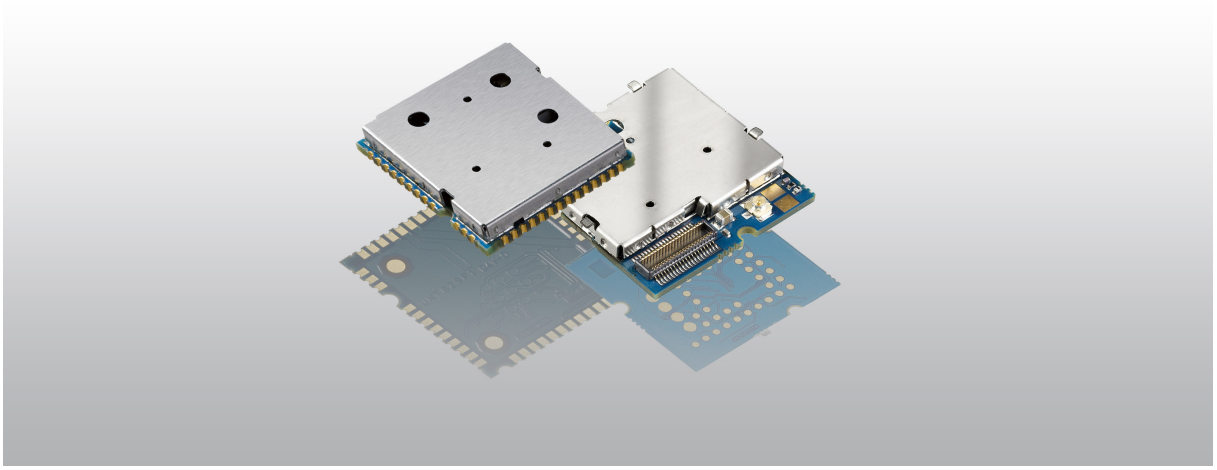
AT COMMAND SET
HILO/HILONC MODULES



~ Freedom of speech
for smart machines ~

sagem

sagemcommunications

FICHE RECAPITULATIVE / *REVISION HISTORY*

Ed	Date *Date*	Référence *Reference*	Pages modifiées / *Changed pages*	Observations *Comments*
1	jj/mm/aaaa	URD1– OTL 5635.1– 008 / 70248		Création du document / *Document creation*
2	20/09/2007	URD1– OTL 5635.1– 008 / 70248	5	Corrections sur SMTP /Corrections for SMTP
2	04/11/2007	URD1– OTL 5635.1– 008 / 70248		
3	05/11/2007	URD1– OTL 5635.1– 008 / 70248		
3	01/02/2008	URD1– OTL 5635.1– 008 / 70248		Add commands timeout Delete TAC for KCELL Delete +FAE Change KFLSH space to 2MB Add list of commands available without SIM card
3	05/02/2008	URD1– OTL 5635.1– 008 / 70248		Remove UMTS bands in *PSRDBS
3	13/02/2008	URD1– OTL 5635.1– 008 / 70248		Declare the KCELL parameter format(hex or decimal)
3	21/02/2008	URD1– OTL 5635.1– 008 / 70248		Change +KCNXCFG parameter <nbmode> to string type
3	22/02/2008	URD1– OTL 5635.1– 008 / 70248		Add IPR comments for autobaud Add CGACT comments
3	12/03/08	URD1– OTL 5635.1– 008 / 70248		Modify on AT+CALA
3	18/03/08	URD1– OTL 5635.1– 008 / 70248		Change Appendix 5 - title
3	25/03/08	URD1– OTL 5635.1– 008 / 70248		Modifications on AT+KADC
3	26/03/08	URD1– OTL 5635.1– 008 / 70248		Modifications on AT+CRSM
3	01/04/08	URD1– OTL 5635.1– 008 / 70248		Modifications on AT+KADC
3	03/04/08	URD1– OTL 5635.1– 008 / 70248		Modifications on AT+KPWM
3	07/04/08	URD1– OTL 5635.1– 008 / 70248		Modifications on +CRSM Add +CSIM
3	07/04/08	URD1– OTL 5635.1– 008 / 70248		Modifications on +KGPIOCFG
3	21/04/08	URD1– OTL 5635.1– 008 / 70248		Add +CRSM example
3	23/04/08	URD1– OTL 5635.1– 008 / 70248		Update FTP reply codes

3	25/04/08	URD1– OTL 5635.1– 008 / 70248		Update SMTP Specific Error Code; Modification on AT+KSMTPPARAM Modification on AT+KSMTPTO Cancel ETX checking for AT+KSMTPUL
3	25/04/08	URD1– OTL 5635.1– 008 / 70248		Modification of STK
3	29/04/08	URD1– OTL 5635.1– 008 / 70248		Modification KRIC : delete 0x20, mux07.10 wake mode (not supported)
3	03/06/08	URD1– OTL 5635.1– 008 / 70248		Replace the flash reading and writing command with KFSFILE command
3	05/06/08	URD1– OTL 5635.1– 008 / 70248		Remove mode 2 of AT+VIP
3	05/06/08	URD1– OTL 5635.1– 008 / 70248		Update the POP and SMTP Specific Error Code;
3	19/06/08	URD1– OTL 5635.1– 008 / 70248		Add 41 forgotten AT commands;
3	19/06/08	URD1– OTL 5635.1– 008 / 70248		Update TCP/UDP commands
3	23/06/08	URD1– OTL 5635.1– 008 / 70248		1.Add 13.3 End of Data pattern 2.Update 13.5 FTP Specific Commands for multi-session syntax and +KPATTERN 3.Update Appendix 7 HOW TO USE FTP Specific commands
3	24/06/08	URD1– OTL 5635.1– 008 / 70248		Update error code for KTCP_NOTIF and KUDP_NOTIF Update TCP/UDP examples in APPENDIX6、8.
3	24/06/08	URD1– OTL 5635.1– 008 / 70248		Remove SIZE param for +KFTPRCV and +KFTPSND
4	24/06/08	URD1– OTL 5635.1– 008 / 70248		Update syntax of POP3 at command. update sample of POP3 usage.
4	16/07/08	URD1– OTL 5635.1– 008 / 70248		Update a syntax error in psrdbs : DCS1800 instead of PCS1800
4	04/08/08	URD1– OTL 5635.1– 008 / 70248		1. Add new command “KCGPADDR” and update example of TCP Server. 2. Update syntax of “KPOPLIST?”
4	05/08/08	URD1– OTL 5635.1– 008 / 70248		1 Change title of +CGSMS 2 Modification of explanation of <cid> field for +CGDATA 3 Add explanation for <cid> of +CGDCONT
4	06/08/08	URD1– OTL 5635.1– 008 / 70248		Modify response of +CTFR
4	11/08/08	URD1– OTL 5635.1– 008 / 70248		Add max size of KPATTERN
4	25/08/08	URD1– OTL 5635.1– 008 / 70248		Modify +KFTP ERROR to +KFTP_ERROR
4	26/08/08	URD1– OTL 5635.1– 008 / 70248		Add FTP Server command
4	23/09/08	URD1– OTL 5635.1– 008 / 70248		1.Add flash file download/ upload feature for ftp client. 2.Add flash file download/upload example for FTP client example. 3.Add new ftp error code for flash access trouble.

sagemcommunications

4	25/09/08	URD1– OTL 5635.1– 008 / 70248		1 Add +CGEQMIN/+CGEQREQ/CGSMS 2 Delete +KSGV 3 Correct some mistake.
4	09/10/08	URD1– OTL 5635.1– 008 / 70248		Add MMS AT commands
4	10/10/08	URD1– OTL 5635.1– 008 / 70248		Modification on CRES/VTS/KCNXCFG
4	15/10/08	URD1– OTL 5635.1– 008 / 70248		Modification on ATO Add example for MMS
4	16/10/08	URD1– OTL 5635.1– 008 / 70248		1.Add DTR/AT&D/+++ description for +KFTPRCV and +KFTPSND 2.Add server IP paramters for +KFTPDRUN
4	17/10/2008	URD1– OTL 5635.1– 008 / 70248		1 Modify the note of command KSMTPUL. 2 Modify the sample code of SMTP and POP3 3 Update command format of FRS and FTS
4	22/10/2008	URD1– OTL 5635.1– 008 / 70248		Update the command KFSFILE
4	28/10/2008	URD1– OTL 5635.1– 008 / 70248		Add APPENDIX13 Correct some mistakes in advanced cmds.
4	28/10/2008	URD1– OTL 5635.1– 008 / 70248		Modify CSGT command
4	28/10/2008	URD1– OTL 5635.1– 008 / 70248		Modify Appendix 13
4	30/10/2008	URD1– OTL 5635.1– 008 / 70248		Remove “new” and “new2” words Remove CGEQMIN and CGEQREQ (3G) Change SA to COMMUNICATIONS Change logo
4	07/11/2008	URD1– OTL 5635.1– 008 / 70248		Add SMS table for +CPMS
4	13/11/2008	URD1– OTL 5635.1– 008 / 70248		Add some information for +KFSFILE
4	18/11/2008	URD1– OTL 5635.1– 008 / 70248		1.Add memory full error code for ftp flash download. 2.Add how many session for ftp user and ftp server. 3.Add how many user connection for ftp server. 4.Add ftp server example. 5.Correct several error.
5	20/11/2008	URD1– OTL 5635.1– 008 / 70248		Change MUX capabilities
5	20/11/2008	URD1– OTL 5635.1– 008 / 70248		Add description for DTR/+++ for SMTP/POP3
5	08/12/2008	URD1– OTL 5635.1– 008 / 70248		Modify syntax of POP3 command in sample.
5	09/12/2008	URD1– OTL 5635.1– 008 / 70248		Add antenna detection command +KGSMAD
5	12/12/2008	URD1– OTL 5635.1– 008 / 70248		“/ftp” is the only valid URI for ftp server root directory.

sagemcommunications

5	19/12/2008	URD1– OTL 5635.1– 008 / 70248		Delete*PSINFN; Add KMCLASS Modification on KSLEEP Modification on KGSMAD
5	22/12/2008	URD1– OTL 5635.1– 008 / 70248		Modification on CRMP
5	06/01/2009	URD1– OTL 5635.1– 008 / 70248		Add temperature monitor command +KTEMPMON
5	07/01/2009	URD1– OTL 5635.1– 008 / 70248		Add SIM detection command +KSIMDET
5	16/01/2009	URD1– OTL 5635.1– 008 / 70248		1.Modify +KFTPDEL 2.Add DCD and DTR description for ftp client
5	19/01/2009	URD1– OTL 5635.1– 008 / 70248		Add notes for CGDATA Delete CRMC command Modification on CRMP KTCPCLOSE <closing_type>=0 not support
5	21/01/2009	URD1– OTL 5635.1– 008 / 70248		Add note for CPIN? 30s answer if card extraction
5	22/01/2009	URD1– OTL 5635.1– 008 / 70248		Add new AT cmd + KSYNC
5	26/01/2009	URD1– OTL 5635.1– 008 / 70248		Change *PSSTKI explanation
5	09/02/2009	URD1– OTL 5635.1– 008 / 70248		Modify the notes of +KSYNC
5	11/02/2009	URD1– OTL 5635.1– 008 / 70248		Modify pattern things for TCP/UDP cmds
5	11/02/2009	URD1– OTL 5635.1– 008 / 70248		Change the formula for BUZZER frequency and its range. See +KPWM
5	13/02/2009	URD1– OTL 5635.1– 008 / 70248		Add new parameters for +KSYNC command.
5	14/02/2009	URD1– OTL 5635.1– 008 / 70248		Add +KFILTER command
5	13/02/2009	URD1– OTL 5635.1– 008 / 70248		Make +KSYNC generate signal through PWM0 or PWM1
5	19/02/2009	URD1– OTL 5635.1– 008 / 70248		Modify KTEMPMON, KGSMAD. KSIMDET
5	20/02/2009	URD1– OTL 5635.1– 008 / 70248		APPENDIX 13. QA FOR ADVANCED AT COMMAND： +++ for FTP
5	24/02/2009	URD1– OTL 5635.1– 008 / 70248		Delete 10.11 CGSMS dubicated with 10.10
5	25/02/2009	URD1– OTL 5635.1– 008 / 70248		Change +KTEMPMON
5	25/02/2009	URD1– OTL 5635.1– 008 / 70248		CFUN <fun> from 1-4
5	27/02/2009	URD1– OTL 5635.1– 008 / 70248		Add TA for +KCELL
5	27/02/2009	URD1– OTL 5635.1– 008 / 70248		Add some note for KGPIO and KPWM
5	27/02/2009	URD1– OTL 5635.1– 008 / 70248		Change response description after DTR off for +KFTPRCV and +KFTPSND
5	06/03/2009	URD1– OTL 5635.1– 008 / 70248		Add +CSNS command
5	10/03/2009	URD1– OTL 5635.1– 008 / 70248		Modify the cid range for +CGPADDR

6	4/04/2009	URD1– OTL 5635.1– 008 / 70248		IPR: Del unsupported baudrate; SIMDET: note for GPIO CLIP:/CHUP CSMP:add example
7	21/04/2009	URD1– OTL 5635.1– 008 / 70248		Add +KBND command
7	23/04/2009	URD1– OTL 5635.1– 008 / 70248		Add +KTCPSTART Add KTCPSTAT Add +KURCCFG Add example in Appendix: A6.3, A6.4 and A6.5
7	24/04/2009	URD1– OTL 5635.1– 008 / 70248		Change TCP example : value 16 replace by 18 Add information about TA in KCELL
7	04/05/2009	URD1– OTL 5635.1– 008 / 70248		Update example of +CPMS
7	18/05/2009	URD1– OTL 5635.1– 008 / 70248		Update +VIP
7	20/05/2009	URD1– OTL 5635.1– 008 / 70248		Add AT+KATH **Document Release**
7	21/05/2009	URD1– OTL 5635.1– 008 / 70248		Update <session id> and add new Err code for TCP/UDP Update +KTCPSTART
7	21/05/2009	URD1– OTL 5635.1– 008 / 70248		Add new error code for SMTP and POP3
7	26/05/2009	URD1– OTL 5635.1– 008 / 70248		Update ATI
7	26/05/2009	URD1– OTL 5635.1– 008 / 70248		Modify SIMDET->SIMCD in KSIMDET
7	29/05/2009	URD1– OTL 5635.1– 008 / 70248		Add AT commands for Audio
7	03/06/2009	URD1– OTL 5635.1– 008 / 70248		Add network scan commands: +KNETSCAN and +KCELLSCAN
7	04/06/2009	URD1– OTL 5635.1– 008 / 70248		Update KCGPADDR; Update Appendix 5: Set of commands supported
7	05/06/2009	URD1– OTL 5635.1– 008 / 70248		Add comments for gpio usage.
7	05/06/2009	URD1– OTL 5635.1– 008 / 70248		Add comments for KSYNC
7	09/06/2009	URD1– OTL 5635.1– 008 / 70248		Add and modify notes for +KNETSCAN and +KCELLSCAN
7	17/06/2009	URD1– OTL 5635.1– 008 / 70248		Correction
7	18/06/2009	URD1– OTL 5635.1– 008 / 70248		Update KCGPADDR and KCNXPROFILE
7	24/06/2009	URD1– OTL 5635.1– 008 / 70248		Update of the template and minor modifications **Document Release**

sagemcommunications

SOMMAIRE / *CONTENTS*

1. INTRODUCTION 14

1.1. Scope of the document 14
1.2. Reference documents 14
1.3. AT Command principle 14
1.3.1. Parameters 15
1.3.2. Possible answers 15
1.3.3. Multiple AT commands on the same command line 15
1.3.4. AT Commands on separate lines 16
1.4. Modification of this document 16

2. V25TER AT COMMANDS 17

2.1. A/ Command: Repeat previous command line 17
2.2. +++ Command: Switch from data mode to command mode 18
2.3. O Command: Switch from command mode to data mode 19
2.4. E Command: Enable command echo 20
2.5. Q Command: Set result code presentation mode 21
2.6. S0 Command: Set number of rings before automatically answering the call 22
2.7. S2 Command: Set character for the escape sequence (data to command mode) 23
2.8. S3 Command: Command line termination character 24
2.9. S4 Command: Set response formatting character 25
2.10. S5 Command: Write command line editing character 26
2.11. S7 Command: Set number of seconds to wait for connection completion 27
2.12. V Command: TA response format 28
2.13. X Command: Result code selection and call progress monitoring control 29
2.14. &C Command: Set circuit Data Carrier Detect (DCD) function mode 30
2.15. &D Command: Set circuit Data Terminal Ready (DTR) function mode 31
2.16. &F Command: Restore manufactory configuration 32
2.17. &W Command: Save stored profile 33
2.18. &V Command: Display current configuration 34
2.19. PR Command: Set fixed local rate 35
2.20. B: Data rate selection 36
2.21. \N: Data transmission mode 37
2.22. &K Command: Flow control option 38
2.23. L Command: Monitor speaker loudness 39
2.24. M Command: Monitor speaker mode 40
2.25. S6 Command: Pause before blind dialing 41
2.26. S8 Command: Comma dial modifier time 42
2.27. S10 Command: Automatic disconnect delay 43
2.28. N Command: Negotiate handshake option 44
2.29. S1 Command: Ring count 45
2.30. S11 Command: DTMF Dialing speed 46
2.31. W Command: Extended result code 47
2.32. &S Command: DSR option 48
2.33. &R Command: RTS/CTS option 49

3. GENERAL AT COMMANDS 50

3.1. I Command: Request Identification Information 50
3.2. Z Command: Reset and restore user configuration 51
3.3. +CGMI Command: Request manufacturer identification 52
3.4. +CGMM Command: Request model identification 53

3.5. +CGMR Command: Request revision identification 54
3.6. +CGSN Command: Request product serial number identification (IMEI) 55
3.7. +KGSN Command: Request product serial number identification and Software Version 56
3.8. +CSCS Command: Set TE character set 57
3.9. +CIMI Command: Request international subscriber identity 58
3.10. +GCAP Command: Request complete TA capability list 59
3.11. +GMI Command: Request manufacturer identification 60
3.12. +GMM Command: Request model identification 61
3.13. +GMR Command: Request revision identification 62
3.14. +GSN Command: Request product serial number identification (IMEI) identical to GSN 63
3.15. +CMUX Command: Multiplexing mode 64
3.16. #CLS Command: Service Class 65
3.17. *PSLOCUP Command: 66
3.18. *PSCSCN Command: Call State Change Notification 67
3.19. *PSFSNT Command: Field Strength Notification with Threshold 70
3.20. *PSSSURC Command: 71
3.21. *PSALS Command: Alternate Line Service 72
3.22. *PSDCIN Command: Diverted Call Indicator Notification 73
3.23. * PSMBNB Command: Mailbox Numbers 74
3.24. *PSCSP Command: Customer Service Profile 75
3.25. *PSSEAV Command: Service Availability 76
3.26. *PSCHRU Command: Channel Registration URC 77
3.27. *PSCSSC Command: Call Successful setup control 78

4. CALL CONTROL COMMANDS 79

4.1. A Command: Answer a call 79
4.2. H Command: Disconnect existing connection 80
4.3. D Command: Mobile originated call to dial a number 81
4.4. D>: Direct dialing from phonebook 82
4.5. +CHUP Command: Hang up call 83
4.6. +CRC Command: Set Cellular Result Codes for incoming call indication 84
4.7. +CSTA Command: Select type of address 85
4.8. +CMOD Command: Call mode 86
4.9. +CEER Command: Extended error report 87
4.10. +CVHU Command: Voice hang up control 90
4.11. +KFILTER Command: Make a filter on incoming call 91
4.12. +CSNS Command: Single Numbering Scheme 92
4.13. +KATH Command: Choose ATH Mode 93

5. MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS 94

5.1. +CACM Command: Accumulated call meter (ACM) reset or query 94
5.2. +CAMM Command: Accumulated call meter maximum (ACM max) set or query 95
5.3. +CCWE Command: Call Meter maximum event 96
5.4. +CALA Command: Set alarm time 97
5.5. +CALD Command: Delete alarm 98
5.6. +CCLK Command: Real time clock 99
5.7. *PSCPOF Command: Power off 100
5.8. +CIND Command: Indicator control 101
5.9. +CLAC Command: List all available AT commands 102
5.10. +CMEC Command: Mobile Equipment control mode 103
5.11. +CFUN Command: Set Phone Functionality 104
5.12. +CMER Command: Mobile Equipment event reporting 105
5.13. +CMEE Command: Report Mobile Termination error 106
5.14. +CMUT Command: Mute control 107
5.15. +CPIN Command: Enter pin 108
5.16. *PSPRAS Command: Pin Remaining Attempt Status 109
5.17. +CPUC Command: Price per unit and currency table 110

5.18. +CPWC Command: Power class 111
5.19. *PSRDBS Command: Change Frequency Band class 112
5.20. +CPAS Command: Phone Activity Status 113
5.21. +CSQ Command: Signal quality 114
5.22. +KRIC Command: Ring indicator control 115
5.23. +KSREP Command: Mobile start-up reporting 116
5.24. +KGPIO Command: Hardware IO Contro 117
5.25. +KSLEEP Command: Power Management Control 119
5.26. +KCELL Command: Cell Environment Information 120
5.27. +CRMP Command: Ring Melody Playback 121
5.28. *PSVMWN Command: Voice Message Waiting Notification 122
5.29. +CRSM Command: SIM Restricted Access 123
5.30. +KPWM Command: PWM control 125
5.31. +KGPIOCFG Command: user GPIO configuration 126
5.32. +KADC Command: analog digital converter 127
5.33. +CSIM Command: Generic SIM access 128
5.34. +CALM Command: Alert sound mode 129
5.35. +CRSL Command: Ringer sound level 130
5.36. +CLAN Command: Set Language 131
5.37. +CSGT Command: Set Greeting Text 132
5.38. +CSVM Command: Set Voice Mail Number 133
5.39. +KGSMAD Command: Antenna Detection 134
5.40. +KMCLASS Command: Change GPRS Multislot class 136
5.41. +KTEMPMON Command: Temperature Monitor 137
5.42. +KSIMDET Command: SIM Detection 139
5.43. +KSYNC Command: Generation of Application synchronization signal 140
5.44. +KBND Command: Current GSM Networks Band Indicator 141
5.45. +KNETSCAN Command: Network scan functionality 142
5.46. +KCELLSCAN Command: Cell scan functionality 145

6. NETWORK SERVICE RELATED COMMANDS 147

6.1. +CAOC Command: Advice of charge information 147
6.2. +CCFC Command: Call forwarding number and conditions control 148
6.3. +CCWA Command: Call waiting 149
6.4. +CHLD Command: Call hold and multiparty 150
6.5. +CUSD: Unstructured Supplementary Service Data 151
6.6. +CLCC Command: List current call 153
6.7. +CLCK Command: Facility lock 154
6.8. +CLIP Command: Calling line identification presentation 157
6.9. +CLIR Command: Calling line identification restriction 158
6.10. +CNUM Command: Subscriber number 159
6.11. +COLP Command: Connected line identification presentation 160
6.12. +COPN Command: Read operator name 161
6.13. +COPS Command: Operator selection 162
6.14. +CPOL Command: Preferred PLMN list 163
6.15. +CPWD Command: Change password 164
6.16. +CREG Command: Network registration 165
6.17. +CSSN Command: Supplementary service notification 166
6.18. +CPLS Command: Selection of preferred PLMN list 167
6.19. +CTFR Command: Call deflection 168

7. PHONE BOOK MANAGEMENT 169

7.1. +CPBF Command: Find phonebook entries 169
7.2. +CPBR Command: Read current phonebook entries 170
7.3. +CPBS Command: Select phonebook memory storage 171
7.4. +CPBW Command: Write phonebook entries 172

8. SMS AT COMMANDS 173

8.1. Preliminary comment 173
8.2. Parameters definition 173
8.3. +CMGD Command: Delete SMS message 177
8.4. +CMGF Command: Select SMS message format 178
8.5. +CMGL Command: List SMS messages from preferred store 179
8.6. +CMGR Command: Read SMS message 180
8.7. +CMGS Command: Send SMS message 181
8.8. +CMGW Command: Write SMS message to memory 182
8.9. +CMSS Command: Send SMS message from storage 183
8.10. +CNMI Command: New SMS message indication 184
8.11. +CSCB Command: Select cell broadcast message 185
8.12. +CSCA Command: SMS service center address 186
8.13. +CSMP Command: Set SMS text mode parameters 187
8.14. +CSMS Command: Select Message service 188
8.15. +CPMS Command: Preferred Message Storage 189
8.16. +CSDH Command: Show text mode parameters 191
8.17. +CSAS Command: Save settings 192
8.18. +CRES Command: Restore settings 193
8.19. +CMT Command: Received SMSPP content 194

9. DATA AND FAX AT COMMANDS 195

9.1. +CBST Command: Select bearer service type 195
9.2. +CRLP Command: Select radio link protocol parameter 196
9.3. +CR Command: Service reporting control 197
9.4. +FCLASS Command: Fax : Select, read or test service class 198
9.5. +FRM Command: Receive data 199
9.6. +FTM Command: Transmit data 200
9.7. +FRS Command: Receive silence 201
9.8. +FTS Command: Stop transmission and wait 202
9.9. +FRH Command: Receive data using HDLC framing 203
9.10. +FTH Command: Transmit data using HDLC framing 204
9.11. +FMI Command: Manufacturer identification 205
9.12. +FMM Command: Model identification 206
9.13. +FMR Command: Revision identification 207

10. GPRS AT COMMANDS 208

10.1. +CGATT Command: PS Attach or Detach 208
10.2. +CGACT Command: PDP context activate or deactivate 209
10.3. +CGCLASS Command: GPRS mobile station class 210
10.4. +CGDCONT Command: Define PDP context 211
10.5. +CGDATA Command: Enter data state 212
10.6. +CGEREP Command: GPRS event reporting 213
10.7. +CGPADDR Command: Show PDP address 214
10.8. +CGQMIN Command: Quality of service profile (minimum acceptable) 215
10.9. +CGQREQ Command: Request quality of service profile 217
10.10. +CGREG Command: GPRS network registration status 218
10.11. +CGSMS Command: Select service for MO SMS messages 219

11. SIM APPLICATION TOOLKIT AT COMMANDS 220

11.1. Preliminary comments 220
11.2. *PSSTKI Command: SIM ToolKit Interface configuration 222
11.3. *PSSTK Command: SIM Toolkit command 223
11.4. *PSSTK URC: SIM Toolkit unsolicited result code 224

12. AUDIO COMMANDS 225

12.1. Preliminary comments 225
12.1.1. General Behavior 225

12.1.2. Warning 225
12.2. +CLVL Command: Loudspeaker volume level 226
12.3. +VIP Command: Initialize Voice Parameters 227
12.4. +VTS Command: DTMF and Tone generation 228
12.5. +VTD Command: Tone duration 229
12.6. +VGR Command: Receive Gain Selection 230
12.7. VGT Command: Transmit Gain Selection 231
12.8. +KVGR Command: Receive Gain Selection 232
12.9. KVGT Command: Transmit Gain Selection 233
12.10. +KECHO Command: Echo Cancellation 234
12.11. +KNOISE Command: Noise Cancellation 235
12.12. +KST Command: Side Tone 236
12.13. +KPC Command: Peak Compressor 237
12.14. +KSRAP Command: Save Restore Audio Parameters 238

13. PROTOCOL SPECIFIC COMMANDS 239

13.1. Preliminary comments 239
13.2. CONNECTION CONFIGURATION 240
13.2.1. +KCNXCFG : GPRS Connection Configuration 240
13.2.2. +KCNXTIMER: Connection Timer Configuration 241
13.2.3. +KCNXPROFILE: Connection current profile configuration 242
13.2.4. +KCGPADDR: Show PDP address 243
13.3. End Of Data pattern 244
13.3.1. +KPATTERN: Custom End Of Data pattern 244
13.4. TCP Specific Commands 245
13.4.1. +KTCPCFG: TCP Connection Configuration 245
13.4.2. +KTCPCNX: TCP Connection 246
13.4.3. +KTCPRCV: Receiving data through a TCP Connection 247
13.4.4. +KTCPSND: Sending data through a TCP Connection 248
13.4.5. +KTCPCLOSE: Closing current TCP operation 249
13.4.6. +KTCPDEL: Delete a configured TCP session 250
13.4.7. +KTCP_SRVREQ: Incoming client's connection request 251
13.4.8. +KTCP_DATA: Incoming data through a TCP Connection 252
13.4.9. +KURCCFG: Enable or disable the URC from TCP commands 253
13.4.10. +KTCPSTAT: Get TCP socket status 254
13.4.11. +KTCPSTART: Start a TCP connection in direct data flow 255
13.5. FTP Client Specific Commands 256
13.5.1. +KFTPCFG: FTP Configuration 256
13.5.2. +KFTPRCV: Downloading FTP files 257
13.5.3. +KFTPSND: Uploading FTP files 259
13.5.4. +KFTPDEL: Deleting FTP files 260
13.5.5. +KFTPCLOSE: Ending current FTP connection 261
13.6. FTP Server Specific Commands 262
13.6.1. +KFTPDCFG: FTP Server Configuration 262
13.6.2. +KFTPDSTAT: FTP Server Status 263
13.6.3. +KFTPDRUN: Run FTP server 264
13.6.4. +KFTPD_NOTIF: Server's Event Notification 265
13.6.5. +KFTPDKICK: Kick user from FTP server 266
13.6.6. +KFTPDCLOSE: Close FTP Server 267
13.7. UDP Specific Commands 268
13.7.1. +KUDPCFG: UDP Connection Configuration 268
13.7.2. +KUDPCLOSE: Closing current UDP operation 269
13.7.3. +KUDPSND: Sending data through an UDP Connection 270
13.7.4. +KUDPRCV: Receiving data through an UDP Connection 271
13.7.5. +KUDP_DATA: Incoming data through a UDP Connection 272
13.8. SMTP Specific Commands 273
13.8.1. +KSMTPPARAM: Connection Configuration 273

13.8.2. +KSMTPPWD: Authentication Configuration 274
13.8.3. +KSMTPTO: Receivers Configuration 275
13.8.4. +KSMTPSUBJECT: Subject Configuration 276
13.8.5. +KSMTPUL: Send Message 277
13.8.6. +KSMTPCLEAR: Clear Parameters 278
13.8.7. Specific Error Code For The SMTP Commands 279
13.9. POP3 Specific Commands 280
13.9.1. +KPOPCNX: Connection Configuration 280
13.9.2. +KPOPLIST: List Available Mail 281
13.9.3. +KPOPREAD: Download A Mail 282
13.9.4. +KPOPDEL: Delete A Mail 283
13.9.5. +KPOPQUIT: Close Connection 284
13.9.6. Specific Error Code For POP3 Commands 285

14. SPECIFIC FLASH COMMANDS 286

14.1. +KFSFILE: Flash file operation command 286

15. MMS COMMANDS 288

15.1. Command set overview 288
15.2. Automatic retrieval 288
15.3. Examples 288
15.4. MMS PDU 289
15.5. Parameter <index> 289
15.6. +KMMCNF Command: MMS Configuration 290
15.7. +KPSL Command: List of Objects 291
15.8. +KPSR Command: Reading an Object 293
15.9. +KPSW Command: Writing an object 294
15.10. +KPSD Command: Deleting an Object 295
15.11. +KPSSEND Command: Send MMS 296
15.12. +KPSCAP Command: Retrieving MOBILE capabilities 297
15.13. +KMMRET Command: Retrieve MMS 298
15.14. +KMMA notification: MMS In MMSC notification 299
15.15. +KMMREC notification: MMS in ME notification 300

APPENDIX 1. RESULT CODES AND UNSOLICITED MESSAGES 302

APPENDIX 2. ERROR CODES 303

A2.1. CME ERROR codes 303
A2.2. CMS ERROR codes 305
A2.3. GPRS ERROR codes 306
A2.4. FTP Reply Codes 307

APPENDIX 3. PIN CODE REQUIREMENT 308

APPENDIX 4. GSM 27.010 MULTIPLEXING PROTOCOL 309

APPENDIX 5. SET OF COMMANDS SUPPORTED 310

APPENDIX 6. HOW TO USE TCP SPECIFIC COMMANDS 317

A6.1. Client mode 317
A6.2. Server mode 318
A6.3. Polling the status of a socket 319
A6.4. End to End TCP connection 320
A6.5. Error Case For End to End TCP connection 320

APPENDIX 7. HOW TO USE FTP SPECIFIC COMMANDS 322

A7.1. Client mode 322

A7.2. Server mode 323
APPENDIX 8. HOW TO USE UDP SPECIFIC COMMANDS 324
A8.1. Client mode 324
A8.2. Server mode 325
APPENDIX 9. HOW TO USE MAIL SPECIFIC COMMANDS 326
A9.1. Mail Overview 326
A9.1.1. Mail Layout 326
A9.1.2. Mail Header 326
A9.1.3. Mail Body 327
A9.2. Mail Attachment 327
A9.2.1. Multipart Message 327
A9.2.2. Attachment Format 328
A9.3. How To Use SMTP Specific Commands 329
A9.3.1. Simple Mode 329
A9.3.2. Complex Mode 332
A9.4. How To Use POP3 Specific Commands 333
APPENDIX 10. HOW TO USE SIM TOOLKIT 336
APPENDIX 11. HOW TO SWITCH FROM DATA MODE TO COMMAND MODE 337
APPENDIX 12. HOW TO USE MMS SPECIFIC COMMANDS 338
APPENDIX 13. QA FOR ADVANCED AT COMMAND 339

sagemcommunications

1. INTRODUCTION

1.1. Scope of the document

This document presents the AT Command Set of the SAGEM COMMUNICATIONS **HILO** modules.

Each AT command is described and if necessary the standard reference is noted. (e.g.: 27.007] §7.5).

Some AT command are SAGEM COMMUNICATIONS proprietary: in this case it is clearly indicated.

Please refer to section Appendix 5 for the extensive list.

