,< freq>,<rxagc>,<num_nbr_cells>,
   <num_serv_cells >]
[+CMGRMI: WCDMA_Intra_Nbr1,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>]
[+CMGRMI: WCDMA_Intra_Nbr8,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>]
[+CMGRMI: WCDMA_Intra_Serv1,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>]
[+CMGRMI: WCDMA_Intra_ Serv6,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>]
[+CMGRMI: WCDMA_Inter, Freq1,< freq >,< rxagc >,< num_cells >,
   Freq2,< freq >,< rxagc >,< num_cells >]
[+CMGRMI: WCDMA_InterFreq1_Cell1,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>,< cell_s_rxlev>]
[+CMGRMI: WCDMA_InterFreq1_Cell8,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>,< cell_s_rxlev>]
+CMGRMI: WCDMA_InterFreq2_Cell1,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>,< cell_s_rxlev>]
+CMGRMI: WCDMA_InterFreq2_Cell8,<cell_psc>,<cell_ecio>,
   < cell_rscp>,<cell_set>,< cell_rank>,< cell_s_rxlev>]
[+CMGRMI: GSM_Info,< num_cells >]
[+CMGRMI: GSM_Info_Cell1,< cell_arfcn>,<cell_bsic_id>,
   < cell_rssi>,< cell_rank>,< cell_s_rxlev>]
[+CMGRMI: GSM_Info_Cell8,< cell_arfcn>,<cell_bsic_id>,
   < cell_rssi>,< cell_rank>,< cell_s_rxlev>]
 CMCDMI- ITE Info /num parfon Frag1
```



Example	AT+CMGRMI=?
	+CMGRMI: (3-5),
	ок
	AT+CMGRMI=4
	+CMGRMI: Main_Info,4,1,1,1,3,25978,15,1
	+CMGRMI:Serving_Cell,38950,1120,15,33033,2,136335367,40,5,5,27,305,-47,-715,-468,56
	+CMGRMI: LTE_Intra,1,38950,305,1
	+CMGRMI: LTE_Intra_Cell1: LTE_Intra,305,-47,-715,-468,56
	+CMGRMI: LTE_Inter,2,Freq1,37900,0,0,22,6,Freq2,38098,0,0,22,6
	+CMGRMI: GSM_Info,1,Freq_Group1,8,1,14,26,255
	+CMGRMI: GSM_InfoFreq1_Cell1: 1,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell2: 598,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell3: 595,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell4: 592,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell5: 589,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell6: 586,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell7: 580,0,0,0,-1920,0
	+CMGRMI: GSM_InfoFreq1_Cell8: 576,0,0,0,-1920,0
	+CMGRMI: WCDMA_Info,0
	+CMGRMI: CDMA1x_Info,0
	+CMGRMI: CDMAprpd_Info,0
	+CMGRMI: CDrx_Cfg,0,0,0,0,0,0,0,0
	+CMGRMI: Cqi_Cfg,1,1,3,0,1,1,0,138,0,0,0,0,0,0,0,0,0
Reference	Vendor

AT+CMGRMI Defined values

Value:

0xFFFFFFF Any (any value)

0 Main info for WCDMA/LTE, if this bit set, the related info returned as

"+ CMGRMI: Main_Info, ..."

nfo for WCDMA mode, if this bit set, the related info returned as

"+ CMGRMI: WCDMA_Intra, ..."

"+ CMGRMI: WCDMA_Intra_Nbr1, ..."

"+ CMGRMI: WCDMA_Intra_Serv1, ..."

2 WCDMA inter info for WCDMA mode, if this bit set, the related info returned as

"+ CMGRMI: WCDMA_Inter, ..."

"+ CMGRMI: WCDMA_InterFreq1_Cell1, ..."

3 GSM info for WCDMA mode, if this bit set, the related info returned as

"+ CMGRMI: GSM_Info, ..."

"+ CMGRMI: GSM_Info_Cell1, ..."



- AT Command User Guide 4 LTE info for WCDMA mode, if this bit set, the related info returned as "+ CMGRMI: LTE Info, ..." "+ CMGRMI: LTE_InfoFreq1_Cell1, ..." 5 Serving cell info for LTE mode, if this bit set, the related info returned as "+ CMGRMI: Serving_Cell, ..." 7 LTE intra info for LTE mode, if this bit set, the related info returned as "+ CMGRMI: LTE Intra, ..." "+ CMGRMI: LTE_Intra_Cell1, ..." 8 LTE inter info for LTE mode, if this bit set, the related info returned as "+ CMGRMI: LTE Inter. ..." "+ CMGRMI: LTE_InterFreq1_Cell1, ..." 9 GSM info for LTE mode, if this bit set, the related info returned as "+ CMGRMI: GSM_Info, ..." "+ CMGRMI: GSM_InfoFreq1_Cell1, ..." 10 WCDMA info for LTE mode, if this bit set, the related info returned as "+ CMGRMI: WCDMA_Info, ..." "+ CMGRMI: WCDMA_InfoFreq1_Cell1, ..." 11 CDMA1x info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: CDMA1x Info, ..."
 - "+ CMGRMI: CDMA1x InfoFreq1 Cell1, ..."
 - 12 CDMA high-rate packet data cell info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: CDMAprpd_Info, ..."
 - "+ CMGRMI: CDMAprpd_InfoFreq1_Cell1, ..."
 - 13 Connected DRX configuration info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: CDrx_Cfg, ..."
 - 14 Channel quality indication configuration info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: Cqi_Cfg, ..."
 - 15 Antenna configuration info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: Ant Cfg, ..."
 - 16 Idle DRX info for LTE mode, if this bit set, the related info returned as
 - "+ CMGRMI: Idle Drx Cfg, ..."

<service available>

- 0 service not available
- 1 service is available
- <is_data_valid >

Indicates whether the fields in the following are valid

- 0 None of the fields are valid
- 1 One or more of the fields is valid
- <s intra search >

Cell selection parameter for the intrafrequency cell

<s inter search >

Cell selection parameter for the interfrequency cell

< s_search_RAT >

Cell selection parameter for the GSM cell

< freq >

Camped cell frequency

Receiver automatic gain control on the camped frequency

< num nbr cells >

Number of intrafrequency neighbor cells reported

<num serv cells >



Number of serving cells (cells when in a soft handover) reported

< cell_psc >

Primary scrambling code

< cell_ecio >

Instantaneous cell received energy per chip and interference level

< cell_rscp >

Instantaneous cell received signal code power

< cell_set >

Intrafrequency cell type

< cell_rank >

Intrafrequency cell ranking

<num_freq >

Number of frequencies

<num_cells >

Number of cells to report per frequency

< cell_arfcn >

Absolute radio frequency channel number. Range: 0 to 1023

< cell bsic id >

Base station identity code. Base station color code in least significant bit (or byte). Network color code in most significant bit (or byte)

< cell rssi >

Received signal strength indicator. Range: 0 to -120

< cell s rxlev >

cell suitable receive level

< num_earfcn >

Number of LTE EARFCNs

< earfcn >

E-UTRA absolute radio frequency channel number for searching LTE cells

<priority>

Priority information. Invalid priority is -1

<cell id>

Physical cell ID of the detected cell

< cell_rsrp >

Maximum reference signal received power combined across Tx-Rx pairs. In linear scale

< cell_rsrq >

Maximum reference signal received quality value combined across Tx-Rx pairs. In linear scale

< valid >

Indicates the validity of the structure fields

0 – None of the fields are valid

1 – One or more of the fields is valid

<idle>

Indicates whether the UE is in Idle mode

0 - All Idle mode substructs are considered invalid, except for serving cell information

1 – UE is in Idle mode. All Idle mode substructs are considered valid

< ra_rnti >

Random access radio network temporary ID



< c_rnti >

Connected state, common, and UE-specific search space radio network temporary identification

< cqi wb >

Wideband CQI information

<enb_num_tx_antenna>

Number of Tx antenna on an LTE base station

< mcc >

Mobile country code

< mnc >

Mobile network code

< tac >

Total access communication

<num mnc digits >

Number of digits in mobile network code

< serving_cell_id >

LTE serving cell ID. This is the cell ID of the serving cell and can be found in the cell list. Range: 0 to 503

< freq_band_ind >

Operating band of the serving cell. Range: 1 to 64

< dl_bandwidth >

Transmission bandwidth configuration of the serving cell on the downlink. Range: 0 to 5

ul bandwidth >

Transmission bandwidth configuration of the serving cell on the uplink. Range: 0 to 5

< serv_rssnr >

Average reference signal signal-to-noise ratio of the serving cell over the last measurement period in decibels. Range: -10 to 30

<cell_pci>

Physical cell ID

<cell_idle_srxlev>

Suitable receive level

< scell_deact_timer >

SCell deactivation timer

< serving_cell_id >

LTE serving cell ID

< num_lte_cells >

Number of LTE cells

<idle threshX low>

To be considered for reselection, the suitable receive level value of an evaluated lower priority cell must be greater than this value

< idle_threshX_high >

To be considered for reselection, the suitable receive level value of an evaluated higher priority cell must be greater than this value

< idle_cell_resel_priority >

Cell reselection priority

< num_freq_groups >

Number of GSM frequency groups and the size of the frequency group array



< num_gsm_arfcn >

Number of GSM ARFCNs indicated, and the size of the GSM array

<idle thresh gsm high>

Reselection threshold for high priority layers

<idle_thresh_gsm_low>

Reselection threshold for low priority layers

<idle_ncc_permitted>

Bitmask that specifies whether a neighbor with a particular network color code is to be reported. Bit n set to 1 means that a neighbor with NCC n is to be included in the report

< num_wcdma_freqs >

Number of WCDMA frequencies and the size of the freq array

< uarfcn >

WCDMA layer frequency

< num_wcdma_cells >

Number of WCDMA cells indicated and the size of the WCDMA array

< idle_thresh_Xhigh >

Cell reselection priority. Range: 0 to 7

<idle thresh Xlow>

Reselection threshold for high priority layers

< num_cdma_freqs >

Number of CDMA frequencies and the size of the freq array

< channel_num >

Channel number

< band_class >

Band class

< num cdma cells >

Number of CDMA cells indicated and the size of the CDMA array

< pilot_pn_offset >

Neighbor cell pilot PN offset. Range: 0 to 511

< pilot_pn_phase >

Neighbor cell pilot PN phase. Range: 0 to 32767

< pilot_strength >

Neighbor cell pilot Ec/Io. Range: 1 to 63

< drx_enable >

Indicates whether to enable the Dedicate mode DRX

0 - drx is not enabled

1 – drx is enabled

< on_duration_timer >

On Duration timer. The value is the number of PDCCH subframes. The psf1 value corresponds to one PDCCH subframe, psf2 corresponds to two PDCCH subframes, etc. Default: FFS

< inactivity_timer >

DRX Inactivity timer. The value is the number of PDCCH subframes. The psf1 value corresponds to one PDCCH subframe, psf2 corresponds to two PDCCH subframes, etc. Default: FFS

< retx timer >

DRX Retransmission timer. The value is the number of PDCCH subframes

< long_drx_cycle >



DRX cycle

< long_drx_cycle_offset >

DRX start offset

< short_drx_cycle_enable >

Indicates whether short_drx_cycle is enabled

< short_drx_cycle >

Short DRX cycle.

< short_drx_cycle_timer >

DRX short cycle timer. The value is in multiples of short_drx_cycle. A value of 1 corresponds to one short_drx_cycle value, 2 corresponds to two short_drx_cycle values, etc.

< cqi_enable >

Indicates whether CQI reporting is enabled

0 - cqi is not enabled

1 – cqi is enabled

< cqi_reporting_mode_aperiodic_enable >

Indicates whether the CQI aperiodic reporting mode is enabled

0 – cqi aperiodic is not enabled

1 – cqi aperiodic is enabled

< cqi_reporting_mode_aperiodic >

CQI aperiodic reporting mode

< nom_pdsch_rs_epre_offset >

Provides the nominal measurement offset in dB between the physical downlink shared channel and the reference signal energy per resource block used by the UE when computing CQI

< cqi_reporting_periodic_present >

Indicates whether the reporting periodic information is present

<cqi_periodic_enable>

Indicates whether periodic reporting is enabled

< cqi_periodic_pucch_resource_index >

Physical uplink control channel resource index. Range: 0 to 767.

< cqi_periodic_cqi_pmi_cfg_index >

COI/PMI periodicity and offset configuration index. Range: 0 to 511

< cqi_periodic_format_indicator >

PUCCH CQI feedback type

< cqi_periodic_subband_cqi_k >

Parameter K. Used only if the CQI format indicator is set to CMAPI_LTE_L1_CQI_FORMAT_INDICATOR_PERIODIC_ SUBBAND. Range: 1 to 4

<cqi_periodic_ri_cfg_index_enable>

Indicates whether the rank indicator configuration index is enabled

< cqi_periodic_ri_cfg_index >

Rank indicator configuration index.

< cqi_periodic_sim_ack_nak_cqi >

Indicates whether the simultaneous transmission of ACK/NACK and CQI is allowed

< cqi_rel9_param_present >

Indicates whether the CQI Release 9 parameters are present

< cqi_rel9_param_cqi_mask_enable >

Indicates whether the CQI mask is enabled

< cqi_rel9_param_pmi_ri_report_configured >



Indicates whether the Precoding Matrix Indicator and Rank Indicator report is configured

< transmission_mode >

Antenna transmission mode for the PDSCH

< codebook_subset_restriction >

Bitmask of the codebook restriction. The bitmask is placed in the lower order bits

The number of bits are:

2 - n2TxAntenna-tm3

4 - n4TxAntenna-tm3

6-n2TxAntenna-tm4

64-n4TxAntenna-tm4

4-n2TxAntenna-tm5

16 - n4TxAntenna-tm5

4 - n2TxAntenna-tm6

16 – n4TxAntenna-tm6

< tx_antenna_selection_enabled >

Indicates whether the UE transmit antenna selection is enabled

< tx_antenna_selection_ctrl >

Indicates whether the UE transmit antenna selection control is closed loop or open loop

< paging_cycle >

UE paging cycle in milliseconds

< nb >

Used to derive the number of paging groups

< ue_id >

UE identity (IMSI) mod 1024



4.3.5.7.10 Show cell system information - +MONI

AT+MONI - This command is used to inquiring serving cell and neighbour cell		
sy	system information in GSM.	
AT+MONI=?	Test command responses:	
	+MONI: <cellno>, <cellset></cellset></cellno>	
	OK	
	Other: +MONI: Not in GSM mode	
AT+MONI?	Read command responses:	
	When extracting data for the serving cell and the network name is known:	
	+MONI: <netname>,BSIC:<bsic>,RxQual:<qual>,LAC:<lac>,Id:<id>,</id></lac></qual></bsic></netname>	
	ARFCN: <arfcn>,PWR:<dbm>dBm,C1: <c1>-C2: <c2></c2></c1></dbm></arfcn>	
	When extracting data for an adjacent cell: +MONI:Adj Cell <n>,[LAC:<lac>,Id:<id>],ARFCN:<arfcn>,</arfcn></id></lac></n>	
	PWR: <dbm>dBm, C1: <c1>-C2: <c2></c2></c1></dbm>	
	$[\ldots]$	
	OK	
	When the network name is unknown: +MONI:Cc: <cc>,Nc<nc>,BSIC:<bsic>,RxQual:<qual>,LAC:<lac>,</lac></qual></bsic></nc></cc>	
	Id: <id>, ARFCN:<arfcn>,PWR:<dbm>dBm,C1: <c1>-C2: <c2></c2></c1></dbm></arfcn></id>	
	When extracting data for an adjacent cell: +MONI:Adj Cell <n>,[LAC:<lac>,Id:<id>],ARFCN:<arfcn>,</arfcn></id></lac></n>	
	PWR: <dbm>dBm, C1: <c1>-C2: <c2></c2></c1></dbm>	
	[]	
	OK	
	When not in GSM mode	
	OK	



AT+MONI= <cellset parameters:<="" th=""></cellset>	
< CellSet >- Mandatory parameter. range is 0-7	
Write command responses:	
When CellSet = 0: +MONI: <netname>,BSIC:<bsic>,RxQual:<qual>,LAC:<lac>,Id:<id>,</id></lac></qual></bsic></netname>	
ARFCN: <arfcn>,PWR:<dbm>dBm,C1: <c1>-C2: <c2></c2></c1></dbm></arfcn>	
OK .	
When chosen in the range 1-6: +MONI:Adj Cell <n>,[LAC:<lac>,Id:<id>],ARFCN:<arfcn>,</arfcn></id></lac></n>	
PWR: <dbm>dBm, C1: <c1>-C2: <c2></c2></c1></dbm>	
]	
OK .	
When = 7: it is a special request to obtain information from the whole set of cells, just ike AT+MONI?	
When requested cell number less than actual existed: +MONI: no cell	
OK .	
When not in GSM mode:	
OK	
Execution command responses is the same as read command.	



Example	AT+MONI=?
	+MONI: Not in GSM mode
	AT+MONI=?
	+MONI: 4,0
	OK
	AT+MONI?
	+MONI:CMCC,BSIC:0,RxQual:0,LAC:33033,Id:183,ARFCN:53,
	PWR:-6 7dBm,C1:30-C2:140
	+MONI:Adj Cell1,[LAC:33033,Id:182],ARFCN:49,PWR:-73dBm,
	C1:23-C2:133
	+MONI: Adj Cell2,[LAC:33033,Id:181],ARFCN:47,PWR:-90dBm,
	C1:6-C2:116
	+MONI: Adj Cell3,[LAC:33033,Id:40581],ARFCN:44,PWR:-102dBm,
	C1:-3-C2:107
,	+MONI: Adj Cell4,[LAC:33033,Id:36193],ARFCN:46,PWR:-104dBm,
	C1:-3-C2:107
	OK
·	AT+MONI=0
	+MONI: CMCC,BSIC:0,RxQual:0,LAC:33033,Id:183,ARFCN:53,
	PWR:-65dBm,C1:32-C2:142
	ок
	AT+MONI=3
	+MONI: Adj Cell3,[LAC:33033,Id:40581],ARFCN:44,PWR:-104dBm,
	C1:-5-C2:105
	OK



	AT+MONI
	+MONI: CMCC,BSIC:0,RxQual:0,LAC:33033,Id:183,ARFCN:53,
	PWR:-67dBm,C1:30-C2:140
	+MONI: Adj Cell1,[LAC:33033,Id:182],ARFCN:49,PWR:-74dBm,
	C1:22-C2:132
	+MONI: Adj Cell2,[LAC:33033,Id:181],ARFCN:47,PWR:-90dBm,
	C1:6-C2:116
	+MONI: Adj Cell3,[LAC:33033,Id:40581],ARFCN:44,PWR:-103dBm,
	C1:-4-C2:106
	+MONI: Adj Cell4,[LAC:33033,Id:36193],ARFCN:46,PWR:-104dBm,
	C1:-3-C2:107
	ок
Reference	Vendor



AT+MONI Execution command responses:

available neighbour cells number currently received < CellSet > the last setting done with command, range is 0-7 <netname> name of network operator <cc> country code <nc> network operator code <n> progressive number of adjacent cell </n></nc></cc></netname>
the last setting done with command, range is 0-7 <netname> name of network operator <cc> country code <nc> network operator code <n> progressive number of adjacent cell <bsic> base station identification code <qual> quality of reception <lac> </lac></qual></bsic></n></nc></cc></netname>
<pre><netname> name of network operator <cc> country code <nc> network operator code <n> progressive number of adjacent cell <bsic> base station identification code <qual> quality of reception <lace></lace></qual></bsic></n></nc></cc></netname></pre>
name of network operator <cc> country code <nc> network operator code <n> progressive number of adjacent cell <bsic> base station identification code <qual> quality of reception <lac></lac></qual></bsic></n></nc></cc>
<pre><cc> country code <nc> network operator code <n> progressive number of adjacent cell <bsic> base station identification code <qual> quality of reception <lac></lac></qual></bsic></n></nc></cc></pre>
country code <nc> network operator code <n> progressive number of adjacent cell base station identification code <qual> quality of reception <lac></lac></qual></n></nc>
<pre><nc> network operator code <n> progressive number of adjacent cell <bsic> base station identification code <qual> quality of reception <lac></lac></qual></bsic></n></nc></pre>
network operator code <n></n>
<pre></pre>
progressive number of adjacent cell base station identification code <qual> quality of reception <lac></lac></qual>
base station identification code <qual> quality of reception <lac></lac></qual>
<qual> quality of reception <lac></lac></qual>
quality of reception <lac></lac>
<lac></lac>
localization area code
<id></id>
cell identifier
<arfcn></arfcn>
assigned radio channel
<dbm></dbm>
received signal strength in dBm



4.3.5.8 GPS AT command

4.3.5.8.1 Start/Stop GPS position session - +CGPS $\,$

+CGPS – start/stop G	CGPS – start/stop GPS position session		
AT+ CGPS=	start/stop GPS position session.		
<on off="">[,<mode>]</mode></on>	parameters:		
	<on off="">:</on>		
	0 – stop GPS session 1 – start GPS session		
	<mode>:</mode>		
	ignore - Standalone mode 1 – standalone mode 2 – UE-based mode 3 – UE-assisted mode		
	attention:		
	UE-based and UE-assisted mode depend on URL (AT+CGPSURL) and certificate (AT+CGPSSSL). when UE-based mode failed, will switch to Standalone mode.		
	return: when position success, output		
	+CGPS: <lat>,<lon>,<alt>,<time></time></alt></lon></lat>		
	Among:		
	<lat></lat>		
	Latitude of current position. Unit is in 10 ⁸ degree		
	<lask style="background-color: blue;">log></lask>		
	Longitude of current position. Unit is in 10^8 degree		
	<alt></alt>		
	MSL Altitude. Unit is meters.		
	<date></date>		
	UTC Date. Output format is ddmmyyyy		
	<time> UTC Time. Output format is hhmmss</time>		
AT+ CGPS?	Get current GPS status and current mode		
411 + COI 5!	return:		
	+CGPS: <on off="">,<mode></mode></on>		



AT+ CGPS=?	Test command return value range
	+ cgps: <0,1>[,<1-3>]
Examples	AT+CGPS?
	ОК
	AT+CGPS=1,1
	ОК

4.3.5.8.2 Get current GPS position information - +CGPSINFO

+CGPSINFO – Get curi	rent GPS position information
AT+ CGPSINFO =	Get current GPS position information.
<time></time>	
	parameters:
	<time>:</time>
	Range is (0-255) seconds, report the GPS information every time seconds. When time is 0, cancel reporting.
	return:
	ок
	ERROR
	Information report every time seconds is: +CGPSINFO:[<lat>],[<n s="">],[<log>],[<e w="">],[<date>],[<utc time="">],[<alt>],[<speed>],[<course>] OK</course></speed></alt></utc></date></e></log></n></lat>
	Among:
	<lat></lat>
	Latitude of current position.
	<log></log>
	Longitude of current position.
	<alt></alt>
	MSL Altitude. Unit is meters
	<date></date>
	Date. Output format is ddmmyy
	<utc time=""></utc>
	UTC Time. Output format is hhmmss
	<speed></speed>
	Speed Over Ground. Unit is knots
	<course></course>



	Course. Degrees
	Course. Degrees
	<n s=""></n>
	N/S Indicator, N=north or S=south
	<e w=""></e>
	E/W Indicator, E=east or W=west
AT+ CGPSINFO?	Get GPS current information report time.
	return:
	+ CGPSINFO: <time></time>
AT+ CGPSINFO =?	Test command return value range
	+ CGPSINFO: <0,255>
AT+ CGPSINFO	Get current GPS position information directly
	+CGPSINFO:[<lat>],[<n s="">],[<log>],[<e w="">],[<date>],[<utc< td=""></utc<></date></e></log></n></lat>
	time>],[<alt>],[<speed>],[<course>]</course></speed></alt>
F1	OK
Examples	AT+ CGPSINFO?
	+ CGPSINFO:5 OK
	AT+ CGPSINFO =3
	OK

4.3.5.8.3 Cold Start GPS - + CGPSCOLD

+ CGPSCOLD- cold start GPS		
AT+ CGPSCOLD	cold start GPS	
	return:	
	ок	
	ERROR	
AT+ CGPSCOLD=?	Get command value range	
	return:	
	ок	
Examples	AT+ CGPSCOLD=?	
	ок	
	AT+ CGPSCOLD	
	ок	



4.3.5.8.4 Hot Start GPS - + CGPSHOT

+ CGPSHOT– hot start GPS		
AT+ CGPSHOT	hot start GPS	
	return:	
	OK	
	ERROR	
AT+ CGPSHOT =?	Get command value range	
	return:	
	ок	
Examples	AT+ CGPSHOT =?	
	ОК	
	AT+ CGPSHOT	
	OK	



4.3.5.8.5 Set AGPS default server URL - +CGPSURL

+CGPSURL -This co	mmand is used to set AGPS default server URL. It will take effect only after restarting
AT+ CGPSURL = <url></url>	This command is used to set AGPS default server URL. It will take effect only after restarting _o
	parameters:
	<url>:</url>
	default server URL. It needs double quotation marks
	return:
	OK
	ERROR
AT+ CGPSURL?	Get current AGPS default URL return: + CGPSURL: <url> OK</url>
AT+ CGPSURL =?	Test command return value range OK
Examples	AT+ CGPSURL=? OK AT+ CGPSURL = 211.151.53.216:7275 OK



4.3.5.8.6 Select Transport Security - + CGPSSSL

+CGPSSSL -This command is used to select transport security, used certificate or not. The certificate gets from local carrier. If the AGPS server doesn't need certificate, execute AT+CGPSSSL=0 AT+ CGPSSSL = This command is used to select transport security, used certificate or not. The certificate gets from local carrier. If the AGPS server doesn't need certificate, execute <SSL> AT+CGPSSSL=0 parameters: <SSL>: 0 disable SSL 1 enable SSL return: OK ERROR AT+ CGPSSSL? Get current AGPS default SSL return: + CGPSSSL: <SSL> OK AT+ CGPSSSL €? Test command return value range + CGPSSSL: <0-1> OK AT+ CGPSSSL =0 Examples OK



4.3.5.8.7 Auto Start GPS When Module Powers On - +CGPSATUO

	ommand is used to start GPS automaticly when module powers on, GPS is closed fect only after restarting
AT+ CGPSATUO =	This command is used to start GPS automaticly when module powers on o
<auto></auto>	
	parameters:
	< auto >:
	0 disable 1 enable
	return:
	ок
	ERROR
AT+ CGPSATUO?	Get current AGPS defalut auto value
	+ CGPSATUO: <auto></auto>
AT+ CGPSATUO =?	Test command return value range
	+ CGPSATUO: <0-1> OK
Examples	AT+ CGPSATUO =0
	OK



4.3.5.8.8 Used to Configure NMEA Output Sentences - +CGPSNMEA

+CGPSNMEA - This command is used to configure NMEA output sentences which are generated by the gpsOne engine when position data is available. AT+ CGPSNMEA = This command is used to configure NMEA output sentences which are generated by the gpsOne engine when position data is available. <nmea> parameters: < nmea >: Each bit enables an NMEA sentence output as follows: Bit 0 – GPGGA (global positioning system fix data) Bit 1 – GPRMC (recommended minimum specific GPS/TRANSIT data) Bit 2 – GPGSV (GPS satellites in view) Bit 3 – GPGSA (GPS DOP and active satellites) Bit 4 – GPVTG (track made good and ground speed) Bit 5 –PQXFI (Global Positioning System Extended Fix Data.) Bit 6 –GLGSV (GLONASS satellites in view GLONASS fixes only) Bit 7 – GNGSA (DOP and GLONASS satellites; GPS+GLONASS or GLONASS-only fixes. Contains DOP information for all active satellites, but other information is GLONASS-only) Bit 8 –GNGNS (fix data for GNSS receivers; output for GPS-only, GLONASS-only, hybrid GLONASS+GPS fixes, or even AFLT fixes) Bit 9 - PQGSA (bds qzss DOP and active satellites) Bit 10 - PQGSV (bds qzss satellites in view) Bit 11 - GPGLL (Geographic Position – Latitude/Longitude) Bit 12 - GPZDA (Time & Date – UTC, Day, Month, Year and Local Time Zone) return: OK ERROR



AT+ CGPSNMEA?	Get current AGPS default nmea value
	return: + CGPSNMEA: <nmea> OK</nmea>
AT+ CGPSNMEA =?	Test command return value range + CGPSNMEA: <0- 8191> OK
Examples	AT+ CGPSNMEA = 8191 OK





4.3.5.8.9 Specifies GPS Session - + CGPSMD

+CGPSMD –This consession or user plane	mmand specifies if the Mobile-Originated (MO) GPS session should use the control plane session.
AT+ CGPSMD = <mo></mo>	This command specifies if the Mobile-Originated (MO) GPS session should use the control plane session or user plane session.
	parameters:
	< mo >:
	0 - control plane 1 - user plane
	return:
	ок
	ERROR
AT+ CGPSMD?	Get current AGPS default mo value Return:
	+ CGPSNMEA: <mo></mo>
AT+ CGPSMD=?	Test command return value range
	+ CGPSMD: <0-1> OK
Examples	AT+ CGPSMD =1
	OK



4.3.5.8.10 Delete the GPS Information - +CGPSDEL

+CGPSDEL –This c cold start.	ommand is used to delete the GPS information. After executing the command, GPS start is
AT+ CGPSDEL	This command is used to delete the GPS information. After executing the command, GPS start is cold start.
	return:
	ОК
	ERROR
AT+ CGPSDEL?	return:
	OK
Examples	AT+ CGPSDEL=?