1.2. Reference documents

[04.08]	GSM 04.08 (6.7.1) – Mobile radio interface layer 3 specification (Release 1997)
[22.022]	3GPP 22.022 (3.1.0) - Personalization of Mobile Equipment (ME); Mobile functionality specification (Release 1999)
[27.005]	3GPP 27.005 (5.0.0) – Equipment (DTE - DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)
[27.007]	3GPP 27.007 (6.0.0) - AT command set for User Equipment (UE) (Release 6)
[V25ter]	ITU-T Recommendation V.25 ter - Serial asynchronous automatic dialing and control
[SIM]	Specification of the Subscriber Identity Module – Mobile Equipment (SIM – ME) interface. (GSM 11.11 version 8.3.0 Release 1999)

1.3. AT Command principle

The ''*AT*'' or ''*at*'' prefix must be set at the beginning of each line. To terminate a command line, a *<CR>* character must be inserted.

Commands are usually followed by a response that includes *'<CR><LF><response><CR><LF>'*. Throughout this document, only the responses are indicated, the <CR> and <LF> characters are omitted intentionally.

Four kinds of extended AT commands are implemented:

Test Command	AT+CXXX=?	The equipment returns the list of parameters and values ranges set with the with the corresponding Write command or by internal processes.
Read Command	AT+CXXX?	This command returns the currently set value of parameters.
Write Command	AT+CXXX=<…>	This command sets user-related parameter values.
Execution command	AT+CXXX	The execution command reads non-variable parameters affected by internal processes in the equipment.

1.3.1. Parameters

In this document, the default parameters are underlined and the optional parameters are enclosed in square brackets.

Optional parameters or sub-parameters can be omitted unless they are followed by other parameters. A parameter in the middle of a string can be omitted by replacing it with a comma.

When the parameter is a character string, the string must be enclosed in quotation marks.

All space characters will be ignored when using strings without quotation marks.

1.3.2. Possible answers

There is always an answer sent by the TA to an AT Command line (except the very special case of a TA setup for no answer, see ATQ).

The answer is always terminated by an indication of success or failure. However, regarding the setup of the TA (by AT Commands), the message may be different.

Classical messages:	**OK or ERROR**
Extended Error message (see AT+CMEE):	**+CME ERROR: <n>**
	(See Appendix for the different values for **<n>**)
Numeric Mode (see ATV) :	**<n>** with: <**n**> = 0 ⇔ OK or **<n>** is an error code

1.3.3. Multiple AT commands on the same command line

You may enter several AT commands on the same line. This eliminates the need to type the "AT" or "at" prefix before each command and to wait for the answer for each command. The main advantage is to avoid loosing bandwidth on the link between DTE and the Module.

There is no separator between two basic commands but a semi-colon character is necessary between two extended commands (prefix +).The command line buffer accepts a maximum of 391 characters. If this number is exceeded none of the commands will be executed and TA returns ERROR.

If a command is not supported, then the treatment of the line is stopped (i.e. the following ones are not treated) and an error message is returned.

Example:

Command: ATZ&K3+CBST=7,0,1;+CBST?

Answer: +CBST=7,0,1

OK

1.3.4. AT Commands on separate lines

When you enter a series of AT commands on *separate* lines, it is strongly advised to leave a pause between the preceding and the following command until the final answer (OK or Error message) appears. This avoids sending too many AT commands at a time without waiting for a response for each.

1.4. Modification of this document

The commands described in this document are subject to change without notice, and shall only be used as for usual AT commands use.

2. V25TER AT COMMANDS

2.1. A/ Command: Repeat previous command line

A/ Repeat previous command line	
Execute command Syntax **A/**	 Response Depend on the previous command Parameters None
Reference V.25Ter	Notes • Line does not need to end with terminating character

2.2. +++ Command: Switch from data mode to command mode

+++ Switch from data mode to command mode	
Execute command Syntax **+++**	Response This command is only available during data calls. The +++ characters sequence causes to cancel the data flow over the AT interface and switch to command mode. This allows entering AT commands while maintaining the data connection to the remote device. **OK** Parameters None
Reference V.25Ter	Notes • To return to data mode, use the ATO[n] command • Line does not need to end with terminating character • The "+" character may be changed with the ATS2 command (see following chapters)

2.3. O Command: Switch from command mode to data mode

ATO Switch from command mode to data mode	
Test command Syntax **ATO[<n>]**	Response TA returns to data mode from command mode: **CONNECT <text>** If connection is not successfully resumed **NO CARRIER** Parameter **<n>:** 0: switch from command mode to data mode 1-65535: session ID, See "Protocol specific commands (TCP/UDP/FTP…)"
Reference V.25Ter	Notes • ATO is the alternative command to the +++ escape sequence described in Chapter 2.2: When you have established a data call and TA is in command mode, ATO causes the TA to resume the data connection and return to data mode.

2.4. E Command: Enable command echo

ATE Enable command echo	
Execute command Syntax **ATE[<value>]**	Response **OK** Parameters **<value>:** 0 : Echo mode off 1 : Echo mode on
Reference V.25Ter	Notes • This setting determines whether or not the TA echoes characters received from TE during command state

2.5. Q Command: Set result code presentation mode

ATQ Set result code presentation mode	
Execute command Syntax **ATQ[<n>]**	Response **OK** (if **<n>** = 0) *Nothing* (if **<n>** = 1) Parameters **<n>:** 0: result codes transmitted by TA 1: no result code transmitted by TA
Reference V.25Ter	Notes • Specifies whether or not the TA transmits any result code to the TE. Information text transmitted in response is not affected by this setting.

2.6. S0 Command: Set number of rings before automatically answering the call

ATS0 Set number of rings before automatically answering the call	
Read command Syntax **ATS0?**	Response **<n>** **OK**
Write command Syntax **ATS0=<n>**	Response **OK** Parameters **<n>:** 0: automatic answering deactivated 1-255: number of rings before automatically answering
Reference V.25ter	Notes • See Data stored by &W for default value.

2.7. S2 Command: Set character for the escape sequence (data to command mode)

ATS2 Set character for the escape sequence (data to command mode)	
Read command Syntax **ATS2?**	 Response **<n>** **OK**
Write command Syntax **ATS2=<n>**	 Response **OK** Parameters **<n>:** only 43 (“+”) is supported
Reference V.25ter	Notes • The default character is “+” (043) and cannot be changed.

2.8. S3 Command: Command line termination character

ATS3 Command line termination character	
Read command Syntax **ATS3?**	Response **<n>** **OK**
write command Syntax **ATS3=<n>**	Response **OK** Parameters **<n>:** 13: command line termination character<CR>: carriage return.
Reference V.25Ter	Notes • This parameter determines the character recognized by TA to terminate an incoming command line (13 = <CR> by default); it cannot be changed. • See Data stored by &W for default value.

2.9. S4 Command: Set response formatting character

ATS4 Set response formatting character	
Read command Syntax **ATS4?**	Response **<n>** **OK**
Write command Syntax **ATS4=<n>**	Response **OK** Parameters **<n>:** 10: response formatting character <LF>: line feed.
Reference V.25Ter	Notes • This parameter determines the character recognized by TA to terminate answer line (10 = <LF> by default); it cannot be changed • See Data stored by &W for default value.

2.10. S5 Command: Write command line editing character

ATS5 Write command line editing character	
Read command Syntax **ATS5?**	 Response **<n>** **OK**
write command Syntax **ATS5=<n>**	 Response **OK** Parameters **<n>:** 8: command line editing character <BS>: back space.
Reference V.25Ter	Notes • This parameter determines the character recognized by TA to terminate an incoming command line (8 = <backspace> by default); it cannot be changed. • See Data stored by &W for default value.

2.11. S7 Command: Set number of seconds to wait for connection completion

ATS7 Set number of seconds to wait for connection completion	
Read command Syntax **ATS7?**	 Response: **<n>** **OK**
Write command Syntax **ATS7=<n>**	 Response: **OK** Parameters: **<n>:** 1...255: number of second to wait for connection completion
Reference V.25Ter	Notes • See also AT&V for default values of this parameter • See Data stored by &W for default value.

2.12. V Command: TA response format

ATV TA response format	
Execute command Syntax **ATV[<value>]**	Response **0** (When numeric mode activated) **OK** (When verbose mode activated) Parameters **<value>:** 0: Short result code format: **<numeric code>.** 1: Long result code format: **<verbose code>**
Reference V.25Ter	Notes • Data stored by &W for default value.

2.13. X Command: Result code selection and call progress monitoring control

ATX Result code selection and call progress monitoring control	
Write command Syntax **ATX[<value>]**	Response **OK** Parameters **<value>:** 0 : CONNECT result code only returned, dial tone and busy detection are both disabled 1 : CONNECT<text> result code only returned, dial tone and busy detection are both disabled 2 : CONNECT<text> result code returned, dial tone detection is enabled, busy detection is disabled 3 : CONNECT<text> result code returned, dial tone detection is disabled, busy detection is enabled 4 : CONNECT<text> result code returned, dial tone and busy detection are both enabled
Reference V.25Ter	Notes • See Data stored by &W for default value.

2.14. &C Command: Set circuit Data Carrier Detect (DCD) function mode

AT&C Set circuit Data Carrier Detect (DCD) function mode	
Execute command Syntax **AT&C<value>**	Response **OK** Parameters **<value>:** 0 : DCD line is always active 1: DCD line is active in the presence of data carrier only.
Reference V.25Ter	Notes • Data stored by &W for default value.

2.15. &D Command: Set circuit Data Terminal Ready (DTR) function mode

AT&D Set circuit Data Terminal Ready (DTR) function mode	
Execute command Syntax **AT&D<value>**	Response **OK** Parameters **<value>:** 0: TA ignores status on DTR. 1: Active->Inactive on DTR: Change to command mode while retaining the connected data call. 2: Active->Inactive on DTR: Disconnect data call, change to command mode. During state DTR inactive auto-answer is off.
Reference V.25Ter	Notes • The command AT&D only applies to data calls. Thus, a DTR drop from active to inactive in AT&D2 mode will not hang up a voice call.

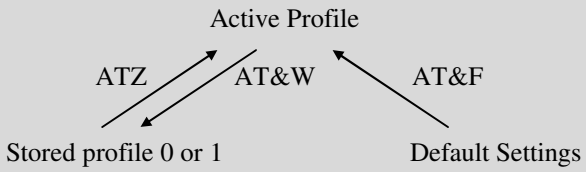
2.16. &F Command: Restore manufactory configuration

AT&F Restore Manufactory configuration	
Execute command Syntax **AT&F[<value>]**	Response **OK** Parameters **<value>:** 0: Restore parameters to manufactory values
Reference V.25Ter	Notes • See also AT&V • Restore manufactory values to active profile

2.17. &W Command: Save stored profile

AT&W Save stored profile	
Execute command Syntax **AT&W**	 Response **OK** Parameters
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command saves the current configuration in a non erasable place. • See also AT&V • The default stored profile may be adapted for customer needs. Configuration saved : E: Echo Q: Set result code presentation mode V: Verbose X: Extended result code &C: DCD control &D: DTR behavior &R: RTS control &S0 DSR control &K0 Flow control FCLASS: FCLASS S0: Set number of rings before automatically answering the call S3: Write command line termination character S4: Set response formatting character S5: Write command line editing character S7: Set number of seconds to wait for connection completion S8: Comma dial modifier time S10: Automatic disconnect delay

2.18. &V Command: Display current configuration

AT&V Display current configuration	
Execute command Syntax **AT&V[<value>]**	Response **ACTIVE PROFILE:** **<current configuration>** **STORED PROFILE 0:** **<user default configuration>** **STORED PROFILE 1:** **<manufactory configuration>** OK Parameters **<value>:** 0: display active profile
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The configuration is a text string on multiple lines as shown in the example below. This string may vary depending on the manufactory, the product and the user setup. Example: E1 Q0 V1 X4 &C1 &D1 &R1 &S0 +IFC= 0,2 &K0 +FCLASS0 S00:0 S03:13 S04:10 S05:8 S07:50 S08:2 S10:14 • This command indicates the result of certain actions as shown below: 

2.19. PR Command: Set fixed local rate

AT+IPR Set fixed local rate	
Test command Syntax **AT+IPR=?**	Response **+IPR:** (list of supported auto-detectable **<rate>s**), (list of supported fixed-only **<rate>s**) **OK**
Read command Syntax **AT+IPR?**	Response **+IPR: <rate>** **OK**
Write command Syntax **AT+IPR=<rate>**	Response **OK** Parameters **<rate>:** bit rate per second 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 0 =Autobaud
Reference V.25ter	Notes • The speed is modified after sending the answer • **With AUTOBAUD only capital letters for AT commands have to be used**

2.20. B: Data rate selection

ATB Data Rate Selection	
Execute Command Syntax **ATB<rate>**	 Response **OK** Parameters **<rate>:** number from [0, 99], but meaningless.
Reference V.25ter	Notes • The responses of this command are compliant with the recommendation but this command has no effect. • It is recommended to use AT+CBST instead of this command

2.21. \N: Data transmission mode

AT\N Data Transmission Mode	
Execute Command Syntax **AT\N<x>**	 Response **OK** Parameters **<x>:** 0: transparent mode 4, 6: RLP mode (non transparent)
Reference V.25ter	Notes • Not support. It is recommended to use AT+CBST instead of this command

2.22. &K Command: Flow control option

AT&K Flow control command	
Execute command Syntax **AT&K<mode>**	Response **OK** Parameters **<mode>:** 0: Disable all flow control 3: Enable bi-directional hardware flow control. 4: Enable XON/XOFF flow control.
Reference V.25ter	Notes • Use AT&V0 to display the current flow control setting

2.23. L Command: Monitor speaker loudness

ATL Monitor speaker loudness	
Write command Syntax **ATL [<volume>]**	 Response **OK** Parameter **<volume> :** 0..9
Reference ITU-T V.250 §6.3.13	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.24. M Command: Monitor speaker mode

AT M Monitor speaker loudness	
Write command Syntax **ATM[<mode>]**	 Response **OK** Parameter **<mode> :** 0..9
Reference ITU-T V.250 §6.3.14	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.25. S6 Command: Pause before blind dialing

ATS6 Pause before blind dialing	
Write command Syntax **ATS6=<time>**	Response **OK** Parameter **<time> :** 0..999
Reference ITU-T V.250 §6.3.9	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.26. S8 Command: Comma dial modifier time

ATS8 Comma dial modifier time	
Read command Syntax **ATS8?**	 Response **<time>** **OK**
Write command Syntax **ATS8=<time>**	 Response **OK** Parameter **<time> :** 0..255. See Data stored by &W for default value.
Reference ITU-T V.250 §6.3.11	Notes • Since comma is ignored in D command, this command has no effect.

2.27. S10 Command: Automatic disconnect delay

AT10 Automatic disconnect delay	
Read command Syntax **ATS10?**	 Response **<time>** **OK**
Write command Syntax **ATS10=<time>**	 Response **OK** Parameter **<time> :** 1..254. See Data stored by &W for default value.
Reference ITU-T V.250 §6.3.12	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.28. N Command: Negotiate handshake option

ATN Negotiate handshake option	
Write command Syntax **ATN[<option>]**	 Response **OK** Parameter **<option> :** 0..9
Reference	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.29. S1 Command: Ring count

ATS1 Ring count	
Read command Syntax **ATS1?**	Response **<num>** **OK** Parameter **<num> :** 0..255. See Data stored by &W for default value.
Reference	Notes • Read command returns the number <num> of ring occurrences of last incoming data, fax or voice call.

2.30. S11 Command: DTMF Dialing speed

ATS11 DTMF Dialing speed	
Write command Syntax **ATS11=<time>**	 Response **OK** Parameter **<time> :** 0..999
Reference	Notes • The responses of this command are compliant with the recommendation but this command has no effect.

2.31. W Command: Extended result code

ATW Extended result code	
Write command Syntax **ATW <mode>**	 Response **OK** Parameter **<mode> :** 0 (only result code CONNECT supported)
Reference	Notes • Execution command determine which <mode> of result code is to be use as extended result code in addition to the CONNECT result code.

2.32. &S Command: DSR option

AT&S DSR option	
Write command Syntax **AT&S[<override>]**	 Response **OK** Parameter **<override> :** 0,1 (See Data stored by &W for default value)
Reference	Notes

2.33. &R Command: RTS/CTS option

AT&R RTS/CTS option	
Write command Syntax **AT&R <option>**	 Response **OK** Parameter **<option> :** 1=> In sync mode, CTS is always ON (RTS transitions are ignored). In async mode, CTS will only drop if required by the flow control (See Data stored by &W for default value).
Reference	Notes • This selects how the modem control CTS. CTS operation is modified if hardware flow control is selected (see &K command). The parameter value, if valid, is written to S21 bit2

3. GENERAL AT COMMANDS

3.1. I Command: Request Identification Information

ATI Request identification information	
Execute command Syntax **ATI[<value>]**	Response **<text>** (depends on <**value**>) **OK** Parameter **<value>:** (nothing): Model identifier 0: Model identifier 3: Software version
Reference V.25ter	Notes •

3.2. Z Command: Reset and restore user configuration

ATZ Reset and restore user configuration	
Execute command Syntax **ATZ[<value>]**	Response **OK** Parameter **<value>:** 0: Reset and restore user configuration with profile 0 1: Reset and restore user configuration with profile 1
Reference V.25ter	Notes See also AT&V

sagemcommunications

3.3. +CGMI Command: Request manufacturer identification

AT+CGMI Request manufacturer identification	
Test command Syntax **AT+CGMI=?**	 Response **OK**
Execute command Syntax **AT+CGMI**	 Response **(manufacturer identification text)** **OK**
Reference [27.007] § 5.1	Notes

sagemcommunications

3.4. +CGMM Command: Request model identification

AT+CGMM Request model identification	
Test command Syntax **AT+CGMM=?**	 Response **OK**
Execute command Syntax **AT+CGMM**	 Response **(model identification text)** **OK**
Reference [27.007] § 5.2	Notes

sagemcommunications

3.5. +CGMR Command: Request revision identification

AT+CGMR Request revision identification	
Test command Syntax **AT+CGMR=?**	 Response **OK**
Execute command Syntax **AT+CGMR**	 Response **(model revision identification text)** **OK**
Reference [27.007] § 5.3	Notes

sagemcommunications

3.6. +CGSN Command: Request product serial number identification (IMEI)

AT+CGSN Request product serial number identification (IMEI)	
Test command Syntax **AT+CGSN=?**	 Response **OK**
Execute command Syntax **AT+CGSN**	 Response **<sn>** (identification text for determination of the individual ME) **OK**
Reference [27.007] § 5.4	Notes

sagemcommunications

3.7. +KGSN Command: Request product serial number identification and Software Version

AT+KGSN Request product serial number identification (IMEI)	
Test command Syntax **AT+KGSN=?**	 Response **+KGSN: (**list of supported **<imei type>**s**)** **OK**
Execute command Syntax **AT+KGSN=<imei type>**	 Response If <**imei type**> = 0: +KGSN: **<IMEI>** **OK** If <**imei type**> = 1: +KGSN: **< IMEISV>** **OK** If <**imei type**> = 2: +KGSN: **< IMEISV_STR>** **OK** Parameters **<IMEI>:** 15 digits IMEI (8 digits for TAC + 6 digits for SNR + 1 check digit) **<IMEISV>:** 16 digits IMEISV (8 digits for TAC + 6 digits for SNR + 2 SVN digits) **<IMEISV_STR>:** formatted string : <15 digits>-<Check digit> SV:<Software version>
Reference SAGEM S.A. proprietary	Notes • This command has been developped to provide the IMEI SV through an AT Command Example AT+KGSN=0 +KGSN: **351578000023006** OK AT+KGSN=1 +KGSN: **351578000023001** OK

sagemcommunications

3.8. +CSCS Command: Set TE character set

AT+CSCS Set TE character set	
Test command Syntax **AT+CSCS=?**	 Response **+CSCS: (**list of supported **<chset>)** **OK**
Read command Syntax **AT+CSCS?**	 Response **+CSCS: <chset>** **OK**
Write command Syntax **AT+CSCS=<chset>**	 Response **OK** Parameter **<chset>:** **"GSM"** GSM default alphabet (GSM 03.38 subclause 6.2.1) **"UCS2"** 16 bit universal multiple-octet coded character set (ISO/IEC 10646) **"IRA"** default value
Reference [27.007] §5.5	Notes • Select the character set used for all string types (Phonebook entries, SMS data, …)

sagemcommunications

3.9. +CIMI Command: Request international subscriber identity

AT+CIMI Request international subscriber identity	
Test command Syntax **AT+CIMI=?**	 Response **OK**
Execute command Syntax **AT+CIMI**	 Response **<IMSI>:** (International Mobile Subscriber Identify) **OK**
Reference [27.007] § 5.6	Notes

sagemcommunications

3.10. +GCAP Command: Request complete TA capability list

AT+GCAP Request complete TA capability list	
Execute command Syntax **AT+GCAP**	 Response **+GCAP:** list of **<name>**s **OK**
Reference V.25ter	Notes Example: **+GCAP:+FCLASS,+CGSM** **OK**

sagemcommunications

3.11. +GMI Command: Request manufacturer identification

AT+GMI Request manufacturer identification	
Test command Syntax **AT+GMI=?**	 Response **OK**
Execute command Syntax **AT+GMI**	 Response **(manufacturer identification text)** **OK**
Reference V.25ter	Notes

sagemcommunications

3.12. +GMM Command: Request model identification

AT+GMM Request model identification	
Test command Syntax **AT+GMM=?**	 Response **OK**
Execute command Syntax **AT+GMM**	 Response **(model identification text)** **OK**
Reference V.25ter	Notes

sagemcommunications

3.13. +GMR Command: Request revision identification

AT+GMR Request revision identification	
Test command Syntax **AT+GMR=?**	 Response **OK**
Execute command Syntax **AT+GMR**	 Response **(model identification text)** **OK**
Reference V.25ter	Notes

sagemcommunications

3.14. +GSN Command: Request product serial number identification (IMEI) identical to GSN

AT+GSN Request product serial number identification (IMEI) identical to GSN	
Test command Syntax **AT+GSN=?**	 Response **OK**
Execute command Syntax **AT+GSN**	 Response **<sn>** (identification text for determination of the individual ME) **OK**
Reference V.25ter	Notes

sagemcommunications

3.15. +CMUX Command: Multiplexing mode

AT+CMUX Multiplexing Mode	
Test command Syntax **AT+CMUX=?**	Response **+CMUX:** (list of supported **<mode>**s),(list of supported **<subset>**s),(list of supported **<port_speed>**s),(list of supported **<N1>**s),(list of supported **<T1>**s),(list of supported **<N2>**s),(list of supported **<T2>**s),(list of supported **<T3>**s),(list of supported **<k>**s) **OK**
Read Command Syntax **AT+CMUX?**	Response **+CMUX: <mode>,[<subset>],<port_speed>,<N1>,<T1>, <N2>,<T2>,<T3>[,<k>]** **OK**
Write command Syntax **AT+CMUX=<mode>[,<subset>[,<port_speed>[,<N1>[,<T1>[,<N2>[,<T2>[,<T3>[,<k>]]]]]]]]**	Response **OK** Parameters **<mode>:** multiplexer Transparency Mechanism 0: Basic option 1: Advanced option **<subset>:** 0 UIH frames used only 1 UI frames used only **<port_speed>:** transmission rate(1-8) 1 9 600 bit/s 2 19 200 bit/s 3 38 400 bit/s 4 57 600 bit/s 5 115 200 bit/s **<N1>:** maximum frame size (1- 32768) default Value : 31 (64 if Advanced option is used) **<T1>:** acknowledgement timer in units of ten milliseconds 1-255, where 10 is default (100 ms) **<N2>:** maximum number of re-transmissions 0-100, where 3 is default **<T2>:** response timer for the multiplexer control channel in units of ten milliseconds 2-255, where 30 is default (300 ms) **<T3>:** wake up response timer in seconds 1-255, where 10 is default **<k>:** window size, for Advanced operation with Error Recovery options 1-7, where 2 is default.
Reference [27.007] § 5.7	Notes • Multiplexing protocol is described in 3 GPP TS 27 010 • See Chapter Appendix 4 for a summary of SAGEM S.A. support

sagemcommunications

3.16. #CLS Command: Service Class

AT#CLS Service Class	
Test command Syntax **AT#CLS=?**	 Response **#CLS:** (list of currently available **<class>** s) **OK**
Read command Syntax **AT#CLS?**	 Response **#CLS <class>** **OK**
Write command Syntax **AT #CLS=<class>**	 Response **OK** Parameter **<class> :** 0, 1
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Same behavior than +FCLASS command. Needed for Microsoft agreement.

3.17. *PSLOCUP Command:

AT*PSLOCUP	
Write command Syntax **AT*PSLOCUP**	 Response **OK** Parameter
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command generates a location update of MS

3.18. *PSCSCN Command: Call State Change Notification

AT*PSCSCN Call State Change Notification	
Read command Syntax **AT*PSCSCN?**	 Response ***PSCSCN: <mode>** **OK**

Write command Syntax **AT*PSCSCN=<mode>**	Response **OK** Parameter **<Mode> :** 0 Disable presentation of the notification 1 Enable presentation of the notification when the state of a call changes. **<Call Id> :** integer type value representing the number of the call 0 when call Id not yet assigned. 1..7 for speech calls Greater than 8 for data calls **<State> :** State of the call. 0 MO call SETUP (if no control by SIM) 1 MO call SETUP WITH CONTROL BY SIM (accepted) 2 MO call SETUP ERROR (control by SIM rejected or other problem) 3 MO call PROCEED 4 MO call ALERT (at distant) 5 MO call CONNECT (with distant) 6..9 RFU 10 MT call SETUP 11 MT call SETUP ACCEPTED (Bearer capabilities accepted by the ME) 12 MT call SETUP REJECTED (Bearer capabilities rejected by the ME) 13 MT call ALERT 14 MT call CONNECT (ME has successfully accepted the call) 15 MT call CONNECT ERROR (ME was not able to accept the call) 16..19 RFU 20 Call DISCONNECT BY NETWORK 21 Call DISCONNECT BY USER 22 Call REJECT BY USER **Note:** This command uses information available at APPI interface (application i/f). AT parser does not interface directly with protocol stack so it does not have immediate access to L3 messages, this means that **<state>** does not match L3 messages exactly (as they are defined in 24.008 recommendation). **<Status> :** integer representing the status of the call once connected (applicable only for speech calls, either MO or MT) 0 ACTIVE 1 HELD (applicable only for speech calls, either MO or MT) 2 MULTIPARTY ACTIVE (applicable only for speech calls, either MO or MT) 3 MULTIPARTY HELD (applicable only for speech calls, either MO or MT) **<Number> :** string type phone number of format specified by **<type>** (same as CLIP or COLP) **<Type> :** type of address octet in integer format (same as CLIP or COLP) **<Line Id> :** Indication of the line 1 Line 1 2 Aux. Line **<CauseSelect> :**integer value representing the Cause Select. (used in error case or network disconnection) **<Cause> :** integer value representing the Cause. See **[**ISD_UPV**]** for possible values (used in error case or network disconnection) **<Bearer> :** String (hexadecimal character format) representing bearer capability (for data calls only).

Reference SAGEM COMMUNICATIONS Proprietary	Notes • Command allows presentation of information about CS call states. • This command does note replace +CLCC command. TE is notify whenever a call state changes, this avoid TE to use polling mechanism with +CLCC command to know the states of each call. • Set command enable (or disable) the presentation of*PSCSC**: <Call Id>** , **<State>** , **<Status>** , **[<Number>]**, **[<type>]**, **[<Line Id>]**, **[<CauseSelect>]**,**[<Cause>]**, **[<Bearer>]** every time the states of a call change. The optional fields of the URC are filled only when information is available (i.e depending of the state of the call), other wise they are left empty • **Example:** MO speech alerting at distant and initiated on line 1 *PSCSC**:** 1, 4, 1,,, 1, , , MO speech call connected to “11111111” and active on line 1 *PSCSC**:** 1, 5, 1, “1111111”, 129, 1, , , MT data call connected to “123456” and active on line 1, BC list=A28881211563A6 *PSCSC**:** 8, 14, 1, “123456”, 129, 1, , , “A28881211563A6”

3.19. *PSFSNT Command: Field Strength Notification with Threshold

AT*PSFSNT Field Strength Notification with Threshold	
Read command Syntax **AT*PSFSNT?**	 Response ***PSSSNT: <mode>** **OK**
Write command Syntax **AT*PSFSNT=<mode>**	 Response **OK** Parameter **<mode> :** 0 Disable presentation of the notification 1 Enable presentation of the notification **<Field strength>** 0 less than -110 dBm 1 -109 dBm ...intermediate values... 62 -48dBm 63 greater than -48 dBm 255 field strength is unavailable
Reference SAGEM COMMUNICATIONS Proprietary	Notes • **Be careful : these are not the same values as +CSQ.** • This command allows presentation of field strength notification. • Set command enable (or disable) the presentation of ***PSFS** : <Field strength> each time field strength increase or decrease of 5 dBm.

sagemcommunications

3.20. *PSSSURC Command:

AT*PSSSURC	
Test command Syntax **AT*PSSSURC=?**	Response ***PSSSURC:** (list of supported **<mode>** s) **OK**
Read command Syntax **AT*PSSSURC?**	Response ***PSSSURC: <mode>** **OK**
Write command Syntax **AT*PSSSURC=<mode>**	Response **OK** Parameter **<mode> :** 0,1 0 **:** disable sending of additional result code 1 **:** enable sending of additional result code
Reference [27.007] § 6.1	Notes • The aim of this AT command is to configure the AT interface to give additional information through result code to TE when D command is entered with an SS string as parameter. When <mode> parameter is enabled,*PSSSURC (resp.*PSSERR) result code is sent to TE before OK (resp. ERROR) result code.

sagemcommunications

3.21. *PSALS Command: Alternate Line Service

AT*PSALS Alternate Line Service	
Test command Syntax **AT*PSALS=?**	 Response ***PSALS:** (list of supported **<line Id>**) **OK**
Read command Syntax **AT*PSALS?**	 Response ***PSALS: <current LineId>** **OK**
Write command Syntax **AT*PSALS=<LineId>**	 Response **OK** Parameter **<LineId> :** 1 (line 1 - default) 2 line 2 (aux. Line if ALS supported)
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command allows control on alternate line service. • For MT (speech) calls,+CRING urc (see+CRC command) indicates on which line call is received**:** (**+**CRING**:** VOICE ->default case=line 1, **+**CRING**:** VOICE_AUX ->line 2.)

sagemcommunications

3.22. *PSDCIN Command: Diverted Call Indicator Notification

AT*PSDCIN Diverted Call Indicator Notification	
Test command Syntax **AT*PSDCIN=?**	 Response ***PSDCIN:** (list of supported **<modes>**),(list of supported **<line>** s) **OK**
Read command Syntax **AT*PSDCIN?**	 Response ***PSDCIN: <mode>** **OK**
Write command Syntax **AT*PSDCIN=<mode> [, <LineId>]**	 Response **[*PSDCIN: <Line Id>** , **<status> [[...] <CR> <LF>** ***PSDCIN: <Line Id>** , **<status>]]** **OK** Parameter **<mode> :** parameter set/shows the*PSDCI result code presentation status in the ME 0 (CFU notification presentation disabled) 1 (CFU notification presentation enabled) 2 (query CFU status) **<Line Id> :** 1 (Line 1) 2 (Aux. Line) 3 (data) 4 (fax) **<status> :** 0 (not active) 1 (active)
Reference [27.007] § 6.1	Notes • This command allows presentation of diverted call indicator • Set command enables/disables the presentation of notification result code from ME to TE. If **<mode>** =2 status of **<lind Id>** is requested. If **<Line Id>** is not provided , query is requested for all lines. • When **<mode>** =1,*PSDCI **: <Line Id>** , **<status>** Diverted Call Indication result code is sent to TE on reception of network notification. (Several result code can been sent at the same time on reception of the notification)

sagemcommunications

3.23. * PSMBNB Command: Mailbox Numbers

AT*PSMBNB Mailbox Numbers	
Test command Syntax **AT*PSMBNB=?**	Response ***PSMBNB:** (list of supported **<Line Id>**),(List of supported **type>**),**[<nlength>],[<tlength>]** **OK**
Read command Syntax **AT*PSMBNB?**	Response **[*PSMBNB: <Line Id>** , **<number>** , **<type>** , **<text> [[...] <CR> <LF>** ***PSMBNB: <Line Id>** , **<number>** , **<type>** , **<text>]]** **OK**
Write command Syntax **AT*PSMBNB=<Line Id> [, <number> , <type> [, <text>]]**	Response **OK** Parameter **<Line Id> :** 1 (Line 1) 2 (Aux. Line) 3 (data) 4 (fax) **<number> :** string type phone number of format **<type>** **<type> :** type of address octet in integer format (refer GSM 04.08 **[**8**]** subclause 10.5.4.7) ; default 145 when dialling string includes international access code character "**+**", otherwise 129 **<text>** : string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS **<nlength> :** integer type value indicating the maximum length of field **<number>** **<tlength> :** integer type value indicating the maximum length of field **<text>**
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The number to the voice mail server is set with this command. If setting fails, a ME error,+CME ERROR**:** **<err>** is returned. If only **<Line Id>** is present in command corresponding record is deleted in SIM. • The purpose of this command is not to replace +CSVM command but to offer more possibilities for Mailbox numbers settings (**+**CSVM command allows only voice mailbox settings).