	OK
	AT+ CGPSDEL
	ОК

4.3.5.8.11 Enable/Disable GPS XTRA Function - +CGPSXE

+CGPSXE –Enable/I	Disable GPS XTRA function, It will take effect only after restarting
AT+ CGPSXE =	Enable/Disable GPS XTRA function
<on off=""></on>	
	parameters:
	< on/off >:
	on - Enable GPS XTRA
	off - Disable GPS XTRA
	return:
	ОК
	ERROR
AT+ CGPSXE?	Get current value
	return:
	+ CGPSXE: <on off=""></on>
AT+ CGPSXE=?	OK Test command return value range
AI+ COI SAL=:	_
	+ CGPSXE: <0-1> OK
Examples	AT+ CGPSXE=1
-	ок



4.3.5.8.12 Download XTRA Assistant file - +CGPSXD

+CGPSXD –Downloa	nd XTRA assistant file
AT+ CGPSXD= <server></server>	This command is used to download the GPS XTRA assistant file from network through http protocol. Module will download the latest assistant file form server and write the file into module.
	parameters:
	< server>:
	0 - xtra server 1
	1 - xtra server 2
	2 - xtra server 3
	return: OK ERROR
AT+ CGPSXD?	Get current value return: + CGPSXD: <0-2>
AT+ CGPSXD =?	Test command return value range
	ОК
Examples	AT+ CGPSXD
	OK



4.3.5.8.13 Download XTRA Assistant File Auto - +CGPSXDAUTO

+CGPSXDAUTO -Dov	wnload XTRA assistant file automatically, It will take effect only after restarting
AT+ CGPSXDAUTO = <on off=""></on>	This command is used to control download assistant file automatically or not when GPS start.
	XTRA function must enable for using this command. If assistant file doesn't exist or check error, the module will download and inject the assistant file automatically.
	parameters:
	< on/off >:
	on - enable
	off - disable
	return:
	OK ERROR
AT+ CGPSXDAUTO?	Get current value return:
	+ CGPSXDAUTO: <on off=""></on>
	Test command return value range
=?	+ CGPSXDAUTO: <0-1> OK
Examples	AT+ CGPSXDAUTO =1
	ОК



4.3.5.8.14 Report NMEA-0183 Sentence - +CGPSINFOCFG

+CGPSINFOCFG –This command is used to report NMEA-0183 sentence. CGPSINFOCFGThis command is used to report NMEA-0183 sentence. =<time>[,<nmea>] parameters: < time >: Range is 0-255, after set <time> will report the GPS NMEA sentence every the seconds. If <time>=0, or nmea =0 module stop reporting the NMEA sentence < nmea >: Each bit enables an NMEA sentence output as follows: Bit 0 – GPGGA (global positioning system fix data) Bit 1 – GPRMC (recommended minimum specific GPS/TRANSIT data) Bit 2 – GPGSV (GPS satellites in view) Bit 3 – GPGSA (GPS DOP and active satellites) Bit 4 – GPVTG (track made good and ground speed) Bit 5 –PQXFI (Global Positioning System Extended Fix Data.) Bit 6 –GLGSV (GLONASS satellites in view GLONASS fixes only) Bit 7 – GNGSA (DOP and GLONASS satellites; GPS+GLONASS or GLONASS-only fixes. Contains DOP information for all active satellites, but other information is GLONASS-only) Bit 8 –GNGNS (fix data for GNSS receivers; output for GPS-only, GLONASS-only, hybrid GLONASS+GPS fixes, or even AFLT fixes) Bit 9 - PQGSA (bds qzss DOP and active satellites) Bit 10 - PQGSV (bds qzss satellites in view) Bit 11 - GPGLL (Geographic Position – Latitude/Longitude) Bit 12 - GPZDA (Time & Date – UTC, Day, Month, Year and Local Time Zone) Range is 0-8191 Return: OK ERROR (NMEA-0183 Sentence)



AT+ CGPSINFOCFG? Get current value		
THI COIDING OCTO.	Get earrent value	
	Return:	
	+ CGPSINFOCFG: <time>, <nmea></nmea></time>	
	OK	
AT+ CGPSINFOCFG	Test command return value range	
=?		
Γ'	+ CGPSINFOCFG: <0-255>,<0-8191>	
	OK	
+CGPSINFOCFG -Thi	s command is used to report NMEA-0183 sentence.	
Examples	AT+ CGPSINFOCFG =5,63	
	OK	
	OK	
	\$GPGSV,4,1,16,04,53,057,44,02,55,334,44,10,61,023,44,05,45,253,43*7D	
	\$GPGSV,4,2,16,25,10,300,40,17,25,147,40,12,22,271,38,13,28,053,38*77	
	\$GPGSV,4,3,16,26,09,187,35,23,06,036,34,24,,,,27,,,*7A	
	\$GPGSV,4,4,16,09,,,,31,,,,30,,,,29,,,*7D	
	\$GPGGA,051147.0,3113.320991,N,12121.248076,E,1,10,0.8,47.5,M,0,M,,*45	
	\$GPVTG,NaN,T,,M,0.0,N,0.0,K,A*42	
	\$GPRMC,051147.0,A,3113.320991,N,12121.248076,E,0.0,0.0,211211,,,A*66	
	\$GPGSA,A,3,02,04,05,10,12,13,17,23,25,26,,,1.4,0.8,1.2*3B	

4.3.5.8.15 Configure Positioning Mode - +CGPSPMD

+CGPSPMD -Configure positioning mode



AT+CGPSPMD = <mode></mode>	This command is used to configure the positioning modes support.
	parameters:
	< mode >:
	Bit 0 – Standalone Bit 1 – UP MS-based Bit 2 – UP MS-assisted Bit 3 – CP MS-based (2G) Bit 4 – CP MS-assisted (2G) Bit 5 – CP UE-based (3G) Bit 6 – CP UE-assisted (3G) Bit 7 – NOT USED Bit 8 – UP MS-based (4G) Bit 9 – UP MS-assisted(4G) Bit 10 – CP MS-based (4G)
	Range is 0-65535(bit12-bit15 reserve) return: OK ERROR
AT+ CGPSPMD?	Get current value return: + CGPSPMD: <mode></mode>
	OK
AT+ CGPSPMD =?	Test command return value range
	+ CGPSPMD: <0-65535> OK
Examples	AT+ CGPSPMD = 65535 OK



4.3.5.8.16 Based Mode Switch to Standalone - +CGPSMSB

+CGPSMSB -Configur	re based mode switch to standalone
AT+CGPSMSB = <mode></mode>	This command is used to configure AGPS based mode switching to standalone mode automatically or not.
	parameters:
	< mode >:
	0 - Don't switch to standalone mode automatically 1 - switch to standalone mode automatically
	return:
	ОК
	ERROR
AT+ CGPSMSB?	Get current value
	+ CGPSMSB: <mode></mode>
AT+ CGPSMSB =?	Test command return value range
	+ CGPSMSB: <0-1> OK
Examples	AT + CGPSMSB = 1
	ОК



4.3.5.8.17 Configure Positioning Desired Accuracy - +CGPSHOR

+CGPSHOR -Configure positioning desired accuracy	
AT+CGPSHOR = <acc></acc>	Configure positioning desired accuracy
	parameters:
	< acc >: positioning desired accuracy
	Range is 0-1800000, default is 50
	return:
	ОК
	ERROR
AT+ CGPSHOR?	Get current value
	return:
	+ CGPSHOR: <acc></acc>
AT+ CGPSHOR =?	Test command return value range
	+ CGPSHOR: <0-1800000> OK
Examples	AT+ CGPSHOR = 60
	OK

4.3.5.8.18 LCS Respond Positioning Request - +CGPSNOTIFY

+CGPSNOTIFY -LCS respond positioning request	
AT+CGPSNOTIFY = <resp></resp>	This command is used to respond to the incoming request for positioning request message. parameters: < resp >: 0 –LCS notify verify accept 1 –LCS notify verify deny
	2 –LCS notify verify no response return: OK ERROR
AT+CGPSNOTIFY =?	Test command return value range: + CGPSNOTIFY: <0-2> OK
Examples	AT+ CGPSNOTIFY = 0 OK



4.3.5.8.19 Get Station Positioning - +GTPOS

ATT. OTDOO	
AT+GTPOS get stat	non positioning.
AT+ GTPOS =	The command is used to retrieve information base station positioning the command is
<mode></mode>	used to retrieve information base station positioning.(not support CDMA network)
	<mode></mode>
	0 - Close the base station positioning function
	1 - Open the base station positioning function
	2 - Get the base station positioning function
	Responses
	OK
	CONNECT OK
	CONNECT FAILED
	ERROR
AT+ GTPOS?	+ GTPOS: <mode></mode>
	ОК
AT+ GTPOS =?	+ GTPOS: (list of supported <mode>s)</mode>
	OK
Example	at+gtpos=1
	OK
	CONNECT OK
	at+gtpos=2
	+GTPOS:104.0553231,30.5497824
	OK
	at+gtpos=0 OK
	ON



4.3.5.8.20 Set gps output port and position system- +cgpsnmeatype

AT+cpgsnmeatype S	Set gps output port and position system. It will take effect only after restarting
AT+cpgsnmeatype = <port>, <system></system></port>	The command is used to retrieve information base station positioning the command is used to retrieve information base station positioning.
	<port></port>
	0 - output gps date from at port
	1 - output gps date from uart1 port
	2 - output gps date from all active port
	<system></system>
	0. gps 和 glo
	1.gps、glo、bds
	2. gps、bds、gal
	3. gps、glo、bds、gal
	4. gps、glo、gal 5. gps、gal
	6. gps、glo、qzss
	7. gps, glo, bds, qzss
	Responses
	ОК
	ERROR
AT+ cpgsnmeatype?	+ cpgsnmeatype : <port>,<system></system></port>
rii repgsimeatype.	OK
AT+ cpgsnmeatype =?	+ cpgsnmeatype: (0-2),(0-7)
	ОК
Example	at+ cpgsnmeatype =1
	OK
	at+ cpgsnmeatype =2,2
	OK



4.3.5.8.21 Xtra File Download Error Code

Numeric Format	Verbose Format General errors:
-2	Phone is no network
201	Subsystem establishment in progress.
202	Network subsystem unavailable.
203	PPP is closing.
204	Existing net subsystem resources.
205	Physlink going dormant.
300	HTTP service is not opened.
301	HTTP service has opened.
302	AT parameter error.
303	DNS error.
304	Action error.
305	Request timeout.
306	Downloading file.
307	URL not set.
308	Header fielder's number exceeds the limit
309	Unsupported header fielder.
350	Unknown HTTP error



4.3.5.9 SMS extended AT commands

4.3.5.9.1 Read Message Only - +CMGRO

AT+CMGRO - Read	message only
	+CMGRO command is used to return message with location value <index> from message storage <mem1> to the TE, but the message's status does not change.</mem1></index>
	Parameters: <index>- Mandatory parameter. Integer type; value in the range of location numbers</index>
	supported by the associated memory and start with zero.
	Refer to command AT+CMGR.
ATT. CD (CD C)	
AT+CMGRO=?	Test command returns range of the parameters.
Example	AT+CMGRO=3 +CMGRO: "REC UNREAD","10086",,
	"16/07/12,11:14:19+32"
	This a test SMS
	OK
	AT+CMGRO=?
	OK
Reference	

4.3.5.9.2 Change Message Status - +CMGMT

AT+CMGMT - Chan	AT+CMGMT - Change message status	
AT+CMGMT= <inde x></inde 	+CMGMT command is used to change the message status. If the status is unread, it will be changed read. Other statuses don't change. Parameters:	
$C(\mathcal{O})$	<index>- Mandatory parameter. Integer type; value in the range of location numbers supported by the associated memory and start with zero.</index>	
AT+CMGMT=?	Test command returns range of the parameters.	
Example	AT+CMGMT=3 OK AT+CMGMT=? OK	
Reference		



4.3.5.9.3 Set Message Valid Period - +CMVP

AT+CMVP - Set me	AT+CMVP - Set message valid period	
AT+CMVP= <vp></vp>	+CMVP command is used to set valid period for sending short message.	
	Parameters:	
	<vp>- Mandatory parameter. Integer type,</vp>	
	Validity period value:	
	0 to 143 (<vp>+1) x 5 minutes (up to 12 hours)</vp>	
	144 to 167 12 hours + (<vp>-143) x 30 minutes</vp>	
	168 to 196 (<vp>-166) x 1 day</vp>	
	197 to 255 (<vp>-192) x 1 week</vp>	
	Note: parameter vp can only be set when <fo> value is SMS-SUBMIT.</fo>	
AT+CMVP=?	Test command returns range of the parameters.	
AT+CMVP?	Read command returns the current configuration value of the parameter	
Example	AT+CSMP?	
	+CSMP: ,,0,0	
	OK	
	AT+CMVP=167	
	ERROR	
	AT+CSMP=17	
	ОК	
	AT+CSMP?	
	+CSMP: 17,,0,0	
	ОК	
	AT+CMVP=167	
	OK	
	AT+CMVP?	
	+CMVP:167	
	OK	
	AT+CMVP=?	
	+CMVP:(0-255)	
	OK	
D. C.		
Reference		



4.3.5.9.4 Read and Delete Message - +CMGRD

AT+CMGRD - Read and delete message	
	+CMGRD command is used to read message, and delete the message at the same time. It integrate AT+CMGR and AT+CMGD, but it doesn't change the message status.
	Parameters:
	<index>- Mandatory parameter. Integer type; value in the range of location numbers supported by the associated memory and start with zero.</index>
	Refer to command AT+CMGR and AT+CMGD.
AT+CMGRD=?	Test command returns range of the parameters.
Example	AT+CMGRD=3
	+CMGRD: "REC READ","10086",,"16/07/12,11:14:19+32"
	This a test SMS
	ок
	AT+CMGRD=?
	OK
Reference	



4.3.5.9.5 Send Message Quickly - +CMGSO

AT+CMGSO - Send 1	nessage quickly
If text mode:	+CMGSO command is used to send message from a TE to the network (SMS-SUBMIT).
(AT+CMGF=1)	But it's different from AT+CMGS. This command only need one time input, and wait for ">" needless.
AT+CMGSO= <da>, <text></text></da>	
[, <toda>]</toda>	Parameters:
If pdu mode:	<da>- Mandatory parameter. Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.</toda></da>
(AT+CMGF=0)	
	<text>- Mandatory parameter. Content of message.</text>
h>, <pducontent></pducontent>	
	<toda>- Optional parameter. TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.</da></toda>
	<pre><length>- Mandatory parameter. Integer type value indicating in PDU mode (AT+CMGF=0), the length of the actual TP data unit in octets.</length></pre>
	<pducontent>- Mandatory parameter. Content of message.</pducontent>
	NOTE: In text mode, the maximum length of an SMS depends on the used coding scheme: It is 160 characters if the 7 bit GSM coding scheme is used.
AT+CMGSO=?	Test command returns range of the parameters.
Example	AT+CMGSO="10086","CMGSO TEST"
	+CMGSO: 122
	OK
	AT+CMGSO=?
	ок
Reference	



4.3.5.9.6 Write Message to Memory Quickly - +CMGWO

AT+CMGWO - Write message to memory quickly	
If text mode:	+CMGWO command stores message (either SMS-DELIVER or SMS-SUBMIT) to
(AT+CMGF=1)	memory storage <mem2>. But it's different from AT+CMGW. This command only need one time input, and wait for ">" needless.</mem2>
AT+CMGWO= <da>,</da>	
<text>[,<toda>]</toda></text>	Parameters:
If pdu mode:	<da>- Mandatory parameter. Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of</da>
	the currently selected TE character set, type of address given by <toda>.</toda>
AT+CMGWO= <leng< td=""><td></td></leng<>	
th>, <pducontent></pducontent>	<text>- Mandatory parameter. Content of message.</text>
	vialidatory parameter. Content of message.
	<toda>- Optional parameter. TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is</da></toda>
	129). The range of value is from 128 to 255.
	<pre><length>- Mandatory parameter. Integer type value indicating in PDU mode</length></pre>
+	(AT+CMGF=0), the length of the actual TP data unit in octets.
	and vacantants. Mandatowy navamatan Contant of massage
	<pd><pducontent>- Mandatory parameter. Content of message.</pducontent></pd>
AT+CMGWO=?	Test command returns range of the parameters.
Example	AT+CMGWO="10086","CMGWO TEST"
	+CMGWO: 0
	OK
	AT+CMGWO=?
	ок
Reference	



4.3.5.9.7 Send message - +CMGSEX

AT+CMGSEX - Send message		
	+CMGSEX is used to send message from a TE to the network (SMS-SUBMIT).	
(AT+CMGF=1)	Consider to asset to some message from a 12 to the message from (2012)	
AT+CMGSEX= <da></da>	Parameters:	
[, <toda>][,<mr>,<ms g_seg>,<msg_total>] <cr></cr></msg_total></ms </mr></toda>	<da>- Mandatory parameter. Destination-Address, Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set, type of address given by <toda>.</toda></da>	
Text is entered.		
	<toda>- Optional parameter. TP-Destination-Address, Type-of-Address octet in integer format. (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129). The range of value is from 128 to 255.</da></toda>	
If pdu mode:	225). The range of talue is 115m 125 to 200.	
(AT+CMGF=0)	<mr>- Optional parameter. Message Reference.</mr>	
AT+CMGSEX= <len gth><cr></cr></len 	GSM 03.40 TP-Message-Reference in integer format.	
PDU is entered		
<ctrl-z esc=""></ctrl-z>	<msg_seg>- Optional parameter. The segment number for long sms.</msg_seg>	
	<msg_total>- Optional parameter. The total number of the segments for long sms. Its range is from 2 to 255.</msg_total>	
	<length>- Mandatory parameter. Integer type value indicating in PDU mode (AT+CMGF=0), the length of the actual TP data unit in octets.</length>	
	NOTE: In text mode, the maximum length of an SMS depends on the used coding scheme: For single SMS, it is 160 characters if the 7 bit GSM coding scheme is used; For multiple long sms, it is 153 characters if the 7 bit GSM coding scheme is used.	
AT+CMGSEX=?	Test command returns range of the parameters.	
Example	AT+CMGSEX="10086",123,1,2 <cr>(TEXT MODE)</cr>	
	> CMGSEX part1 <ctrl-z esc=""></ctrl-z>	
	+CMGSEX: 123	
	OK	
	AT+CMGSEX="10086",123,2,2 <cr>(TEXT MODE)</cr>	
	> CMGSEX part2 <ctrl-z esc=""></ctrl-z>	
	+CMGSEX: 123	
	ок	
	AT+CMGSEX=?	
	OK	
Reference		



4.3.5.9.8 Generate a New Message Reference - +CMGENREF

AT+CMGENREF - Generate a new message reference	
	+CMGENREF command is used to generate a new message reference which can be used by AT+CMGSEX.
	Parameters: NONE
	Note: Message Reference. GSM 03.40 TP-Message-Reference in integer format.
AT+CMGENREF=?	Test command returns range of the parameters.
Example	AT+CMGENREF
	+CMGENREF:123
	OK
	AT+CMGENREF=?
	ОК
Reference	

4.3.5.9.9 Send Multi Messages from Storage - +CMSSEX

AT+CMSSEX - Send multi messages from storage	
AT+CMSSEX= <index> [,<index>[,]]</index></index>	+CMSSEX command is used to send messages with location value <index1>,<index2>,<index3> from preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). The max count of index is 10 one time. Parameters: <index>- Mandatory parameter. Integer type; value in the range of location numbers supported by the associated memory and start with zero.</index></mem2></index3></index2></index1>
AT+CMSSEX=?	Test command returns range of the parameters.
Example	AT+CMGL="ALL"
	+CMGL: 1,"STO UNSENT","10086",,
	SMS info 1
	+CMGL: 2,"STO UNSENT","10086",,
	SMS info 2
	ок
	AT+CMSSEX=1,2,3
	+CMSSEX: 124
	+CMSSEX: 125
	+CMS ERROR: 321
	OK
Reference	



4.3.5.9.10 Send Message from Storage to Multi DA - +CMSSEXM

AT+CMSSEXM - Send message from storage to multi DA	
AT+CMSSEXM=	+CMSSEXM command is used to send message with location value <index> from</index>
<index>, <storage>,<pb_index 1></pb_index </storage></index>	preferred message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). The DA is the PB index in the specified PB storage max to 10.</mem2>
[, <pb_index2>[,<></pb_index2>	Parameters:
]]]	<index>- Mandatory parameter. Integer type; value in the range of location numbers supported by the associated memory and start with zero.</index>
	<storage>- Mandatory parameter. Values reserved by the present document:</storage>
	"DC" -> ME dialed calls list. Capacity: 100 entries max.
	"MC" -> ME missed calls list. Capacity: 100 entries max.
	"RC" -> ME received calls list. Capacity: 100 entries max.
	"SM" -> SIM phonebook. Capacity: depending on SIM card
	"ME" -> Mobile Equipment phonebook. Capacity: 500 entries max.
	<pb_index>- Mandatory parameter. Integer type value in the range of location numbers of phonebook memory.</pb_index>
AT+CMSSEXM=?	Test command returns range of the parameters.
Example	AT+CMGL="ALL"
	+CMGL: 0,"STO UNSENT","10086",,
	CMGWO TEST
	OK
	AT+CPBS="DC"
	ОК
	AT+CPBR=1,50
	+CPBR: 2,"*99#",129,"",,"",0,,
	+CPBR: 3,"",129,"",,"",0,,
	+CPBR: 4,"*99#",129,"",,"",0,,
	+CPBR: 5,"10086",129,"",,"",0,,
	OK
	AT+CMSSEXM=0,"DC",5,6
	+CMSSEXM: 126
	+CMS ERROR: 313
Reference	OK
Kererence	



4.3.5.9.11 SMS CMS error code enum:

SMS CMS error code enum:		
Error Code	Error information	
107	DSAT_CMS_OTHER_GENERAL_PROBLEMS	
300	DSAT_CMS_ME_FAILURE	
301	DSAT_CMS_SERVICE_RESERVED	
302	DSAT_CMS_OP_NOT_ALLOWED	
303	DSAT_CMS_OP_NOT_SUPPORTED	
304	DSAT_CMS_INVALID_PDU_PARAM	
305	DSAT_CMS_INVALID_TXT_PARAM	
310	DSAT_CMS_SIM_NOT_INSERTED	
311	DSAT_CMS_SIM_PIN_REQ	
312	DSAT_CMS_PHSIM_PIN_REQ	
313	DSAT_CMS_SIM_FAILURE	
314	DSAT_CMS_SIM_BUSY	
315	DSAT_CMS_SIM_WRONG	
316	DSAT_CMS_SIM_PUK_REQ	
317	DSAT_CMS_SIM_PIN2_REQ	
318	DSAT_CMS_SIM_PUK2_REQ	
320	DSAT_CMS_MEM_FAILURE	
321	DSAT_CMS_INVALID_INDEX	
322	DSAT_CMS_MEM_FULL	
330	DSAT_CMS_SCA_ADDR_UNKNOWN	
331	DSAT_CMS_NO_SERVICE	
332	DSAT_CMS_NETWORK_TIMEOUT	
500	DSAT_CMS_UNKNOWN_ERR	
510	DSAT_CMS_MSG_BLOCKED	



4.3.5.10 AT Commands for Status Control

4.3.5.10.1 Read ICCID from SIM card - +CICCID

+CICCID - Read ICC	CID from SIM card
AT+CICCID	This command is used to Read the ICCID from SIM card
	Responses
	+ICCID: <iccid></iccid>
	OK
	ERROR
	+CME ERROR: <err></err>
	Defined values
	<iccid></iccid>
	Integrate circuit card identity, a standard ICCID is a 20-digit serial number of the SIM
	card, it presents the publish state, network code, publish area, publish date, publish
	manufacture and press serial number of the SIM card.
AT+CICCID=?	Test Command:
	OV
	OK
Example	AT+CICCID
	+ICCID: 898600700907A6019125
	OK
	AT+CICCID=?
	OK
	AT+CICCID ? (not support read command)
	ERROR
	AT+CICCID = (not support write command)
	ERROR



4.3.5.10.2 Times remain to input SIM PIN/PUK - +SPIC

SPIC - Times remain to input SIM PIN/PUK		
AT+SPIC	This command is used to inquire times remain to input SIM PIN/PUK.	
	Responses	
	+SPIC: <pin1>,<puk1>,<pin2>,<puk2></puk2></pin2></puk1></pin1>	
	OK	
	Defined values	
	<pin1></pin1>	
	Times remain to input PIN1 code.	
	<puk1></puk1>	
	Times remain to input PUK1 code.	
	<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>	
	Times remain to input PIN2 code. <pre><puk2></puk2></pre>	
	Times remain to input PUK2 code.	
	Times remain to input I OK2 code.	
AT+SPIC =?	Test Command : OK	
Example	AT+SPIC +SPIC: 3,10,0,10	
	OK	
	AT+SPIC=?	
	OK	
	AT+SPIC? (not support read command) ERROR	
	AT+SPIC=0,0,0,0 (not support write command) ERROR	



4.3.5.10.3 Get service provider name from SIM -+CSPN

+CSPN - Get servi	ce provider name from SIM
AT+CSPN?	This command is used to get service provider name from SIM card.
	Responses +CSPN: <spn>,<display mode=""> OK</display></spn>
	ERROR
	+CME ERROR: <err></err>
	Defined values <spn></spn>
	String type; service provider name on SIM
	<display mode=""></display>
	0 – doesn't display PLMN. Already registered on PLMN.
	2 – display PLMN
	Note: not support in CDMA only mode
AT+CSPN=?	Test Command : OK
Example	AT+CSPN?
	+CSPN: "CMCC",0
	OK
	AT+CSPN=?
	OK
	AT+CSPN (not support Execution command) ERROR
	AT+CSPN=" ",0 (not support write command) ERROR



4.3.5.10.4 Set CSQ report - +AUTOCSQ

+AUTOCSQ - Set CS	SO report
AT+AUTOCSQ= <auto>,<mode></mode></auto>	This command is used to enable or disable automatic report CSQ information, when automatic report enabled, the module reports CSQ information every five seconds or only after <rssi> or ber> is changed, the format of automatic report is "+CSQ: <rssi>, ber>".</rssi></rssi>
	Responses OK
	Defined values <auto></auto>
	0 – disable automatic report1 – enable automatic reportmode>
	 O – CSQ automatic report every five seconds 1 – CSQ automatic report only after <rssi> or <ber> is changed</ber></rssi>
	NOTE: If the parameter of <mode> is omitted when executing write command, <mode> will be set to default value.</mode></mode>
AT+AUTOCSQ?	Read command: +AUTOCSQ: 1,1 OK
AT+AUTOCSQ =?	Test command reports the the range of setting values for the parameter < auto >and < mode> +AUTOCSQ: (list of supported < auto >s), (list of supported < mode>s) OK
Example	AT+AUTOCSQ=1,1 OK +CSQ: 23,0 (when <rssi> or <ber> changing) AT+AUTOCSQ? +AUTOCSQ: 1,1</ber></rssi>
	OK AT+AUTOCSQ=? +AUTOCSQ: (0-1),(0-1) OK AT+AUTOCSQ
	OK



4.3.5.10.5 Power down the module- +CPOF

+CPOF - Power down the module	
AT+CPOF	This command is used to power off the module. Once the AT+CPOF command is executed, The module will store user data and deactivate from network, and then shutdown.
	Responses OK
AT+CPOF =?	Test Command : OK
Example	AT+CPOF OK AT+CPOF=? OK AT+CPOF? (not support read command) ERROE AT+CPOF= (not support write command) ERROE

4.3.5.10.6 Reset the module - +CRESET

+CRESET - Reset the module		
AT+ CRESET	This command is used to reset the module.	
	Responses	
	OK .	
AT+ CRESET=?	Test Command :	
THI CKESET=:	rest Command.	
	OIV	
	OK	
Example	AT+ CRESET	
Example		
	OK	
	AT + CRESET = ?	
	OK	
	AT+ CRESET? (not support read command)	
	ERROE	
	AT+ CRESET= (not support write command)	
	ERROE	



4.3.5.10.7 Set IMEI for the module - +SIMEI

+SIMEI - Set IMEI fo	or the module
AT+SIMEI= <imei></imei>	This command is used to set the module's IMEI value.
	Responses OK ERROR +CME ERROR: <err></err>
	Defined values <imei> The 15-digit IMEI value. NOTE: IMEI can be written only once</imei>
AT+SIMEI?	Read command:
AT+SIMET:	+SIMEI: <imei>OK</imei>
AT+SIMEI =?	Test Command : OK
Example	AT+SIMEI=357396012183170 OK AT+SIMEI? +SIMEI: 357396012183170 OK AT+SIMEI=? OK AT+SIMEI (not support Execution command) ERROE



4.3.5.10.8 Set RSSI delta change threshold - +CSQDELTA

+CSQDELTA - Set RSSI delta change threshold		
AT+CSQDELTA = <delta></delta>	This command is used to set RSSI delta threshold for signal strength reporting.	
	Responses OK	
	Defined values <delta></delta>	
	Range: from 0 to 5.	
	Note: not support in CDMA only	
AT+CSQDELTA?	Read command:	
	+CSQDELTA: <delta></delta>	
	OK	
AT+CSQDELTA=?	Test Command :	
	+CSQDELTA: (list of supported <delta>s)</delta>	
AT. CCODELTA	OK	
AT+CSQDELTA	Execution Command:	
	Set default value (<delta>=5) : OK</delta>	
Example	AT+CSQDELTA=3	
Example	OK	
	AT+CSQDELTA?	
	+CSQDELTA: 3 OK	
	AT+CSQDELTA=? +CSQDELTA: (0-5)	
	OK Z	
	AT+CSQDELTA	
	OK	



4.3.5.11 AT Commands for Heartbeat

4.3.5.11.1 Set server net config - \$HTARG

\$HTARG- Set heart	beat server net ip address and port
AT\$HTARG	This command is used to set server's ip address ,port number, network type, and send
= <ip>,<port>,<type:< td=""><td>>,<<mark>data.</mark></td></type:<></port></ip>	>,< <mark>data.</mark>
sendData>	
	Responses
	OK
	Defined values
	<ip></ip>
	Range: ipv4 address
	<pre><port></port></pre>
	Range:1-65536
	<type></type>
	0:tcp 1:udp
	<pre><senddata></senddata></pre>
	string max length:64, no quote, Can only contain hexadecimal Numbers 00200241014cbbbdae3138316666353532343539633535386268656c6c6f2105
AT\$HTARG?	Read command:
	TITTA D.C., circle counts (towns) count D.A.
	HTARG: <ip>,<port>, <type>,<senddata> OK</senddata></type></port></ip>
	OK
Example	AT\$HTARG = "182.150.28.206",6800, 1, 00200241014cbbbdae3
	OK
	AT\$HTARG?
	\$ HTARG: (182.150.28.206),(6800),(1),(00200241014cbbbdae3)
	OK



4.3.5.11.2 Set timer and connect server - \$HEART

\$ HEART - Set heartbeat server net ip address and port	
AT\$HEART= <p1>,<f< td=""><td>This command is used to set server's ip address and port number.</td></f<></p1>	This command is used to set server's ip address and port number.