sagemcommunications

3.24. *PSCSP Command: Customer Service Profile

AT*PSCSP Customer Service Profile	
Test command Syntax **AT*PSCSP=?**	 Response ***PSCSP:** (list of supported **<ServiceGroupe code>**) **OK**
Read command Syntax **AT*PSCSP?**	 Response **[*PSCSP: <Service Groupe code>** , **<status> [[...] <CR> <LF>** ***PSCSP: <Service Groupe code>** , **<status>]]** **OK**
Write command Syntax **AT*PSCSP**	 Response **OK** Parameter **<Service Groupe code> :** string representing the hexadecimal value of the Service Group Code **<status> :** string representing a record of the CSP sim file (8 bit bitfield)
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command is reserved for feature use. • Set command has no effect. • **Example:** *PSCSP**:** “02 “, “11000000 “ ... *PSCSP: “C0 “, “11000110 “ OK

sagemcommunications

3.25. *PSSEAV Command: Service Availability

AT*PSSEAV Service Availability	
Test command Syntax **AT*PSSEAV=?**	 Response ***PSSEAV:** (list of supported modes),(list of supported services) **OK**
Read command Syntax **AT*PSSEAV?**	 Response ***PSSEAV: <mode>** **OK**
Write command Syntax **AT*PSSEAV=<mode>**	 Response **OK** Parameter **<mode> :** parameter set/shows the *PSREADY result code presentation status in the ME parameter 0 (disabled) 1 (enabled) **<service> :** 0 (phone book service availability) 1 (SMS service availability) 2 (SMS-CB service availability)
Reference [27.007] § 6.1	Notes • Set command enables/disables the presentation of notification result code from ME to TE. When **<mode>** =1,*PSREADY: **<service>** result code is sent to TE when **<service>** is available.

sagemcommunications

3.26. *PSCHRU Command: Channel Registration URC

AT*PSCHRU Channel Registration URC	
Test command Syntax **AT*PSCHRU=?**	 Response ***PSCHRU:** (list of supported **<mask>** s) **OK**
Read command Syntax **AT*PSCHRU?**	 Response ***PSCHRU: <mask>** **OK**
Write command Syntax **AT*PSCHRU=<mask>**	 Response **OK** Parameter **<mask> :** mask used to filter URCs. **0:** No URC will be displayed on the channel **1:** CALL related URC **2:** SMS related URC **4:** CBM related URC **8:** CIEV related URC **16:** NET_REG related URC **32:** SS related URC **64:** INIT related URC **128:** DBG related URC **256:** STK related URC
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command is used to filter one or several URC on a channel. By default all URC are enabled on a newly opened channel. • This command only applies on the channel it is submitted, other channels are not impacted. • **Example:** To enable the display of URC SMS (2) and CALL(1) and to forbid the display of the others on a channel, choose 2 and 1 parameter, i.e AT*PSCHRU=3 • The table below lists each mask and the URCs they are associated with**:**

Mask	URC Isit
1	RING, CRING, +CCM, +CCWV, +CCWA, +CLIP, +COLP, +CSSI, +CSSU, *PSCALL, *PSDCI
2	+CDS, +CMT, +CMTI, *PSMWI
4	+CBM
8	+CIEV
16	+CREG, +CGREG
32	+CUSD
64	*PSREADY
128	*PSDBG
256	*PSSTK

3.27. *PSCSSC Command: Call Successful setup control

AT*PSCSSC Call Successful setup control	
Read command Syntax **AT*PSCSSC?**	 Response ***PSCSSC: <mode>** **OK**
Write command Syntax **AT*PSCSSC=<mode>**	 Response **OK** Parameter **<mode> :** 0 **:** default mode, OK is retuned after call is connected to the called party (successful call setup). 1 **:** OK is returned when call setup is started .The user is not informed of call successful setup. If the calls fails, NO_ANSWER or NO_CARRIER will be sent after the OK.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command controls the emission of the result code for MO speech successful setup.. • If “Connected line identification presentation” supplementary service is activated (refer to +COLP), result code for ATD command will be sent to TE when call is connected to the called party (successful call setup). • If “Connected line identification presentation” supplementary service is NOT activated (refer to +COLP), result code for ATD can be sent as soon as call setup is started or after call is connected to the called party (after (successful call setup). • Set command allows selection of <mode> for MO speech call result code. • If user set **<mode>** =1 when +COLP is also activated, ERROR will be returned. Mode will remains to 0. • Read command returns current **<mode>.**

4. CALL CONTROL COMMANDS

4.1. A Command: Answer a call

ATA Answer a call	
Execute command Syntax **ATA**	Response: **CONNECT[<text>]** Data Connection established **OK** Voice Connection established or if cancellation of the command **ERROR** Response if no connection
Reference V.25Ter	Notes • See ATX for setup of the CONNECT message

4.2. H Command: Disconnect existing connection

ATH Disconnect existing connection	
Execute command Syntax **ATH[<type>]**	Response: **OK** Parameters: **<type>:** Type of call affected by ATH request. Voice call disconnection is also dependant of +CVHU settings. 0: Same behavior as without parameter. Disconnect ALL calls on the channel he command is requested All active or waiting calls, CS data calls, GPRS call of the channel will be disconnected. 1: Disconnect all calls on ALL connected channels. All active or waiting calls, CSD calls, GPRS call will be disconnected (clean up of all calls of the ME). 2: Disconnect all connected CS data call only on the channel the command is requested (Speech calls (active or waiting) or GPRS calls are not disconnected). 3: Disconnect all connected GPRS calls only on the channel the command is requested (Speech calls (active or waiting) or CS data calls are not disconnected). 4: Disconnect all CS calls (either speech or data) but does not disconnect waiting call (either Speech or data) on the channel the command is requested. 5: Disconnect waiting call (either speech or data) but does not disconnect other active calls (Either CS speech, CS data or GPRS) on the channel the command is requested. (rejection of incoming call)
Reference V.25Ter	Notes • On this command, all calls in progress are ended • See also AT+CHLD

4.3. D Command: Mobile originated call to dial a number

ATD Mobile originated Call to dial a number	
Test command Syntax **ATD=?**	 Response **1 2 3 4 5 6 7 8 9 0 * # + A B C D P T W , @ !** **OK**
Read command Syntax **ATD?**	 Response **1 2 3 4 5 6 7 8 9 0 * # + A B C D P T W , @ !** **OK**
Execute command Syntax **ATD[<n>][;]**	 Response: **NO DIALTONE** **BUSY** **NO CARRIER** The connection cannot be established **NO ANSWER** **CONNECT[<text>]** Data connection successfully connected **OK** If successfully connected and voice call Parameters: **<n>:** String of dialing digits and optionally V.25ter modifiers (dialing digits): 0-9, * , #, +, A, B, C (maximum length: 20 digits) **<;>:** Only required to set up voice calls. TA remains in command mode.
Reference V.25Ter	Notes • The command may be aborted generally when receiving an ATH command during execution • Same behavior for ATDP, ATDR, ATDT, ATPD, ATRD, ATTD • OK answer may arrive after just after the ATD command or after the call is actually active (see AT+COLP, chapter 6.11)

sagemcommunications

4.4. D>: Direct dialing from phonebook

ATD> Direct dialing from phonebook	
Execute command Syntax **ATD><str>[;]** **ATD>[<mem>]<n>[;]**	 Response See ATD Parameters: **<str>:** alphanumeric field (if possible all available memories should be searched for correct entry) **<mem>:** memory storage (“ME”, “SM”…) **<n>:** entry location
Reference [27.007] § 6.2	Notes • For memory storage locations, see AT+CPBS

sagemcommunications

4.5. +CHUP Command: Hang up call

AT+CHUP Hang up call	
Execute command Syntax **AT+CHUP**	 Response **OK**
Test command Syntax **AT+CHUP=?**	 Response **OK**
Reference [27.007] § 6.5	Notes • Since only single mode is supported, the execution of the command always disconnects active call

4.6. +CRC Command: Set Cellular Result Codes for incoming call indication

AT+CRC Set Cellular Result Codes for incoming call indication	
Test command Syntax **AT+CRC=?**	 Response **+CRC:** (list of supported **<mode>**) **OK**
Read command Syntax **AT+CRC?**	 Response **+CRC:<mode>** **OK**
Write command Syntax **AT+CRC=[<mode>]**	 Response **OK** Parameters **<mode>:** 0: disable extended format 1: enable extended format
Reference [27.007] § 6.11	Notes • When enabled, an incoming call is indicated with **+CRING: <type>.** **<type>** :**FAX** or **VOICE** or **ASYNC**

sagemcommunications

4.7. +CSTA Command: Select type of address

AT+CSTA Select type of address	
Test command Syntax **AT+CSTA=?**	 Response **+CSTA:** (list of supported **<type>** s) **OK**
Read command Syntax **AT+CSTA?**	 Response **+CSTA: <type>** **OK**
Write command Syntax **AT+CSTA=[<type>]**	 Response **OK** Parameter **<type> :** 129, 145. See Data impacted by &F for default value
Reference [27.007] § 6.1	Notes

4.8. +CMOD Command: Call mode

AT+CMOD Call mode	
Test command Syntax **AT+CMOD=?**	 Response **+CMOD:** (list of supported **<mode>** s) **OK**
Read command Syntax **AT+CMOD?**	 Response **+CMOD: <mode>** **OK**
Write command Syntax **AT+CMOD=[<mode]**	 Response **OK** Parameter **<mode> :** 0. See Data impacted by &F for default value.
Reference [27.007] § 6.4	Notes

4.9. +CEER Command: Extended error report

AT+CEER Extended error report	
Test command Syntax **AT+CEER=?**	 Response **OK**

Write command Syntax **AT+CEER**	Response **+CEER: <report>** **OK** Parameter **<report> :** Cause Select**: <cause_select>** cause**: <cause>** " **<cause select>** **<cause>** 0**:** No cause 0**:** No cause 16**:** Service provider 0**:** Unknown 1**:** Not Allowed 2**:** No cause 6**:** Wrong parameter 9**:** Network access not allowed 20**:** all call instances are used 21 ACM over ACM Max 22 invalid AOC element 23 SIM increase not allowed 24 switch off 25 Unknown call id 28 barred 65**:** Local cause 1**:** state error 2**:** no call entity 3**:** wrong TI 6**:** DTMF buffer overflow 7**:** call disconnected

Reference	Notes
[27.007] § 6.10	• No GPRS error causes are display. • See Data impacted by &F for default value.

4.10. +CVHU Command: Voice hang up control

AT+CVHU Voice hang up control	
Test command Syntax **AT+CVHU=?**	 Response **+CVHU:** (list of supported **<mode>** s) **OK**
Read command Syntax **AT+CVHU?**	 Response **+CVHU: <mode>** **OK**
Write command Syntax **AT+CVHU=[<mode>]**	 Response **OK** Parameter **<mode> :** see **[27.007]**.
Reference [27.007] § 6.20	Notes • If DTR signal is inactive (if DTR is not a pulse), then “Drop DTR” does not respond “OK”.

4.11. +KFILTER Command: Make a filter on incoming call

AT+KFILTER makes a filter on incoming call	
Write command Syntax **AT+KFILTER=<num>**	Response **OK** Parameters **<num>:** string type phone number. A filter will be created with this phone number and all the others ones will be rejected.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • To disable the filter, <num> has to be an empty string. • CLIP has to be supported by the network. • This filter tries to match the clip beginning by the last digit of the phone number. Example : AT+KFILTER="23456789" -> makes a filter on +33123456789 OK AT+KFILTER="89" -> makes a filter on all the phone number ending by 89 OK AT+KFILTER="" -> disable the filter OK

4.12. +CSNS Command: Single Numbering Scheme

AT+CSNS Single Numbering Scheme	
Test command Syntax **AT+CSNS=?**	 Response **+CSNS:** (list of supported **<mode>**) **OK**
Read command Syntax **AT+CSNS?**	 Response **+CSNS:<mode>** **OK**
Write command Syntax **AT+CSNS=[<mode>]**	 Response **OK** Parameters **<mode>**: 0: Voice 2: Fax 4: Data
Reference [27.007] § 6.19	Notes See also AT+CBST

4.13. +KATH Command: Choose ATH Mode

AT+KATH	
Test command Syntax **AT+KATH=?**	 Response **+KATH:** (list of supported **<num>**) **OK**
Read command Syntax **AT+KATH?**	 Response **+KATH:<num>** **OK**
Write command Syntax **AT+KATH=<num>**	 Response **OK** Parameters **<num>:** 0 Default (User Busy) 17 User Busy 18 No User Responding 19 No Answer 21 Call Rejected 27 Destination Out of order
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command selects the disconnect type sent to the network on AT+ATH cmd. • These values foolow 24.008 3GPP specification (Table 10.5.123).

sagemcommunications

5. MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS

5.1. +CACM Command: Accumulated call meter (ACM) reset or query

AT+CACM Accumulated call meter (ACM) reset or query	
Test command Syntax **AT+CACM=?**	Response **OK**
Read command Syntax **AT+CACM?**	Response **+CACM: <acm> (current acm value)** **OK**
Write command Syntax **AT+CACM=<password>** (reset the value)	Response **OK** Parameters **<password>:** SIM PIN2
Reference [27.007] §8.25	Notes • This AT command needs SIM and network where AOC are allowed.

5.2. +CAMM Command: Accumulated call meter maximum (ACM max) set or query

AT+CAMM Accumulated call meter maximum (ACM max) set or query	
Test command Syntax **AT+CAMM=?**	 Response **OK**
Read command Syntax **AT+CAMM?**	 Response **+CAMM: <acmmax>** **OK**
write command Syntax **AT+CAMM=** **[<acmmax>[,<passwd>]]**	 Response **+CAMM: <acmmax>** **OK** Parameters **<acmmax>:** string type; three bytes of the max ACM value in hexadecimal format 0 disables ACMmax feature **<passwd>:** SIM PIN2
Reference [27.007] § 8.26	Notes • This AT command needs SIM and network where AOC are allowed.

sagemcommunications

5.3. +CCWE Command: Call Meter maximum event

AT+CCWE Call Meter maximum event	
Test command Syntax **AT+CCWE=?**	 Response **+CCWE**: (list of supported **<mode>**s) **OK**
Read command Syntax **AT+CCWE?**	 Response **+CCWE**: **<mode>** **OK**
Write command Syntax **AT+CCWE=<mode>**	 Response **OK** Parameter **<mode>:** 0: Disable the call meter warning event 1: Enable the call meter warning event
Reference [27.007] §8.28	Notes • When enabled, a notification (+CCWV) is sent shortly (approx. 30s) before the ACM max is reached. • This AT command needs SIM and network where AOC are allowed.

sagemcommunications

5.4. +CALA Command: Set alarm time

AT+CALA Set alarm time	
Test command Syntax **AT+CALA=?**	 Response **+CALA: <time>**,(list of supported **<n>**s),(list of supported **< recurr >**s) **OK**
Read command Syntax **AT+CALA?**	 Response **[+CALA: <time>,<n1>,[<recurr>]<CR><LF>** **[+CALA: <time>,<n2>,[<recurr>]<CR><LF>** **OK**
Write command Syntax **AT+CALA=<time>[,<n>[,<recurr>]]**	 Response **OK** Parameters **<time>:** internal clock (Cf. +CCLK). String type "hh:mm:ss" if <recurr> is present or"yy/mm/dd,hh:mm:ss" if not. **<n>:** index of the alarm (range 1 to 5 for now). **<recurr>:** integer type value indicating day of week for the alarm in one of the following formats: <1..7>[,<1..7>[…]] – Sets a recurrent alarm for one or more days in the week. The digits 1 to 7 corresponds to the days in the week, Monday(1), …, Sunday (7). 0 – Sets a recurrent alarm for all days in the week.
Reference [27.007] §8.16	Notes • To set up a recurrent alarm for one or more days in the week, the <recurr>-parameter may be used. • When an alarm is timed out and executed, the unsolicited result code **+CALV**: **<n>** is returned. • When woken up by an alarm, the module is fully started. It is the responsibility of the host to turn it off and to set a new alarm if recurrent alarms are not used. • Only for not recurrent alarm : if date and hour are over , +CME ERROR: 4 is returned • After *PSCPOF command, **+CALV:** correctly received if autobaud speed is not selected. Examples - at+cala=”07/04/11,11:34:25” -> set a one shot alarm saved at index 1 for the specified date and time - at+cala=”07/04/11,11:34:00” ,3 -> set a one shot alarm saved at index 3 for the specified date and time - at+cala=”11:50:45” ,1,1,4 -> set a recurrent alarm saved at index 1 for every Sunday and Wednesday at 11:50:45

5.5. +CALD Command: Delete alarm

AT+CALD Delete alarm	
Test command Syntax **AT+CALD=?**	 Response **+CALD: (list of supported <n>s)** **OK**
Write command Syntax **AT+CALD=<n>**	 Response **OK** Parameters **<n>:** index of the alarm
Reference [27.007] §8.38	Notes Action command deletes an alarm in the MT

sagemcommunications

5.6. +CCLK Command: Real time clock

AT+CCLK Real time clock	
Test command Syntax **AT+CCLK=?**	 Response **OK**
Read command Syntax **AT+CCLK?**	 Response **+CCLK: <time>** OK
Write command Syntax **AT+CCLK=<time>**	 Response **OK** Parameter **<time>:** string type value; format is "yy/MM/dd,hh:mm:ss+/-Timezone", where characters indicate year (last two digits), month, day, hour, minutes, seconds;
Reference [27.007] § 8.15	Notes

5.7. *PSCPOF Command: Power off

AT*PSCPOF Power off	
Execute command Syntax **AT*PSCPOF**	 Response **OK**
Reference	Notes • This command allows switching off the mobile. Note that "**OK**" result code will appear immediately if the command is accepted and power off will occur after that. Unexpected random characters may also be issued during switch off of MS.

5.8. +CIND Command: Indicator control

AT+CIND Indicator control	
Test command Syntax **AT+CIND=?**	 Response **+CIND: ("battchg",(0-5)),("signal",(0-4)),("service",(0-1)),("message",(0-1)),("call",(0-1)),("roam",(0-1)),("smsfull",(0-1))** **OK**
Read command Syntax **AT+CIND?**	 Response **+CIND: <battchg>,<signal>,<service>,<call>, <smsfull>** **OK** Parameters **<battchg>:** battery charge level (0-5) **<signal>:** signal quality (0-4) **<service>:** service availability (0-1) **<message>:** Message received (0-1) **<call>:** call in progress (0-1) **<roam>:** Roaming indicator (0-1) 0: Home net 1: Roaming **<smsfull>:** SMS memory storage (0-1) 0: Memory available 1: Memory full
Reference [27.007] § 8.9	Notes • <smsfull> indication not available on all products

5.9. +CLAC Command: List all available AT commands

AT+CLAC List all available AT commands	
Execute command Syntax **AT+CLAC**	Response List of all supported AT Commands **+CLAC: <CR> <LF>** **<AT Command1><CR> <LF>** **<AT Command2><CR> <LF> […]]** **OK** Parameters
Reference [27.007] § 8.37	Notes • This command provides the AT Command list available for the user

sagemcommunications

5.10. +CMEC Command: Mobile Equipment control mode

AT+CMEC Mobile Equipment control mode	
Test command Syntax **AT+CMEC=?**	Response **+CMEC:** (list of supported **<keyp>**s),(list of supported **<disp>**s),(list of supported **<ind>**s) **OK**
Read command Syntax **AT+CMEC?**	Response **+CMEC: <keyp>,<disp>,<ind>** **OK**
Write command Syntax **AT+CMEC=[<keyp>[,<disp>[,<ind>]]]**	Response **OK** Parameters **<keyp>:** 0: keypad management, not significant for HILO (no keypad) **<disp>:** 0: display management, not significant for HILO (no display) **<ind>:** 0: only ME can set the status of its indicators (command +CIND can only be used to read the indicators)
Reference [27.007] § 8.6	Notes • Set command selects the equipment, which operates ME keypad, writes to ME display and sets ME indicators

5.11. +CFUN Command: Set Phone Functionality

AT+CFUN Set Phone Functionality	
Test command Syntax **AT+CFUN=?**	Response **+CFUN:** (list of supported <**fun**>s), (list of supported <**rst**>s) **OK**
Read command Syntax **AT+CFUN?**	Response **+CFUN**: <**fun**> **OK**
Write command Syntax **AT+CFUN=[<fun>[,<rst>]]**	Response **OK** Parameters **<fun>:** 1 full functionality; 2 disable phone transmit RF circuits only (not support); 3 disable phone receive RF circuits only (not support); 4 disable phone both transmit and receive RF circuits; **<rst>:** 0: Set the ME to <fun> power level immediately. This is the default when <rst> is not given(not support); 1: reset the MT before setting it to <fun> power level
Reference [27.007] § 8.2	Notes • AT+CFUN=1,1 generates a blocking defense to reset the mobile. “OK” result code will appear after reset has been completed. (AT+CFUN=1,1 has no effect on radio on/off, it leaves it has is was before reset).

sagemcommunications

5.12. +CMER Command: Mobile Equipment event reporting

AT+CMER Mobile Equipment event reporting	
Test command Syntax **AT+CMER=?**	Response **+CMER:** (list of supported **<mode>**s),(list of supported **<keyp>**s),(list of supported **<disp>**s),(list of supported **<ind>**s),(list of supported **<bfr>**s) **OK**
Read command Syntax **AT+CMER?**	Response **+CMER: <mode>,<keyp>,<disp>,<ind>,<bfr>** **OK**
Write command Syntax **AT+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]**	Response **OK** Parameters **<mode>:** 0: buffer unsolicited result codes in the TA; if TA result code buffer is full, codes can be buffered in some other place or the oldest ones can be discarded. 1: discard unsolicited result codes when TA-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE **<keyp>:** 0: no keypad event reporting **<disp>:** 0: no display event reporting **<ind>:** 0: no indicator event reporting 1: indicator event reporting using result code +CIEV: <ind>,<value>. <ind> indicates the indicator order number (as specified for +CIND) and <value> is the new value of indicator. Only those indicator events, which are not caused by +CIND shall be indicated by the TA to the TE 2: indicator event reporting using result code +CIEV: <ind>,<value>. All indicator events shall be directed from TA to TE **<bfr>:** 0: TA buffer of unsolicited result codes defined within this command is cleared when <mode> 1 is entered
Reference [27.007] § 8.10	Notes

5.13. +CMEE Command: Report Mobile Termination error

AT+CMEE Report Mobile Termination Error	
Test command Syntax **AT+CMEE=?**	 Response **+CMEE:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CMEE?**	 Response **+CMEE: <n>** **OK**
Write command Syntax **AT+CMEE=[<n>]**	 Response **OK** Parameter **<n>:** 0: disable +CME ERROR: <err> result code and use ERROR instead 1: +CME ERROR: <err> result code and use numeric <err> values 2: +CME ERROR: <err> result code and use verbose <err> values
Reference [27.007] § 9.1	Notes • See Data impacted by &F for default value.

5.14. +CMUT Command: Mute control

AT+CMUT Mute control	
Test command Syntax **AT+CMUT=?**	 Response **+CMUT:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CMUT?**	 Response **+CMUT: <n>** **OK**
Write command Syntax **AT+CMUT=<n>**	 Response **OK** Parameter **<n>:** 0 mute off 1 mute on
Reference [27.007] § 8.24	Notes • Be careful, this command can only be used during voice call.

sagemcommunications

5.15. +CPIN Command: Enter pin

AT+CPIN Enter pin	
Test command Syntax **AT+CPIN=?**	 Response **OK**
Read command Syntax **AT+CPIN?**	 Response **+CPIN: <code>** **OK**
Write command Syntax **AT+CPIN=<pin>** **[,<newpin>]**	 Response **OK** Parameters **<code>:** values reserved by this TS: READY ME is not pending for any password SIM PIN ME is waiting SIM PIN to be given SIM PUK ME is waiting SIM PUK to be given. Also, a second pin, <newpin>, is used to replace the old pin in the SIM and should thus be supplied SIM PIN2 ME is waiting SIM PIN2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PIN2 authentication failure (i.e. +CME ERROR: 17); if PIN2 is not entered right after the failure, it is recommended that ME does not block its operation) SIM PUK2 ME is waiting SIM PUK2 to be given (this <code> is recommended to be returned only when the last executed command resulted in PUK2 authentication failure (i.e. +CME ERROR: 18); if PUK2 and new PIN2 are not entered right after the failure, it is recommended that ME does not block its operation). Also, a second pin, <newpin>, is used to replace the old pin in the SIM and should thus be supplied PH-NET PIN ME is waiting personalization password to be given **<pin>, <newpin>:** string type value (8 characters max.)
Reference [27.007] § 8.3	Notes • Parameter <newpin> can only be used if SIM is PIN blocked. <pin> must be PUK. Otherwise, the command is rejected • If the SIM card is extracted, AT+CPIN? will answer with a maximum of 30 seconds

sagemcommunications

5.16. *PSPRAS Command: Pin Remaining Attempt Status

AT*PSPRAS PS Pin Remaining Attempt Status	
Test command Syntax **AT*PSPRAS=?**	 Response ***PSPRAS:** (list of supported **<code>**) **OK**
Read command Syntax **AT*PSPRAS?**	 Response ***PSPRAS: < pin1>, <puk1>,<pin2>,<puk2>** **OK**
Write command Syntax **AT*PSPRAS**	 Response **OK** Parameters **<pin1>:** integer type value indicating the number of false presentations remaining for PIN1. The maximum value is 3, and the minimum value is 0. Zero means that the PIN1 is blocked. **<puk1>:** integer type value indicating the number of false presentations remaining for PUK1. The maximum value is 10, and the minimum value is 0. Zero means that the PUK1 is blocked. **<pin2>:** integer type value indicating the number of false presentations remaining for PIN2. The maximum value is 3, and the minimum value is 0. Zero means that the PIN2 is blocked. **<puk2>:** integer type value indicating the number of false presentations remaining for PUK2. The maximum value is 10, and the minimum value is 0. Zero means that the PUK2 is blocked. **<code>:** ”SIM PIN1”, “SIM PUK1”, “SIM PIN2”, “SIM PUK2”
Reference SAGEM S.A. proprietary command	Notes • This commands returns information about the number of codes attempts remaining. • Set command has no effect (return OK)

5.17. +CPUC Command: Price per unit and currency table

AT+CPUC Price per unit and currency table	
Test command Syntax **AT+CPUC=?**	Response **OK**
Read command Syntax **AT+CPUC?**	Response **+CPUC: <currency>,<ppu>** **OK**
Write command Syntax **AT+CPUC=<currency>, <ppu>[,<passwd>]**	Response **OK** Parameters **<currency>:** string type; three-character currency code (e.g. .GBP., .DEM.);character set as specified with AT+CSCS. **<ppu>:** string type; price per unit; dot is used as a decimal separator (e.g. .2.66.). The length is limited to 20 characters. If the string length is exceeded, the command is terminated with an error. This string may only contain digits and a dot. Leading zeros are removed from the string. **<passwd>:** string type; SIM PIN2. String parameter which can contain any combination of characters. The maximum string length is limited to 8 characters.
Reference [27.007] § 8.27	Notes • This AT command needs SIM and network where AOC are allowed.

sagemcommunications

5.18. +CPWC Command: Power class

AT+CPWC Power class	
Test command Syntax **AT+CPWC=?**	Response **+CPWC:** list of supported **(<band>**,(list of **<class>**s)) pairs **OK**
Read command Syntax **AT+CPWC?**	Response **+CPWC:** **<curr_class1>,<def_class1>,<band1>[,<curr_class2>,<def_class2>,<band2>[...]]** **OK**
Write command Syntax **AT+CPWC=[<class>[,<band>]]**	Response **OK** Parameters **<class>, <curr_class*n*>, <def_class*n*>:** 0 default (not applicable to <curr_class>s or <def_class*n*>s) 1… MS output power class as in GSM 45.005 [38] **<band>, <band*n*>:** 0 GSM850 1 GSM900 2 GSM1800 3 GSM1900
Reference [27.007] § 8.29	Notes • Module must be rebooted for the selection to be effective

5.19. *PSRDBS Command: Change Frequency Band class

AT*PSRDBS Change Frequency Band	
Test command Syntax **AT*PSRDBS=?**	Response *** PSRDBS**: (list of supported**<mode>**s), (list of supported **<GSM band>**s) **OK**
Read command Syntax **AT*PSRDBS?**	Response *** PSRDBS**: **<GSM band>** **OK**
Write command Syntax ***PSRDBS=<mode>, <GSMband>**	Response **OK** Parameter **<Mode>:** 0 Set <**Band**> at next switch on (default value) 1 Set <**Band**> immediately by restarting stack <**GSM Band>:** bit field type parameter; to set several bands sum up the values. 1 GSM 850 2 GSM 900 4 E-GSM 8 DCS 1800 16 PCS 1900
Reference SAGEM COMMUNICATIONS Proprietary	Notes

5.20. +CPAS Command: Phone Activity Status

AT+CPAS Phone activity status	
Test command Syntax **AT+CPAS=?**	 Response **+CPAS:** (list of supported **<pas>**s) **OK**
Execute command Syntax **AT+CPAS**	 Response **+CPAS: <pas>** **OK** Response **<pas>:** 0: ready (ME allows commands from TA/TE) 2: unknown (ME is not guaranteed to respond to instructions) 3: ringing (ME is ready for commands from TA/TE, but the ringer is active) 4: call in progress (ME is ready for commands from TA/TE, but a call is in progress)
Reference [27.007] § 8.1	Notes

5.21. +CSQ Command: Signal quality

AT+CSQ Signal quality	
Test command Syntax **AT+CSQ=?**	 Response **+CSQ:** (list of supported **<rssi>**s),(list of supported **<ber>**s) **OK**
Execute command Syntax **AT+CSQ**	 Response **+CSQ: <rssi>,<ber>** **OK** Parameters **<rssi>:** 0: -113 dBm or less 1: -111 dBm 2...30: -109... -53 dBm 31: -51 dBm or greater 99: not known or not detectable **<ber>:** (in percent) 0...7: as RXQUAL values in the table in GSM 05.08 [20] subclause 8.2.4 99: not known or not detectable
Reference [27.007] § 8.5	Notes

5.22. +KRIC Command: Ring indicator control

AT+KRIC Ring indicator control	
Test command Syntax **AT+KRIC=?**	 Response **+KRIC:** (list of supported **<masks>**s),(list of supported **<shape>**s) **OK**
Read command Syntax **AT+KRIC?**	 Response **+KRIC: <masks>,< shape >** **OK**
Write command Syntax **AT+KRIC=<mask>[,<shape>]**	 Response **OK** Parameters **<mask>:** Use of RI signal 0x00: RI not used. 0x01: RI activated on incoming calls (**+CRING, RING**) 0x02: RI activated on SMS (**+CMT, +CMTI**) 0x04: RI activated on SMS-CB (**+CBM, +CBMI**) 0x08: RI activated on USSD (**+CUSD**) 0x10: RI activated on network state (**+CIEV**) **<shape>:** signal shape – available only for incoming calls 0: Repeat pulses The total length of the pulse is equivalent to the transfer of the RING or CRING notification 1: Always active The signal is set to active during the whole incoming call notification
Reference SAGEM COMMUNICATIONS Proprietary	Notes • For a SMS and other unsolicited messages, only one pulse is set. • If the 0710 is woken up by an incoming call only one pulse is set, even if shape=0 is used. • The width of the pulse is 1s. • Setup command only to send once to define the RI behavior. • Do not use the command while an incoming call, SMS, SMSCB, USSD…

5.23. +KSREP Command: Mobile start-up reporting

AT+KSREP Mobile start-up reporting	
Test command Syntax **AT+KSREP=?**	Response **+KSREP:** (list of supported **<act>**s) **OK**
Read command Syntax **AT+KSREP?**	Response **+KSREP: <act>,<stat>** **OK**
Write command Syntax **AT+KSREP=<act>**	Response **OK** Parameters **<act>:** Indicates if the module must send a unsolicited code during the startup. 0: The module doesn't send an unsolicited code. 1: The module will send an unsolicited code. **<stat>:** This code indicates the status of the module. 0: The module is ready to receive commands for the TE. No access code is required. 1: The module is waiting for an access code. (The **AT+CPIN?** Command can be used to determine it). 2: The SIM card is not present. 3: The module is in "SIMlock" state. 4: unrecoverable error. 5: unknown state.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The module uses unsolicited code once after the boot process +KSUP: <stat> • The KSUP notification will not be sent if the module is in autobaud mode and no bytes have been received from TE to adapt the serial link to the actual speed

sagemcommunications

5.24. +KGPIO Command: Hardware IO Contro

AT+KGPIO Hardware IO Control	
Test command Syntax **AT+KGPIO=?**	 Response **+KGPIO:** (list of supported **<IO>**s),(list of supported **<cde>**s) **OK**
Read command Syntax **AT+KGPIO?**	 Response **OK**
Write command Syntax **AT+KGPIO=<IO>,<cde>**	 Response If <cde> = 2: **+KGPIO: <IO>, <current_value>** **OK** Else **OK** Parameters **<IO>:** Selected IO 1: GPIO1, pin name of the connector. 2: GPIO2, pin name of the connector. 3: GPIO3, pin name of the connector 4: GPIO4, pin name of the connector 5: GPIO5, pin name of the connector 6: GPIO6_SPI_IRQ, pin name of the connector 7: GPIO7_SPI_CLK, pin name of the connector 8: GPIO8_SPI_IN, pin name of the connector **<cde>:** 0: Reset the selected IO 1: Set the selected IO 2: Request the current value of the IO

Reference SAGEM COMMUNICATIONS Proprietary	Notes • Be aware that this command doesn't change the level of the IO after a reset of the module. • Be aware that if GPIO 6,7,8 are used no debug traces can be used. • This command must be used according to the configuration from **+KGPIOCFG**. A +CME ERROR: 3 would be issued, if it does not follow the configuration from **+KGPIOCFG**. • Note: For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin. The GPIO pin would be managed by these commands themselves, **+KGPIOCFG** or **+KGPIO** are not needed. Before use **+KGPIOCFG**, **+KGPIO**, please make sure the GPIO pin are not used by **+KSIMDET**, **+KSYNC**, **+KTEMPMON**, **+KGSMAD**. • Example: **Make gpio 1 output high/low level** AT+KGPIOCFG=1,0,2------Config GPIO 1 as output mode; <pull mode> **must be** "no pull" OK AT+KGPIO=1, 1 -------Set the selected I/O. OK AT+KGPIO=1, 0 -------Reset the selected I/O. OK **Make gpio 1 request the current value of this I/O** AT+KGPIOCFG=1,1,0------Config GPIO 1 as input mode;<pull mode> is "pull down" OK AT+KGPIO=1,2 -------Request the current value of this I/O, +KGPIO: 1, 1 -------Value is 1 for GPIO 1. OK

5.25. +KSLEEP Command: Power Management Control

AT+KSLEEP Power management control	
Test command Syntax **AT+KSLEEP=?**	 Response **+KSLEEP:** (list of supported **<mngt>**s) **OK**
Read command Syntax **AT+KSLEEP?**	 Response **+KSLEEP: <mngt>** **OK**
Write command Syntax **AT+KSLEEP=<mngt>**	 Response **OK** Parameters **<mngt>:** 0: The module doesn't go in sleep mode as long as DTR is active (low level) 1: The module decides by itself (internal timing) when it goes in sleep mode
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This parameter is part of the profile (see AT&V, ATZ, AT&F) • When SLEEP mode, the following methods can wake up the module. 1) DTR signal turn ON 2) Receive a voice or data call 3) Receive a SMS indication 4) RTC alarm expired 5) RTS signal OFF or ON 6) Any character (e.g.0x00) can wake up from sleep mode WITHOUT hardware flow control. 7) Characters can NOT wake up from sleep mode WITH hardware flow control. • See the documents related to the power saving methods to have more details of the possible methods •

sagemcommunications

5.26. +KCELL Command: Cell Environment Information

AT+KCELL Cell Environment Information	
Test command Syntax **AT+KCELL=?**	 Response **+KCELL:** (list of supported **<revision>**s) **OK**
Read command Syntax **AT+KCELL?**	 Response **OK**
Write command Syntax **AT+KCELL=<revision>**	 Response **+KCELL: <nbcells>** **[,<ARFCN$_i$>,<BSIC$_i$>,<PLMN$_i$>,<LAC$_i$>,<CI$_i$>,<RSSI$_i$>,<TA>]** **[,<ARFCN$_i$>,<BSIC$_i$>,<PLMN$_i$>,<LAC$_i$>,<CI$_i$>,<RSSI$_i$>] […]]** **OK** Parameters **<revision>:** reserved for future purposes (only 0 for the moment). **<nbcells>:** number of base stations available. The first base station is the serving cell ($0 \le i \le 7$). **<ARFCN>:** Absolute Radio Frequency Channel Number in decimal format. **<BSIC>:** Base Station Identify Code in decimal format. ***<PLMN>*:** PLMN identifiers (3 bytes) in hexadecimal format, made of MCC (Mobile Country Code), and MNC (Mobile Network Code). **<LAC>:** Location Area in hexadecimal format. ***<CI>*:** Cell ID, 4 hexadecimal digits, e.g. ABCD. **<RSSI>:** Received signal level of the BCCH carrier, decimal value from 0 to 63. The indicated value is an offset which should be added to –110 dBm to get a value in dBm. See the formula specified in TS 05.08 Radio Subsystem Link Control. **<TA>:** Timing Advance. 0...63 in decimal format，available only during a communication (equals to 255 at any other time). Only available on serving cell during communication.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command provides information related to the network environment and can be used for example for localization calculation • Values in italic are not available during some times; i.e. during a communication phase CI is not available. By default, all values will be initialized to 0xFF; thus when a value is returned equal to 0xFF, this will mean it was not possible to decode it. Example AT+KCELL=0 +KCELL: 5,46,51,64f000,2791,f78,46,1,78,255,ff,ff,2e73,26,60,51,ff,ff,e2f,24,80,60 ,ff,ff,fca,21,16,29,ff,ff,111c,19 OK

5.27. +CRMP Command: Ring Melody Playback

AT+CRMP Ring Melody Playback	
Test command Syntax **AT+CRMP=?**	 Response **+CRMP:** (list of supported **<call type>**s),(list of supported **<volume>**s),(**0**),(list of supported **<index>**s) **OK**
Write command Syntax **AT+CRMP=** **<call type>** **[,<volume>[,<type>,** **<index>]]**	 Response **OK** Parameters **<index>:** integer which defines a ring melody(1-10). **<volume>:** integer which defines the sound level(1-3). The smaller the lower **<call type>:** integer which specifies the type of event which will start the ring. 0: Voice call (default value) **<type>:** 0: ring melody is manufacturer defined (unique supported value)
Reference [27.007] § 8.35	Notes • If a melody is played, it's just played for 10 sec., and then stopped.

5.28. *PSVMWN Command: Voice Message Waiting Notification

AT*PSVMWN Voice mail indicator	
Test command Syntax **AT*PSVMWN=?**	 Response ***PSVMWN:** (list of supported **<mode>**) ***PSVMWN:** (list of supported **<mode>**) **OK**
Read command Syntax **AT*PSVMWN?**	 Response ***PSVMWN: < current mode>** **OK**
Write command Syntax **AT*PSVMWN=<mode>**	 Response **OK** Parameters **<Mode>:** 0 Disable presentation of notification 1 enable presentation of notification **<line Id >:** 1 (Line 1) 2 (Aux. Line) 3 (data) 4 (fax) **<status>:** 0 (No message waiting) 1 (at least one message is waiting) **<index>:** 0...255,Record index in EF SMS if the received MWI message has been stored in SIM (if it sis a STORE MWI SMS) **<NbMsgWaiting>:** 0...255, Number of message waiting on line <line Id>
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Set command enables/disables the presentation of notification result code from ME to TE When <mode> = 1, * PSVMWI: <line Id > , <status> [,<index>[,<NbMsgWaiting>]] (Voice Message Waiting Indication is sent to TE when notification is received from network or at switch on.

sagemcommunications

5.29. +CRSM Command: SIM Restricted Access

AT+CRSM SIM RESTRICTED ACCESS	
Test command Syntax **AT+CRSM=?**	 Response **OK**
Write command Syntax **AT+CRSM=<command>[,<fileid>[,<P1>,<P2>,<P3>[,<data>]]]**	 Response **+CRSM: <sw1>,<sw2>[,<response>]** **OK** Parameters **<command>:** command passed on by the MT to the SIM; refer GSM 51.011 [28] 176 READ_BINARY 178 READ_RECORD 192 GET_RESPONSE 214 UPDATE_BINARY 220 UPDATE_RECORD 242 STATUS all other values are reserved **<fileid>:** integer type; this is the identifier of a elementary data file on SIM. Mandatory for every command except STATUS **<Pi>:** integer type; parameters passed on by the MT to the SIM. These parameters are mandatory for every command, except GET_RESPONSE and STATUS. The values are described in GSM 51.011 [28] **<data>:** information which shall be written to the SIM (hexadecimal character format; refer +CSCS) **<swi>:** integer type; information from the SIM about the execution of the actual command. These parameters are delivered to the TE in both cases, on successful or failed execution of the command **<response>:** response of a successful completion of the command previously issued (hexadecimal character format; refer +CSCS). STATUS and GET_RESPONSE return data, which gives information about the current elementary data field. This information includes the type of file and its size (refer GSM 51.011 [28]). After READ_BINARY or READ_RECORD command the requested data will be returned. <response> is not returned after a successful UPDATE_BINARY or UPDATE_RECORD command

Reference [27.007] § 8.18	Notes • For the command READ_BINARY, no transparent file greater than 256 bytes exists. So <P1> parameter is always 0 in SAP. (If <P1>! = 0, AT+CRSM will return ERROR to TE). <P1> is not interesting (error if <P1>>256), <P2> is an offset in the range 0-256, <P3> has a maximum value depending of <P2>. SAP returns always 256 bytes (maximum). If we can use <P2> and <P3>, ATP reads the zones it wants, else ERROR. • For the command READ_RECORD, only mode <P2>="04" (absolute) is supported in SAP. (Other modes seem not to be useful). • For the command UPDATE_BINARY, only <P1>="00" and <P2>="00" is possible in SAP. (Same reason as previously: other modes seem not to be useful). • For the command UPDATE_RECORD, as mentioned in the 11.11 recommendation, only PREVIOUS mode (<P2>="03") is allowed for updates on cyclic file. For linear files, SAP only supports mode <P2>="04" (absolute). • For the commands STATUS and GET_RESPONSE, If <FileId> is not given, the command must be done on the last selectionned file: ATP must memorize <FileId> of the last command (3F00 at the initialization of ATP, by default). Moreover, v_LengthPattern = 0 Example : Read EF_{ICCID} (ICC Identification, unique identification number of the SIM) : AT+CRSM=176,12258,0,0,10 +CRSM: 144,0,"89330126239181282150" so ICC number is 98331062321918821205

sagemcommunications

5.30. +KPWM Command: PWM control

AT+KPWM PWM control	
Test command Syntax **AT+KPWM =?**	Response **+KPWM:** (list of supported **<output>**s),(list of supported **<operation>**s),(list of supported**<period>**s), (list of supported **<dutycycle>**) **OK**
Read command Syntax **AT+KPWM?**	Response **+KPWM: <output>, <operation>, <period>,<dutycycle>** **+KPWM: <output>, <operation>, <period>,<dutycycle>** **+KPWM: <output>, <operation>, <period>,<dutycycle>** **OK**
Write command Syntax **AT+KPWM=<output>, <operation>,[<period>], [<dutycycle>]**	Response Parameters **<output>:** 0: PWM0 1: PWM1 2: BUZZER **<operation>:** 0: Turn Off 1: Turn On 2: Always High Level **<period>:** 0..126 (when output is PWM0 or PWM1): as number of SYSCLK/8 period 0: forces DC PWM output to be high 1..126: DC period is n+1 $T_{SYSCLK/8}$, T = 1 /(26M / 8) = 307 ns Or 0..1023(when output is buzzer): freq = 250000/ (n+1) When period = 249, then freq = 250000 / (249+1) = 1KHz **<dutycycle>:** ranges from 0 to 100 as a percentage
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Buzzer does not have “Always High Level” operation. • Default value of period and duty-cycle for PWM are 63,50; • Default value of period and duty-cycle for buzzer are 250,100; • New setting of period and duty-cycle will be remembered by Module for future use.

5.31. +KGPIOCFG Command: user GPIO configuration

AT+KGPIOCFG user GPIO configuration	
Test command Syntax **AT+KGPIOCFG=?**	Response **+KGPIOCFG:** (list of supported **<n>**s),(list of supported **<dir>**s), (list of supported**<pull mode>**) **OK**
Read command Syntax **AT+KGPIOCFG?**	Response **+KGPIOCFG: <n>,<dir>,< pull mode >[<CR><LF>** **+KGPIOCFG: <n>,<dir>,< pull mode >** **[...]]** **OK**
Write command Syntax **AT+KGPIOCFG** **=<n>,<dir>,<pull mode>**	Response **OK** Parameters **<n>:** GPIO number (1 to 8) 1: GPIO1, pin name of the connector. 2: GPIO2, pin name of the connector. 3: GPIO3, pin name of the connector 4: GPIO4, pin name of the connector 5: GPIO5, pin name of the connector 6: GPIO6_SPI_IRQ, pin name of the connector 7: GPIO7_SPI_CLK, pin name of the connector 8: GPIO8_SPI_IN, pin name of the connector **<dir>:** direction 0 output 1 input **<pull mode>:** 0 pull down: internal pull down resistor available. Only used in input mode. 1 pull up: internal pull up resistor available. Only used in input mode. 2 no pull: Internal pull up/down resistor NOT available. Only used in output mode.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command provides configuration for **+KGPIO** command. • The current configuration is lost with a reset. • Be aware that if GPIO 6, 7, 8 are used no debug traces can be used. • Note: For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin. The GPIO pin would be managed by these commands themselves, **+KGPIOCFG** or **+KGPIO** are not needed. Before use **+KGPIOCFG**, **+KGPIO**, please make sure the GPIO pin are not used by **+KSIMDET**, **+KSYNC**, **+KTEMPMON**, **+KGSMAD**. • pull down/up mode would provide a stable input level.

5.32. +KADC Command: analog digital converter

AT+KADC analog digital converter	
Test command Syntax **AT+KADC=?**	Response **+KADC: <list of supported measurement points>, <list of supported measurement times>** **OK**
Read command Syntax **AT+KADC=<Meas id>, <Meas time>**	Response: **+KADC: <measurement result>,<measurement id>,<measurement time>, <burst power>** **Meas id**: measurement id, 0: reserved 2: reserved 3: reserved 4: ADCaux0 5: reserved 6: reserved **Meas time**: measurement time 1: during TX 2: far from TX 3: no constraint
Reference SAGEM COMMUNICATIONS Proprietary	Notes • 10 bits converter • Only ADCaux0 (id 4) is available as external input. Other values are reserved. • available range for input (ADCaux0 only) is [0; 3] V

5.33. +CSIM Command: Generic SIM access

AT+CSIM Generic SIM access	
Test command Syntax **AT+CSIM =?**	 Response **OK**
Write command Syntax **AT+CSIM=<length>,<command>**	 Response **+CSIM: <length>,<response>** **OK** Parameters **<length>:** integer type; length of the characters that are sent to TE in <**command**> or <**response**> (two times the actual length of the command or response) all other values are reserved **<command>:** command passed on by the ME to the SIM in the format as described in GSM 11.11 [28] (hexadecimal character format; refer +CSCS) **<response>:** response to the command passed on by the SIM to the ME in the format as described in GSM 11.11 [28] (hexadecimal character format; refer +CSCS)
Reference [27.007] § 8.17	Notes • Compared to Restricted SIM Access command +CRSM, the definition of +CSIM allow TE to take more control over the SIM-ME interface. The locking and unlocking of the interface may be done by a special **<command>** value or automatically by TA/ME (by interpreting **<command>** parameter). In case that TE application does not use the unlock command (or does not send a **<command>** causing automatic unlock) in a certain timeout value, ME may release the locking.

5.34. +CALM Command: Alert sound mode

AT+CALM Alert sound mode	
Test command Syntax **AT+CALM=?**	 Response **+CALM:** (list of supported **<mode>** s) **OK**
Read command Syntax **AT+CALM?**	 Response **+CALM: <mode >** **OK**
Write command Syntax **AT+CALM=[<mode>]**	 Response **OK** Parameter **<mode> :** see **[27.007]**
Reference [27.007] § 8.20	Notes • In the case of <mode> =1, all sounds from TA are prevented except the sound of an incoming call (sound of incoming call treated by +CRSL command).

5.35. +CRSL Command: Ringer sound level

AT+CRSL Ringer sound level	
Test command Syntax **AT+CRSL=?**	 Response **+CRSL:** (list of supported **<level>** s) **OK**
Read command Syntax **AT+CRSL?**	 Response **+CRSL: <level>** **OK**
Write command Syntax **AT+CRSL=<level>**	 Response **OK** Parameter **<level> :** 0, 1, 2, 3
Reference [27.007] § 8.21	Notes

5.36. +CLAN Command: Set Language

AT+CLAN Set Language	
Test command Syntax **AT+CLAN=?**	 Response **+CLAN:** (list of supported **<code>** s) **OK**
Read command Syntax **AT+CLAN?**	 Response **+CLAN: <code>** **OK**
Write command Syntax **AT+CLAN=<code>**	 Response **OK** Parameter **<code> :** “auto” ,“en”
Reference [27.007] § 8.30	Notes

5.37. +CSGT Command: Set Greeting Text

AT+CSGT Set Greeting Text	
Test command Syntax **AT+CSGT=?**	 Response **+CSGT:** (list of supported **<mode>** s), **<ltext>** **OK**
Read command Syntax **AT+CSGT?**	 Response **+CSGT: <text>, <mode>** **OK**
Write command Syntax **AT+CSGT=<mode> [, <text>]**	 Response **OK** Parameter **<text> :** see **[27.007]** **<mode> :** 0, 1
Reference [27.007] § 8.32	Notes • The mode is not saved, therefore**:** -setting the mode to 0, even with a text as parameter is equivalent to setting the mode to 1 with an empty string (the greeting text is lost) - the test command returns 1 if and only if the saved text is not empty (in other words +CSGT=1,then +CSGT? returns 0) • This command handles the greeting text in the SIM cards if it exists else the greeting text is handled in EEPROM.

5.38. +CSVM Command: Set Voice Mail Number

AT+CSVM Set Voice Mail Number	
Test command Syntax **AT+CSVM=?**	 Response **+CSVM:** (list of supported **mode>** s), (list of supported **<type>** s) **OK**
Read command Syntax **AT+CSVM?**	 Response **+CSVM: <mode>** , **<number>** , **<type>** **OK**
Write command Syntax **AT+CSVM=<mode> [, <number> [, <type>]]**	 Response **OK** Parameter **<mode> :** 0, 1 **<number> :** see **[27.007]** **<type> :** 129, 145
Reference [27.007] § 8.33	Notes • **<mode> :** 0 removes the information about the voice number instead of setting the number as disabled. • The command type SET allows to modify the existing Voice Mail Number or to create a Voice Mail number if no existing Voice Mail number.

5.39. +KGSMAD Command: Antenna Detection

AT+KGSMAD Antenna Detection	
Test command Syntax **AT+KGSMAD=?**	Response **+KGSMAD: <mod>,<urcmode>,<interval>,<detGPIO>,<repGPIO>** **OK**
Read command Syntax **AT+KGSMAD?**	Response **+KGSMAD: <mod>,<urcmode>,<interval>,<detGPIO>,<repGPIO>** **OK**
Write command Syntax **AT+KGSMAD=<mod>,** **[<urcmode>** **[,<interval>** **[,<detGPIO>** **[,<repGPIO>]]]]**	Response **OK** Parameters **<mod>:** 0 - antenna detection algorithm not active. 1 - Periodic activation of the antenna detection algorithm; detection is started every **<interval>** period, using **<detGPIO>** for detection;**.** 2 - instantaneous activation of the antenna detection algorithm; **<urcmode>:** URC presentation mode It has meaning only if **<mod>** is 1. 0 - it disables the presentation of the antenna detection URC 1 - it enables the presentation of the antenna detection URC, **<interval> :** 45..3600s, duration in seconds of the interval between two consecutive antenna detection algorithm runs (default is 120). It has meaning only if **<mod>** is 1. **<detGPIO>:** 1..8, defines which GPIO shall be used as input by the Antenna Detection algorithm (default 1). For the **<detGPIO>** actual range check the “Hardware User Guide” **<repGPIO>:** 1..8, defines which GPIO shall be used by the Antenna Detection algorithm to report antenna condition (default 3). It has meaning only if **<mod>** is 1. For the **<repGPIO>** actual range check the “Hardware User Guide”

Reference	Notes
	• **<repGPIO>** is set to LOW when antenna is connected. Otherwise set to HIGH • If the antenna detection algorithm detects a change in the antenna status the module is notified by URC **+KGSMAD: <presence>** **<presence>:** 0 - antenna connected. 1 - antenna connector short circuited to ground. 2 - antenna connector short circuited to power. 3 - antenna not detected (open). • Instantaneous activation doesn't affect a periodic activation eventually started before • Be aware that if GPIO 6, 7, 8 are used no debug traces can be used. • For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin; **+CME ERROR: 3** will be issued to avoid conflict, when any two commands try to share the same GPIO pin. • Do not use **+KGPIOCFG** or **+KGPIO** to control the GPIO pin, when this pin has been used by **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD.** These commands can manage the GPIO pin by themselves.

5.40. +KMCLASS Command: Change GPRS Multislot class

AT+KMCLASS : Change GPRS Multislot class	
Test command Syntax **AT+KMCLASS=?**	Response **+KMCLASS:** (list of supported **<class>**s) **OK**
Read command Syntax **AT+KMCLASS?**	Response **+KMCLASS: <class>** **OK**
Write command Syntax **AT+KMCLASS= <mclass>**	Response **OK** Parameter **<mclass>:** 1: 1 + 1 2: 2 + 1 4: 3 + 1 8: 4 + 1 10: 4 + 2
Reference SAGEM COMMUNICATIONS Proprietary	Notes This command needs a restart in order to be effective.

sagemcommunications

5.41. +KTEMPMON Command: Temperature Monitor

AT+KTEMPMON Temperatrue Monitor	
Test command Syntax **AT+KTEMPMON=?**	Response **+KTEMPMON:** **<mod>,<temperature>,<urcMode>,<action>,<hystTime>,<repGPIO>** **OK**
Read command Syntax **AT+KTEMPMON?**	Response **+KTEMPMON:** **<mod>,<temperature>,<urcMode>,<action>,<hystTime>,<repGPIO>** **OK**
Write command Syntax **AT+KTEMPMON=** **<mod>,** **[<temperature>** **[,<urcMode>** **[,<action>** **[,<hystTime>** **[,<repGPIO>]]]]]**	Response **+KTEMPMON: <level>,<value>** **OK** Parameters **<mod>:** 0 - disable the monitor of the module internal temperature. 1 - enable the monitor of the module internal temperature. **<temperature>:** temperature above which the module will act as <**action**>. **<urcMode>:** 0 - it disables the presentation of the temperature monitor URC. 1 - it enables the presentation of the temperature monitor URC. **<action>:** 0 - no action. 1 - automatic shut-down when the temperature is beyond <**temperature**> 2 - The output pin <**repGPIO**> is tied HIGH when <**temperature**> are reached; when the temperature is normal the output pin <**repGPIO**> is tied LOW. If this <**action**> is required, it is mandatory to set the <**repGPIO**> parameter. **<hyst_time>:** [0,255] hysteresis time in seconds (30 by default): all the actions happen only if <**temperature**> are maintained at least for this period. This parameter is mandatory if <**action**> is not zero. **<repGPIO>:** GPIO number. valid range is “any output pin” (see “Hardware User’s Guide”). This parameter is mandatory only if <**action**>=2 is required.

Reference	Notes
	• The module internal temperature reaches either operating or extreme levels; the unsolicited message is in the format: **+KTEMPMEAS: <level>,<value>** where: **<level>** - threshold level -2 - extreme temperature lower bound (see below Note) -1 - operating temperature lower bound (see below Note) 0 - normal temperature 1 - operating temperature upper bound (see below Note) 2 - extreme temperature upper bound (see below Note) **<value>** - actual temperature expressed in Celsius degrees. • Typical temperature bounds are represented as following; Extreme Temperature Lower Bound -40°C Operating Temperature Lower Bound -20°C Operating Tem perature Upper Bound +55°C Extreme Temperature Upper Bound +85°C • Due to temperature measurement uncertainty there is a tolerance of +/-2°C • Be aware that if GPIO 6, 7, 8 are used no debug traces can be used. • For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin; **+CME ERROR: 3** will be issued to avoid conflict, when any two commands try to share the same GPIO pin. • Do not use **+KGPIOCFG** or **+KGPIO** to control the GPIO pin, when this pin has been used by **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD.** These commands can manage the GPIO pin by themselves.

5.42. +KSIMDET Command: SIM Detection

AT+KSIMDET SIM Detection	
Test command Syntax **AT+KSIMDET=?**	 Response **+KSIMDET: <mod>,<GPIO>** **OK**
Read command Syntax **AT+KSIMDET?**	 Response **+KSIMDET: <mod>,<GPIO>** **OK**
Write command Syntax **AT+KSIMDET=<mod>, <GPIO>**	 Response **OK** Parameters **<mod>:** 0 - disable the SIM detection. 1 - triggers the SIM detection. **<GPIO>:** 1..8, defines which GPIO is used by SIM Detection.
Reference	Notes • If it detects a change of the SIM status, the module is notified by URC: **+SIM: <status>** where: **<status>** 0 - INSERTED 1 - EXTRACTED • The module makes a reboot after 2s if it detects a change of the SIM status. • **<GPIO>** has to be linked to the SIMCD of the SIM card • Be aware that if GPIO 6, 7, 8 are used no debug traces can be used. • For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin; **+CME ERROR: 3** will be issued to avoid conflict, when any two commands try to share the same GPIO pin. • Do not use **+KGPIOCFG** or **+KGPIO** to control the GPIO pin, when this pin has been used by **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD.** These commands can manage the GPIO pin by themselves.

5.43. +KSYNC Command: Generation of Application synchronization signal

AT+KSYNC Generation of Application synchronization signal	
Test command Syntax **AT+KSYNC=?**	Response **+KSYNC:** (list of supported **<mod>**s),(list of supported **<IO>**s),(range of <**Duty Cycle**>),(range of <**Pulse Duration**>) **OK**
Read command Syntax **AT+KSYNC?**	Response **+KSYNC: <mod>,<IO>,<Duty Cycle>,<Pulse Duration>** **OK**
Write command Syntax **AT+KSYNC=<mod>[,<IO>** **[,<Duty Cycle>** **[,<Pulse Duration>]]]**	Response **OK** Parameters **<mod>:** 0 - Disable the generation of synchronization signal. 1 - Manage the generation of signal according to <**Duty Cycle>** and <**Pulse Duration**>. The waveform of the signal is controlled only by these two parameters; Network status would not afftect the waveform. 2 - Manage the generation of signal according to network status; **PERMANENTLY OFF** Not register/Initialization/Register denied/no SIM card **600 ms ON / 600ms OFF** Not registered but searching **75 ms ON / 3s OFF** Right connected to the network <Duty Cycle> and <Pulse Duration> are not used in mode 2. **<IO>:** 1...8, defines which GPIO is used to output the signal; 99…100, defines which PWM is used to output the signal.99: PWM0, 100: PWM1. **<Duty Cycle>:** integer type; range:1..100; only used in mode 1. **<Pulse Duration>:** integer type; range:1..65535 milliseconds; only used in mode 1.
Reference	Notes • GPIO pin or PWM0 or PWM1 was used as the output pin of the synchronization signal. • The setting of the <**mod**>, <**IO**>, <**Duty Cycle**>, <**Pulse Duration**> was automatically saved in Hilo. • Be aware that if GPIO 6, 7, 8 are used no debug traces can be used. • For **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD**, when they were enabled, they all will use GPIO as their output/ input pin; **+CME ERROR: 3** will be issued to avoid conflict, when any two commands try to share the same GPIO pin. • Do not use **+KGPIOCFG** or **+KGPIO** to control the GPIO pin, when this pin has been used by **+KSIMDET**, **+KSYNC, +KTEMPMON**, **+KGSMAD.** These commands can manage the GPIO pin by themselves.

5.44. +KBND Command: Current GSM Networks Band Indicator

AT+KBND Current GSM Networks Band Indicator	
Test command Syntax **AT+KBND=?**	 Response **+KBND:** (list of supported <bnd>) **OK**
Read command Syntax **AT+KBND?**	 Response **+KBND: <bnd>** **OK** Parameters **<bnd>:** in Hexadecimal 0x00: Not available 0x01: 850 MHz 0x02: 900 MHz 0x04: 1800 MHz 0x08: 1900 MHz
Reference	Notes • This command returns the GSM band that the Hilo currently uses.

5.45. +KNETSCAN Command: Network scan functionality

AT+KNETSCAN Network Scan functionality	
Test command Syntax **AT+KNETSCAN=?**	Response **+KNETSCAN:** (list of supported **<mode>**s), (list of supported **<max_cells>**s), (list of supported **<URC>**s), (list of supported **<timeout>**s), (list of supported **<ext>**s) **OK**
Read command Syntax **AT+KNETSCAN?**	Response **+KNETSCAN: <mode>** **OK**
Write command Syntax **AT+KNETSCAN=<mode>[,<oper>[,<max_cells>[,<URC>[,<timeout>[,<ext>]]]]]**	Response **OK** when <mode>=2 and command successful **+KNETSCAN:** **<nbcells>[,<ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>[,<ARFCN$_i$>,<BSIC$_i$>,<PLMN$_i$>,<LAC$_i$>,<CI$_i$>,<RSSI$_i$>,<RAC>]]** **OK** Parameters **<mode>:** 0 deactivate network scan 1 activate network scan 2 request cells information **<oper>:** String type, name of the operator in numeric format. If not specify, search on entire band. **<PLMN>:** PLMN identifiers (3 bytes), made of MCC (Mobile Country Code), and MNC (Mobile Network Code). **<max_cells>:** [1..33] maximum number of cells of which information will be given. (default: 7) **<URC>:** 0 No Unsolicited Result Code sent at the end of the scan 1 Unsolicited Result Code sent at the end of the scan **<timeout>** [1..600] timeout in s for sending Unsolicited Result Code (default: 300) **<ext>:** 0 reserved for future purposes **<nbcells>:** number of base stations available, (≤ <max_cells>). The first base station is the serving cell. **<ARFCN>:** Absolute Radio Frequency Channel Number **<BSIC>:** Base Station Identify Code **<LAC>:** Location Area **<CI>:** Cell ID, 4 hexadecimal digits, e.g. ABCD. **<RSSI>:** Received signal level of the BCCH carrier, decimal value from 0 to 63. The indicated value is an offset which should be added to –110 dBm to get a value in dBm. See the formula specified in TS 05.08 Radio Subsystem Link Control. **<RAC>:** Routing Area: only for serving cell

Unsolicited Notification	**+KNETSCAN:** **<nbcells>[,<ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>[,<ARFCN$_i$>,<BSIC$_i$>,<PLMN$_i$>,<LAC$_i$>,<CI$_i$>,<RSSI$_i$>]]**

Reference SAGEM COMMUNICATIONS Proprietary	Notes • Switch from nominal mode to network scan mode (<mode>=1) makes the HILO reboot if neither netscan nor cellscan is still active, then HILO answers OK after reboot. If netscan or cellscan is active, a new scan request doesn't make the HILO reboot and the answer is immediate. • Switch from network scan mode to nominal mode (<mode>=0) makes the HILO reboot: HILO answers OK after reboot. • A value returned equal to 0xFF in the response or the notification, means that it was not possible to decode it. • For parameter <mode>=0 and <mode>=2, no other parameter is needed • URC is sent when all information are available or when <timeout> expire or when serving cell has changed • The working band is the one defined by AT*PSRDBS. • Found cells description can be obtained at any moment during scan with an AT command. • A new scan can be requested at any moment, even if the last one is not finished: in that case the HILO doesn't reboot. • Activation of the scan of a channel stops previous scan of PLMN and inversely. Restrictions: • No normal network activity is possible (call reception, call emission,….) • AT commands related to network are not allowed. • Unsolicited result code are not sent (except the one related to network scan) Example: Network scan activation: AT+KNETSCAN=1,"20801" — Define the PLMN to use in numeric format, the number of cells, the sending of notification, the timeout: reboot OK — Module launches a power campaign. +KNETSCAN: 7,567,22,02f810,3802,4f24,29,4,586,26,02f810,3802,4f27,31,571,13,02f810,3802,ae3b,20,8,20,02f810,3802,7c95,21,535,29,02f810,3802,c186,11,24,12,02f810,3802,4f29,12,39,22,02f810,3802,7c96,15 — Wait for unsolicited message : +KNETSCAN Power campaign is finished and all information about the serving and neighbors cells has been received. Retrieving cells information: AT+KNETSCAN=2 — To check cells information at any time. +KNETSCAN: 7,567,22,02f810,3802,4f24,29,4,586,26,02f810,3802,4f27,31,571,13,02f810,3802,ae3b,20,8,20,02f810,3802,7c95,21,535,29,02f810,3802,c186,11,24,12,02f810,3802,4f29,12,39,22,02f810,3802,7c96,15 OK Network scan deactivation: AT+KNETSCAN=0 — Return to nominal mode: reboot. OK

5.46. +KCELLSCAN Command: Cell scan functionality

AT+KCELLSCAN Network Scan functionality	
Test command Syntax **AT+KCELLSCAN=?**	Response **+KCELLSCAN:** (list of supported **<mode>**s), (list of supported **<URC>**s), (list of supported **<timeout>**s), (list of supported **<ext>**s) **OK**
Read command Syntax **AT+KCELLSCAN?**	Response **+KCELLSCAN: <mode>** **OK**
Write command Syntax **AT+KCELLSCAN=<mode>[,<ARFCN>[,<URC>[,<timeout>[,<ext>]]]]**	Response **OK** when <mode>=2 and command successful **+KCELLSCAN: <ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>** **OK** Parameters **<mode>:** 0 deactivate cell scan 1 activate cell scan 2 request cell information **<PLMN>:** PLMN identifiers (3 bytes), made of MCC (Mobile Country Code), and MNC (Mobile Network Code). If not specify, search on entire band. **<URC>:** 0 No Unsolicited Result Code sent at the end of the scan 1 Unsolicited Result Code sent at the end of the scan **<timeout>** [1..120] timeout in s for sending Unsolicited Result Code (default: 60) **<ext>:** 0 reserved for future purposes **<ARFCN>:** Absolute Radio Frequency Channel Number **<BSIC>:** Base Station Identify Code **<LAC>:** Location Area **<CI>:** Cell ID, 4 hexadecimal digits, e.g. ABCD. **<RSSI>:** Received signal level of the BCCH carrier, decimal value from 0 to 63. The indicated value is an offset which should be added to –110 dBm to get a value in dBm. See the formula specified in TS 05.08 Radio Subsystem Link Control. **<RAC>:** Routing Area
Unsolicited Notification	**+KCELLSCAN: <ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>**

Notes

- Switch from nominal mode to cell scan mode (<mode>=1) makes the HILO reboot if neither netscan nor cellscan is still active, then HILO answers OK after reboot. If netscan or cellscan is active, a new scan request doesn't make the HILO reboot and the answer is immediate.
- Switch from network scan mode to nominal mode (<mode>=0) makes the HILO reboot: HILO answers OK after reboot.
- A value returned equal to 0xFF in the response or the notification, means that it was not possible to decode it
- For parameter <mode>=0 and <mode>=2, no other parameter is needed.
- For parameter <mode>=1, parameter <ARFCN> is mandatory.
- URC is sent when all information are available or when <timeout> expired.
- Found cells description can be obtained at any moment during scan with an AT command.
- A new scan can be requested at any moment, even if the last one is not finished: in that case the HILO doesn't reboot.
- Activation of the scan of PLMN stops previous scan of cell and inversely.