2>	
	Responses
	OK
	Defined values
	<p1></p1>
	Range: 0-3
	0close heartbeat
	1send heartbeat always
	2send heartbeat only sleep
	<port></port>
	Range:1-10
	Send the heartbeat's timer interval
AT\$HEART=?	Test command:
	\$HEART:P1(0-2) P2(1-10)
AT\$HEART?	Read command:
	OVER A DET. DA DO
	\$HEART: <p1>,<p2></p2></p1>
	OK
Example	AT\$HTARG = "182.150.28.206",6800, 1, 00200241014cbbbdae3
	OK
	AT\$HEART=1,4
	OK



4.3.5.12 GPIO Control

4.3.5.12.1 Set the direction of specified GPIO - +CGDRT

+CGDRT - Set the d	irection of specified GPIO
AT+CGDRT=	This command is used to set the specified GPIO to input or output state. If setting to
<pre><gpio_num> ,</gpio_num></pre>	input state, then this GPIO can not be set to high or low value.
<pre><gpio_io></gpio_io></pre>	7
(Spio_io>	Responses
	OK
	Defined values
	<gpio_num></gpio_num>
	0 - 80
	< gpio_io >
	0-in
	1 – out
AT+ CGDRT =?	Test Command:
	+ CGDRT: (list of supported< gpio_num >s),(list of supported< gpio_io >s)
	ОК
Example	AT+ CGDRT =25, 1
	OK .
	AT + CGDRT = ?
	+CGDRT: (0-80),(0-1)
	OK
	AT+ CGDRT?
	+ CGDRT:25, 1
	OK
	ATL CODET
	AT+ CGDRT
	OK



4.3.5.12.2 Set the value of specified GPIO - +CGSETV

+CGSETV - Set the value of specified GPIO	
AT+ CGSETV =	This command is used to set the value of the specified GPIO to high or low.
<gpio_num> ,</gpio_num>	
< gpio_hl >	Responses
	OK
	Defined values
	<gpio_num></gpio_num>
	0-80
	<gpio_hl></gpio_hl>
	0 – low
	1 – high
AT+ CGSETV =?	Test Command:
	+ CGSETV: (list of supported< gpio_num >s),(list of supported< gpio_ hl >s)
	OK
Example	AT + CGSETV = 25,1
	OK .
	AT + CGSETV = ?
	+CGSETV: (0-80),(0-1)
	OK .
	AT . CCCETU 2
	AT+ CGSETV ?
	+CGSETV: 25,1 ERROE
	ERROE
	AT+ CGSETV
	OK



4.3.5.12.3 Get the value of specified GPIO - +CGGETV

+ CGGETV - Get the	e value of specified GPIO
AT+CGGETV =	This command is used to get the value (high or low) of the specified GPIO.
<pre><gpio_num></gpio_num></pre>	comment of the second of
	Responses
	+CGGETV: <gpio_num>,<gpio_hl></gpio_hl></gpio_num>
	OK
	Defined values
	<gpio_num></gpio_num>
	0-80
	<gpio_hl></gpio_hl>
	0 – low
	1 - high
AT+ CGGETV =?	Test Command :
	+ CGDRT: list of supported< gpio_num >s
	OK
Example	AT+CGGETV=25
	+CGGETV: 25,0
	OK
	ATT. COCCETTIO
	AT+ CGGETV?
	+CGGETV: 25
	OK
	AT + CGGETV = ?
	+CGGETV =: +CGGETV: (0-80)
	OK
	AT+ CGGETV
	OK .



4.3.5.12.4 Flight mode control - +CGFLY

CCELV Elight mod	a control
+CGFLY - Flight mod	
AT+ CGFLY	This command is used to set Flight mode state to enable or disable
= <mode></mode>	
	Responses
	OK
	Defined values
	< mode >
	0 – disable
	1 – enable
AT+ CGFLY?	Read command:
	+ CGFLY: < mode >
	OK
AT+ CGFLY =?	Test Command:
	+ CGFLY: (list of supported < mode >s) OK
Example	AT+CGFLY=1 OK
	ATT. COTTAND
	AT+ CGFLY?
	+ CGFLY: 1
	OK
	AT. COPIN 9
	AT + CGFLY = ?
	+ CGFLY: (0-1)
	OK
	AT. COPIN
	AT+ CGFLY
	OK



4.3.5.12.5 Network LED control - +CGNETLED

+ CGNETLED - Network LED control	
AT+CGNETLED	This command is used to set the Network LED state to enable or disable
= <mode></mode>	This command is used to set the Network LLD state to chaole of disable
	Responses
	OK OK
	Defined values
	< mode >
	0 – disable
	1 – enable
	- Vilhold
AT+CGNETLED?	Read command:
	+ CGNETLED: < mode >
	ОК
AT+ CGNETLED	Test Command:
=?	
	+ CGNETLED: (list of supported < mode >s)
	OK
Example	AT+ CGNETLED =1
	OK
	AT+ CGNETLED?
	+ CGNETLED: 1
	OK
	AT + CGNETLED = ?
	+ CGNETLED: (0-1) OK
	AT+ CGNETLED
	OK
	· ·



4.3.5.13 Lock band and cell

4.3.5.13.1 Lock to specified band - +CBAND

+CBAND - Set curren	nt available band.
	This command is used to set current available band.
<net_mode>,<value></value></net_mode>	
_	OK
	ERROR
	Defined values
	< net_mode >
	0 – POS
	1 – LTE
	2 – TDS-CDMA
	<value></value>
	0 - Unlock specified network's band
	other - Available band
	Available bands for POS :
	1 GSM_DCS_1800
	2 GSM_EGSM_900
	3 GSM_PGSM_900
	4 GSM_450
	5 GSM_480
	6 GSM_750
\	7 GSM_850
	8 GSM_RGSM_900
	9 GSM_PCS_1900
	10 WCDMA_IMT_2000
	11 WCDMA_PCS_1900
	12 WCDMA_III_1700
	13 WCDMA_IV_1700
	14 WCDMA_850
	15 WCDMA_800
	16 WCDMA_VII_2600
	17 WCDMA_VIII_900
	18 WCDMA_IX_1700
	Available bands for LTE:
	1 BAND_1
	2 BAND_3
	3 BAND_7
	4 BAND_8
	5 BAND_20
	6 BAND_38
	7 BAND_39
	8 BAND_40
	9 BAND_41
	Available bands for TDS :
	1 BAND_A
	2 BAND_B
	3 BAND_C
	4 BAND_D
	5 BAND_E
	6 BAND_F
	~ <u>-</u>



AT+CBAND?	Read command:
	+ CBAND: <pos>,<lte>,<tds></tds></lte></pos>
	OK

4.3.5.13.2 Lock to specified cell - +CBCCH

+CBCCH - Set curren	at available cell Effective after reboot.
AT+CBCCH= <mode< td=""><td>This command is used to lock or unlock current available cell. This only for GSM.</td></mode<>	This command is used to lock or unlock current available cell. This only for GSM.
1>, <arfcn></arfcn>	(Unsupport now)
or	
AT+CBCCH= <net_ty< td=""><td>Responses</td></net_ty<>	Responses
pe> , <mode2></mode2>	OK
]	ERROR
	Defined values
	<mode1></mode1>
	1 Lock cell to arfcn.
	<arfcn></arfcn>
	Arfcn for GSM.The arfcn must available.
	<net_type></net_type>
	0 GSM
	<mode2></mode2>
	0 Unlock cell
	Example:
	Lock GSM to arfcn(850):
	AT+CBCCH=1,850 OK
	AT+CBCCH?
	+CBCCH? +CBCCH:0,1,850
	OK
	OK .
	Unlock GSM cell:
	AT+CBCCH=0,0
	OK
	AT+CBCCH?
	+CBCCH:0,0
	OK



```
AT+CBCCH=<mode This command is used to lock or unlock current available cell. This only for WCDMA.
1>,<uarfcn>
or
                  Responses
AT+CBCCH=<net_ty|OK
pe>,<mode2>
                   ERROR
                   Defined values
                   <mode1>
                        Lock cell to uarfcn.
                   1
                    Uarfcn for WCDMA. The uarfcn must available.
                   <net_type>
                        WCDMA
                   <mode2>
                        Unlock cell
                   Example:
                   Lock WCDMA to uarfcn(850):
                   AT+CBCCH=1,850
                   AT+CBCCH?
                   +CBCCH:1,1,850
                   OK
                   Unlock WCDMA cell:
                   AT+CBCCH=1,0
                   OK
                   AT+CBCCH?
                   +CBCCH:1,0
                   OK
```



```
AT+CBCCH=<mode This command is used to lock or unlock current available cell. This only for GSM. This
1>,<earfcn>,<pci>
                   must be LTE only mode.
AT+CBCCH=<net_ty Responses
pe>,<mode2>
                   OK
                   ERROR
                   Defined values
                    <mode1>
                        Lock cell to earfcn and pci.
                    <earfcn>
                     Earfen for LTE.
                    <pci>
                     Pci for LTE.
                    <net_type>
                        LTE
                    <mode2>
                        Unlock cell
                   Example:
                   Lock LTE to earfcn(850) and pci(430):
                   AT+CBCCH=1,850,430
                   OK
                   AT+CBCCH?
                    +CBCCH:2,1,850,430
                   OK
                   Unlock LTE cell:
                   AT+CBCCH=2,0
                   OK
                   AT+CBCCH?
                    +CBCCH:2,0
                    OK
```



```
AT+CBCCH=<mode This command is used to lock or unlock current available cell. This only for
1>,<lock_type>,<freq TDS-CDMA.
_or_cpid>
                  Responses
AT+CBCCH=<net_tyOK
pe>,<mode2>
                  ERROR
                  Defined values
                   <mode1>
                       Lock cell to freq or cpid.
                   <lock_type>
                   0: Lock to freq.
                   1: Lock to cpid.
                   <freq_or_cpid>
                   Freq or cpid for TDS-CDMA.
                   <net type>
                       TDS-CDMA
                   <mode2>
                       Unlock cell
                  Example:
                  Lock TDS-CDMA to freq(850):
                  AT+CBCCH=1,0,850
                  OK
                   AT+CBCCH?
                   +CBCCH:3,1,850,0
                  Lock TDS-CDMA to cpid(430):
                  AT+CBCCH=1,1,430
                  OK
                   AT+CBCCH?
                   +CBCCH:3,1,0,430
                  OK
                  Unlock TDS-CDMA cell:
                   AT+CBCCH=3,0
                  OK
                   AT+CBCCH?
                   +CBCCH:3,0
                   OK
```



AT+CBCCH=?	Test command:
	+CBCCH: <net>,<net_word></net_word></net>
	<nmr_1>,< nmr_n></nmr_1>
	<nmr_1>,< nmr_n></nmr_1>
	Responses
	OK The state of th
	Responses
	Defined values
	<net> Current net mode</net>
	0 GSM
	1 WCDMA
	2 LTE
	3 TDS-CDMA
	N. J. H. C. C. COM
	Nearby cell information for GSM
	<arfcn>,<mcc_mnc>,<lac>,<cell_id></cell_id></lac></mcc_mnc></arfcn>
	Nearby cell information for WCDMA <uarfcn></uarfcn>
	Nearby cell information for LTE
	<pre><earfcn>,<pci>,<rssi></rssi></pci></earfcn></pre>
	Nearby cell information for TDS-CDMA
	<uarfcn>,<cell_parameter_id>,<rscp></rscp></cell_parameter_id></uarfcn>
AT+CBCCH?	Read Command:
	+CBCCH: <net><mode>,<arg1>,<argn></argn></arg1></mode></net>
	OK
	OK
	<net> Current network mode</net>
	0 GSM
V	1 WCDMA
	2 LTE
	3 TDS-CDMA
	<mode> lock mode</mode>
	0 unlock
	1 lock
	<arg> Only for lock</arg>
	arg for WCDMA
	<uarfcn> Current lock uarfcn</uarfcn>
	arg for LTE <earfcn> Current lock earfcn</earfcn>
	<pre><earich< th=""></earich<></pre>
	arg for TDS
	<freq> Current lock freq</freq>
	<pre><cpid> Current lock cpid</cpid></pre>



4.3.5.13.3 Get nearby cell information - +CELLINFO

+CELLINFO - Get nea	arby cell information
AT+CELLINFO?	Read command:
	+CELLINFO: <net_mode>,<net></net></net_mode>
	<nmr_1><nmr_n></nmr_n></nmr_1>
	<nmr_1><nmr_n></nmr_n></nmr_1>
	OK
	<net_mode> Current network mode</net_mode>
	0 GSM
	1 TDS-CDMA
	2 WCDMA
	3 CDMA
	4 LTE
	Nearby cell information for GSM
	For current and nearby cell
	<lac>,<cell_id>,<rssi></rssi></cell_id></lac>
	Nearby cell information for TDS-CDMA
	For current cell:
	<lac>,<cell_id>,<rscp></rscp></cell_id></lac>
	For nearby cell:
	<pre></pre>
	Nearby cell information for WCDMA
	For current cell:
	<lac>,<cell_id>,<rscp>,<ecio></ecio></rscp></cell_id></lac>
	For nearby cell:
	<uarfcn>,<psc>,<rscp>,<ecio> Nearby cell information for CDMA</ecio></rscp></psc></uarfcn>
	Only for current cell
· ·	<sid>,<nid>,<refpn></refpn></nid></sid>
	Nearby cell information for LTE
	For current cell:
	<tac>,<cell_id>,<rssi></rssi></cell_id></tac>
	For nearby cell:
	<earfcn>,<pci>,<rssi></rssi></pci></earfcn>
	· · · · · · · · · · · · · · · · · · ·



4.3.5.14 AT Commands for LYNQ FTP

4.3.5.14.1 Set FTP server port - +CFTPPORT

AT+CFTPPORT Set FTP server port.	
AT+CFTPPORT=	This command is used to set FTP server port.
<port></port>	<port></port>
	The FTP server port, from 1 to 65535, and default value is 21.
	Responses
	ОК
	ERROR
AT+ CFTPPORT?	+CFTPPORT: <port></port>
	OK
AT+ CFTPPORT =?	+CFTPPORT: (list of supported <port>s)</port>
	ОК
Example	AT+CFTPPORT=21
	OK
	AT+CFTPPORT?
	+CFTPPORT:21
	OK
	AT+CFTPPORT=?
	+CFTPPORT: (1-65535)
	OK

4.3.5.14.2 Set FTP mode - +CFTPMODE

AT+CFTPMODE Set FTP mode.	
AT+CFTPMODE=	This command is used to set FTP passive/proactive mode. Default is passive mode.
<mode></mode>	<mode></mode>
	The FTP access mode:(now only support 0 – passive mode)
	0 – passive mode.
	1 – proactive mode.
	Responses
	ОК
	+CME ERROR
AT+ CFTPMODE?	+CFTPMODE: <mode></mode>
	ОК



AT+CFTPMODE=?	+CFTPMODE: (list of supported <mode>s)</mode>
	ОК
Example	AT+CFTPMODE=1
	OK
	AT+CFTPMODE?
	+CFTPMODE: 1
	OK
	AT+CFTPMODE=?
	+CFTPMODE: (0,1)
	OK

4.3.5.14.3 Set FTP type - +CFTPTYPE

AT+CFTPTYPE Set FTP type	
AT+CFTPTYPE=	This command is used to set FTP type. Default is binary type.
<type></type>	<type></type>
	The FTP type:
	I – binary type. A – ASCII type.
	Responses
	ОК
	+CME ERROR
AT+ CFTPTYPE?	CETERDORT
	+CFTPPORT: < type >
	OK
AT+ CFTPTYPE =?	+CFTPPORT: (list of supported < type >s)
	OK
Example	AT+CFTPTYPE="A"
	OK
	AT+CFTPTYPE?