Restrictions:

- No normal network activity is possible (call reception, call emission,….)
- AT commands related to network are not allowed.
- Unsolicited result code are not sent (except the one related to network scan)

Example:

Cell scan activation:

AT+KCELLSCAN=1,567	Define the Arfcn, the sending of notification, the timeout: reboot
OK	Module launches a power campaign and synchronizes on Arfcn.
+KCELLSCAN: 567,22,02f810,3802,4f24,29,4	Wait for unsolicited message : +KCELLSCAN Power campaign is finished and all information about the cell have been received

Retrieving cell information:

AT+KCELLSCAN=2	To check cells information at any time.
+KCELLSCAN: 567,22,02f810,3802,4f24,29,4	
OK	

Cell scan deactivation:

AT+KCELLSCAN=0	Return to nominal mode: reboot.
OK	

sagemcommunications

6. NETWORK SERVICE RELATED COMMANDS

6.1. +CAOC Command: Advice of charge information

AT+CAOC Advice of charge information	
Test command Syntax **AT+CAOC=?**	Response **+CAOC:** (list of supported **<mode>**s) **OK**
Read command Syntax **AT+CAOC?**	Response **+CAOC: <mode>** **OK**
Write command Syntax **AT+CAOC=<mode>**	Response If <mode> = 0 **+CAOC: <ccm>** **OK** Else **OK**
Execute command Syntax **AT+CAOC**	Response **+CAOC: <ccm>** **OK** Parameters **<mode> :** 0: query CCM value 1: deactivation of the unsolicited notification (+CCCM) 2: activation of the unsolicited notification **<ccm>:** string type; three bytes of the current CCM value in hexadecimal format
Reference [27.007] §7.16	Notes • The unsolicited code is: **+CCCM: <ccm>** • When activated this message is sent to the TE every time there is a change in the ccm value with a minimum of 10 seconds between 2 messages. • This AT command needs SIM and network where AOC are allowed.

6.2. +CCFC Command: Call forwarding number and conditions control

AT+CCFC Call forwarding number and conditions control	
Test command Syntax **AT+CCFC=?**	 Response **+CCFC:** (list: range of supported **<reas>**) **OK**
Write command Syntax **AT+CCFC=<reas>, <mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]]**	 Response If <**mode**> = 2 and command successful: **+CCFC: <status>,<class1>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]]** **[+CCFC: <status>,<class2>[,<number>,<type>[,<subaddr>,<satype>[,<time>]]]]** **[…]** **OK** Else **OK** Parameter **<reas>:** 0: unconditional 1: mobile busy 2: no reply 3: not reachable 4: all call forwarding 5 all conditional call forwarding **<mode>:** 0 disable 1 enable 2 query status 3 registration 4 erasure **<number>:** string type phone number of forwarding address in format specified by **<type>** **<type>:** type of address octet in integer format **<class>:** is a sum of integers each representing a class of information (default 7) 1: voice 2: data 4: fax **<subaddr>:** string type sub address of format specified by **<satype>** **<satype>:** type of subaddress octet in integer format **<time>** 1...30 when "no reply" is enabled or qurred, this gives the time in seconds to wait before call is forwarded (default value is 20) **<status>:** 0: not active 1: active
Reference [27.007] § 7.11	Notes • This command allows control of the call forwarding supplementary service according to GSM 02.84

sagemcommunications

6.3. +CCWA Command: Call waiting

AT+CCWA Call waiting	
Test command Syntax **AT+CCWA=?**	 Response **+CCWA:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CCWA?**	 Response **+CCWA: <n>** **OK**
Write command Syntax **AT+CCWA=[<n>** **[,<mode>[,<class>]]]**	 Response when <**mode**>=2 and command successful **+CCWA: <status>,<class1>** **[+CCWA: <status>,<class2>[...]]** **OK** Parameters **<n>:** sets/shows the result code presentation status in the TA 0 disable 1 enable **<mode>:** when <mode> parameter is not given, network is not interrogated 0 disable 1 enable 2 query status **<class>:** sum of integers each representing a class of information (default 7): 1 voice (telephony) 2 data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128) 4 fax (facsimile services) **<status>:** 0 not active 1 active **<number>:** string type phone number of calling address in format specified by **<type>** **<type>:** type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7) **<alpha>:** optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS **<CLI validity>:** 0 CLI valid 1 CLI has been withheld by the originator. 2 CLI is not available due to interworking problems or limitations of originating network.

Reference	Notes
[27.007] § 7.12	• When enabled (<n>=1), the following unsolicited code is sent to the TE: **+CCWA: <number>,<type>,<class>[,<alpha>][,<CLI validity>]**

6.4. +CHLD Command: Call hold and multiparty

AT+CHLD Call hold and multiparty	
Test command Syntax **AT+CHLD=?**	 Response **+CHLD:** (list of supported **<n>**s) **OK**
Execute command Syntax **AT+CHLD=[<n>]**	 Response **OK** Parameters **<n>:** 0 Terminate all held calls; or set UDUB (User Determined User Busy) for a waiting call, i.e. reject the waiting call. 1 Terminate all active calls (if any) and accept the other call (waiting call or held call) 1X Terminate the active call X (X= 1-7) 2 Place all active calls on hold (if any) and accept the other call (waiting call or held call) as the active call 2X Place all active calls except call X (X= 1-7) on hold 3 Add the held call to the active calls 4 Explicit Call Transfer
Reference [27.007] §7.13	Notes

sagemcommunications

6.5. +CUSD: Unstructured Supplementary Service Data

AT+CUSD Unstructured supplementary service data	
Test command Syntax **AT+CUSD=?**	 Response **+CUSD:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CUSD?**	 Response **+CUSD: <n>** **OK**
Unsolicited Notification	**+CUSD: <m>[,<str>,<dcs>]**
Write command Syntax **AT+CUSD=[<n>[,<str>[,<dcs>]]]**	 Response **OK** Parameters **<n>:** parameter sets/shows the result code presentation status in the TA 0: disable the result code presentation to the TE (default value if no parameter) 1: enable the result code presentation to the TE 2: cancel session (not applicable to read command response) **<str>:** string type USSD-string (when <str> parameter is not given, network is not interrogated): if <dcs> indicates that 3GPP TS 23.038 [25] 7 bit default alphabet is used: if TE character set other than "HEX" (refer command Select TE Character Set +CSCS): MT/TA converts GSM alphabet into current TE character set according to rules of 3GPP TS 27.005 [24] Annex A if TE character set is "HEX": MT/TA converts each 7-bit character of GSM alphabet into two IRA character long hexadecimal number (e.g. character Π (GSM 23) is presented as 17 (IRA 49 and 55)) if <dcs> indicates that 8-bit data coding scheme is used: MT/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65)) **<dcs>:** 3GPP TS 23.038 [25] Cell Broadcast Data Coding Scheme in integer format (default 0) **<m>:** 0 : no further user action required (network initiated USSD-Notify, or no further information needed after mobile initiated operation) 1 : further user action required (network initiated USSD-Request, or further information needed after mobile initiated operation) 2 : USSD terminated by network 3 : other local client has responded 4 : operation not supported 5 : network time out

Reference	Notes
[27.007] §7.15	• When TE sends an USSD to the network, the OK result code is sent before the response of the network. When network answers, the response will be sent as an URC (as if it was a network initiated operation, in case of error +CUSD: 4 will be sent). • This allows the link not to be blocked for a long time (the network can take a long time to answer a USSD request initiated by the TE). • The USSD session can be aborted using command at+cusd=2.

sagemcommunications

6.6. +CLCC Command: List current call

AT+CLCC List current call	
Test command Syntax **AT+CLCC=?**	 Response **OK**
Execute command Syntax **AT+CLCC**	 Response **[+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>[,<alpha>]]]** **[+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>[,<alpha>]]]** **[…]** **OK** Parameters **<id>:** integer type; call identification number as described in GSM 02.30 [19] subclause 4.5.5.1; this number can be used in +CHLD command operations **<dir>:** 0: mobile originated (MO) call 1: mobile terminated (MT) call **<stat>:** state of the call) 0: active 1: held 2: dialing (MO call) 3: alerting (MO call) 4: incoming (MT call) 5: waiting (MT call) **<mode>:** bearer/teleservice 0: voice 1: data 2: fax 3: voice followed by data, voice mode 4: alternating voice/data, voice mode 5: alternating voice/fax, voice mode 6: voice followed by data, data mode 7: alternating voice/data, data mode 8: alternating voice/fax, fax mode 9: unknown **<mpty>:** 0: call is not one of multiparty (conference) call parties 1: call is one of multiparty (conference) call parties **<number>:** string type phone number in format specified by <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) **<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 +CSCS
Reference [27.007] §7.18	Notes • This commands returns the current list of calls of ME • Example: Outgoing voice call in progress **+CLCC: 1,0,0,0,0**

6.7. +CLCK Command: Facility lock

AT+CLCK Facility lock	
Test command Syntax **AT+CLCK=?**	 Response **+CLCK:** (list of supported **<fac>**) **OK**

Execute command Syntax **AT+CLCK=<fac>,<mode>[,<passwd>[,<class>]]**	Response If <**mode**> <> 2 and command is successful **OK** If <**mode**> = 2 and command is successful **+CLCK:<status>[,<class1>[<CR>,<LF>+CLCK:<status>,class2…]]** **OK** Parameters **<fac>:** values reserved by the present document: "AO" BAOC (Barr All Outgoing Calls) (refer 3GPP TS 22.088 [6] clause 1) "OI" BOIC (Barr Outgoing International Calls) (refer 3GPP TS 22.088 [6] clause 1) "OX" BOIC-exHC (Barr Outgoing International Calls except to Home Country) (refer 3GPP TS 22.088 [6] clause 1) "AI" BAIC (Barr All Incoming Calls) (refer 3GPP TS 22.088 [6] clause 2) "IR" BIC-Roam (Barr Incoming Calls when Roaming outside the home country) (refer 3GPP TS 22.088 [6] clause 2) "AB" All Barring services (refer 3GPP TS 22.030 [19]) (applicable only for mode>=0) "AG" All outgoing barring services (refer 3GPP TS 22.030 [19]) (applicable only for <mode>=0) "AC" All incoming barring services (refer 3GPP TS 22.030 [19]) (applicable only for <mode>=0) "FD" SIM card or active application in the UICC (GSM or USIM) fixed dialing memory feature (if PIN2 authentication has not been done during the current session, PIN2 is required as <passwd>) "SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command issued) "PN" Network Personalization (refer 3GPP TS 22.022 [33]) "PU" network subset Personalization (refer 3GPP TS 22.022 [33]) "PP" service Provider Personalization (refer 3GPP TS 22.022 [33]) **<mode>:** 0 unlock 1 lock 2 query status **<status>:** 0 not active 1 active **<passwd>:** string type; shall be the same as password specified for the facility from the ME user interface or with command Change Password +CPWD **<class>:** sum of integers each representing a class of information (default 7): 1 voice (telephony) 2 data (refers to all bearer services; with <mode>=2 this may refer only to some bearer service if TA does not support values 16, 32, 64 and 128) 4 fax (facsimile services) 8 short message service 16 data circuit sync 32 data circuit async
Reference [27.007] §7.4	Notes • This commands may be used by the TE to lock or unlock ME or network facilities (with a password protection) AT+CLCK="PN",2 --> Query the status of the Network Personalization +CLCK: 0 --> unlock state OK

sagemcommunications

6.8. +CLIP Command: Calling line identification presentation

AT+CLIP Calling line identification presentation	
Test command Syntax **AT+CLIP=?**	 Response **+CLIP:** (list of supported **<n>**) **OK**
Read command Syntax **AT+CLIP?**	 Response **+CLIP: <n>,<m>** **OK**
Read command Syntax **AT+CLIP=<n>**	 Response **OK** Parameters **<n>:** parameter sets/shows the result code presentation status in the TA 0: disable 1: enable **<m>:** parameter shows the subscriber CLIP service status in the network 0: CLIP not provisioned 1: CLIP provisioned 2: unknown (e.g. no network, etc.) **<number>:** string type phone number of format specified by <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) **<subaddr>:** string type subaddress of format specified by <satype> **<satype>:** type of subaddress octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.8) **<alpha>:** optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS. NOT SUPPORTED. **<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.
Reference [27.007] § 7.6	Notes • When the presentation to the CLI at the TE is enabled, the following notification is sent after every ring notification **+CLIP: <number>,<type>[,<subaddr>,<satype>[,<alpha>,[<CLI validity>]]]**

6.9. +CLIR Command: Calling line identification restriction

AT+CLIR Calling line identification restriction	
Test command Syntax **AT+CLIR=?**	 Response **+CLIR:** (list of supported **<n>**) **OK**
Read command Syntax **AT+CLIR?**	 Response **+CLIR: <n>,<m>** **OK**
Execute command Syntax **AT+CLIR=<n>**	 Response **OK** Parameters **<n>:** parameter sets the adjustment for outgoing calls 0: presentation indicator is used according to the subscription of the CLIR service 1: CLIR invocation 2: CLIR suppression **<m>:** parameter shows the subscriber CLIR service status in the network 0: CLIR not provisioned 1: CLIR provisioned in permanent mode 2: unknown (e.g. no network, etc.) 3: CLIR temporary mode presentation restricted 4: CLIR temporary mode presentation allowed
Reference [27.007] § 7.7	Notes

sagemcommunications

6.10. +CNUM Command: Subscriber number

AT+CNUM Subscriber number	
Test command Syntax **AT+CNUM=?**	 Response **+CNUM: (0-1),(129,145,161,128-255)** **OK**
Execute command Syntax **AT+CNUM**	 Response **+CNUM: [<alpha1>],<number1>,<type1>[,<speed>,<service>[,<itc>]][<CR><LF>** **+CNUM: [<alpha2>],<number2>,<type2>[,<speed>,<service>[,<itc>]][...]]** **OK** Parameters **<alpha>:** optional alphanumeric string associated with <number>; used character set should be the one selected with command Select TE Character Set +CSCS **<number>:** string type phone number of format specified by <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) **<speed>:** as defined in 27.007 subclause 6.7 or +CBST **<service>:** service related to the phone number 0: asynchronous modem 1: synchronous modem 2: PAD Access (asynchronous) 3: Packet Access (synchronous) 4: voice 5: fax also all other values below 128 are reserved by the present document **<itc>:** information transfer capability 0: 3.1kHz 1: UDI
Reference [27.007] § 7.1	Notes • Action command returns the MSISDNs related to the subscriber (this information can be stored in the SIM or in the ME) • The Read Command (AT+CNUM?) returns an error • All the numbers are in the “ON” (Own number) phonebook Example: AT+CNUM +CNUM: "TEL","0612345678",129 +CNUM: "","",255 +CNUM: "","",255 +CNUM: "","",255 OK

6.11. +COLP Command: Connected line identification presentation

AT+COLP Connected line identification presentation	
Test command Syntax **AT+COLP=?**	 Response **+COLP:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+COLP?**	 Response **+COLP: <n>,<m>** **OK**
Execute command Syntax **AT+COLP=[<n>]**	 Response **OK** Parameters **<n>:** parameter sets/shows the result code presentation status in the TA 0: disable 1: enable **<m>:** parameter shows the subscriber COLP service status in the network 0: COLP not provisioned 1: COLP provisioned 2: unknown (e.g. no network, etc.) **<number>**, **<type>**, **<subaddr>**, **<satype>**, **<alpha>:** refer +CLIP
Reference [27.007] § 7.8	Notes • This command refers to the GSM supplementary service COLP (Connected Line Identification Presentation) that enables a calling subscriber to get the connected line identity (COL) of the called party after setting up a mobile originated call. • When enabled (and called subscriber allows) >]] the following intermediate result code is returned from TA toTE before any +CR or V.25ter [14] responses +COLP: <number>,<type>[,<subaddr>,<satype> [,<alpha>]] • If COLP=1, the OK answer to an ATD Command happens only after the call is active (and not just after the command)

6.12. +COPN Command: Read operator name

AT+COPN Read operator name	
Test command Syntax **AT+COPN=?**	 Response **OK**
Execute command Syntax **AT+COPN**	 Response **+COPN: <numeric1>,<alpha1>[<CR><LF>** **+COPN: <numeric2>,<alpha2>** **[...]]** **OK** Parameters **<numeric>:** string type; operator in numeric format (see +COPS) **<alpha>:** string type; operator in long alphanumeric format (see +COPS)
Reference [27.007] § 7.21	Notes

6.13. +COPS Command: Operator selection

AT+COPS Operator selection	
Test command Syntax **AT+COPS=?**	Response **+COPS:** [list of supported **(<stat>,**long alphanumeric **<oper>,**short alphanumeric **<oper>,**numeric **<oper>[,< AcT>])**s][,,(list of supported **<mode>**s)**,(**list of supported **<format>**s)**]** **OK**
Read command Syntax **AT+COPS?**	Response **+COPS: <mode>[,<format>,<oper>[,< AcT>]]** **OK**
Write command Syntax **AT+COPS=[<mode>[,<format>** **[,<oper>[,< AcT>]]]]**	Response **OK** Parameters **<mode>:** 0 automatic (<oper> field is ignored) 1 manual (<oper> field shall be present, and <AcT> optionally) 2 unsupported 3 set the read format; use with <format> 4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered **<format>:** 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> **<oper>:** string type; <format> indicates if the format is alphanumeric or numeric **<stat>:** 0 unknown 1 available 2 current 3 forbidden **<AcT>:** access technology selected: 0 GSM 1 GSM Compact 2 UTRAN
Reference [27.007] §7.3	Notes • Only mode 0,1, 3 and 4 are supported

sagemcommunications

6.14. +CPOL Command: Preferred PLMN list

AT+CPOL Preferred PLMN list	
Test command Syntax **AT+CPOL=?**	Response **+CPOL:** (list of supported **<index>**s),(list of supported **<format>**s) **OK**
Read command Syntax **AT+CPOL?**	Response **+CPOL:** **<index1>,<format>,<oper1>[,<GSM_AcT1>,<GSM_Comp_AcT1>,<UTRAN_AcT1>]** **[+CPOL:** **<index2>,<format>,<oper2>[,<GSM_AcT2>,<GSM_Comp_AcT2>,<UTRAN_AcT2>]** **[...]]** **OK**
Write command Syntax **AT+CPOL=[<index>][,<format>[,<oper>[,<GSM_AcT>,<GSM_Compact_AcT>,<UTRAN_AcT>]]]**	Response **OK** Parameters **<index>:** integer type; the order number of operator in the SIM/USIM preferred operator list **<format>:** 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> **<oper*n*>:** string type; <format> indicates if the format is alphanumeric or numeric (see +COPS) **<GSM_AcT*n*>:** GSM access technology: 0 access technology not selected 1 access technology selected **<GSM_Comp_AcTn>:** GSM compact access technology: 0 access technology not selected 1 access technology selected **<UTRA_AcTn>:** UTRA access technology: 0 access technology not selected 1 access technology selected
Reference [27.007] §7.19	Notes

sagemcommunications

6.15. +CPWD Command: Change password

AT+CPWD Change password	
Test command Syntax **AT+CPWD=?**	Response **+CPWD:** list of supported (**<fac>,<pwdlength>**)s **OK**
Write command Syntax **AT+CPWD=<fac>, <oldpwd>,<newpwd>**	Response **OK** Parameters **<fac>:** **"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 (refer GSM02.30[19]) (applicable only for <mode>=0) **"P2"** SIM PIN2<**oldpwd**> password specified for the facility from the user interface or with command. If an old password has not yet been set, <**oldpwd**> is not to enter. **"SC"** SIM (lock SIM card) (SIM asks password in ME power-up and when this lock command issued) **<oldpwd>, <newpwd>:** string type; <**oldpwd**> shall be the same as password specified for the facility from the ME user interface or with command Change Password +CPWD and <**newpwd**> is the new password; maximum length of password can be determined with <**pwdlength**> **<pwdlength>:** integer type maximum length of the password for the facility
Reference [27.007] §7.5	Notes • Test command returns a list of pairs which present the available facilities and the maximum length of their password. • Write command sets a new password for the facility lock function..

sagemcommunications

6.16. +CREG Command: Network registration

AT+CREG Network registration	
Test command Syntax **AT+CREG=?**	 Response **+CREG:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CREG?**	 Response **+CREG: <n>,<stat>[,<lac>,<ci>]** **OK**
Execute command Syntax **AT+CREG=<n>**	 Response **OK** Parameters **<n>:** 0: disable network registration unsolicited result code 1: enable network registration unsolicited result code +CREG: <stat> 2: enable network registration and location information unsolicited result code +CREG: <stat>[,<lac>,<ci>] **<stat>:** 0: not registered, ME is not currently searching a new operator to register to 1: registered, home network 2: not registered, but ME is currently searching a new operator to register to 3: registration denied 4: unknown 5: registered, roaming **<lac>:** string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>:** string type; two byte cell ID in hexadecimal format
Reference [27.007] § 7.2	Notes • Set command controls the presentation of an unsolicited result code **+CREG: <stat>** when <n>=1 and there is a change in the ME network registration status, or code **+CREG: <stat>[,<lac>,<ci>]** when <n>=2 and there is a change of the network cell.

6.17. +CSSN Command: Supplementary service notification

AT+CSSN Supplementary service notification	
Test command Syntax **AT+CSSN=?**	 Response **+CSSN:** (list of supported **<n>**s), (list of supported **<m>**s) **OK**
Read command Syntax **AT+CSSN?**	 Response **+CSSN: <n>,<m>** **OK**
Write command Syntax **AT+CSSN=<n>[,<m>]**	 Response **OK** Parameters **<n>:** 0: Suppresses the +CSSI messages 1: Activates the +CSSI messages **<m>:** 0: Suppresses the +CSSU messages 1: Activates the +CSSU messages
Reference [27.007] § 7.17	Notes Currently, Modules support the following values: • CSSI: 0 to 6 • CSSU: 0 to 5

6.18. +CPLS Command: Selection of preferred PLMN list

AT+CPLS Selection of preferred PLMN list	
Test command Syntax **AT+CPLS=?**	 Response **+CPLS:** (list of supported **<list>** s) **OK**
Read command Syntax **AT+CPLS?**	 Response **+CPLS: <list>** **OK**
Write command Syntax **AT+CPLS=<list>**	 Response **OK** Parameter **<list> :** 0, 1
Reference [27.007] § 7.20	Notes • This command appears in 27.007 Release 5, but SIM files EFPLMNwAcT, EFOPLMNwAcT exists in Release 99.

sagemcommunications

6.19. +CTFR Command: Call deflection

AT+CTFR Call deflection	
Test command Syntax **AT+CTFR=?**	 Response **OK**
Write command Syntax **AT+CTFR=<number> [, <type> [, <subaddr> [, <satype>]]]**	 Response **+CME ERROR: <err>** Parameter **<number> :** string type phone number of format specified by <type> **<type> :** type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7); default 145 when dialing string includes international access code character "+", otherwise 129 **<subaddr> :** string type subaddress of format specified by <satype> **<satype> :** type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8); default 128
Reference [27.007] § 7.14	Notes

sagemcommunications

7. PHONE BOOK MANAGEMENT

7.1. +CPBF Command: Find phonebook entries

AT+CPBF Find phonebook entries	
Test command Syntax **AT+CPBF=?**	 Response **+CPBF: [<nlength>],[<tlength>]** **OK**
Execute command Syntax **AT+CPBF=<findtext>**	 Response **[+CPBF: <index1>,<number>,<type>,<text>]** **[+CBPF: <index2>,<number>,<type>,<text>]** **OK** Parameters **<index1>, <index2>:** integer type values in the range of location numbers of phonebook memory **<number>:** string type phone number of format <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) **<findtext>, <text>:** string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS **<nlength>:** integer type value indicating the maximum length of field <number> **<tlength>:** integer type value indicating the maximum length of field <text>
Reference [27.007] §8.13	Notes • Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS)

sagemcommunications

7.2. +CPBR Command: Read current phonebook entries

AT+CPBR Read current phonebook entries	
Test command Syntax **AT+CPBR=?**	 Response **+CPBR: (list of supported <index>s),[<nlength>],[<tlength>]** **OK**
Execute command Syntax **AT+CPBR=<index1>[,<index2>]**	 Response **[+CPBR: <index1>,<number>,<type>,<text>]** **[+CPBR: <index2>,<number>,<type>,<text>]** **OK** Parameters **<index1>, <index2>, <index>:** integer type values in the range of location numbers of phonebook memory **<number>:** string type phone number of format <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) **<text>:** string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS **<nlength>:** integer type value indicating the maximum length of field <number> **<tlength>:** integer type value indicating the maximum length of field <text>
Reference [27.007] §8.12	Notes • Execution command returns phonebook entries in location number range <index1>... <index2> from the current phonebook memory storage selected with +CPBS.

sagemcommunications

7.3. +CPBS Command: Select phonebook memory storage

AT+CPBS Select phonebook memory storage	
Test command Syntax **AT+CPBS=?**	 Response **+CPBS: (list of supported <storage>s)** **OK**
Read command Syntax **AT+CPBS?**	 Response **+CPBS: <storage>[,<used>,<total>]** **OK**
Execute command Syntax **AT+CPBS=<storage>**	 Response **OK** Parameters **<storage>:** "DC" ME dialed calls list (+CPBW may not be applicable for this storage) $(AT R97)$ "EN" SIM/USIM (or MT) emergency number (+CPBW is not be applicable for this storage) "FD" SIM fix dialing-phonebook "MC" MT missed (unanswered received) calls list (+CPBW may not be applicable for this storage) "ON" SIM (or ME) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM also) $(AT R97)$ "RC" MT received calls list (+CPBW may not be applicable for this storage) "SM" SIM phonebook **<used>:** integer type value indicating the number of used locations in selected memory **<total>:** integer type value indicating the total number of locations in selected memory
Reference [27.007] §8.11	Notes • Set command selects phonebook memory storage <storage>, which is used by other phonebook commands

7.4. +CPBW Command: Write phonebook entries

AT+CPBW Write phonebook entries	
Test command Syntax **AT+CPBW=?**	 Response **+CPBW:** (list of supported **<index>**s),[**<nlength**>], (list of supported **<type>**s),**[<tlength>]** **OK**
Execute command Syntax **AT+CPBW=[<index>][,<number>[,<type>[,<text>]]]**	 Response **OK** Parameters **<index>:** integer type values in the range of location numbers of phonebook memory **<number>:** string type phone number of format <type> **<type>:** type of address octet in integer format (refer GSM 04.08 [8] subclause 10.5.4.7) ; default 145 when dialling string includes international access code character "+", otherwise 129 **<text>:** string type field of maximum length <tlength>; character set as specified by command Select TE Character Set +CSCS **<nlength>:** integer type value indicating the maximum length of field <number> **<tlength>:** integer type value indicating the maximum length of field <text>
Reference [27.007] §8.14	Notes • Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS

sagemcommunications

8. SMS AT COMMANDS

8.1. Preliminary comment

The commands supported in both PDU and text modes are only described hereafter in the first one. One must refer to the [27.005] for details about the latter if need be.

8.2. Parameters definition

The following parameters are used in the subsequent clauses which describe all commands. The formats of integer and string types referenced here are defined in V.25ter. The default values are for command parameters, not for result code parameters.

Message Storage Parameters

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

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

"BM" broadcast message storage

"ME" ME message storage

"MT" any of **the storages associated with ME**

"SM" (U)SIM message storage

"TA" TA message storage

"SR" status report storage

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

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

<stat>: integer type in PDU mode (default 0), or string type in text mode (default "REC UNREAD"); indicates the status of message in memory; defined values:

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

1	"REC READ"	received read message
2	"STO UNSENT"	stored unsent message (only applicable to SMs)
3	"STO SENT"	stored sent message (only applicable to SMs)
4	"ALL"	all messages (only applicable to +CMGL command)

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

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

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

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

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

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

Message Data Parameters

<ackpdu>: 3G TS 23.040 [3] RP-User-Data element of RP-ACK PDU; format is same as for <pdu> in case of SMS, but without 3G TS 24.011 [6] SC address field and parameter shall be bounded by double quote characters like a normal string type parameter

<alpha>: string type alphanumeric representation of <da> or <oa> corresponding to the entry found in MT phonebook; implementation of this feature is manufacturer specific; used character set should be the one selected with command Select TE Character Set +CSCS (see definition of this command in 3G TS 27.007 [9])

<cdata>: 3G TS 23.040 [3] TP-Command-Data in text mode responses; ME/TA converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))

<ct>: 3G TS 23.040 [3] TP-Command-Type in integer format (default 0)

<da>: 3G TS 23.040 [3] TP-Destination-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in3G TS 27.007 [9]); type of address given by <toda>

<data>: In the case of SMS: 3G TS 23.040 [3] TP-User-Data in text mode responses; format:

- if <dcs> indicates that 3G TS 23.038 [2] GSM 7 bit default alphabet is used and <fo> indicates that 3G TS 23.040 [3] TP-User-Data-Header-Indication is not set:

- if TE character set other than "HEX" (refer command Select TE Character Set +CSCS in 3G TS 27.007 [9]): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A

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

- if <dcs> indicates that 8-bit or UCS2 data coding scheme is used, or <fo> indicates that 3G TS 23.040 [3] TP-User-Data-Header-Indication is set: ME/TA

converts each 8-bit octet into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))

In the case of CBS: 3G TS 23.041 [4] CBM Content of Message in text mode responses; format:

- if <dcs> indicates that 3G TS 23.038 [2] GSM 7 bit default alphabet is used:

- if TE character set other than "HEX" (refer command +CSCS in 3G TS 27.007 [9]): ME/TA converts GSM alphabet into current TE character set according to rules of Annex A

- if TE character set is "HEX": ME/TA converts each 7-bit character of the GSM 7 bit default alphabet into two IRA character long hexadecimal number

- if <dcs> indicates that 8-bit or UCS2 data coding scheme is used: ME/TA converts each 8-bit octet into two IRA character long hexadecimal number

<dcs>: depending on the command or result code: 3G TS 23.038 [2] SMS Data Coding Scheme (default 0), or Cell Broadcast Data Coding Scheme in integer format

<dt>: 3G TS 23.040 [3] TP-Discharge-Time in time-string format: “yy/MM/dd,hh:mm:ss±zz”, where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone. E.g. 6th of May 1994, 22:10:00 GMT+2 hours equals to “94/05/06,22:10:00+08”

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

<length>: integer type value indicating in the text mode (+CMGF=1) the length of the message body <data> > (or <cdata>) in characters; or in PDU mode (+CMGF=0), the length of the actual TP data unit in octets (i.e. the RP layer SMSC address octets are not counted in the length)

<mid>: 3G TS 23.041 [4] CBM Message Identifier in integer format

<mn>: 3G TS 23.040 [3] TP-Message-Number in integer format

<mr>: 3G TS 23.040 [3] TP-Message-Reference in integer format

<oa>: 3G TS 23.040 [3] TP-Originating-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in TS 27.07); type of address given by <tooa>

<page>: 3G TS 23.041 [4] CBM Page Parameter bits 4-7 in integer format

<pages>: 3G TS 23.041 [4] CBM Page Parameter bits 0-3 in integer format

<pdu>: In the case of SMS: 3G TS 24.011 [6] SC address followed by 3G TS 23.040 [3] TPDU in hexadecimal format: ME/TA converts each octet of TP data unit into two IRA character long hexadecimal number (e.g. octet with integer value 42 is presented to TE as two characters 2A (IRA 50 and 65))

In the case of CBS: 3G TS 23.041 [4] TPDU in hexadecimal format

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

<ra>: 3G TS 23.040 [3] TP-Recipient-Address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by <tora>

<sca>: 3G TS 24.011 [6] RP SC address Address-Value field in string format; BCD numbers (or GSM 7 bit default alphabet characters) are converted to characters of the currently selected TE character set (refer command +CSCS in 3G TS 27.007 [9]); type of address given by <tosca>

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

<sn>: 3G TS 23.041 [4] CBM Serial Number in integer format

<st>: 3G TS 23.040 [3] TP-Status in integer format

<toda>: 3G TS 24.011 [6] TP-Destination-Address Type-of-Address octet in integer format (when first character of <da> is + (IRA 43) default is 145, otherwise default is 129)

<tooa>: 3G TS 24.011 [6] TP-Originating-Address Type-of-Address octet in integer format (default refer <toda>)

<tora>: 3G TS 24.011 [6] TP-Recipient-Address Type-of-Address octet in integer format (default refer <toda>)

<tosca>: 3G TS 24.011 [6] RP SC address Type-of-Address octet in integer format (default refer <toda>)

<vp>: depending on SMS-SUBMIT <fo> setting: 3G TS 23.040 [3] TP-Validity-Period either in integer format (default 167) or in time-string format (refer <dt>)

<vp>: depending on SMS-SUBMIT <fo> setting: 3G TS 23.040 [3] TP-Validity-Period either in integer format (default 167), in time-string format (refer <dt>), or if EVPF is supported, in enhanced format (hexadecimal coded string with double quotes)

sagemcommunications

8.3. +CMGD Command: Delete SMS message

AT+CMGD Delete SMS message	
Test command Syntax **AT+CMGD=?**	Response **+CMGD:** (list of supported **<index>**s)[,(list of supported **<delflag>**s)] **OK**
Execute command Syntax **AT+CMGD=<index>[,<delflag>]**	Response **OK** Parameters **<delflag>:** an integer indicating multiple message deletion request as follows: 0 (or omitted) : Delete the message specified in <index> 1: Delete all read messages from preferred message storage, leaving unread messages and stored mobile originated messages (whether sent or not) untouched 2: Delete all read messages from preferred message storage and sent mobile originated messages, leaving unread messages and unsent mobile originated messages untouched 3: Delete all read messages from preferred message storage, sent and unsent mobile originated messages leaving unread messages untouched. 4: Delete all messages from preferred message storage including unread messages.
Reference [27.005] §3.5.4	Notes • Execution command deletes message from preferred message storage <**mem1**> location <**index**>. If <**delflag**> is present and not set to 0 then the ME shall ignore <**index**> and follow the rules for <**delflag**> shown before

8.4. +CMGF Command: Select SMS message format

AT+CMGF Select SMS message format	
Test command Syntax **AT+CMGF=?**	 Response **+CMGF:** (list of supported **<mode>**s) **OK**
Read command Syntax **AT+CMGF?**	 Response **+CMGF: <mode>** **OK**
Execute command Syntax **AT+CMGF=[<mode>]**	 Response **OK** Parameters **<mode>:** 1: text mode
Reference [27.005] §3.2.3	Notes • Set command tells the TA, which input and output format of messages to use. <mode> indicates the format of messages used with send, list, read and write commands and unsolicited result codes resulting from received messages. Mode can be either PDU mode (entire TP data units used) or text mode (headers and body of the messages given as separate parameters). Text mode uses the value of parameter <chset> specified by command Select TE Character Set +CSCS to inform the character set to be used in the message body in the TA-TE interface.

8.5. +CMGL Command: List SMS messages from preferred store

AT+CMGL List SMS messages from preferred store	
Test command Syntax **AT+CMGL=?**	 Response **+CMGL:** (list of supported **<stat>**s) **OK**
Execute command Syntax **AT+CMGL=[<stat>]**	 Response Only if PDU mode (+CMGF=0) and command successful: **+CMGL:** **<index>,<stat>,[<alpha>],<length><CR><LF><pdu>[<CR><LF>** **+CMGL:<index>,<stat>,[<alpha>],<length><CR><LF><pdu>[...]]** **OK** Parameters **<stat>:** 0, 1, 2, 3, 4 in PDU mode "REC UNREAD", "REC READ", "STO UNSET", "STO SENT", "ALL" in text mode
Reference [27.005] § 3.4.2 and 4.1	Notes • Execution command returns messages with status value <**stat**> from preferred message storage <mem1> to the TE. Entire data units <pdu> are returned • If status of the message is 'received unread', status in the storage changes to 'received read'. • <alpha> is optional, it is NOT used.

8.6. +CMGR Command: Read SMS message

AT+CMGR Read SMS message	
Write command Syntax **AT+CMGR=<index>**	 Response if PDU mode (+CMGF=0) and command successful: **+CMGR: <stat>,[<alpha>],<length><CR><LF><pdu>** **OK**
Reference [27.005] §3.4.3 and 4.2 (+CMGR)	Notes • Execution command returns message with location value <index> from preferred message storage <mem1> to the TE. Status of the message and entire message data unit <pdu> is returned. • With AT+CMGR, if status of the message is 'received unread', status in the storage changes to 'received read'. • <alpha> is optional, it is NOT used.

sagemcommunications

8.7. +CMGS Command: Send SMS message

AT+CMGS Send SMS message	
Test command Syntax **AT+CMGS=?**	 Response **OK**
Write command Syntax if PDU mode (+CMGF=0): **AT+CMGS=<length><CR>*PDU is given*<ctrl-Z/ESC>**	 Response if PDU mode (+CMGF=0) and sending successful: **+CMGS: <mr>[,<ackpdu>]** **OK**
Reference [27.005] § 3.5.1 and 4.3	Notes • <length> must indicate the number of octets coded in the TP layer data unit to be given (i.e. SMSC address octets are excluded). • the TA shall send a four character sequence <CR><LF><greater_than><space> (IRA 13, 10, 62, 32) after command line is terminated with <CR>; after that PDU can be given from TE to ME/TA the DCD signal shall be in ACTIVE state while PDU is given the echoing of given characters back from the TA is controlled by V.25ter echo command E. • the PDU shall be hexadecimal format (similarly as specified for <pdu>) and given in one line; ME/TA converts this coding into the actual octets of PDU when the length octet of the SMSC address (given in the PDU) equals zero, the SMSC address set with command Service Centre Address +CSCA is used; in this case the SMSC Type-of-Address octet shall not be present in the PDU, i.e. TPDU starts right after SMSC length octet sending can be cancelled by giving <ESC> character (IRA 27) <ctrl-Z> (IRA 26) must be used to indicate the ending of PDU

8.8. +CMGW Command: Write SMS message to memory

AT+CMGW Write SMS message to memory	
Test command Syntax **AT+CMGW=?**	 Response **OK**
Write command Syntax if PDU mode **(+CMGF=0):** **AT+CMGW=<length>[,<stat>]<CR>*PDU is given*<ctrl-Z/ESC>**	 Response **+CMGW: <index>** **OK**
Reference [27.005] § 3.5.3 and 4.4	Notes • Execution command stores a message to memory storage <mem2>. Memory location <index> of the stored message is returned. By default message status will be set to 'stored unsent', but parameter <stat> allows also other status values to be given. (ME/TA manufacturer may choose to use different default <stat> values for different message types.) The entering of PDU is done similarly as specified in command Send Message +CMGS.

sagemcommunications

8.9. +CMSS Command: Send SMS message from storage

AT+CMSS Send SMS message from storage	
Test command Syntax **AT+CMSS=?**	Response **OK**
Write command Syntax **AT+CMSS=<index>[,<da>[,<toda>]]**	Response if PDU mode (+CMGF=0) and sending successful: **+CMSS: <mr>[,<ackpdu>]** **OK**
Reference [27.005] § 3.5.2 and 4.7	Notes • Execution command sends message with location value <index> from message storage <mem2> to the network (SMS-SUBMIT or SMS-COMMAND). If new recipient address <da> is given for SMS-SUBMIT, it shall be used instead of the one stored with the message. Reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS <service> value is 1 and network supports) <ackpdu> is returned. Values can be used to identify message upon unsolicited delivery status report result code • Be careful, all the messages stored in the module may not be forwarded (for instance, carrier messages as SMS replace…)

sagemcommunications

8.10. +CNMI Command: New SMS message indication

AT+CNMI New SMS message indication	
Test command Syntax **AT+CNMI=?**	 Response **+CNMI:** (list of supported **<mode>**s), (list of supported **<mt>**s), (list of supported **<bm>**s), (list of supported **<ds>**s), (list of supported **<bfr>**s) **OK**
Read command Syntax **AT+CNMI?**	 Response **+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>** **OK**
Write command Syntax **AT+CNMI =[<mode>]** **[,<mt>][,<bm>]** **[,<ds>][,<bfr>]**	 Response **OK** Parameters **<mode>:** 0: Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications. 1: Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved. Otherwise forward them directly to the TE. 2: Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. **<mt>:** 0: No SMS-DELIVER indications are routed to the TE. 1: If SMS-DELIVER, when a SMS is received there is an unsolicited result code **+CMTI:<memory>,<index>** 2: The message is not stored in the module. **<bm>:** 0 No CBM indications are routed to the TE. 2: New CBMs are routed directly to the TE using unsolicited result code: **CBM: <length><CR><LF><pdu>** (PDU mode enabled) or **+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data>** (text mode Enabled). **<ds>:** 0: No SMS-STATUS-REPORTs are routed to the TE. 1: SMS-STATUS-REPORTs are routed to the TE using unsolicited result code: **+CDS: <length><CR><LF><pdu> (PDU mode enabled)** or **+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>, <st>**(text mode enabled) **<bfr>:** 0: The buffred notification are sent. 1: TA buffer of unsolicited result codes defined within this command is cleared when **<mode> 1...3** is entered.
Reference [27.005] § 3.4.1	Notes

8.11. +CSCB Command: Select cell broadcast message

AT+CSCB Select cell broadcast message	
Test command Syntax **AT+CSCB=?**	Response **+CSCB:** (list of supported **<mode>**s) **OK**
Read command Syntax **AT+CSCB?**	Response **+CSCB: <mode>,<mids>,<dcss>** **OK**
Write command Syntax **AT+CSCB=[<mode>[,<mids>]]**	Response **OK** Parameters **<mode>:** 0: Accepts messages that are defined in **<mids>** 1: Does not accept messages that are defined in **<mids>** **<mids>:** String type; combinations of CBM message IDs (e.g. "0,1,5,320-478,922"). The number of ranges in **<mids>** parameter string is limited to 6. Intervals not allowed. **<dcss>:** string type; all different possible combinations of CBM data coding schemes (refer <dcs>) (default is empty string); e.g. "0-3,5"
Reference [27.005] § 3.3.4	Notes • Set command selects which types of CBMs are to be received by the ME. • The module doesn't managed SMSCB language, nor the data coding scheme parameter (<dcss> parameter)

8.12. +CSCA Command: SMS service center address

AT+CSCA SMS service center address	
Test command Syntax **AT+CSCA=?**	 Response **OK**
Read command Syntax **AT+CSCA?**	 Response **+CSCA: <sca>,<tosca>** **OK**
Write command Syntax **AT+CSCA=<sca>[,<tosca>]**	 Response **OK**
Reference [27.005] § 3.3.1	Notes • Set command updates the SMSC address, through which mobile originated SMS is transmitted. In text mode, setting is used by send and write commands. In PDU mode, setting is used by the same commands, but only when the length of the SMSC address coded into <pdu> parameter equals zero.

8.13. +CSMP Command: Set SMS text mode parameters

AT+CSMP Set SMS text mode parameters	
Test command Syntax **AT+CSMP=?**	 Response **OK**
Read command Syntax **AT+CSMP?**	 Response **+CSMP: <fo>,<vp>,<pid>,<dcs>** **OK**
Write command Syntax **AT+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]**	 Response **OK**
Reference [27.005] § 3.3.2	Notes • Set command is used to select values for additional parameters needed when SM is sent to the network or placed in storage when text format message mode is selected. It is possible to set the validity period starting from when the SM is received by the SMSC (<vp> is in range 0... 255) or define the absolute time of the validity period termination (<vp> is a string). The format of <vp> is given by <fo>. If TA supports the EVPF, see 3G TS 23.040 [3], it shall be given as a hexadecimal coded string (refer e.g. <pdu>) with double quotes. • When storing a SMS-DELIVER from the TE to the preferred memory storage in text mode (refer command Write Message to Memory +CMGW), <vp> field can be used for <scts>. • For example: to activate the SMS-STATUS-REPORT: AT+CSMP=49,167,0,0 OK

8.14. +CSMS Command: Select Message service

AT+CSMS Select Message service	
Test command Syntax **AT+CSMS=?**	 Response **+CSMS**: (list of supported **<service>**s) **OK**
Read command Syntax **AT+CSMS?**	 Response **+CSMS: <service>,<mt>,<mo>,<bm>** **OK**
Write command Syntax **AT+CSMS=<service>**	 Response **+CSMS: <mt>,<mo>,<bm>** **OK** Parameters **<service>:** 0: GSM 03.40 and 03.41 (the syntax of SMS AT commands is ompatible with GSM 27.05 Phase 2 version 4.7.0; Phase 2+ features which do not require new command syntax may be supported, e.g. correct routing of messages with new Phase 2+data coding schemes) **<mt>:** Mobile Terminated Messages: 0: Type not supported 1: Type supported **<mo>:** Mobile Originated Messages: 0: Type not supported 1: Type supported **<bm>:** Broadcast Type Messages: 0: Type not supported 1: Type supported
Reference [27.005] §3.2.1	Notes • Set command selects messaging service <**service**>. It returns the types of messages supported by the ME: <**mt**> for mobile terminated messages, <**mo**> for mobile originated messages and <**bm**> for broadcast type messages.

sagemcommunications

8.15. +CPMS Command: Preferred Message Storage

AT+CPMS Preferred Message Storage	
Test command Syntax **AT+CPMS=?**	Response **+CPMS**: (list of supported **<mem1>**s), (list of supported **<mem2>**s), (list of supported **<mem3>**s) **OK**
Read command Syntax **AT+CPMS?**	Response **+CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3>** **OK**
Write command Syntax **AT+CPMS=<mem1>[,<mem2>[,<mem3>]]**	Response **+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3>** **OK** Parameters See chapter 8.2
Reference [27.005] §3.2.2	Notes • Set command selects memory storages <mem1>,<mem2>,<mem3> to be used for reading, writing, etc. • Configuration is set to default values when the module starts. Example AT+CPMS=? +CPMS: ("SM",”ME”),("SM",”ME”),("SM",”ME”) OK AT+CPMS? +CPMS: "SM",27,50,"SM",27,50,"SM",27,50 OK AT+CPMS="SM" +CPMS: 27,50,27,50,27,50 OK AT+CPMS="SM","SM","SM" +CPMS: 27,50,27,50,27,50 OK

SMS classes table VS Prefered Storage :

	Prefered storage **SIM**		Prefered storage **ME**	
	Free records	Full	Free records	Full
SMS Class 0 (Immediate display)	**1. By default Class 0 is not stored, it is only seen with +CMTI notification 2. A factory parameter can be used to save Class 0 in "SIM", if SIM is full SMS is refused**			
SMS Class 1 (ME specific)	**SIM**	**if free space ME else Refused**	**ME**	**if free spaces SIM else Refused**
SMS Class 2 (SIM specific)	**SIM**	**Refused**	**SIM**	**Refused**
SMS Class 3 (TE specific)	**SIM**	**Refused**	**SIM**	**Refused**
SMS No Class	**SIM**	**if free space ME else Refused**	**ME**	**if free spaces SIM else Refused**

sagemcommunications

8.16. +CSDH Command: Show text mode parameters

AT+CSDH Show Text Mode Parameters	
Test command Syntax **AT+CSDH=?**	 Response **+CSDH**: (list of supported **<show>**s) **OK**
Read command Syntax **AT+CSDH?**	 Response **+CSDH: <show>** **OK**
Write command Syntax **AT+CSDH=[<show>]**	 Response **OK** Parameter **<show> :** 0 : do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dcs>) nor <length>, <toda> or <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> 1 : show the values in result codes
Reference [27.005] §3.3.3	Notes • Set command controls whether detailed header information is shown in text mode result codes

8.17. +CSAS Command: Save settings

AT+CSAS Save Settings	
Test command Syntax **AT+CSAS=?**	 Response **+CSAS**: (list of supported **<profile>**s) **OK**
Write command Syntax **AT+CSAS=[<profile>]**	 Response **OK** Parameter **<profile> :** profile number where user settings are to be stored
Reference [27.005] §3.3.3	Notes • Save the active message service settings (+CSMP) to a non volatile memory.

sagemcommunications

8.18. +CRES Command: Restore settings

AT+CRES Restore Settings	
Test command Syntax **AT+CRES=?**	 Response **+CRES:** (list of supported **<profile>**s) **OK**
Write command Syntax **AT+CRES=[<profile>]**	 Response **OK** Parameter **<profile> :** profile number where user settings are stored 0 : values saved by the user 1: default factory settings
Reference [27.005] §3.3.3	Notes • Restore the saved message service settings (+CSMP) from a non volatile memory.

sagemcommunications

8.19. +CMT Command: Received SMSPP content

+CMT: Received SMSPP content	
Unsolicited notification	Response **+CMT: [<alpha>]**, **<length><CR><LF><pdu>** **+CMT: <oa> ,[<alpha>]**, **<scts> [**, **<tooa>** , **<fo>, <pid>** , **<dcs>** , **<sca>** , **<tosca>** , **<length>] <CR > <LF> <data>**
Reference [27.005]	Notes • All parameters are extracted from received message • Text .About parameters in italics, refer command Show Text Mode Parameters +CSDH

sagemcommunications

9. DATA AND FAX AT COMMANDS

9.1. +CBST Command: Select bearer service type

AT+CBST Select bearer service type	
Test command Syntax **AT+CBST=?**	Response **+CBST:** (list of supported **<speed>**s),(list of supported **<name>**s),(list of sup-ported **<ce>**s) **OK**
Read command Syntax **AT+CBST?**	Response **+CBST: <speed>,<name>,<ce>** **OK**
Write command Syntax **AT+CBST=[<speed>[,<name>[,<ce>]]]**	Response **OK** Parameter **<speed>:** 0 auto bauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem and non-transparent service) 7 9600 bps (V.32) 71 9600 bps (V.110 or X.31 flag stuffing) **<name>:** 0 data circuit asynchronous (UDI or 3.1 kHz modem) **<ce>:** 1 non-transparent
Reference [27.007] §6.7	Note • Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used when data calls are originated (refer 3G TS 22.002 [1]). Values may also be used during mobile terminated data call setup, especially in case of single numbering scheme calls.

9.2. +CRLP Command: Select radio link protocol parameter

AT+CRLP Select radio link protocol parameter	
Test command Syntax **AT+CRLP=?**	Response **+CRLP:** (list of supported **<iws>**s),(list of supported **<mws>**s),(list of supported **<T1>**s),(list of supported **<N2>**s)[,**<ver1>**[,(list of supported **<T4>**s)]] **[+CRLP:** (list of supported **<iws>**s),(list of supported **<mws>**s),(list of supported **<T1>**s),(list of supported **<N2>**s)[,**<ver1>**[,(list of supported **<T4>**s)]][...]] **OK**
Read command Syntax **AT+CRLP?**	Response **+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]]** **[+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]]** **[...]]** **OK**
Write command Syntax **AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]]**	Response **OK** Parameters **<ver>, <verx>:** RLP version number in integer format; when version indication is not present it shall equal 0 **<iws>, <mws>, <T1>, <N2>, <T4>:** IWF to MS window size, MS to IWF window size, acknowledgement timer T1, retransmission attempts N2, re-sequencing period T4 in integer format (default values and value ranges depend on RLP version; refer 3G TS 24.022 [18]): T1 and T4 are in units of 10 ms.
Reference [27.007] §6.8	Notes • Radio link protocol (RLP) parameters used when non-transparent data calls are originated may be altered with set command. Available command subparameters depend on the RLP versions implemented by the device (e.g. <ver> may not be available if device supports only versions 0 and 1). • If radio link protocol is not used, but some other error correcting protocol (for transparent data calls), V.25ter [14] Error Control Selection test command +ES=? may be used to indicate the presence of the protocol. • Read command returns current settings for each supported RLP version <verx>. Only RLP parameters applicable to the corresponding <verx> are returned. • Test command returns values supported by the TA as a compound value. If ME/TA supports several RLP versions <verx>, the RLP parameter value ranges for each <verx> are returned in a separate line. • Versions 0 and 1 share the same parameter set. Read and test commands shall return only one line for this set (where <verx> is not present).

9.3. +CR Command: Service reporting control

AT+CR Service reporting control	
Test command Syntax **AT+CR=?**	 Response **+CR:** (list of supported **<mode>**s) **OK**
Read command Syntax **AT+CR?**	 Response **+CR: <mode>** **OK**
Write command Syntax **AT+CR=[<mode>]**	 Response **OK** Parameters **<mode>:** 0: disables reporting 1: enables reporting **<serv>:** ASYNC: asynchronous transparent SYNC: synchronous transparent REL ASYNC: asynchronous non-transparent REL SYNC: synchronous non-transparent GPRS [<L2P>] GPRS The optional <L2P> proposes a layer 2 protocol to use between the MT and the TE. It is defined in the Enter GPRS Data Mode (+CGDATA) command.
Reference [27.007] §6.9	Notes • Set command controls whether or not intermediate result code +CR: <serv> is returned from the TA to the TE. If enabled, the intermediate result code is transmitted at the point during connect negotiation at which the TA has determined which speed and quality of service will be used, before any error control or data compression reports are transmitted, and before the intermediate result code CONNECT is transmitted. • This command replaces V.25ter [14] command Modulation Reporting Control +MR, which is not appropriate for use in the GSM/UMTS network. Possible error control (other than radio link protocol) and data compression reporting can be enabled with V.25ter commands Error Control Reporting +ER and Data Compression Reporting +DR.

9.4. +FCLASS Command: Fax : Select, read or test service class

AT+FCLASS Fax : Select, read or test service class	
Test command Syntax **AT+FCLASS=?**	 Response (list of supported **<n>**s) **OK**
Read command Syntax **AT+FCLASS?**	 Response **<n>** **OK**
Write command Syntax **AT+FCLASS=<n>**	 Response **OK** Parameters **<n>:** 0: Select Data mode (default) 1: Select Facsimile Class 1
Reference [27.007] § C.2.1	Notes

9.5. +FRM Command: Receive data

AT+FRM Receive data	
Test command Syntax **AT+FRM=?**	 Response (List of supported **<mode>**s) **OK**
Read command Syntax **AT+FRM?**	 Response **+FRM:<mode>** **OK**
Write command Syntax **AT+FRM=<mode>**	 Response **CONNECT** Or **NO CARRIER** Parameters **<mode>:** Modulation used by the other modem to transmit data. The mobile phone should then enter in a receiving mode, using that modulation. 24: V27 ter 2400 bps 48: V27 ter 4800 bps 72: V29 7200 bps 96: V29 9600 bps
Reference	Notes • This command is fully supported only in fax mode (AT+FCLASS=1). • Set command only supported during FAX communication established. Read and test command only supported in command mode • Read command always return 9600 bits/s because the communication must begin at this speed

9.6. +FTM Command: Transmit data

AT+FTM Transmit data	
Test command Syntax **AT+FTM=?**	 Response (List of supported **< mode >**s) **OK**
Read command Syntax **AT+FTM?**	 Response **+FTM:<mode>** **OK**
Write command Syntax **AT+FTM=<** mode **>**	 Response **CONNECT** Or **NO CARRIER** Parameters **< mode >:** Modulation used by the other modem to transmit data. The mobile phone should then enter in a receiving mode, using that modulation. 24: V27 ter 2400 bps 48: V27 ter 4800 bps 72: V29 7200 bps 96: V29 9600 bps
Reference TIA578A	Notes • This command is fully supported only in fax mode (AT+FCLASS=1). • Set command only supported during FAX communication established. Read and test command only supported in command mode. • Read command always return 9600 bits/s because the communication must begin at this speed

9.7. +FRS Command: Receive silence

AT+FRS Receive silence	
Test command Syntax **AT+FRS=?**	 Response **OK**
Read command Syntax **AT+FRS?**	 Response **ERROR**
Write command Syntax **AT+FRS=<n>**	 Response **OK** Parameters **<n>:** number of times of 10 ms of silence detected on the line to be waited for by the modem before it can report OK to DTE (0-255)
Reference TIA578A	Notes • Not support. This command is fully supported only in fax mode (AT+FCLASS=1).

9.8. +FTS Command: Stop transmission and wait

AT+FTS Stop transmission and wait	
Test command Syntax **AT+FTS=?**	Response **OK**
Read command Syntax **AT+FTS?**	Response **ERROR**
Write command Syntax **AT+FTS=<** mode **>**	Response **OK** Parameters **< mode >:** number of times of 10 ms of silence detected on the line to be waited for by the modem before it can report OK to DTE (0-255)
Reference	Notes • Not support. This command is fully supported only in fax mode (AT+FCLASS=1).

9.9. +FRH Command: Receive data using HDLC framing

AT+FRH Receive data using HDLC framing	
Test command Syntax **AT+FRH=?**	 Response (list of supported **< mode >**s) **OK**
Read command Syntax **AT+FRH?**	 Response **+FRH:<mode>** **OK**
Write command Syntax **AT+FRH=< mode >**	 Response **OK** Parameters **< mode >:** modulation used by the other modem to transmit data, using HDLC protocol. 3: V21 channel 2 300 bps
Reference TIA578A	Notes • This command is fully supported only in fax mode (AT+FCLASS=1). • Set command only supported during FAX communication established.

9.10. +FTH Command: Transmit data using HDLC framing

AT+FTH Transmit data using HDLC framing	
Test command Syntax **AT+FTH=?**	 Response (lsit of supported **< mode >**s) **OK**
Read command Syntax **AT+FTH?**	 Response **+FTH:<mode>** **OK**
Write command Syntax **AT+FTH=< mode >**	 Response **OK** Parameters **< mode >:**modulation used by the other modem to transmit data, using HDLC protocol. 3: V21 channel 2 300 bps
Reference	Notes • This command is fully supported only in fax mode (AT+FCLASS=1).

9.11. +FMI Command: Manufacturer identification

AT+FMI Manufacturer identification	
Test command Syntax **AT+FMI=?**	 Response **OK**
Write command Syntax **AT+FMI**	 Response **<manufacturer>** **OK** Parameter
Reference EIA/TIA-578-D	Notes • See Manufacturer identification +CGMI

9.12. +FMM Command: Model identification

AT+FMM Model identification	
Test command Syntax **AT+FMM=?**	 Response **OK**
Write command Syntax **AT+FMM**	 Response **<model>** **OK** Parameter
Reference EIA/TIA-578-D	Notes • See Model identification +CGMM

9.13. +FMR Command: Revision identification

AT+FMR Revision identification	
Test command Syntax **AT+FMR=?**	 Response **OK**
Write command Syntax **AT+FMR**	 Response **<revision>** **OK** Parameter
Reference EIA/TIA-578-D	Notes • See Revision identification +CGMR

10. GPRS AT COMMANDS

These commands are fully supported when the SIM card and the network have GPRS capability.

10.1. +CGATT Command: PS Attach or Detach

AT+CGATT PS Attach or Detach	
Test command Syntax **AT+CGATT=?**	 Response **+CGATT:** (list of supported **<state>**s) **OK**
Read command Syntax **AT+CGATT?**	 Response **+CGATT: <state>** **OK**
Write command Syntax **AT+CGATT= <state>**	 Response **OK** Parameters **<state>:** indicates the state of PS attachment 0: detached 1: attached
Reference [27.007] §10.1.9	Notes

sagemcommunications

10.2. +CGACT Command: PDP context activate or deactivate

AT+CGACT PDP context activate or deactivate	
Test command Syntax **AT+CGACT=?**	Response **+CGACT:** (list of supported **<state>**s) **OK**
Read command Syntax **AT+CGACT?**	Response **+CGACT: <cid>, <state>** **OK**
Write command Syntax **AT+CGACT= <state>[, <cid>]**	Response **OK** Parameters **<state>:** indicates the state of PDP context activation 0: deactivated 1: activated Other values are reserved and will result in an ERROR response to the execution command. **<cid>:** PDP Context Identifier is 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.
Reference [27.007] §10.1.10	Notes After CGACT it is impossible to use ATD*99… or *98… commands. Use +CGDATA instead.

10.3. +CGCLASS Command: GPRS mobile station class

AT+CGCLASS GPRS mobile station class	
Test command Syntax **AT+CGCLASS=?**	Response **+CGCLASS:** (list of supported **<class>**s) **OK**
Read command Syntax **AT+CGCLASS?**	Response **+CGCLASS: <class>** **OK**
Write command Syntax **AT+CGCLASS=<class>**	Response **OK** Parameters **<class>:** A string parameter which indicates the GPRS mobile class (in descending order of functionality) "B" class B "CC" class C in circuit switched only mode (lowest)
Reference [27.007] §10.1.17	Notes • Class A is not supported; the module must be restarted in order to be effective.

sagemcommunications

10.4. +CGDCONT Command: Define PDP context

AT+CGDCONT Define PDP context	
Test command Syntax **AT+CGDCONT=?**	Response **+CGDCONT:** (range of supported **<cid>**s), **<PDP_type>**,,,(list of supported **<d_comp>**s), (list of supported **<h_comp>**s)[,(list of supported **<pd1>**s)[,…[,(list of supported **<pdN>**s)]]]**[...]]** **OK**
Read command Syntax **AT+CGDCONT?**	Response **+CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>, <head_comp>[,<pd1>[,…[,pdN]]** **OK**
Write command Syntax **AT+CGDCONT=<cid> ,<PDP_type> ,<APN> ,<PDP_addr> ,<d_comp> ,<h_comp>**	Response **OK** Parameters **<cid>:** (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition. **<PDP_type>:** Packet Data Protocol type A string parameter which specifies the type of packet data protocol. Only IP Internet Protocol - IETF STD 5) is supported. **<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. **<PDP_address>:** a string parameter that identifies the MT in the address space applicable to the PDP. As only IP is currently supported, it shall be an IP address. If the value is null (“0.0.0.0” or 0), then a value may be provided by the TE during the PDP startup procedure or, failing that, a dynamic address will be requested. The read form of the command will continue to return the null string even if an address has been allocated during the PDP startup procedure. The allocated address may be read using the +CGPADDR command. **<d_comp>:** a numeric parameter that controls PDP data compression. 0: off (default and only value supported) **<h_comp>:** a numeric parameter that controls PDP header compression 0: off (default and only value supported) **<pd1>, … <pdN>:** zero to N string parameters whose meanings are specific to the <PDP_type>
Reference [27.007] §10.1.1	Notes • The set command specifies PDP context parameter values for a PDP context identified by the (local) context identification parameter, <cid>. The number of PDP contexts that may be in a defined state at the same time is given by the range returned by the test command. • A special form of the set command, +CGDCONT= <cid> causes the values for context number <cid> to become undefined.

sagemcommunications

10.5. +CGDATA Command: Enter data state

AT+CGDATA Command Enter data state	
Test command Syntax **AT+CGDATA=?**	Response **+CGDATA:** (list of supported **<L2P>**s) **OK**
Write command Syntax **AT+CGDATA=[<L2P>** **,[<cid> [,<cid> [,…]]]]**	Response **CONNECT** Parameters **<L2P>:** a string parameter that indicates the layer 2 protocol to be used between the TE and MT. Only PPP (Point-to-point) protocol is currently allowed. **<cid>:** a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT command).
Reference [27.007] §	Notes • This command is ONLY FOR INTERNAL TESTS with network emulators • This command is used for PS internal tests with network emulators. • On real network functioning of +CGACT and then +CGDATA for data transfer is not guaranteed. When activating a PDP context, PCO (protocol configuration option) has to be provided to network. PCO can be provided to network only if a PPP negotiation has been initiated between mobile and TE before activation (refer to TS 27.060). For this, the channel must be in online data mode before activation. PPP server will first negotiate PCO and then request PDP context activation: this is possible only when using ATD*98 or ATD*99 command (online data state is entered immediately when ATD received) Moreover +CGDATA does not fully complies with recommendation, especially it does not behave as ATD*9x Command: +CGDATA does not perform PS attach or PDP context activation. A PDP must have been activated with +CGACT previously. • +CGDATA is used to open PPP server in “FTA mode” and switch channel to online data mode To go back in online command, the “+++” escape sequence has to be sent on link in data mode +CGDATA can also be used to switch again channel to online data mode (after “+++”) if PDP is still active (same behavior has ATO command). • If no parameters are provided (i.e. +CGDATA=<CR>), the last <cid> activated with +CGACT is used or the default EEPROM <cid> is used. • Only one <cid> in the command is supported (i.e. +CGDATA=”PPP”,<cid><CR>)

sagemcommunications

10.6. +CGEREP Command: GPRS event reporting

AT+CGEREP GPRS event reporting	
Test command Syntax **AT+CGEREP=?**	Response **+CGEREP:** (list of supported **<mode>**s),(list of supported **<bfr>**s) **OK**
Read command Syntax **AT+CGEREP?**	Response **+CGEREP: <mode>, <bfr>** **OK**
Write command Syntax **AT+CGEREP=[<mode>[,<bfr>]]**	Response **OK** Parameters **<mode>:** 0: buffer unsolicited result codes in the MT; if MT result code buffer is full, the oldest ones can be discarded. No codes are forwarded to the TE. 1: discard unsolicited result codes when MT-TE link is reserved (e.g. in on-line data mode); otherwise forward them directly to the TE 2: buffer unsolicited result codes in the MT when MT-TE link is reserved (e.g. in on-line data mode) and flush them to the TE when MT-TE link becomes available; otherwise forward them directly to the TE **<bfr>:** 0: MT buffer of unsolicited result codes defined within this command is cleared when <mode> 1 or 2 is entered 1: MT buffer of unsolicited result codes defined within this command is flushed to the TE when <mode> 1 or 2 is entered (OK response shall be given before flushing the codes)
Reference [27.007] §10.1.18	Notes The unsolicited result codes supported are: +CGEV: NW DEACT <PDP_type>, <PDP_addr>, [<cid>] +CGEV: ME DEACT <PDP_type>, <PDP_addr>, [<cid>] +CGEV: ME DETACH +CGEV: NW DETACH

sagemcommunications

10.7. +CGPADDR Command: Show PDP address

AT+CGPADDR Show PDP address	
Test command Syntax **AT+CGPADDR=?**	 Response **+CGPADDR:** (list of supported **<cid>**s) **OK**
Write command Syntax **AT+CGPADDR=<cid>[, <cid>,[…]]**	 Response **+CGPADDR: <cid>, <PDP_addr>** **[+CGPADDR: <cid>, <PDP_addr>** **[…]]** **OK** Parameters **< PDP_addr >:** a string that identifies the MT in the address space applicable to the PDP. The address may be static or dynamic. For a static address, it will be the one set by the +CGDCONT 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_address> is omitted if none is available. "<n>.<n>.<n>.<n>" where <n>=0..255 **<cid>:** 1..2
Reference [27.007] §10.1.14	Notes • The execution command returns a list of PDP addresses for the specified context identifiers • Example : Ask for IP address according to cid=1 (identify the PDP context) AT+CGPADDR=1 +CGPADDR: 1, “10.20.30.40”

sagemcommunications

10.8. +CGQMIN Command: Quality of service profile (minimum acceptable)

AT+CGQMIN Quality of service profile (minimum acceptable)	
Test command Syntax **AT+CGQMIN=?**	 Response **+CGQMIN: <PDP_type>,**(list of supported **<precedence>**s)**,**(list of supported **<delay>**s)**,**(list of supported **<reliability>**s)**,**(list of supported **<peak>**s)**,**(list of supported **<mean>**s) **[+CGQMIN:...]** **OK**
Read command Syntax **AT+CGQMIN?**	 Response **+CGQMIN: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>** **[+CGQMIN: ...]** **OK**
Write command Syntax **AT+CGQMIN=[<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]]**	 Response **OK/** Parameters **<precedence>:** numeric parameter for the precedence class 0: network subscribed value 1: High Priority Service commitments shall be maintained ahead of precedence classes 2 and 3 2: Normal priority Service commitments shall be maintained ahead of precedence class 3 3: Low priority **<delay>:** numeric parameter for the delay class **<reliability>:** numeric parameter for the reliability class 0: network subscribed value 1: Non real-time traffic , error-sensitive application that cannot cope with data loss 2: Non real-time traffic, error-sensitive application that can cope with infrequent data loss 3: Non real-time traffic, error-sensitive application that can cope with data loss, GMM/SM, and SMS 4: Real-time traffic, error-sensitive application that can cope with data loss 5: Real-time traffic, error non-sensitive application that can cope with data loss **<peak>:** numeric parameter for the peak throughput class 0: network subscribed value 1: Up to 1 000 (8 kbit/s) 2: Up to 2 000 (16 kbit/s) 3: Up to 4 000 (32 kbit/s) 4: Up to 8 000 (64 kbit/s) 5: Up to 16 000 (128 kbit/s) 6: Up to 32 000 (256 kbit/s) 7: Up to 64 000 (512 kbit/s) 8: Up to 128 000 (1 024 kbit/s) 9: Up to 256 000 (2 048 kbit/s)