	+CFTPTYPE: A
	OK
	AT+CFTPTYPE=?
	+CFTPTYPE: (A,I)
	OK



4.3.5.14.4 Set FTP server domain name or IP address - +CFTPSERV

AT+CFTPSERV Set F	FTP server domain name or IP address
AT+ CFTPSERV =	This command is used to set FTP server domain name or IP address.
< address >	<address></address>
	The FTP server domain name or IP address. The maximum length is 100.
	Responses
	ок
	ERROR
AT+ CFTPSERV?	+ CFTPSERV: < address >
	ОК
AT+ CFTPSERV =?	+CFTPSERV: " <address>"</address>
	OK
Example	AT+CFTPSERV="www.mydomain.com"
	OK
1	AT+CFTPSERV?
	+CFTPSERV: "www.mydomain.com"
	OK
	AT+CFTPSERV=?
	+CFTPSERV: "ADDRESS"
	OK
	AT+CFTPSERV="10.0.0.127"
	OK



4.3.5.14.5 Set user name for FTP access - +CFTPUN

AT+CFTPUN Set use	er name for FTP access
AT+CFTPUN=	This command is used to set user name for FTP server access.
" <name>"</name>	<name></name>
	The user name for FTP server access. The maximum length is 30.
	Responses
	OK
	ERROR
	ERROR
AT+ CFTPUN?	+CFTPUN: "NAME"
	ОК
AT+ CFTPUN =?	OK
AI+ CITI ON =:	OK
Example	AT+CFTPUN="myname"
Example	OK
	AT+CFTPUN="anonymous"
	OK
	AT+CFTPUN?
	+CFTPUN: "myname"
	OK
	AT+CFTPUN=?
	+CFTPUN: "NAME"
	OK



4.3.5.14.6 Set user password for FTP access - +CFTPPW

AT+ CFTPPW Set user password for FTP access	
AT+CFTPPW=	This command is used to set user password for FTP server access.
"< password>"	< password>
	The user password for FTP server access. The maximum length is 40.
	Responses
	OK
	ERROR
AT+ CFTPPW?	+ CFTPPW: "password"
	ок
AT+ CFTPPW =?	OK
Example	AT+CFTPPW="mypass"
	OK
	AT+CFTPPW?
	+CFTPPW: "mypass"
	OK
	AT+CFTPPW=?
	+CFTPPW: "mypass"
	OK



4.3.5.14.7 Get a file from FTP server to EFS - +CFTPGETFILE

AT+CFTPGETFILE G	et a file from FTP server to EFS
AT+CFTPGETFILE=	This command is used to download a file from FTP server to module EFS.
"< remote_path>","	< remote_path >
<local_path>"</local_path>	The remote file path. The maximum length is 512.
[, <rest_size>]</rest_size>	< local_path >
	The esf file path. The maximum length is 512.
	<rest_size></rest_size>
	The value for FTP "REST" command which is used for broken transfer when transferring failed last time. The range is from 0 to 2147483647.
	<err></err>
	The error code of FTP operation.
	<length></length>
	The size of the download file
	Responses
	ОК
	+CFTPGETFILE: SUCCESS, <length></length>
	ERROR
	+CFTPGETFILE: FAIL, <err></err>
AT+CFTPGETFILE?	+CFTPGETFILE:"remote_path", "local_path", <rest_size></rest_size>
AI+CITI GETTILE:	OK
	OK .
AT+CFTPGETFILE=?	ОК
Example	AT+CFTPGETFILE="/pub/mydir/test1.txt", "/mydir/test1.txt"
	OK
	+CFTPGETFILE: SUCCESS,10245
	AT+CFTPGETFILE="/pub/mydir/test1.txt", "/mydir/test1.txt",10
	OK
	+CFTPGETFILE: SUCCESS,10235



4.3.5.14.8 Upload a file from module EFS to FTP server - +CFTPPUTFILE

AT+CFTPPUTFILE U1	pload a file from module EFS to FTP server
	This command is used to upload a file from module EFS to FTP serve.
	<pre>< remote_path ></pre>
-	The remote file path. The maximum length is 512.
	< local_path >
	The esf file path. The maximum length is 512.
	<rest_size></rest_size>
	The value for FTP "REST" command which is used for broken transfer when transferring failed last time. The range is from 0 to 2147483647.
	<err></err>
	The error code of FTP operation.
	Responses
	+ CFTPPUTFILE: SUCCESS
	ERROR
	ок
	+ CFTPPUTFILE: FAIL , <err></err>
AT+CFTPPUTFILE?	+CFTPGETFILE:"remote_path", "local_path", <rest_size></rest_size>
	ок
AT+CFTPPUTFILE=?	OV
Example	AT+ CFTPPUTFILE ="/pub/mydir/test1.txt", "/mydir/test1.txt"
	OK
	+ CFTPPUTFILE: SUCCESS
	AT+ CFTPPUTFILE ="/pub/mydir/test1.txt", "/mydir/test1.txt",10
	OK
	+ CFTPPUTFILE: SUCCESS



4.3.5.14.9 Get a file from FTP server and output it to SIO - +CFTPGET $\,$

AT+CFTPGET Get a f	ile from FTP server and output it to SIO
AT+ CFTPGET =	This command is used to get a file from FTP server and output it to serial port.
" <remote_path>" [,<rest_size>]</rest_size></remote_path>	< remote_path >
	The remote file path. The maximum length is 512.
	<rest_size></rest_size>
	The value for FTP "REST" command which is used for broken transfer when transferring failed last time. The range is from 0 to 2147483647.
	<err></err>
	The error code of FTP operation.
	<len></len>
	Every time the length of the read from the server
	<length></length>
	The size of the download file
	Responses
	OK
	+CFTPGET: DATA, <len></len>
	+CFTPGET: DATA, <len></len>
	+CFTPGET: SUCCESS, <length></length>
	+CFTPGET:FAIL, <err></err>
	ERROR
AT+ CFTPGET?	+CFTPGETFILE:"remote_path", <rest_size></rest_size>
	OK
AT+ CFTPGET=?	OK
Example	AT+CFTPGET="/pub/mydir/test1.txt", 10
	OK
	+CFTPGET: DATA, 1020
	+CFTPGET: DATA, 1058
	+CFTPGET: SUCCESS 1246792
	+CFTPGET: DATA, 1058 +CFTPGET: SUCCESS,1246792



4.3.5.14.10 Upload the DATA from SIO to FTP server - +CFTPPUT

AT+CFTPPUT Uploa	nd the DATA from SIO to FTP server
AT+ CFTPPUT = " <remote_path>"</remote_path>	This command is used to upload the DATA from serial port to FTP server as a file . Single <ctrl+z> means end of the FTP data. <ctrl+z> is 0x1A.</ctrl+z></ctrl+z>
[, <rest_size>]</rest_size>	< remote_path >
	The remote file path. The maximum length is 512.
	<rest_size></rest_size>
	The value for FTP "REST" command which is used for broken transfer when transferring failed last time. The range is from 0 to 2147483647.
	<err></err>
	The error code of FTP operation.
	Responses
	+CFTPPUT: BEGIN
	ОК
	+CME ERROR
	[+CFTPPUT: BEGIN]
	+CFTPPUT: FAIL, <err_code></err_code>
	ERROR
AT+ CFTPPUT?	+ CFTPPUT:"remote_path", <rest_size></rest_size>
	ОК
AT+ CFTPPUT =?	ОК
Example	AT+CFTPPUT="/pub/mydir/test1.txt", 20 +CFTPPUT: BEGIN
	+CF1PPU1: BEGIN <ctrl+z></ctrl+z>
	OK



4.3.5.14.11 List the items in the directory on FTP server - +CFTPLIST $\,$

AT+CFTPLIST List tl	ne items in the directory on FTP server
AT+CFTPLIST=	This command is used to list the items in the specified directory on FTP server
" <dir>"</dir>	<dir></dir>
	The length of data reported
	<err></err>
	The result code of the listing
	Responses
	ок
	+CFTPLIST:
]
	+CFTPLIST: SUCCESS
	CFTPLIST:FAIL, <err></err>
	ERROR
AT+ CFTPLIST?	+CFTPGETFILE:"dir"
	OK
AT+ CFTPGET=?	OK
Example	AT+CFTPLIST="/testd" OK +CFTPLIST: DATA,193 drw-rw-rw- 1 user group 0 Sep 1 18:01 . drw-rw-rw- 1 user group 0 Sep 1 18:01
	-rw-rw-rw- 1 user group 2017 Sep 1 17:24 19800106_000128.jpg +CFTPLIST: SUCCESS



4.3.5.14.12 Create a new directory on FTP server - +CFTPMKD

AT+CFTPMKD Create a new directory on FTP server	
AT+ CFTPMKD = " <dir>"</dir>	This command is used to create a new directory on the FTP server. The maximum length of the full path name is 256. <dir> The directory to be created. <err> The result code of the listing Responses OK +CFTPMKD:FAIL,<err> ERROR</err></err></dir>
AT+ CFTPMKD?	+ CFTPMKD:"dir" OK
AT+ CFTPMKD =?	ОК
Example	AT+CFTPMKD="/testdir" OK

4.3.5.14.13 Delete a directory on FTP server - +CFTPRMD

AT+CFTPRMD Delete a directory on FTP server	
AT+ CFTPRMD =	This command is used to delete directory on the FTP server.
" <dir>"</dir>	<dir></dir>
	The directory to be deleted.
	<err></err>
	The result code of the listing
	Responses
	ок
	+ CFTPRMD:FAIL, <err></err>
	ERROR
AT+ CFTPRMD?	+ CFTPRMD:"dir"
	OK
AT+ CFTPRMD =?	OK
Example	AT+ CFTPRMD ="/testdir"
	OK



4.3.5.14.14 Delete a file on FTP server - +CFTPDELE

AT+CFTPDELE Delet	te a file on FTP server
AT+ CFTPDELE =	This command is used to delete file on the FTP server.
" <filename>"</filename>	< filename >
	The file to be deleted.
	<err></err>
	The result code of the listing
	Responses
	ОК
	+ CFTPDELE:FAIL, <err></err>
	ERROR
AT+ CFTPDELE?	+ CFTPDELE:"filename"
	OK
AT+ CFTPDELE =?	OK
Example	AT+ CFTPDELE ="/testdir/test.txt" OK



4.3.5.14.15 Read file from local file to SIO - + CFTPRDFILE

AT+CFTPRDFILE re	ead file from local file to SIO
AT+ CFTPRDFILE =	This command is used to read file from local file to SIO.
" <local_file>" ,<read_< td=""><td>< local_file ></td></read_<></local_file>	< local_file >
pos>, <read_len></read_len>	The local file name. The maximum length is 512.
	<read_pos></read_pos>
	Start read file positiom, The range is from 0 to 2147483647.
	<read_len></read_len>
	Read file length, The range is from 0 to 2147483647.
	<len></len>
	Every time the length of the read from the server
	<length></length>
	The size of the download file
	Responses
	+ CFTPRDFILE:DATA, <len></len>
	+ CFTPRDFILE:SUCCESS, <length></length>
	+ CFTPRDFILE: FAIL, <err_code></err_code>
AT+ CFTPRDFILE?	+CFTPRDFILE: "local_file",read_pos,read_len
AT+ CFTPRDFILE =?	+CFTPRDFILE: ,(0-2147483647),(0-2147483647)
	OK
Example	at+CFTPRDFILE="/p.txt",10,100
	+CFTPRDFILE:DATA,100 aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
	aaaaa
	aaaaaaaaaaaaaaa
	+CFTPRDFILE:SUCCESS,100



4.3.5.14.16 Unsolicited FTP Codes (Summary of CME ERROR codes)

Code of <err></err>	Description
201	Unknown error for FTP
202	FTP task is busy
203	Failed to resolve server address
204	FTP timeout
205	Failed to read file
206	Failed to write file
207	Not allowed in current state
208	Failed to login
209	Failed to logout
210	Failed to transfer data
211	FTP command rejected by server
212	Memory error
213	Invalid parameter
214	Network error
215	Failed to connect socket
216	Failed to send data using socket
217	Failed to receive data using socket
218	Failed to verify user name and password
219	Socket connect timeout
220	File does not exist



4.3.5.15 AT Commands for LYNQ TCP/IP

4.3.5.15.1 Select TCP/IP timeout value - + CIPTIMEOUT

AT+ CIPTIMEOUT Se	AT+ CIPTIMEOUT Select TCP/IP timeout value	
AT+CIPTIMEOUT=	This command is used to set timeout value	
< netopen_timeout >,	for AT+NETOPEN/AT+CIPOPEN/AT+CIPSEND, before execute all of them.	
< cipopen_timeout >,	< netopen_timeout >	
< cipsend_timeout >	Timeout value for AT+NETOPEN, from 3000 to 120000 milliseconds, and default value is 120000.	
	< cipopen_timeout >	
	Timeout value for AT+CIPOPEN, from 3000 to 120000 milliseconds, and default value is 120000.	
	< cipsend_timeout >	
	Timeout value for AT+CIPSEND, from 3000 to 120000 milliseconds, and default value is 120000.	
	Responses	
	ОК	
	ERROR	
AT+CIPTIMEOUT?	+CIPTIMEOUT: <netopen_timeout>, <cipopen_timeout>, <cipsend_timeout></cipsend_timeout></cipopen_timeout></netopen_timeout>	
	OK	
AT+CIPTIMEOUT=?	+ CIPTIMEOUT: (list of supported < netopen_timeout >),(list of supported < cipopen_timeout >), (list of supported < cipsend_timeout >)	
	ОК	
Example	AT+CIPTIMEOUT=30000,20000,40000	
	OK	
	AT+CIPTIMEOUT?	
	+CIPTIMEOUT: 30000,20000,40000	
	OK	
	AT+CIPTIMEOUT=?	
	+CIPTIMEOUT: (3000-120000),(3000-120000),(3000-120000)	
	OK	



4.3.5.15.2 Select TCP/IP application mode - + CIPMODE

AT+CIPMODE Selec	ct TCP/IP application mode
AT+CIPMODE= <mode></mode>	This command is used to select transparent mode (data mode) or non-transparent mode (command mode).
	<mode></mode>
	Indicates to select transparent mode or non-transparent mode. from 0 to 1, and default value is 0.
	0: non-transparent mode
	1: transparent mode
	Responses
	ОК
	ERROR
AT+CIPMODE?	+ CIPMODE: <mode></mode>
	OK
AT+CIPMODE=?	+ CIPMODE: (list of supported <mode>s)</mode>
	OK
Example	AT+CIPMODE=1
	OK
	AT+CIPMODE?
	+ CIPMODE: 1
	OK
	AT+CIPMODE=?
	+ CIPMODE: (0-1)
	OK



4.3.5.15.3 Open network - + NETOPEN

n packet network
This command is used to open packet network, before execute this command we have to execute AT+CIPTIMEOUT command first.
<err></err>
Indicate the result of operation.
SUCCESS: is success
FAIL: is failure
Responses
ОК
+NETOPEN: <err></err>
ERROR
<net_state></net_state>
Indicate the current network state
0: network close (deactivated)
1: network open(activated)
Responses
+ NETOPEN: <net_state></net_state>
ОК
AT+NETOPEN
OK
+NETOPEN: SUCCESS
AT+ NETOPEN?
+NETOPEN:1
OK



4.3.5.15.4 Close Network - + NETCLOSE

AT+NETCLOSE Close packet network	
AT+NETCLOSE	This command closes network. Before calling this command, all opened sockets must be closed first.