	<mean>:	numeric parameter for the mean throughput class 0: network subscribed value 1: 100 (~0.22 bit/s) 2: 200 (~0.44 bit/s) 3: 500 (~1.11 bit/s) 4: 1 000 (~2.2 bit/s) 5: 2 000 (~4.4 bit/s) 6: 5 000 (~11.1 bit/s) 7: 10 000 (~22 bit/s) 8: 20 000 (~44 bit/s) 9: 50 000 (~111 bit/s) 10: 100 000 (~0.22 kbit/s) 11: 200 000 (~0.44 kbit/s) 12: 500 000 (~1.11 kbit/s) 13: 1 000 000 (~2.2 kbit/s) 14: 2 000 000 (~4.4 kbit/s) 15: 5 000 000 (~11.1 kbit/s) 16: 10 000 000 (~22 kbit/s) 17: 20 000 000 (~44 kbit/s) 18: 50 000 000 (~111 kbit/s) 31: best effort
Reference [27.007] §10.1.7	Notes	

sagemcommunications

10.9. +CGQREQ Command: Request quality of service profile

AT+CGQREQ Request quality of service profile	
Test command Syntax **AT+CGQREQ=?**	Response **+CGQREQ: <PDP_type>,** (list of supported **<precedence>**s)**,**(list of supported **<delay>**s)**,**(list of supported **<reliability>**s)**,**(list of supported **<peak>**s)**,**(list of supported **<mean>**s) **[+CGQREQ: <PDP_type>,** (list of supported **<precedence>**s)**,**(list of supported **<delay>**s)**,**(list of supported **<reliability>**s)**,**(list of supported **<peak>**s)**,**(list of supported **<mean>**s) **[…]]** **OK**
Read command Syntax **AT+CGQREQ?**	Response **+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean>** **[+CGQREQ: <cid>,<precedence>,<delay>,<reliability.>,<peak>,<mean>** **[…]]** **OK**
Write command Syntax **+CGQREQ=[<cid>** **[,<precedence >** **[,<delay> [,<reliability.>** **[,<peak> [,<mean>]]]]]]**	Response **OK** Parameters **<cid>:** a numeric parameter which specifies a particular PDP context definition (see the +CGDCONT command). **<precedence>:** a numeric parameter which specifies the precedence class **<delay>:** a numeric parameter which specifies the delay class **<reliability>:** a numeric parameter which specifies the reliability class **<peak>:** a numeric parameter which specifies the peak throughput class **<mean>:** a numeric parameter which specifies the mean throughput class
Reference [27.007] §10.1.4	Notes • This command allows the TE to specify a Quality of Service Profile that is used when the MT sends an Activate PDP Context Request message to the network. • If a value is omitted for a particular class then the value is considered to be unspecified

sagemcommunications

10.10. +CGREG Command: GPRS network registration status

AT+CGREG GPRS network registration status	
Test command Syntax **AT+CGREG=?**	 Response **+CGREG:** (list of supported **<n>**s) **OK**
Read command Syntax **AT+CGREG?**	 Response **+CGREG: <n>,<stat>[,<lac,<ci>]** **OK**
Write command Syntax **AT+CGREG=[<n>]**	 Response **OK** Parameters **<n>:** 0: disable network registration unsolicited result code 1: enable network registration unsolicited result code +CGREG: <stat> 2: enable network registration and location information unsolicited result code +CGREG: <stat>[,<lac>,<ci>] **<stat>:** 0: not registered, ME is not currently searching an operator to register to The MS is in GMM state GMM-NULL or GMM-DEREGISTERED-INITIATED. The GPRS service is disabled, the MS is allowed to attach for GPRS if requested by the user. 1: registered, home network The MS is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED INITIATED on the home PLMN. 2: not registered, but ME is currently trying to attach or searching an operator to register to The MS is in GMM state GMM-DEREGISTERED or GMM-REGISTERED-INITIATED. The GPRS service is enabled, but an allowable PLMN is currently not available. The MS will start a GPRS attach as soon as an allowable PLMN is available. 3: registration denied The MS is in GMM state GMM-NULL. The GPRS service is disabled, the MS is not allowed to attach for GPRS if requested by the user. 4: unknown 5: registered, roaming The MS is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED on a visited PLMN. **<lac>:** string type; two byte location area code in hexadecimal format (e.g. "00C3" equals 195 in decimal) **<ci>:** string type; two byte cell ID in hexadecimal format
Reference [27.007] §10.1.19	Notes • The set command controls the presentation of an unsolicited result code **+CGREG: <stat>** when <**n**>=1 and there is a change in the MT's GPRS network registration status, or code **+CGREG: <stat>[,<lac>,<ci>]** when <n>=2 and there is a change of the network cell.

10.11. +CGSMS Command: Select service for MO SMS messages

AT+CGSMS Set Greeting Text	
Test command Syntax **AT+CGSMS=?**	 Response **+CGSMS:** (list of currently available **<service>** s) **OK**
Read command Syntax **AT+CGSMS?**	 Response **+CGSMS: <service>** **OK**
Write command Syntax **AT+CGSMS=[<service>]**	 Response **OK** Parameter **<service> :** a numeric parameter which indicates the service or service preference to be used. 0: Packet Domain 1: Circuit switched 2: Packet Domain preferred (use circuit switched if GPRS not available) 3: Circuit switched preferred (use Packet Domain if circuit switched not available)
Reference [27.007] § 10.1.20	Notes • When **<service>** value is 2, the SMS is sent on GPRS network if already attached. Otherwise it is sent on circuit switched network. If an error occurs on the GPRS network, no further attempt is made.

11. SIM APPLICATION TOOLKIT AT COMMANDS

11.1. Preliminary comments

- SAGEM COMMUNICATIONS has developed a proprietary set of commands to allow a DTE to interface with the SIM Application Toolkit

- Details about the implementation of the SIM Application Toolkit are provided in [STK]

- The following table gives the list of each SIM ToolKit *PSSTK command parameter and the *PSSTK URC Format.

Command name	*PSSTK URC Format	*PSSTK command parameters list
COMMAND REJECTED	NULL	AT*PSSTK = "COMMAND REJECTED",CommandNumber, cause
NOTIFICATION	*PSSTK: "NOTIFICATION", <CommandNumber>, <TypeOfCommand>, <Presence>, <Alphabet>, <AlphaId>, <IconId>, <IconQualifier>	AT*PSSTK = "NOTIFICATION", CommandNumber, IconDisplay
SETUP CALL	*PSSTK: "SETUP CALL", <CommandNumber>,<TypeOfCommand>,<Confirmation>,<Presence1>,<Alphabet1>,<AlphaId1>,<IconId1>,<IconQualifier1>,<Presence2>,<Alphabet2>,<AlphaId2>,<IconId2>,<IconQualifier2>,<RepeatIndicatior>	AT*PSSTK ="SETUP CALL", CommandNumber, IconDisplay
DISPLAY TEXT	*PSSTK: "DISPLAY TEXT", <CommandNumber>,<Priority>,<Clear>,<ImmediateResponse>,<Alphabet>,<Text>,<IconId>,<IconQualifier>	AT*PSSTK ="DISPLAY TEXT", CommandNumber, IconDisplay
GET INKEY	*PSSTK: "GET INKEY", <CommandNumber>, <ResponseFormat>, <ResponseAlphabet>, <HelpInfo>,<Alphabet>,<Text>,<IconId>,<IconQualifier>	AT*PSSTK ="GET INKEY", alphabet,Text,CommandNumber, IconDisplay, HelpRequest
GET INPUT	*PSSTK: "GET INPUT", <CommandNumber>, <ResponseFormat>,<ResponseAlphabet>,<HideEntry>,<AlphabetText>,<Text>,<IconId>,<IconQualifier>,<AlphabetDefault>,<DefaultText>,<MinLength>,<MaxLength>,<HelpInfo>	AT*PSSTK ="GET INPUT", alphabet,Text,CommandNumber, IconDisplay, HelpRequest
PLAY TONE	*PSSTK: "PLAY TONE", <Presence>, <Alphabet>, <AlphaId>, <IconId>, <IconQualifier>, <CommandNumber>, <Tone>,<Duration>	AT*PSSTK ="PLAY TONE", CommandNumber, IconDisplay
SELECT ITEM	*PSSTK: "SELECT ITEM", <Presence>, <AlphaId>, <Alphabet>,<IconId>, <IconQualifier>, <CommandNumber>, <DefaultItem>, <HelpInfo>, <NumberOfItem>	AT*PSSTK ="SELECT ITEM", CommandNumber,ItemIdentifier, IconDisplay, IconDisplay,HelpRequest
SETUP MENU	*PSSTK: "SETUP MENU", <Presence>, <Alphabet>, <AlphaId>, <IconId>, <IconQualifier>, <CommandNumber>,<DefaultItem>,<HelpInfo>,<NumberOfItem>	AT*PSSTK ="SETUP MENU",CommandNumber, IconDisplay
REMOVE MENU	*PSSTK: "REMOVE MENU",<CommandNumber>	AT*PSSTK ="REMOVE MENU", CommandNumber
MENU SELECTION	NULL	AT*PSSTK ="MENU SELECTION",ItemIdentifier
ALL CALLS DISCONNECTED	NULL	AT*PSSTK ="ALL CALLS DISCONNECTED "
USER ACTIVITY	NULL	AT*PSSTK ="USER ACTIVITY"
IDLE SCREEN AVAILABLE	NULL	AT*PSSTK ="IDLE SCREEN AVAILABLE"
SETUP CALL TERMINATED	NULL	AT*PSSTK ="SETUP CALL TERMINATED "
GET ITEM LIST	*PSSTK:"GET ITEM LIST", <Item_index>,<ItemIdentifier>,<Alphabet>, <p_Text>,<NextAction>,<IconId>, <IconQualifier>	AT*PSSTK ="GET ITEM LIST", NumberOfItems
LANGUAGE NOTIFICATION	*PSSTK:"LANGUAGE NOTIFICATION", <CommandNumber>,<SpecificLanguage>, <SimLanguage>	NULL
SETUP IDLE MODE TEXT	*PSSTK:"SETUP IDLE MODE TEXT", <CommandNumber>, <Alphabet>, <Text>, <IconId>, <IconQulifier>	AT*PSSTK ="SETUP IDLE MODE TEXT", CommandNumber, IconDisplay
REFRESH	*PSSTK: "REFRESH",<CommandNumber>,<RefreshType>	NULL
END CALL	*PSSTK:"ENDCALL",<CommandNumber>,<CauseSelect>,<Cause>,<CallId>	NULL
DISCONNECT	*PSSTK="DISCONNECT",<CauseSelect>,<Cause>,<CallIdListStatus0>,<CallIdListStatus1>,<CallIdListStatus2>,<CallIdListStatus3>,<CallIdListStatus4>,<CallIdListStatus5>,<CallIdListStatus6>,<CallId>,<MaxNumberOfCallRepeatAttempts>,<RepeatCallAttemptWaitingTime>,<CallIdPreviousState>	NULL
PROCESSING	*PSSTK: "PROCESSING",<CommandNumber>	NULL
END SESSION	*PSSTK: "END SESSION"	NULL
ABORT SESSION	*PSSTK: "ABORT SESSION"	NULL
CONTROL BY SIM	*PSSTK: "CONTROL BY SIM",<TypeOfCommand>,<Presence>,<Alphabet>,<AlphaId>	NULL

11.2. *PSSTKI Command: SIM ToolKit Interface configuration

AT*PSSTKI SIM ToolKit Interface configuration	
Test command Syntax **AT*PSSTKI=?**	 Response ***PSSTKI:** (List of supported **<mode>s**) **OK**
Read command Syntax **AT*PSSTKI?**	 Response ***PSSTKI:<mode>** **OK**
Write command Syntax **AT*PSSTKI=<mode>**	 Response **OK** Parameter **<mode>:** 0: no *PSSTK unsolicited result code will be sent to TE. TE won't send *PSSTK command to Module. 1: any *PSSTK unsolicited result code will be sent to TE. TE has to acknowledge to *PSSTK notification. For example : URC: *PSSTK: "SETUP MENU",1,4,"SIMOP",0,0,1,0,0,6 TE answer : AT*PSSTK="SETUP MENU",1,0
Reference SAGEM COMMUNICATIONS Proprietary	Notes The aim of this AT command is to configure the AT interface for SIM ToolKit support.

sagemcommunications

11.3. *PSSTK Command: SIM Toolkit command

AT*PSSTK SIM Toolkit *PSSTK as command	
Write command Syntax **AT*PSSTK=<msg>,<parameter1>,…,<parameterN>**	Response **OK** Parameters **<msg>:** 1 Command require a SIM Toolkit answer: ”MENU SELECTION” “GET ITEM LIST” 2 Command does not require a SIM Toolkit answer: “ALL CALLS DISCONNECTED” “USER ACTIVITY” “IDLE SCREEN AVAILABLE” “SETUP CALL TERMINATED” 3 Command used to answer an unsolicited result code: “COMMAND REJECTED” “NOTIFICATION” “SETUP CALL” “DISPLAY TEXT” “GET INKEY” “GET INPUT” “PLAY TONE” “SELECT ITEM” “SETUP MENU” “REMOVE MENU” “SETUP IDLE MODE TEXT” **<parameter i>:** Depends of <**msg**> value, For each value of <**msg**> a parameter list is defined. For detail information about parameter list, please see the ….table
Reference SAGEM COMMUNICATIONS Proprietary	Notes The *PSSTK can be used in two different ways: • *PSSTK is an unsolicited result code received from SIM Toolkit application • *PSSTK is sent by the DTE to the ME (used as a normal AT command)

sagemcommunications

11.4. *PSSTK URC: SIM Toolkit unsolicited result code

***PSSTK Unsolicited result code or possible response(s)**	
Result code or Possible response(s)	Response ***PSSTK: <msg>,<parameter1>, …, <parameterN>** **OK** Parameters **<msg>:** 1 Unsolicited result code not requiring an answer from DTE “LANGUAGE NOTIFICATION” “CONTROL BY SIM” “REFRESH” “END CALL” “DISCONNECT” “PROCESSING” “END SESSION” “ABORT SESSION” 2 Unsolicited result code requiring an answer from DTE “NOTIFICATION” “SETUP CALL” “DISPLAY TEXT” “GET INKEY” “GET INPUT” “PLAY TONE” “SELECT ITEM” “SETUP MENU” “REMOVE MENU” “SETUP IDLE MODE TEXT” **<parameter i>:** Depends of <**msg**> value, For each value of <**msg**> a parameter list is defined. For detail information about parameter list, please see the ….table
	Notes The *PSSTK can be used in two different ways: • *PSSTK is an unsolicited result code received from SIM Toolkit application • *PSSTK is sent by the DTE to the ME (used as a normal AT command)

sagemcommunications

12. AUDIO COMMANDS

12.1. Preliminary comments

The current “preliminary comments” section deals with AT commands: VIP, VGR, VGT, KVGR, KVGT, KECHO, KNOISE, KST, KPC and KSRAP.

12.1.1. General Behavior

The commands cited above and presented here after can be used to tune audio parameters such as gain (up and down), volume, side tone, modes (handset, handsfree, …) and to activate some audio features such as noise reduction, echo cancellation and peak compressor. The following sections will indicate how to use the commands and with which parameters.

To explain briefly the global behaviour, it is important to note that the audio parameters are stored in FLASH memory and loaded into RAM at each power up. The parameters are divided into organs, each configuration (handset, handsfree) are in fact a couple of one RX organ and one TX organ. The command AT+VIP will allow to choose a configuration, so a couple of organs.
At the beginning of a call, selected organs are sent to the DSP.
The modifications done by the commands described after will modify audio parameter values in RAM. If the user does not save the values, they will be lost at the next power up. Nevertheless, a command allows the user to save values in FLASH and also allows to restore initial parameter values (the ones set prior to make any change on audio parameters).

12.1.2. Warning

The AT+VIP commands has 2 purposes. First, it selects the current context (handset, handsfree) for user modifications; call it “parameter change context”. Secondly, it pre-selects the context that will be sent to the DSP for a communication; call it “pre-selected communication context”.
A problem is that these 2 contexts have not the same “time to live”.
The “parameter change context” lasts between 2 AT+VIP commands.
The “pre-selected communication context” lasts from the AT+VIP command to the end of a call. The “pre-selected communication context” value will be reset after a call but the “parameter change context” will remain the same after the call release.

Here is an example:

```
AT+VIP=1                <- Selects Handsfree mode.
AT+KVGR=”10”            <- Set the Downlink gain to 10 dB for handsfree mode.
ATDxxxxxxx;             <- Make a call in handsfree mode.
ATH                     <- Release the call: “parameter change context” is still handsfree,
                           “pre-selected communication contex” is reset (as AT+VIP=0,
                           handset mode).
AT+KVGR=”5”             <- Set the Downlink gain to 5 dB for handsfree mode.
ATDxxxxxxx;             <- Make a call. It is in HANDSET mode.
AT+VIP=0                <- Selects handset mode.
AT+KVGT=”-5”            <- Set the Uplink gain to -5 dB for handset mode.
```

A way to bypass this issue is to redo a AT+VIP command with the desired mode prior to make a call.

12.2. +CLVL Command: Loudspeaker volume level

AT+CLVL Loudspeaker volume level	
Test command Syntax **AT+CLVL=?**	 Response **+CLVL:** (list of supported **<level>**s) **OK**
Read command Syntax **AT+CLVL?**	 Response **+CLVL: <level>** **OK**
Write command Syntax **AT+CLVL=<level>**	 Response **OK** Parameter **<level>:** Loudspeaker level (smallest value represents the lowest sound)
Reference [27.007] § 8.23	Notes

12.3. +VIP Command: Initialize Voice Parameters

AT+VIP Initialize voice parameter	
Test command Syntax **AT+VIP=?**	 Response (list of supported **<n>**s) **OK**
Read command Syntax **AT+VIP?**	 Response **+VIP:<n>** **OK**
Write command Syntax **AT+VIP=<n>**	 Response **OK** Parameters **<n>:** Mode 0 Handset 1 Handsfree
Reference [27.007] § C.2.6	Notes • The values are automatically reset after a call (return to 0). • Level volume are accessible with AT+CLVL

12.4. +VTS Command: DTMF and Tone generation

AT+VTS DTMF and tone generation	
Test command Syntax **AT+VTS=?**	Response (list of supported **<tone1>**s),(list of supported **<tone2>**s) ,(list of supported **<duration>**s) **OK**
Write command Syntax **AT+VTS="<DTMF1>,<DTMF2>, …, <DTMFn>"** Or **AT+VTS= "{<DTMF1>, <duration>, {<DTMF2>, <duration>,…{<DTMFn>,<duration>}"**	Response **OK** Parameters **<DTMFi>:** A single ASCII character in the set 0-9, #,*,A-D. This is interpreted as a single ACSII character whose duration is set by the +VTD command. DTMF tones can be issued only during a voice call. **<tone1><tone2><duration>:** This is interpreted as a dual tone of frequencies <tone1> and <tone2>,lasting for a time <duration> (in 10 ms multiples). This does not operate in GSM. **< DTMFi >,<duration>:** This is interpreted as a DTMF tone of different duration from that mandated by the +VTD command. In GSM this operates only in voice mode.
Reference [27.007] § C.2.11	Notes • The network shall ensure that the minimum length of tone and the minimum gap between two subsequent tones (according to ETR 206) is achieved. (In ETR 206 the minimum duration of a DTMF tone is 70ms ±5ms, the minimum gap between DTMF tones is 65ms). There is no defined maximum length to the tone, however, the operator may choose to put a pre-defined time limit on the duration of tones sent to line (cf. [23.014]). That means that with n<6, DTMF will be generated with a duration given by the network. • Total number of parameters is limited to 9.

12.5. +VTD Command: Tone duration

AT+VTD Tone duration	
Test command Syntax **AT+VTD=?**	 Response (list of supported **<n>**s) **OK**
Read command Syntax **AT+VTD?**	 Response **<n>** **OK**
Write command Syntax **AT+VTD=<n>**	 Response **OK** Parameters **<n>:** 0 (see [27.007] C.2.12)
Reference [27.007] § C.2.12	Notes • The network shall ensure that the minimum length of tone and the minimum gap between two subsequent tones (according to ETR 206) is achieved. (In ETR 206 the minimum duration of a DTMF tone is 70ms ±5ms, the minimum gap between DTMF tones is 65ms). There is no defined maximum length to the tone, however, the operator may choose to put a pre-defined time limit on the duration of tones sent to line (cf. [23.014]). That means that with n<6, DTMF will be generated with a duration given by the network.

12.6. +VGR Command: Receive Gain Selection

AT+VGR Chose receiving gain.	
Test command Syntax **AT+VGR=?**	 Response (list of supported **<n>**s) **OK**
Write command Syntax **AT+VGR?**	 Response **+VGR:<n>** **OK**
Write command Syntax **AT+VGR=<n>**	 Response **OK** Parameters **<n>:** < 128 (128 - n) dB less than nominal gain (until -20 dB) 128 Nominal gain. > 128 (n-128) dB more than nominal gain (up to 18 dB).
Reference [27.007] § C.2.4	Notes: • If the actual value and the requested change go out the gain range (-20 to 18 dB), the command returns an error.

12.7. VGT Command: Transmit Gain Selection

AT+VGT Chose transmit gain.	
Test command Syntax **AT+VGT=?**	 Response (list of supported **<n>**s) **OK**
Write command Syntax **AT+VGT?**	 Response **+VGT:<n>** **OK**
Write command Syntax **AT+VGT=<n>**	 Response **OK** Parameters **<n>:** < 128 (128 - n) dB less than nominal gain (until -20 dB) 128 Nominal gain. > 128 (n-128) dB more than nominal gain (until 18 dB).
Reference [27.007] § C.2.5	Notes: • If the actual value and the requested change go out the gain range (-20 to 18 dB), the command returns an error.

12.8. +KVGR Command: Receive Gain Selection

AT+KVGR Chose receiving gain.	
Test command Syntax **AT+KVGR=?**	 Response (list of supported **<n>**s) **OK**
Write command Syntax **AT+KVGR?**	 Response **+KVGR:<n>** **OK**
Write command Syntax **AT+KVGR=<n>**	 Response **OK** Parameters **"<n>":** -20 to 18: In dB, Digital gain of the downlink path.
Reference SAGEM COMMUNICATION Proprietary	Notes • The parameter is a string in order to accept negative values, so the value MUST be written between quotes ("xx").

12.9. KVGT Command: Transmit Gain Selection

AT+VGT Chose transmit gain.	
Test command Syntax **AT+KVGT=?**	 Response (list of supported **<n>**s) **OK**
Write command Syntax **AT+KVGT?**	 Response **+KVGT:<n>** **OK**
Write command Syntax **AT+KVGT=<n>**	 Response **OK** Parameters **"<n>":** -20 to 18: In dB, Digital gain of the uplink path.
Reference SAGEM COMMUNICATION Proprietary	Notes • The parameter is a string in order to accept negative values, so the value MUST be written between quotes ("xx").

12.10. +KECHO Command: Echo Cancellation

AT+KECHO Choose ECHO cancellation mode	
Test command Syntax **AT+KECHO=?**	 Response **+KECHO:** (list of supported **<level>**s) **OK**
Read command Syntax **AT+KECHO?**	 Response **+KECHO: <level>** **OK**
Write command Syntax **AT+KECHO=<level>**	 Response **OK** Parameter **<level>:** 0 Deactivate. 1 ECHO Cancellation 2 ECHO Cancellation and Suppression UL path
Reference SAGEM COMMUNICATION Proprietary	

12.11. +KNOISE Command: Noise Cancellation

AT+KNOISE Noise suppression activation	
Test command Syntax **AT+KNOISE=?**	Response **+KNOISE:** (list of supported **<Receive>**s)**,** (list of supported **<Transmit>**s) **OK**
Read command Syntax **AT+KNOISE?**	Response **+KNOISE: <Receive>,<Transmit>** **OK**
Write command Syntax **AT+KNOISE=<Receive>,<Transmit>**	Response **OK** Parameter **<Receive>:** 0 OFF. 1 ON **<Transmit>:** 0 OFF. 1 ON
Reference SAGEM COMMUNICATION Proprietary	

12.12. +KST Command: Side Tone

AT+KST Choose Side Tone value	
Test command Syntax **AT+KST=?**	Response **+KST:** (list of supported **<level>**s) **OK**
Read command Syntax **AT+KST?**	Response **+KST: <level>** **OK** Parameter **<level>:** 0,..,16 Side Tone value. 20: Side Tone disable.
Write command Syntax **AT+KST=<level>**	Response **OK** Parameter **<level>:** 0…16: Side Tone value (side tone gain from -26dB o 6dB by step of 2). 20 : Disable Side Tone.
Reference SAGEM COMMUNICATION Proprietary	Notes • Volume must be set to 5 (AT+CLVL = 5). • Values can not be modified on the fly (just disable on the fly). To observe the changes, it is needed to make an other call. • When modifying the side tone, double check to have set the right VIP value prior to redial (see warning section 2.1.2).

12.13. +KPC Command: Peak Compressor

AT+KPC: PEAK COMPRESSOR activation	
Test command Syntax **AT+KPC=?**	 Response **+KPC:** (list of supported **<level>**s) **OK**
Read command Syntax **AT+KPC?**	 Response **+KPC: <level>** **OK**
Write command Syntax **AT+KPC=<level>**	 Response **OK** Parameter **<level>:** 0 Disable. 1 Enable.
Reference SAGEM COMMUNICATION Proprietary	

12.14. +KSRAP Command: Save Restore Audio Parameters

AT+KSRAP Save Audio Parameters	
Test command Syntax **AT+KSRAP=?**	Response **+KSRAP :** (list of supported **<level>**s) **OK**
Write command Syntax **AT+KSRAP=<level>**	Response **OK** Parameter **<level>:** 0 Save Audio Parameter in EEPROM. 1 Restore Initial Audio Parameter. 2 Restore Audio Parameters in RAM and save in EEPROM.
Reference SAGEM COMMUNICATION Proprietary	Notes • Initial Audio Parameters are the ones before any parameter modification done by these AT commands.

13. PROTOCOL SPECIFIC COMMANDS

13.1. Preliminary comments

SAGEM S.A. has developed a set of proprietary AT Commands to simplify data exchanges with different protocols:

- FTP
- TCP/IP
- UDP
- SMTP
- POP3

13.2. CONNECTION CONFIGURATION

13.2.1. +KCNXCFG : GPRS Connection Configuration

AT+KCNXCFG: GPRS Connection configuration	
Test command Syntax **AT+KCNXCFG=?**	Response **+KCNXCFG:** (list of possible **<cnx conf>**s) **OK**
Read command Syntax **AT+KCNXCFG?**	Response **+KCNXCFG: <cnx cnf>, " GPRS", <apn>,<login>,<password>, <ip>,<dns1>,<dns2>** **+KCNXCFG: <cnx cnf>, "GPRS",<apn>,<login>,<password>, <ip>,<dns1>,<dns2>** **[...]** **OK**
Write command Syntax **AT+KCNXCFG=<cnx cnf>,"GPRS",<apn>[,[<login>][,[<password>][,[<ip>][,[<dns1>][,<dns2>]]]]]**	Response **OK** Parameters **<cnx cnf>:** [0..7] Index of a set of parameters for configuring a connection **<apn>:** (Access Point Name) a string parameter (max size 63 bytes), logical name used to select the GGSN or the external packet data network. **<login>:** string type (max size 24 bytes), indicates the user name of the cnx **<password>:** string type (max size 24 bytes), indicates the password of the cnx **<ip>:** String type. Consists of dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4, if the mobile is supposed to work with a static address. For dynamic address the value is "0.0.0.0" or an empty string. Displayed value with read command will be "0.0.0.0" for dynamic address. Note that with an empty value in the write command the previously stored value will be used. **<dns1>, <dns2>:** String type. Consists of dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4, if the mobile is supposed to work with static DNS addresses. For dynamic addresses the value is "0.0.0.0" or an empty string. Displayed value with read command will be "0.0.0.0" for dynamic address. Note that with an empty value in the write command the previously stored value will be kept.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This AT command is used to configure the bearer to be used for the future IP Services. • By default, the IP and DNS address are dynamic (those values would be affected by the network during the GSM or GPRS connection. • This connection will be used by the Module to access to the IP services described on the following chapters. The AT+KCNXCFG command is only defined to set the current parameters. The defined connection will be automatically opened when needed by the IP services. (e.g UDP service).

13.2.2. +KCNXTIMER: Connection Timer Configuration

AT+KCNXTIMER Connection Timer Configuration	
Test command Syntax **AT+KCNXTIMER=?**	 Response **+KCNXTIMER:** (list of supported **<cnx cnf>**s),(list of supported **<tim1>**s),(list of supported **<nbtrial>**s),(list of supported **<tim2>**s) **OK**
Read command Syntax **AT+KCNXTIMER?**	 Response **+KCNXTIMER: <cnx cnf>,<tim1>,<nbtrial>,<tim2>[<CR><LF>** **+KCNXTIMER: <cnx cnf>, <tim1>,<nbrtrial>,<tim2>[…]]** **OK**
Write command Syntax **AT+KCNXTIMER=<cnx cnf>[,[<tim1>][,[<nbrtrial>][,<tim2>]]]]**	 Response **OK** Parameters **<cnx cnf>:** [0..7]Integer type. Index of a set of parameters for configuring a connection. **<tim1>:** Connection timeout in seconds Must be within 15s to 120s (30s by default) **<tim2>:** Linger timer in seconds Must be within 60s to 300s (60s by default) 0: deactivated (connection will not close by itself) **<nbtrial>:** Number of attempts to connect to the network Must take a value between 1 & 4 (2 by default)
Reference SAGEM COMMUNICATIONS Proprietary	Notes •

13.2.3. +KCNXPROFILE: Connection current profile configuration

AT+KCNXPROFILE: Connection current profile configuration	
Read command Syntax **AT+KCNXPROFILE?**	 Response **+KCNXPROFILE:** (list of supported **<cnx cnf>**s) **OK**
Write command Syntax **AT+KCNXPROFILE=** **<cnx cnf>**	 Response **OK** Parameters **<cnx cnf>:** Index of a set of parameters for configuring a connection.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The current profile will be overrided after KTCPCNX, KUDPCFG, etc.with specified **<cnx cnf>**

13.2.4. +KCGPADDR: Show PDP address

AT+KCGPADDR: Show PDP address	
Write command Syntax **AT+KCGPADDR**	 Response **+KCGPADDR: <cnx cnf>, <PDP_addr>** **OK** Parameters, **<cnx cnf>:** Index of a set of parameters for configuring a connection. **< PDP_addr >:** a string that identifies the MT in the address space applicable to the PDP.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This AT command can be used after KTCPCNX, KUDPCFG, etc. to show the local IP address of the module; •

13.3. End Of Data pattern

13.3.1. +KPATTERN: Custom End Of Data pattern

AT+KPATTERN Custom End Of Data pattern	
Read command Syntax **AT+KPATTERN?**	 Response **+KPATTERN: <EOF pattern>** **OK**
Write command Syntax **AT+KPATTERN =** **<EOF pattern>**	 Response **OK** **+CME ERROR <err>** Parameters **<EOF pattern>:** String type (max size 128 bytes). This is a pattern used to notify the end of data (or file) during data or file transfer. This string doesn't have to be human-readable (Not printable characters are allowed).
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The default value of the pattern is: "--EOF--Pattern--" • It is the responsibility of the user to select an appropriate pattern according to the data transferred. (ie. Numeric pattern for text files and Readable string for binary files).