	<err></err>
	Indicate the result of operation.
	SUCCESS: is success
	FAIL: is failure
	Responses
	ок
	+NETCLOSE: <err></err>
AT+ NETCLOSE?	ОК
	ERROR
Example	AT+NETCLOSE
	OK
	+NETCLOSE: SUCCESS
	AT+NETCLOSE?
	OK

4.3.5.15.5 Inquire socket PDP address - + IPADDR

AT+IPADDR Inquire socket PDP address	
AT+IPADDR	This command inquires the IP address of current active socket PDP . Before calling this command, AT+NETOPEN have been execute first.
	<err></err>
	Indicate the result of operation.
	SUCCESS: is success
	FAIL: is failure
	<ip_address></ip_address>
	This command inquires the IP address of current active socket PDP.
	Responses
	+IPADDR: <err>,<ip_address></ip_address></err>
	ОК
	ERROR
AT+IPADDR?	OK
	ERROR
Example	AT+IPADDR



+IPADDR: SUCCESS ,10.97.210.19
OK
AT+ IPADDR?
ок

4.3.5.15.6 Startup TCP server - + SERVERSTART

	I SELVEL I SELVENINI
AT+ SERVERSTART	Startup TCP server
< port>, < server_index>,	This command starts up TCP server, and the server can receive the request of TCP client. After the command executes successfully, an unsolicited result code is returned when a client tries to connect with module and module accepts request. The unsolicited result code is +CLIENT: < link_num >, <server_index>,<client_ip>:<port></port></client_ip></server_index>
< backlog>	<port></port>
	The server port, from 1 to 65535, and default value is 1.
	< server_index >
	The TCP server index, from 0 to 2, and default value is 0.
	< backlog >
	The maximum connections can be queued in listen queue, from 1 to 3, and default value is 3.
	<err></err>
	Indicate the result of operation.
	SUCCESS: is success
	FAIL: is failure
	Responses
	OK
	+SERVERSTART: <err>,< server_index ></err>
	ERROR
AT+SERVERSTART?	+ SERVERSTART: < server_index >, <port></port>
	OK
AT+SERVERSTART= ?	+SERVERSTART: (list of supported <port>),(list of supported < server_index >),(list of supported < backlog >)</port>
	OK
Example	AT+SERVERSTART=80,2,3
	OK
	+SERVERSTART: SUCCESS,2
	AT+SERVERSTART?
	+SERVERSTART:2,80
	OK
	AT+SERVERSTART=?
	+SERVERSTART: (0-65535),(0-2),(1-3) OK



4.3.5.15.7 Stop TCP server - + SERVERSTOP

AT+SERVERSTOP Sto	op TCP server	
AT+SERVERSTOP= <server_index></server_index>	This command stops TCP server. Before stopping a TCP server, all sockets with <server_index> equals to the closing TCP server index must be closed and the TCP server have been started first.</server_index>	
	<server_index></server_index>	
	Indicates the TCP server index, from 0 to 2, and default value is 0.	
	<err></err>	
	Indicate the result of operation.	
	SUCCESS: is success	
	FAIL: is failure	
	Responses	
	+SERVERSTOP: <err>,<server_index></server_index></err>	
	ОК	
	ERROR	
AT+SERVERSTOP=?	+SERVERSTOP: (list of supported <server_index>),</server_index>	
	ОК	
Example	AT+SERVERSTOP=0	
	OK	
	+SERVERSTOP: SUCCESS,0	
	AT+SERVERSTOP=?	
	+SERVERSTOP: (0-2)	
	ОК	



4.3.5.15.8 Establish connection in multi-socket mode - + CIPOPEN

AT+ CIPOPEN Establi	sh connection in multi-socket mode
AT+CIPOPEN= < link_num>, <type>,</type>	This command is used to establish a connection with TCP server and UDP server, The sum of all of connections is 10. k_num> Identifies a connection, from 0 to 9, and default value is 0.
< serverIP>,	If AT+CIPMODE=1 is set, the link_num> is restricted to be only 0.
<serverport>,</serverport>	< type >
< localPort>	Identifies the type of transmission protocol. TCP: Transfer Control Protocol UDP: User Datagram Protocol If AT+CIPMODE=1 is set, the <type> is restricted to be only "TCP". < serverIP ></type>
	Identifies the IP address of server. If type is UDP serverIP set to empty <serverport></serverport>
	Identifies the port of TCP server, from 0 to 65535, and default value is 0. If type is UDP serverPort set to empty < localPort>
	Identifies the port of local socket, from 0 to 65535, and default value is 0.
	Indicate the result of operation.
	SUCCESS: is success
	FAIL: is failure
	Responses
	ок
	+CIPOPEN: <err>,<link_num> ERROR</link_num></err>
AT+CIPOPEN?	<pre><index> Identifies the server index that the client linked when as a TCP server1: Not as a TCP server 0-2: TCP server index +CIPOPEN: <link_num> [,<type>,<serverip>,<serverport>,<index>] OK ERROR</index></serverport></serverip></type></link_num></index></pre>
AT+CIPOPEN=?	+CIPOPEN: (list of supported <link_num>s), (list of supported <type>s) OK</type></link_num>
Example	AT+CIPOPEN=1,"TCP","182.150.28.206",6988,0
	OK
	+CIPOPEN: SUCCESS ,1
	AT+CIPOPEN=2,"UDP",,,8080
	ок
	+CIPOPEN: SUCCESS,2
	AT+CIPOPEN?



+CIPOPEN:0, "TCP",,0,-1
+CIPOPEN:1, "TCP",182.150.28.206,6988,-1
+CIPOPEN:2, "UDP",,0,-1
+CIPOPEN:3, "TCP",,0,-1
+CIPOPEN:4, "TCP",,0,-1
+CIPOPEN:5, "TCP",,0,-1
+CIPOPEN:6, "TCP",,0,-1
+CIPOPEN:7, "TCP",,0,-1
+CIPOPEN:8, "TCP",,0,-1
+CIPOPEN:9, "TCP",,0,-1
ок
AT+CIPOPEN=?
+CIPOPEN:(0-9), (TCP, UDP) OK

4.3.5.15.9 Send data through TCP or UDP connection- + CIPSEND

AT+ CIPSEND Send of	AT+ CIPSEND Send data through TCP or UDP connection	
AT+CIPSEND= < link_num>,	This command is used to send data to remote side. Single <ctrl+z> means end of the input data. Single <esc> is used to cancel the sending. Single <ctrl+d>means exit the</ctrl+d></esc></ctrl+z>	
<pre></pre> <pre>(<length>)</length></pre>	transparent mode. <ctrl+z> is 0x1A, <esc> is 0x1B, <ctrl+d> is x04.</ctrl+d></esc></ctrl+z>	
(This format is for TCP connect)	link_num>	
AT+CIPSEND= < link_num>,	-Identifies a connection, from 0 to 9, and default value is 0. <a <="" href="tel:</td></tr><tr><td>[<length>],
<serverIP>,
<serverPort></td><td>Indicates the length of sending data, from 1 to 1500, and default value is 0. TCP: Transfer Control Protocol UDP: User Datagram Protocol If AT+CIPMODE=1 is set, the <type> is restricted to be only " serverip="" tcp".="">	
(1 his format is for UDP connect)	Identifies the IP address of server. The IP address format consists of 4 octets, separated by decimal point: "AAA.BBB.CCC.DDD".	



Example	AT+CIPSEND=1,20
	>2233
	OK
	+CIPSEND: SUCCESS ,1,20,4
	AT+CIPSEND=2,5,"182.150.28.206",6988
	>33
	OK
	+CIPSEND: SUCCESS ,2,5,2
	AT+CIPSEND?
	OK
	AT+CIPSEND=?
	+CIPSEND:(0-9),(1-1500) OK

4.3.5.15.10 Get the network data manually- + CIPRXGET

AT+CIPRXGET Get the network data manually		
AT+CIPRXGET=	<mode></mode>	
<mode>,</mode>	Indicate how to get the network data, from 0 to 4, and default value is 0. 0: set the way to get the network data automatically. 1: set the way to get the network data manually. 2: read data, the max read length is 1500. 3: remain. 4: get the rest data length. <cid></cid>	
	Identifies a connection, from 0 to 9, and default value is 0. < len > The data length to be read. <read len=""></read>	
	The length of the data that have read. <rest_len> The data length which not read in the buffer. <data> The read data. <err></err></data></rest_len>	
	Indicate the result of operation. SUCCESS: is success FAIL: is failure	
	NOTE: When <mode> is set to 1 and the 2-4 mode will take effect. AT+CIPRXGET=1,<cid>, it will report +CIPRXGET: <err>,1,<cid>. when received data. AT+CIPRXGET=2,<cid>,<read_len> it will report +CIPRXGET: <err>,2,<cid>,<read_len>,<rest_len></rest_len></read_len></cid></err></read_len></cid></cid></err></cid></mode>	



	when read data. AT+CIPRXGET=4, <cid> it will report +CIPRXGET: <err>,4,<cid>,<rest_len> When read remain data. AT+CIPRXGET=0,<cid>, it will report +CIPRXGET:<err>,0,<cid>,<len>,<data>.when received. When AT+CIPOPEN success the correspond link is enabled auto receive mode Responses OK ERROR</data></len></cid></err></cid></rest_len></cid></err></cid>
AT+CIPRXGET?	+CIPRXGET: <mode>,<cid> OK ERROR</cid></mode>
AT+CIPRXGET=?	+CIPRXGET: (list of supported <mode>s), (list of supported <cid>s), (list of supported <len>s)</len></cid></mode>
Example	AT+CIPRXGET=0,1 OK +CIPRXGET: SUCCESS,0,1,11,ddddddddddd AT+CIPRXGET=1,9 OK +CIPRXGET: SUCCESS,1,9 AT+CIPRXGET=2,9,3 +CIPRXGET: SUCCESS,2,9,3,7, 333 OK AT+CIPRXGET=4,9 +CIPRXGET: SUCCESS,4,9,7, 33333333 OK



4.3.5.15.11 Close TCP or UDP socket - + CIPCLOSE

AT+CIPCLOSE Close TCP or UDP socket		
AT+ CIPCLOSE= <link_num></link_num>	This command is used to close TCP or UDP socket . <num></num>	
	Identifies a connection . from 0 to 9, and default value is 0.	
	Indicate the result of operation.	
	SUCCESS: is success	
	FAIL: is failure	
	Responses	
	OK	
	+CIPCLOSE: <err>,<link_num></link_num></err>	
	ERROR	
AT+CIPCLOSE?	<pre><linkx_state> Identifies state of <link_num>. the range of permitted values is 0 and 2. 0:disconnected 2:connected +CIPCLOSE:<link0_state>,<link1_state>,<link2_state>,</link2_state></link1_state></link0_state></link_num></linkx_state></pre> <pre><link3_state>,<link4_state>,<link5_state>,<link6_state>,</link6_state></link5_state></link4_state></link3_state></pre>	
	<!--</td-->	
AT+CIPCLOSE=?	+CIPCLOSE: (list of supported <link_num>s) OK</link_num>	
Example	AT+CIPCLOSE=1	
	OK	
	+CIPCLOSE: SUCCESS,1	
	AT+CIPCLOSE?	
	+CIPCLOSE:link0_0,_link1_2,link2_0,link3_0,link4_0,link5_0,link6_0,link7_0,link8_0,link9_2	
	OK	
	AT+CIPCLOSE=?	
	+CIPCLOSE: (0-9)	
	OK	



4.3.5.15.12 Inquire the total size of data sent or received recently- + CIPSTAT

AT+CIPSTAT Inquire the total size of data sent or received		
AT+CIPSTAT= <link_num></link_num>	This command is used to inquire the total size of data sent or received for a socket in multiple socket modes(Only valid for client TCP socket mode). link_num >	
	Identifies a connection. The range of permitted values is 0 to 9. <sent_size> Total size of sent data. <recv_size> Total size of received data. Responses</recv_size></sent_size>	
	+CIPSTAT: <sent_size>, <recv_size> OK ERROR</recv_size></sent_size>	
AT+CIPSTAT=?	+CIPSTAT: (list of supported <link_num>s) OK</link_num>	
Example	AT+CIPSTAT=1 OK +CIPSTAT:1,0 AT+CIPSTAT=?	
	+CIPSTAT: (0-9) OK	



4.3.5.16 AT Commands for WIFI

4.3.5.16.1 Open/Close WIFI - \$QWIFI

LEPONYIVE O	
AT\$QWIFI Open or	
AT\$QWIFI = <enable></enable>	This command is used to open or close wifi. This command must be execute in the first.
	< enable > Open or close wifi.
	0 Close Wifi
	1 Open Wifi
	Responses
	ок
	ERROR
AT\$QWIFI?	AT\$QWIFI?
	\$QWIFI: <state></state>
	ОК
AT\$QWIFI=?	AT\$QWIFI =?
	\$QWIFI:(0-1)
	OK
Example	AT\$QWIFI?
	\$QWIFI: 0 //Wifi is closed.
	OK
	AT\$QWIFI=1 //Open wifi.
	OK



4.3.5.16.2 Set/Get AP's SSID - \$QWIFISSID

AT+CIPMODE Select TCP/IP application mode		
AT\$QWIFISSID= <ap 32.<="" ap's="" command="" get="" is="" length="" max="" set="" ssid.="" td="" the="" this="" to="" used=""></ap>		
_NUM>, <ssid></ssid>	<pre><ap_num> The AP's ID.</ap_num></pre>	
AT\$QWIFISSID?	\$QWIFISSID?	
	<pre>\$QWIFISSID:<master_ssid>, <guest_ssid> OK</guest_ssid></master_ssid></pre>	
AT\$QWIFISSID=?	\$QWIFISSID: <0-1>, <"">	
	OK	
Example	AT\$QWIFISSID=0, "abc" //Set master AP's SSID to "abc". OK AT\$QWIFISSID? \$QWIFISSID: "abc", "123" OK // Master AP's SSID is "abc", Guest AP's SSID is "123".	



4.3.5.16.3 Set/Get AP's Password - \$QWIFIPASS

AT\$QWIFIPASS Set or get AP's password.		
	This command	d is used to set/get AP's password. The max length is 63, min length is 8.
P_NUM>, <pass></pass>	<ap_num></ap_num>	The AP's ID.
	0	The master AP.
	1	The Guest AP.
	<pass></pass>	Specific AP's PASS.
	Responses	
	OK	
	ERROR	
AT\$QWIFIPASS?	\$QWIFIPASS	?
	\$QWIFIPASS	: <master_pass>,<guest_pass></guest_pass></master_pass>
	ОК	
AT\$ QWIFIPASS=?	\$QWIFIPASS	: <0-1>,<"">
	OK	
Example	AT\$QWIF	IPASS=0, "12345678"
		ter AP's password to "12345678".
	OK	
	AT\$QWIF	
		ASS: "12345678", "87654321"
	OK V	AD' DACC : "10045670" C AD' DACC :
	"87654321	er AP's PASS is "12345678", Guest AP's PASS is
	01004021	·



4.3.5.16.4 Open or Close AP's broadcast - \$QWIFIBCAST

AT\$QWIFIBCAST C	Open or close AP's broadcast.
AP_NUM>, broadcas	This command is used to open or close specific AP's broadcast. While the broadcast is closed, will not receive AP's signal.
t>	<ap_num> The AP's ID.</ap_num>
	<pre></pre>
	0 The broadcast is off. 1 The broadcast is on.
	Responses
	ок
	ERROR
	\$QWIFIBCAST:<0-1>,<0-1> OK
	\$QWIFIBCAST: <master_broadcast>,<guest_broadcast> OK</guest_broadcast></master_broadcast>
Example	AT\$QWIFIBCAST? \$QWIFIBCAST:1,0 // Master AP's broadcast is on, Guest AP's AP is off. OK
	AT\$QWIFIBCAST=1,0 // Close Guest AP's broadcast.
	AT\$QWIFIBCAST=0,1 // Open Master AP's broadcast. OK



4.3.5.16.5 Set AP's NAT type - \$QWIFINAT

AT\$QWIFINAT Set AP's NAT type.			
AT\$QWIFINAT= <nat< td=""><td colspan="3">T=<nat ap's="" command="" is="" nat="" set="" td="" this="" to="" type.<="" used=""></nat></td></nat<>	T= <nat ap's="" command="" is="" nat="" set="" td="" this="" to="" type.<="" used=""></nat>		
	<nat> NAT type 0 Symmetric NAT</nat>		
	1 Port Restricted Cone NAT		
	2 Full Cone NAT		
	3 Address Restricted Cone NAT		
	Responses		
	OK		
	ERROR		
AT\$QWIFINAT=?	\$QWIFINAT:<0-3>		
	OK		
AT\$QWIFINAT?	\$QWIFINAT: <nat_type></nat_type>		
	OK		
Example	AT\$QWIFINAT?		
	\$QWIFINAT:0 // Current is Symmetric NAT		
	OK		



4.3.5.16.6 Set WIFI Mode - \$QWIFIMODE

AT\$QWIFIMODE Set WIFI mode.		
AT\$QWIFIMODE = <mode></mode>	This command is used to set WIFI mode.	
	<mode> WIFI mode.</mode>	
	0 AP-only mode.	
	1 AP-AP mode.	
	Responses	
	OK	
	ERROR	
AT\$QWIFIMODE=?	\$QWIFIMODE:<0-1> 0K	
AT\$QWIFIMODE?	\$QWIFIMODE: <mode> OK</mode>	
Example	AT\$QWIFIMODE?	
	\$QWIFIMODE:1 //Current mode is AP-AP.	
	OK	
	AT\$QWIFIMODE=0 //Set wifi mode to AP-only.	
	OK	



4.3.5.16.7 Get WIFI client number - \$QWIFICLICNT

AT\$QWIFICLICNT	Set WIFI mode.
AT\$QWIFICLICNT?	This command is used to get client number.
	Responses
	OK
	ERROR
Example	AT\$QWIFICLICNT?
	\$QWIFICLICNT:1,0
	OK
	// Master AP's client number is 1,Guest AP's client number is 0

4.3.5.16.8 Reset WIFI setting - \$QWIFIRSTD

AT\$QWIFIRSTD	Reset WIFI settings.
AT\$QWIFIRSTD	This command is used to reset WIFI settings. After this command, the devices will reboot. Responses
	OK ERROR
Example	AT\$QWIFIRSTD OK



4.3.5.16.9 Enable Or Unable Network For WIFI - \$QNETSWITCH

AT\$QNETSWITCH	Set WIFI surf the Internet or not.
AT\$QNETSWITCH= <open></open>	This command is used to enable or unable network for WIFI.If enable this.the modem will not access Internet.
	<pre><open></open></pre>
	Responses OK ERROR
AT\$QNETSWITCH =?	\$QNETSWITCH:<0-1> OK
AT\$QNETSWITCH?	\$QNETSWITCH: <open> OK</open>
Example	AT\$QNETSWITCH: \$QNETSWITCH: // Prohibit WIFI Internet access. OK AT\$QNETSWITCH=1 // Allows WIFI Internet access. OK



4.3.6 AT Commands for IS-707

4.3.6.1 IS-707 vendor Specific AT command table

4.3.6.1.1 Answer incoming voice call - \$QCCAV

\$QCCAV - Answer incoming voice call.	
AT\$QCCAV	Answer incoming voice call.
Reference	3GPP2

4.3.6.1.2 Hangs up incoming voice call - \$QCCHV

\$QCCHV - Hangs up incoming voice call.		
AT\$QCCHV	Hangs up incoming voice call.	
Reference	3GPP2	

4.3.6.1.3 sends to the ME a password - ^CPIN

CPIN - Sends to the ME a password		
AT ^CPIN=	This set commands sends to the ME a password which is necessary before operation.	
AT ^CPIN?	^CPIN: <code>,,<simpukretries>,<sim pin="" retries="">,<sim puk2="" retries="">,SIM PIN2 retries> OK <code> describes the current pin state <xxx retries=""> it defines the number of retries left for each PIN's</xxx></code></sim></sim></simpukretries></code>	
AT ^CPIN=?	Return OK	
Reference	3GPP2	



4.3.6.1.4 Sends to the ME a password - +QCPIN

+QCPIN - Sends to t	he ME a password					
AT+QCPIN =	This set commands sends to the ME a password which is necessary before					
	operation.					
AT+QCPIN?	+QCPIN: <code></code>					
	<code> describes the current pin state</code>					
AT+QCPIN =?	Return OK					
Reference	3GPP2					

4.3.6.1.5 Query received signal quality - AT+CCSQ

+CCSQ - Query receiv	red signal quality
AT+CCSQ	Query received signal quality. Returns the signal quality measure <sqm> and the frame error rate <fer> as follows: <sqm>:</sqm></fer></sqm>
AT+CCSQ=?	Response: +CCSQ: (0-31,99),(99) OK
Reference	3GPP2

4.3.6.1.6 Originated voice call - AT+CDV

+CDV - Originated voice call		
AT+CDV <num></num>	originated voice call <num> - phone number</num>	
	r	
Reference	3GPP2	



4.3.6.1.7 Compiles the IMSI number - +QCIMI

+QCIMI - Compiles the IMSI number			
AT+QCIMI	This command compiles the International Mobile Subscriber Identity (IMSI) number of the device from the relevant NV items or the RUIM card and prints out the information.		
AT+QCIMI=?	Response: OK		
Reference	3GPP2		





4.3.6.2 IS-707 Sms related AT command table

4.3.6.2.1 Set how receiving new message - \$QCNMI

\$QCNMI - Set how	receiving new message
AT\$QCNMI=	select the procedure of how receiving new messages from the network is
<mode>,<mt>,</mt></mode>	indicated to TE.
 bfr>	
	\square <mode> = 0,1,2</mode>
	\Box <mt> = 0,1,2,3</mt>
	Similar to +CNMI, except that <ds> and <bm> are not supported in CDMA</bm></ds>
AT\$QCNMI?	Response:
	\$QCNMI: x,x,x
	ОК
AT\$QCNMI=?	Response: \$QCNMI: (0,1,2),(0,1,2,3),(0,1)
	ОК
Reference	3GPP2

4.3.6.2.2 Set parameters for sending messages - \$QCSMP

\$QCSMP - Set parame	ters for sending messages
AT\$QCSMP= tid,vpf,vp,ddtf,ddt;	set parameters for sending text sms messages. <tid>= 4095 - 4102 <vpf>= 0 - 1 (0 Absolute, 1 Relative) <vp>=string[22] <ddtf> = 0 - 1 (0 Absolute, 1 Relative) <ddt> = string[22] Similar to +CSMP but with a different parameters tid -Teleservice ID vpf - Validity Period Format vp - Validity Period ddtf - Deferred Delivery Time Format ddt - Deferred Delivery Time</ddt></ddtf></vp></vpf></tid>
AT\$QCSMP?	Read current value
AT\$QCSMP=?	Response: OK
Reference	3GPP2



4.3.6.2.3 Select preferred memory storage - \$QCPMS

\$QCPMS - Select preferred memory storage					
AT\$QCPMS=	select preferred memory storage for reading, writing etc.				
<mem1>,<mem2>,</mem2></mem1>					
<mem3></mem3>	<mem> is any of ME or MT or SM</mem>				
	Similar to +CPMS				
AT\$QCPMS?	Read current value				
AT\$QCPMS=?	Response: \$QCPMS:("ME","MT","SM"),("ME","MT","SM"),("ME","MT","SM") OK				
Reference	3GPP2				

4.3.6.2.4 Read a sms message - \$QCMGR

\$QCMGR - Read a s	sms message
AT\$QCMGR=	read a sms message.
<index></index>	
	Similar to +CMGR
AT\$QCMGR=?	Response:
	OK
Reference	3GPP2

4.3.6.2.5 Send a message from TE to the network - \$QCMGS

AT\$QCMGS - Send a message from TE to the network				
AT\$QCMGS=	send a message from TE to the network.			
<da>, <toda></toda></da>	Similar to +CMGS			
	Similar to Ferrior			
AT\$QCMGS=?	Response: OK			
Reference	3GPP2			

4.3.6.2.6 Send a message already stored from Memory - \$QCMSS

\$QCMSS - Send a message already stored from Memory					
AT\$QCMSS=	send a message already stored from Memory to the network.				
<index>[,<da>[,</da></index>					
<toda>]]</toda>	Similar to +CMSS				
AT\$QCMSS=?	Response:				
	OK				
3GPP2	3GPP2				



4.3.6.2.7 Delete sms messages - \$QCMGD

\$QCMGD - Delete sms messages				
AT\$QCMGD= delete sms messages from <mem1>. <index></index></mem1>				
	Similar to +CMGD			
AT\$QCMGD=?	Response: \$QCMGD: (0),(0-4) OK			
Reference	3GPP2			

$4.3.6.2.8\ Lists$ all the SMS saved in the loaction - $\mbox{$\tt \$QCMGL$}$

AT\$QCMGL - Lists all the SMS saved in the loaction						
AT\$QCMGL=	Lists all the SMS saved	Lists all the SMS saved in the loaction.				
<stat></stat>						
	Similar to +CMGL					
AT\$QCMGL=?	Response:					
	\$QCMGL: ("REC	UNREAD","REC	READ","STO	UNSENT","STO		
	SENT","ALL")					
	OK					
Reference	3GPP2					



4.3.6.2.9 Message Format - \$QCMGF

\$QCMGF - Message Format		
AT\$QCMGF=	Similar to +CMGF but only Text mode is supported in CDMA	
<mode></mode>		
	<mode></mode>	
	1	
AT\$QCMGF?	Response:	
	\$QCMGF: 1	
	ОК	
	Response:	
	\$QCMGF: (1)	
	ок	
Reference	3GPP2	

4.3.6.2.10 Store message to memory - \$QCMGW

\$QCMGW - Store message to memory		
	store message to memory storage <mem2></mem2>	
<da> , <toda></toda></da>		
	Similar to +CMGW	
AT\$QCMGW		
AT\$QCMGW=?	Response:	
	OK	
Reference	3GPP2	



5 LIST OF ACRONYMS

ARFCN Absolute Radio Frequency Channel Number AT Attention command

BA BCCH Allocation

BCCH Broadcast Control Channel

CA Cell Allocation

CBM Cell Broadcast Message

CBS Cell Broadcast Service

CCM Current Call Meter

CLIR Calling Line Identification Restriction

CTS Clear To Send

CUG Closed User Group

DCD Data Carrier Detect

DCE Data Communication Equipment

DCSDigital Cellular System

DNS Domain Name System Server

DSRData Set Ready

DTE Data Terminal Equipment

DTMF Dual Tone Multi Frequency

DTR Data Terminal Ready

GPRS Global Packet Radio Service

IMEI International Mobile Equipment Identity

IMSI International Mobile Subscriber Identity

IP Internet Protocol

IRA International Reference Alphabet

IWF Interworking Function

MO Mobile Originated

MT Mobile Terminal

NVM Non Volatile Memory

PCS Personal Communication Service

PDP Packet Data Protocol

PDU Packet Data Unit

PIN Personal Identification Number

PPP Point to Point Protocol

PUK Pin Unblocking Code

RLP Radio Link Protocol



RMC Recommended minimum Specific data

RTS Request To Send

SAP SIM Access Profile

SCAService Center Address

SMS Short Message Service

SMSC Short Message Service Center

SMTP Simple Mail Transport Protocol

TA Terminal Adapter

TCP Transmission Control Protocol

TE Terminal Equipment

UDP User Datagram Protocol

USSD Unstructured Supplementary Service Data

UTC Coordinated Universal Time

VDOP Vertical dilution of precision

VTG Course over ground and ground speed



6 ERROR CODE

6.1 ME Error Result Code - +CME ERROR: <err>

This is NOT a command; it is the error response to Cxxx 3gpp TS 27.007 commands. Syntax: +CME ERROR: <err>

Parameter: $\langle err \rangle$ - error code can be either numeric or verbose (see +CMEE). The possible values of $\langle err \rangle$ are reported in the table:

Numeric Format	Verbose Format General errors:
0	phone failure
1	No connection to phone
2	phone-adaptor link reserved
3	operation not allowed
4	operation not supported
5	PH-SIM PIN required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network time-out
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required



42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	Service provider personalization PUK required
46	corporate personalization PIN required
47	corporate personalization PUK required General purpose error:
100	unknown
770	SIM invalid

GPRS related errors to a failure to perform an Attach:

103 Illegal MS (#3)*

Numeric Format Verbose Format

106 Illegal ME (#6)*

107 GPRS service not allowed (#7)*

111 PLMN not allowed (#11)*

Location area not allowed (#12)*

Roaming not allowed in this location area (#13)* GPRS related errors to a failure to Activate a Context and others:

service option not supported (#32)*

requested service option not subscribed (#33)*

service option temporarily out of order (#34)*

148 unspecified GPRS error

PDP authentication failure

150 invalid mobile class Easy GPRS® related errors

generic undocumented error

551 wrong state552 wrong mode

552 wrong mode

553 context already activated

stack already active

555 activation failed

556 context not opened

557 cannot setup socket

558 cannot resolve DN

559 time-out in opening socket

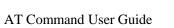
560 cannot open socket

remote disconnected or time-out

562 connection failed

563 tx error

already listening Network survey errors





657	Network survey error (No Carrier)*
658	Network survey error (Busy)*
659	Network survey error (Wrong request)*
660	Network survey error (Aborted)* Supplementary service related error
257	network rejected request
258	retry operation
259	invalid deflected to number
260	deflected to own number
261	unknown subscriber
262	service not available
263	unknown class specified
264	unknown network message AT+COPS test command related error
680	LU processing
681	Network search aborted
682	PTM mode AT+WS46 test command related error
683	Active call state
684	RR connection Established



6.2 Message Service Failure Result Code - +CMS ERROR: <err>

This is NOT a command; it is the error response to +Cxxx 3gpp TS 27.005 commands. Syntax: +CMS ERROR: <err>

Parameter: <err> - numeric error code. The <err> values are reported in the table:

Meaning
3gpp TS 24.011 Annex E-2 values
3gpp TS 23.040 sub clause 9.2.3.22 values
ME failure
SMS service of ME reserved
operation not allowed
operation not supported
invalid PDU mode parameter
invalid text mode parameter
SIM not inserted
SIM PIN required
PH-SIM PIN required
SIM failure
SIM busy
SIM wrong
SIM PUK required
SIM PIN2 required
SIM PUK2 required
memory failure
invalid memory index
memory full
SMSC address unknown
no network service
network time-out
no +CNMA acknowledgement expected
unknown error