13.4. TCP Specific Commands

13.4.1. +KTCPCFG: TCP Connection Configuration

AT+KTCPCFG: TCP Connection Configuration	
Test command Syntax **AT+KTCPCFG=?**	Response **+KTCPCFG:** (list of possible **<mode>**s) **OK**
Read command Syntax **AT+KTCPCFG?**	Response **+KTCPCFG: <session_id>,<status>,<cnx cnf>,<mode>[,<serverID>],<tcp remote address>,<tcp_port>[<CR><LF>** **+KTCPCFG: <session_id>,<status>,<cnx cnf>,<mode>[,<serverID>],<tcp remote address>,<tcp_port>[…]]**
Write command Syntax **AT+KTCPCFG=[<cnx cnf>],<mode>,[<tcp remote address>],<tcp_port>**	Response **+KTCPCFG: <session_id>** **OK** Parameters **<cnx conf>:** Index of a set of parameters for configuring one TCP session (see KCNXCFG). **<session_id>:** Index of the TCP session. **<mode>:** 0: Client 1: Server 2: Child (Generated by server sockets) **<tcp remote address>**: Dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4 or explicit name of the remote server. For server configuration, this parameter is left blank. **<tcp_port>:** Numeric parameter (0-65535) **<status>:** Connection state of the selected socket (0-1) respectively (disconnected - connected) **<serverID>:** Index of the server session ID. Only for socket in mode CHILD.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • If the socket is defined as a <**CLIENT**> socket, <**tcp_port**> and <**tcp remote address**> define the port and the IP address of the remote server we want to connect. • Maximum **<session_id>** is 200

13.4.2. +KTCPCNX: TCP Connection

AT+KTCPCNX: TCP Connection	
Write command Syntax **AT+KTCPCNX=** **<session_id>**	Response **OK** **NO CARRIER** **+CME ERROR: <err>** **+KTCP_NOTIF: <session_id>, <tcp_notif>** Parameters **<session_id>:** Index of the TCP session. **<tcp_notif>:** Integer type. Indicates the cause of the TCP connection failure. 0- Network error 1- No more sockets available; max. number already reached 2- Memory problem 3- DNS error 4-TCP disconnection by the server or remote client 5-TCP connection error 6- Generic error 7- Fail to accept client request's 8- Data sending is OK but KTCPSND was waiting more or less characters 9- Bad session ID 10- Session is already running 11- All sessions are used
Reference SAGEM COMMUNICATIONS Proprietary	Notes • *This command is used for connecting to a remote server or listening to a binded port, depends on the selected mode of <**session_id**.>* •

13.4.3. +KTCPRCV: Receiving data through a TCP Connection

AT+KTCPRCV: Receiving data through a TCP connection	
Write command Syntax **AT+KTCPRCV=** **<session_id>,<ndata>**	Response **CONNECT** **…<EOF pattern>** **OK** **+KTCP_NOTIF: <session_id>,<tcp_notif>** Parameters **<session_id>:** Index of the TCP session. **<ndata>:** Number of bytes the device wants to receive (max value 4294967295) **<tcp_notif>:** See command AT+KTCPCNX
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This function is used to receive <**ndata**> data bytes through a previously opened TCP socket. • <**ndata**> indicates the max data number that the terminal wishes to receive. If the TCP socket contains more data than <**ndata**> bytes then only <**ndata**> bytes will be received. If the TCP socket contains less data than <**ndata**> bytes then only TCP socket's data will be received. • **<EOF pattern>** would be added at the end of data automatically • When <**ndata**> (max value) bytes or only available data in the TCP socket have been received, the module returns to command state and returns OK. • Before using this command, it is highly recommended to configure the module for Hardware flow control, using the command **AT&K3.** • The behaviour of DTR drop meets with **AT&D.** •

13.4.4. +KTCPSND: Sending data through a TCP Connection

AT+KTCPSND: Sending data through a TCP connection	
Write command Syntax **AT+KTCPSND=** **<session_id>,<ndata>**	Response **CONNECT** **OK** Error case **NO CARRIER** **+CME ERROR: <err>** **+KTCP_NOTIF: <session_id>,<tcp_notif>** Parameters **<session_id>:** Index of the TCP session. **<ndata>:** Number of bytes (max value 4294967295) **<tcp_notif>:** See command AT+KTCPCNX
Reference SAGEM COMMUNICATIONS Proprietary	Notes • User must use **<EOF pattern>** to finish sending, then module returns to command mode. • All the data will be sent out ignoring **<ndata>**. If data sent is not equal to **<ndata>** then **KTCP_NOTIF** would appear. • **<ndata>** is the data size without **<EOF pattern>** • Before using this command, it is highly recommended to configure the module for Hardware flow control, using the command **AT&K3** • The behaviour of DTR drop meets with **AT&D.** • Using **"+++"** can abort sending data and using **ATO[n]** to return back to data mode.

13.4.5. +KTCPCLOSE: Closing current TCP operation

AT+KTCPCLOSE: Closing current TCP operation	
Write command Syntax **AT+KTCPCLOSE=<session_id>,<closing_type>**	Response **OK** **+CME ERROR: <err>** **NO CARRIER** **+KTCP_NOTIF: <session_id>, <tcp_notif>** Parameters **<session_id>:** Index of the TCP session. **<closing_type>:** 0: abort. Fast closing of the TCP connection (NOT SUPPORT). 1: The TCP connection is properly closed, which means that data sent to the module by AT+KTCPSND will be sent to the TCP server and acknowledged before the socket is closed. **<tcp_notif>:** See command AT+KTCPCNX
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This function first closes the TCP socket and if there is no other session running then. **NO CARRIER** will be returned. •

13.4.6. +KTCPDEL: Delete a configured TCP session

AT+KTCPDEL: Delete a configured TCP session	
Write command Syntax **AT+KTCPDEL=** **<session_id>**	Response **OK** **+CME ERROR: <err>** **+KTCP_NOTIF: <session_id>, <tcp_notif>** Parameters **<session_id>:** Index of the TCP session. **<tcp_notif>:** See command AT+KTCPCNX
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The session must be closed (KTCPCLOSE) before use of this command.

13.4.7. +KTCP_SRVREQ: Incoming client's connection request

+KTCP_SRVREQ: Incoming client's connection request	
Unsolicited notification	Response **+KTCP_SRVREQ: <session_id>, <subsession_id>** Parameters **<session_id>:** Index of the TCP session. **<subsession_id>:** Index of the newly created TCP session.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This notification is sent when a client requests a connection to the server. The connection is automatically accepted. • The created session is driven as any other TCP session with its own session ID. Use KTCPSND, KTCPRCV, KTCPCLOSE, etc to provide the service associated to this TCP server. • The TCP server corresponding to the session ID is still able to receive connection requests from other clients. These requests are notified with KTCP_SRVREQ.

13.4.8. +KTCP_DATA: Incoming data through a TCP Connection

+KTCP_DATA: Incoming data through a TCP Connection	
Unsolicited notification	Response **+KTCP_DATA: <session_id>,<ndata available>** Parameters **<session_id>:** Index of the TCP session. **<ndata available>:** Maximum number of bytes to be read
Reference SAGEM COMMUNICATIONS Proprietary	Notes • As soon as the connection is established, the module can receive data through the TCP socket. This notification is sent when data are available in the receive buffer. • This notification is sent for each TCP packet received.

13.4.9. +KURCCFG: Enable or disable the URC from TCP commands

AT+KURCCFG: Enable or disable the URC from TCP commands	
Test command Syntax **AT+KURCCFG=?**	 Response **+KURCCFG: (list of supported <protocol>),(list of supported <active>)** **OK**
Read command Syntax **AT+KURCCFG?**	 Response **+KURCCFG: list of supported (<protocol>,<active>)** **OK**
Write command Syntax **AT+KURCCFG=<protocol>,<active>**	 Response **OK** Parameters **<protocol>:** "TCP" only **<active>:** 1 enable URC , 0 disable URC
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Enable/Disable +KTCP_NOTIF unsolicited messages, this is useful to use only a polling mode with +KTCPSTAT • If "disable" : URC are discarded and not stored • Can be used in 07.10 multiplexer Example : To disable URC: AT+KURCCFG="TCP",0 OK Test and read command: AT+KURCCFG=? +KURCCFG: ("TCP"),(0,1) OK AT+KURCCFG? +KURCCFG: ("TCP",0) OK

13.4.10. +KTCPSTAT: Get TCP socket status

AT+KTCPSTAT: Get TCP socket status	
Test command Syntax **AT+KTCPSTAT=?**	 Response **OK**
Read command Syntax **AT+KTCPSTAT?**	 Response **OK**
Write command Syntax **AT+KTCPSTAT=<session_id>**	 Response **+KTCPSTAT : <status>,<tcp_notif>,<rem_data>,<rcv_data>** **OK** Parameters **<session_id> :** Index of the TCP session. **<status> :** value to indicate TCP socket state : 0 socket not defined, use KTCPCFG to create a TCP socket 1 socket is only defined but not used 2 socket is opening and connecting to the server, can not be used 3 connection is up, socket can be used to send/receive data 4 connection is closing, it can not be used, wait for status 5 5 socket is closed **<tcp_notif> :** -1 if socket/connection is OK , <tcp_notif> if an error has happened **<rem_data> :** remaining bytes in the socket buffer, waiting to be sent **<rcv_data> :** received bytes, can be read with +KTCPRCV command
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Size of socket's buffer is 1460 BYTES

13.4.11. +KTCPSTART: Start a TCP connection in direct data flow

AT+KTCPSTART: Start a TCP connection in direct data flow	
Test command Syntax **AT+KTCPSTART=?**	 Response **OK**
Read command Syntax **AT+KTCPSTART?**	 Response **OK**
Write command Syntax **AT+KTCPSTART=<session_id>**	 Response **CONNECT** **OK** **+CME ERROR : an error occurs, syntax error** **+KTCP_NOTIF: <session_id>,<tcp_notif> : an error occurs** Parameters **<session_id>:** Index of the TCP session. **<tcp_notif>:** See command AT+KTCPCNX
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This function is used to send and receive data bytes through a TCP socket. • Before using this command, it is highly recommended to configure the module for Hardware flow control, using the command **AT&K3**. • The behaviour of DTR drop meets with **AT&D.** • **+++** can be used to switch in command mode • **ATO<session_id>** can be used to switch back in data mode • Only 1 KTCPSTART session can be used • Can be used in 07.10 multiplexer

13.5. FTP Client Specific Commands

13.5.1. +KFTPCFG: FTP Configuration

AT+KFTPCFG: FTP Configuration	
Read command Syntax **AT+KFTPCFG?**	Response **+KFTPCFG: <cnx cnf>,<server_name>,<login>,<password>,<port_number>,<mode>**
Write command Syntax **AT+KFTPCFG=[<cnx cnf >],<server_name> [,<login>[, <password>[,<port_number > [,<mode>]]]]**	Response **+KFTPCFG:<session_id>** **OK** Parameters **<cnx cnf>:** Index of a set of GPRS parameters for establishing one FTP session(see KCNXCFG). **<session_id>:** Index of the FTP session. **<server_name>:** string type. Consists of a dot-separater numeric (0-255) parameters on the form a1.a2.a3.a4, to identify the ftp server or domain name of the server. **<login>:** string type, indicates the user name to be used during the FTP connection. **<password>:** string type, indicates the password to be used during the FTP connection. **<port_number>:** numeric parameter (0-65535). Indicates the remote command port (21 by default) **<mode>:** numeric number. Indicates the initiator of the FTP connection. 0 – actif. The server is initiator of the FTP data connection 1 – passif. The client is initiator of the FTP data connection in order to avoid the proxy filtrate. The passive data transfert process “listens” on the data port for a connection from the active transfert process in order to open the data connection. *Note that only passive mode is currently supported, active mode is internally switched to passive.*
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Execution command sets the server name, the login, the password, the port number and the mode for ftp operations. • Only one ftp session is currently supported, <session_id> is always 0. Example : AT+KFTPCFG=0,"ftp.connect.com","username","password",21,0

13.5.2. +KFTPRCV: Downloading FTP files

AT+KFTPRCV: Downloading FTP files	
Write command Syntax **AT+KFTPRCV=<session_id>,[<local_uri>,][<server_path>,]<file_name>[,<type_of_file>]**	Response **CONNECT** **<EOF_pattern>** | **OK** **OK** **+CME ERROR<err>** | **+KFTP_RCV_DONE: <session_id>** **NO CARRIER** **+KFTP_ERROR :<session_id>, <ftp cause>** Parameters **<session_id>:** Index of the FTP session. **<local_uri>:** String type. Indicates the URI of the destination file. An empty string or no string indicates that the data will be transmitted to the serial link in data mode - CONNECT/OK. If this string is present, the file will be silently downloaded to this destination, as the download is finish the module notifies the user - +KFTP_RCV_DONE. **<server_path>:** string type. Indicates the path of the file to be downloaded. An empty string or no string indicates the downloading is done from the path given by the <server_name> parameter. **<file_name>:** string type. Indicates the name of the file to download. **<type_of_file>:** Numeric type. Indicates the type of file (ASCII or binary) to transfer. 0 – binary, (default value) 1 – ASCII. **<EOF_pattern>:** End of file notification. See +KPATTERN for value. **<ftp_cause> :** Integer type. Indicates the cause of the FTP connection failure. 0- the sending or the retrieving was impossible due to request timeout. 1- it is impossible to connect to the server due to DNS resolution failure. 2- it is impossible to download a file due to connection troubles. 3- the download was impossible due to connection timeout 4- no network available. 5- flash access trouble. 6- flash memory full. XXX- three digits, reply codes from FTP server. See Appendix A2.4 FTP Reply Codes

Reference	Notes
SAGEM COMMUNICATIONS Proprietary	• Before using this command an FTP connection must have been achieved using AT+KFTPCFG • The only valid <local_uri> is “/filename” • After sending the +KFTPRCV command, the user will receive the entire data stream • The user can abort the downloading by sending any character from the host. In this case, the module will end the transfer by transmitting the EOF followed by ERROR • If set AT&D2, the user can terminate the downloading by turn DTR off, the module will return as follows: **EOF pattern string** **NO CARRIER** • AT&D1 is not available for this command • +++ is not available for this command • If set AT&C1, DCD will be ON after CONNECT, and DCD will be OFF after download done.

sagemcommunications

13.5.3. +KFTPSND: Uploading FTP files

AT+KFTPSND: Uploading FTP files	
Write command Syntax **AT+KFTPSND=<session_id>,[<local_uri>,][<server_path>,]<file_name>[, <type of file>]**	Response **CONNECT** *data …* | **OK** *<EOF pattern>* **OK** | **+KFTP_SND_DONE: <session_id>** **+CME ERROR <err>** **NO CARRIER** **+KFTP_ERROR : <session_id>,<ftp cause>** Parameters **<session_id>:** Index of the FTP session. **<local_uri>:** String type. Indicates the URI of the file to upload. An empty string or no string indicates that the data will be transmitted to the serial link in data mode - CONNECT/OK. If this string is present, the file will be silently uploaded to this destination, as the upload is finish the module notifies the user - +KFTP_SND_DONE. **<server_path>:** string type. Indicates the path of the file to be uploaded. An empty string or no string indicates the uploading is done from the path given by the **<server_name>** parameter. **<file_name>:** string type. Indicates the name of the file to upload. **<type of file>:** Numeric type. Indicates the type of file (ASCII or binary) to transfer. 0 – binary, (default value) 1 – ASCII. **<EOF pattern>:** End of file notification. See KPATTERN for value. **<ftp_cause> :** Integer type. Indicates the cause of the FTP connection failure. 0- the sending or the retrieving was impossible due to request timeout. 1- it is impossible to connect to the server due to DNS resolution failure. 2- it is impossible to upload a file due to connection troubles. 3- the upload was impossible due to connection timeout 4- no network available. 5- flash access trouble. XXX - three digits, reply codes from FTP server. See Appendix A2.4 FTP Reply Codes

Reference	Notes
SAGEM COMMUNICATIONS Proprietary	• Before using this command an FTP connection must have been achieved using AT+KFTPCFG • The only valid <local_uri> is "/filename" • After sending the +KFTPSND command, the host must send the entire data stream of the file. • The user can abort the uploading by sending the EOF pattern string. • If set AT&D2, the user can terminate the uploading by turn DTR off, the module will return as follows: **NO CARRIER** • AT&D1 is not available for this command. • +++ is not available for this command. • If set AT&C1, DCD will be ON after CONNECT, and it will be OFF after upload done.

13.5.4. +KFTPDEL: Deleting FTP files

AT+KFTPDEL: Deleting FTP files	
Write command Syntax **AT+KFTPDEL=<session_id>,[<server_path>,]<file_name>[, <type>]**	Response **OK** **+CME ERROR <err>** **NO CARRIER** **+KFTP_ERROR : <session_id>,<ftp cause>** Parameters **<session_id>:** Index of the FTP session. **<server_path>:** string type. Indicates the path of the file to be deleted. An empty string or no string indicates the deleting is done from the path given by the <server_name> parameter. **<file_name>:** string type. Indicates the name of the file to delete. **<type>:** Numeric type. Indicates the type of file (ASCII or binary) to transfer. 0 – binary, (default value) 1 – ASCII. **<ftp_cause> :** Integer type. Indicates the cause of the FTP connection failure. 0- the sending or the retrieving was impossible due to request timeout. 1- it is impossible to connect to the server due to DNS resolution failure. 2- it is impossible to delete a file due to connection troubles. 3- the deleting was impossible due to connection timeout 4- no network available. xxx- three digits, reply codes from FTP server. See Appendix A2.4 FTP Reply Codes
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Before using this command an FTP connection must have been achieved using AT+KFTPCFG

13.5.5. +KFTPCLOSE: Ending current FTP connection

AT+KFTPCLOSE: Ending current FTP connection	
Write command Syntax **AT+KFTPCLOSE= <session_id>**	Response **OK** Parameters **<session_id>:** Index of the FTP session.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command will close the connection to the FTP server

13.6. FTP Server Specific Commands

13.6.1. +KFTPDCFG: FTP Server Configuration

AT+KFTPDCFG: FTP Server Configuration	
Read command Syntax **AT+KFTPDCFG?**	Response **+KFTPDCFG: <cnx cnf>,<mode>,<root fs>,<password>,<port number>** **OK**
Write command Syntax **AT+KFTPDCFG=[<cnx cnf>,]<mode>,<root fs>,<password>[,<port number>]**	Response **OK** Parameters **<cnx cnf>:** Index of a set of GPRS parameters for establishing one FTP session. **<root fs>:** Root directory of the assigned to the FTP server. **<password>:** String type, indicates the password to be used during the FTP connection. **<port number>:** numeric parameter (0-65535). Indicates the remote command port (21 by default) **<mode>:** numeric number. Indicates the initiator of the FTP connection. 0 – active. The server is initiator of the FTP data connection 1 – passive. The client is initiator of the FTP data connection in order to avoid the proxy filtrate. The passive data transfer process "listens" on the data port for a connection from the active transfer process in order to open the data connection. *Note that only passive mode is currently supported, active mode is internally switched to passive.*
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Execution command configures the server. See KFTPDRUN for server activation. • Only one ftp server session is currently supported. • The only valid <root fs> is "/ftp".

13.6.2. +KFTPDSTAT: FTP Server Status

AT+KFTPDSTAT: FTP Server Status	
Read command Syntax **AT+KFTPDSTAT?**	Response **+KFTPDSTAT: <state>,<nb_users>,<notif>** **OK** Parameters **<state>:** Status of the server 0 – Deactivated. The FTP service is not available. 1 – Activated. The FTP service is ready. **<nb_users>:** Number of users currently connected. **<notif>:** Activation of unsolicited notification KFTPD_NOTIF 0 – disable. Event of the server are not sent to V24. 1 – Enable. Event of the server are sent to V24 with KFTPD_NOTIF.
Write command Syntax **AT+KFTPDSTAT=<notif>**	Response **OK** Parameters **<notif>:** Activation of unsolicited notification KFTPD_NOTIF 0 – disable. Event of the server are not sent to V24. 1 – Enable. Event of the server are sent to V24 with KFTPD_NOTIF.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Execution command configures the server. See KFTPDRUN for server activation. • Only one ftp user is currently supported, <nb_users> is always 0.

13.6.3. +KFTPDRUN: Run FTP server

AT+KFTPDRUN: Run FTP server	
Write command Syntax **AT+KFTPDRUN=<notif>**	Response **+KFTPDRUN:<server ip>** **OK** **+CME ERROR <err>** **NO CARRIER** **+KFTPD_ERROR : <ftpd cause>** Parameters **<server ip>:** IP address of the ftp server. **<notif>:** Activation of unsolicited notification KFTPD_NOTIF 0 – disable. Event of the server are not sent to V24. 1 – Enable. Event of the server are sent to V24 with KFTPD_NOTIF. **<ftpd_cause>:** Integer type. Indicates the cause of the FTP connection failure. 0- Not enough resource available 1- No network available.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • When the command returns OK, the server is activated and ready for FTP clients. Status of the server can be monitored with KFTPDSTAT

13.6.4. +KFTPD_NOTIF: Server's Event Notification

+KFTPD_NOTIF: Server's Event Notification	
Unsolicited notification	Response **+KFTPD_NOTIF: <event>, <client ip>[,<uri>]** Parameters **<event>:** 0 – Incoming connection from client *<ip>.* 1 – The client *<ip>* is uploading the file *<uri>.* 2 – The client *<ip>* is downloading the file *<uri>.* 3 – The client *<ip>* is deleting the file *<uri>.* 4 – Disconnection from client *<ip>.* **<ip>:** IP address of the client that is responsible of the event. **<uri>:** File concerned by the event (Only notification 1-3)
Reference SAGEM COMMUNICATIONS Proprietary	Notes • These notifications can be disabled, the server still runs in silent mode.

13.6.5. +KFTPDKICK: Kick user from FTP server

AT+KFTPDKICK: Kick user from FTP server	
Write command Syntax **AT+KFTPDKICK=<ip>**	Response **OK** Parameters **<ip>:** IP address of the client to disconnect
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The client is only kicked from the server, not banned. He will be able to request another connection to the server. A blacklist of users and IP address could be added in a future evolution.

13.6.6. +KFTPDCLOSE: Close FTP Server

AT+KFTPDCLOSE Close FTP server	
Write command Syntax **AT+KFTPDCLOSE**	 Response **OK**
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command will close the FTP server

13.7. UDP Specific Commands

13.7.1. +KUDPCFG: UDP Connection Configuration

AT+KUDPCFG: UDP Connection Configuration	
Read command Syntax **AT+KUDPCFG?**	 Response **+KUDPCFG: <session_id>,<cnx cnf>,<mode>,<port>[<CR><LF>** **+KUDPCFG: <session_id>,<cnx cnf>,<mode>,<port>[…]]** **OK**
Write command Syntax **AT+KUDPCFG=** **[<cnx cnf>],<mode>[,<port>]**	 Response **+KUDPCFG: <session_id>** **OK** Error case **NO CARRIER** **+CME ERROR: <err>** **+KUDP_NOTIF: <session_id>, <udp_notif>** Parameter **<session_id>:** Index of the UDP session. **<mode>:** 0: Client 1: Server **<port>:** Numeric parameter (0-65535). **<cnx cnf>:** Index of a set of parameters for configuring one UDP session (see KCNXCFG). If no value is supplied to the command line, the default connection profile is used. **<udp_notif>:** Integer type. Indicates the cause of the UDP connection failure. 0-Network error 1-no more sockets available; max number already reached 2-Memory problem 3-DNS error 5-UDP connection error(Host unreachable) 6-generic error 8-Data sending is OK but KUDPSND was waiting more or less characters 9-Bad session ID
Reference SAGEM COMMUNICATIONS Proprietary	Notes • For UDP socket in server mode, it is binded to a defined port number, incoming connection are notified by KUDP_DATA. • Maximum **<session_id>** is 200

13.7.2. +KUDPCLOSE: Closing current UDP operation

AT+KUDPCLOSE Closing current UDP operation	
Action command Syntax **AT+KUDPCLOSE= <session_id>**	 Response **OK** **+KUDP_NOTIF: <session_id>, <udp_notif>** Parameters **<session_id>:** Index of the UDP session. **<udp_notif>:** See command AT+KUDPCFG
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This function closes the UDP socket and the network session (if there is no other session running). • This function will delete the UDP configuration also.

13.7.3. +KUDPSND: Sending data through an UDP Connection

AT+KUDPSND: Sending data through an UDP connection	
Write command Syntax **AT+KUDPSND=<session id>,<udp remote address>,<udp_port>,<ndata>**	Response **CONNECT** **OK** Error case **NO CARRIER** **+CME ERROR: <err>** **+KUDP_NOTIF: <session_id>,< udp_notif>** Parameters **<session_id>:** Index of the UDP session. **<udp remote address>:** dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4 or explicit name of the remote server **<udp_port>:** numeric parameter (0-65535) **<ndata>:** number of bytes (max value 4294967295). In fact, only 1472 bytes can be sent successfully at one time. **<udp_notif>:** See command AT+KUDPCFG
Reference SAGEM COMMUNICATIONS Proprietary	Notes • User must use **<EOF pattern>** to finish sending, then module returns to command mode. • All the data will be sent out ignoring **<ndata>**. If data sent is not equal to **<ndata>** then **KUDP_NOTIF** would appear. • **<ndata>** is the data size without **<EOF pattern>** • Before using this command, it is highly recommended to configure the module for Hardware flow control, using the command **AT&K3** • The behaviour of DTR drop meet with **AT&D** • Using "+++" can abort sending data and using **ATO[n]** to return back to data mode. •

13.7.4. +KUDPRCV: Receiving data through an UDP Connection

AT+KUDPRCV: receiving data through an UDP connection	
Write command Syntax **AT+KUDPRCV= <session_id>,<ndata>**	Response **CONNECT** **…<EOF pattern>** **OK** **+KUDPRCV: <udp remote address>,<udp remote port>** Error case **NO CARRIER** **+CME ERROR: <err>** **+KUDP_NOTIF: <session_id>, <udp_notif>** **+KUDP_DATA_MISSED: <session_id>, <ndata missed>** Parameters **<session_id>:** Index of the UDP session. **<ndata>:** Number of bytes the device wants to receive(max value 4294967295) **<udp remote address>:** Dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4 **<udp remote port>:** Numeric parameter (0-65535) **<udp_notif>:** See command AT+KUDPCFG **<ndata missed>:** Number of bytes left (and definitely lost!) in the UDP socket.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This function is used to receive <**ndata**> data bytes through a previously opened UDP socket. • <**ndata**> indicates the max data number that the terminal wishes to receive. If the UDP socket contains more data than <**ndata**> bytes then only <**ndata**> bytes will be received. • **<EOF pattern>** would be added at the end of data automatically • When <**ndata**> (max value) bytes or only available data in the UDP socket have been received, the module returns to command mode. • Before using this command, it is highly recommended to configure the module for Hardware flow control, using the command **AT&K3**. • The behaviour of DTR drop meet with **AT&D**

13.7.5. +KUDP_DATA: Incoming data through a UDP Connection

+KUDP_DATA : Incoming data through a UDP Connection	
Unsolicited notification	Response **+KUDP_DATA: <session_id>,<ndata available>** Parameters **<session_id>:** Index of the UDP session. **<ndata available>:** Number of bytes to be read
Reference SAGEM COMMUNICATIONS Proprietary	Notes • As soon as the UDP socket is created, the module can receive data through this socket. This notification is sent when data are available in the receive buffer. • This notification will be sent one time. The controlling software must read the buffer with KUDPRCV in order to activate the notification again.

13.8. SMTP Specific Commands

13.8.1. +KSMTPPARAM: Connection Configuration

AT+KSMTPPARAM: Connection Configuration	
Test command Syntax **AT+KSMTPPARAM=?**	 Response **+KSMTPPARAM: <server>, <port>, <sender>** **OK**
Read command Syntax **AT+KSMTPPARAM?**	 Response **+KSMTPPARAM: <server>, <port>, <sender>** **OK**
Write command Syntax **AT+KSMTPPARAM= <server>,<port>,<sender>**	 Response **OK** Parameters **<server>:** String type(max size 255 bytes). Indicates the basic name of the SMTP server. This name must either integrate SMTP URL schemes separate from the server name by "." or an IPV4 address. e.g: smtp.sagem.com or 80.156.25.12 **<port>:** Numeric type[0-65535]. Indicates the SMTP server port. **<sender>:** String type(max size 255 bytes). Indicates sender's mail address. e.g: mo200_xxx@sagem.com
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Usual SMTP default port is 25. • Between two emails sending, the <server > and <sender> fields are kept on inside the ME, therefore if the same identifier accesses the same SMTP server, those parameters do not need to be reloaded.

13.8.2. +KSMTPPWD: Authentication Configuration

AT+KSMTPPWD: Authentication Configuration	
Test command Syntax **AT+KSMTPPWD=?**	 Response **+KSMTPPWD: <login>, <password>** **OK**
Read command Syntax **AT+KSMTPPWD?**	 Response **+KSMTPPWD: <login>, <password>** **OK**
Write command Syntax **AT+KSMTPPWD=** **<login>, <password>**	 Response **OK** Parameters **<login>:** String type(max size 24 bytes). Indicates the user name to be used during the SMTP connection**.** **<password>:** String type(max size 24 bytes). Indicates the password to be used during the SMTP connection.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • If the dedicated SMTP server does not need authentication, <login> and <password> can be left empty. • The SMTP client only supports LOGIN authentication. • Between two emails sending, the <login> and <password> fields are kept on inside the ME, therefore if the same identifier accesses the same SMTP server, those parameters do not need to be reloaded

13.8.3. +KSMTPTO: Receivers Configuration

AT+KSMTPTO: Receivers Configuration	
Test command Syntax **AT+KSMTPTO=?**	 Response **+KSMTPTO: <to1> [, <to2> [, <cc1> [, cc2>]]]** **OK**
Read command Syntax **AT+KSMTPTO?**	 Response **+KSMTPTO: <to1> [, <to2> [, <cc1> [, cc2>]]]** **OK**
Write command Syntax **AT+KSMTPTO = <to1>[,<to2>[,<cc1>[,<cc2>]]]**	 Response **OK** Parameters **<to1>:** String type. Indicates the name of the first receiver of the mail. **<to2>:** String type. Indicates the name of the second receiver of the mail. **<cc1>:** String type. Indicates the name of the first copy receiver of the mail. **<cc2>:** String type. Indicates the name of the second copy receiver of the mail.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • <to1>, <to2>, <cc1>, <cc2> strings max length 255. • These fields are deleted after each successful mail sent.

13.8.4. +KSMTPSUBJECT: Subject Configuration

AT+KSMTPSUBJECT: Authentication Configuration	
Test command Syntax **AT+KSMTPSUBJECT=?**	 Response **+KSMTPSUBJECT: <subject>** **OK**
Read command Syntax **AT+KSMTPSUBJECT?**	 Response **+KSMTPSUBJECT: <subject>** **OK**
Write command Syntax **AT+KSMTPSUBJECT= <subject>**	 Response **OK** Parameters **<subject>:** String type(max size 255 bytes). Indicates the subject of the mail. Must use US-ASCII charset
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This field is deleted after each successful mail sent. • Must use US-ASCII charset. •

13.8.5. +KSMTPUL: Send Message

AT+KSMTPUL: Send Message	
Test command Syntax **AT+KSMTPUL=?**	 Response **+KSMTPUL: <mode>, <size>** **OK**
Write command Syntax **AT+KSMTPUL=<mode>, <size>**	 Response **+KSMTPUL: <session_id>** **CONNECT** The ME wait for the data to be sent **OK** **+CME ERROR: <err>** **NO CARRIER** Parameters **<mode>:** Numeric type. Indicates the transfer mode (header closed or not): **1-** Normal mode. The mail header is minimal, the user only send the mail body. This is use for simple mails without attachment. **0-** Complex mode. The mail header minimal part is still handled by the AT command but the header is not closed. The user is responsible for completing and closing the mail header. This is use for mails with attachment or complex headers. (cf. examples) **<size>:** Numeric type. Amount of data transferred within the CONNECT **<err>:** See 2.7 Error codes for the SMTP transfer. **<session_id>:** Indicate the session id of current SMTP connection.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • If the GSM or GPRS connection is not up, before uploading the file the ME will automatically open the predefined GSM or GPRS link. • At the end of the SMTP transfer, whether it succeeds, the parameters associated with the current mail (recipients, subjects) will be set to the NULL value. • Hardware flow control(AT&K3) is required for serial link • User can use **<EOF pattern>** to stop transfer.See AT+KPATTERN. • The behaviour of DTR drop meet with AT&D • Using “+++” can abort sending data and using ATO[n] to return back

13.8.6. +KSMTPCLEAR: Clear Parameters

AT+KSMTPCLEAR: Clearing Parameters	
Action command Syntax **AT+KSMTPCLEAR**	 Response **OK**
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command deletes all SMTP parameters.

sagemcommunications

13.8.7. Specific Error Code For The SMTP Commands

Code of <err>	Meaning
3000	Invalid SMTP server name.
3001	Invalid address identification.
3002	Invalid configuration. Parameter(s) is missing.
3003	Invalid data size - with KSMTPUL.
3004	SMTP session ID is not available.
3010	The login or the password got an invalid value.
3011	Invalid authentication method.
3012	Invalid mail sender
3020	Invalid receivers of the mail TO1.
3021	Invalid receivers of the mail TO2.
3022	Invalid receivers of the mail CC1.
3023	Invalid receivers of the mail CC2.
3040	The SMTP transfer failed due to connection (GSM or GPRS) fails.
3041	The SMTP transfer failed due to TCP connection troubles.
3042	The SMTP transfer failed due to server TCP connection error.
3043	The SMTP download failed due to Request time out.
3044	The SMTP transfer failed due to SMTP protocol error.
3045	The SMTP transfer failed due to DTR drop.
3049	The SMTP transfer download failed due to internal error.
3050	The SMTP transfer failed due to SMTP server trouble
3051	The SMTP transfer failed due to internal memory not available
3052	SMTP connection time out
3053	SMTP Raw Data upload to Module time out
3054	DNS Server address error or failed to resolve the host address
3055	SMTP client need Hardware flow control

13.9. POP3 Specific Commands

13.9.1. +KPOPCNX: Connection Configuration

AT+KPOPCNX: Connection Configuration	
Test command Syntax **AT+KPOPCNX=?**	 Response **+KPOPCNX: <server>, <port>, <login>, <password>** **OK**
Read command Syntax **AT+KPOPCNX?**	 Response **+KPOPCNX: <server>, <port>, <login>, <password>** **OK**
Write command Syntax **AT+KPOPCNX=** **<server>,<port>,<login>,** **<password>**	 Response **+KPOPCNX: <session_id>** **OK** Parameters **<server>:** String type(max size 255 bytes). Indicates the basic name of the POP3 server. This name must either integrate POP3 URL schemes separate from the server name by "." or an IPV4 address. e.g: pop.sagem.com or 80.156.25.12 **<port>:** Numeric type(0-65535). Indicates the POP3 server port. **<login>:** String type(max size 24 bytes). Indicates the user name to be used during the POP3 connection. **<password>:** String type(max size 24 bytes). Indicates the password to be used during the POP3 connection. **<session_id>:** Indicate the session id of current POP3 connection.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Usual POP3 default port is 110. • Once the command returns OK, the module is connected to the POP3 server. • This connection will be maintained until the KPOPQUIT command is sent or the POP3 server closes the communication (Inactivity time out).

13.9.2. +KPOPLIST: List Available Mail

AT+KPOPLIST: List Available Mail	
Read command Syntax **AT+KPOPLIST?**	 Response **+KPOPLIST: <*N*> messages (<*size*> octets)** **OK**
Action command Syntax **AT+KPOPLIST**	 Response **+KPOPLIST: <*N*> messages (<*size*> octets)** **+KPOPLIST: <*n1*>,<*size1*>[<CR><LF>** **+KPOPLIST: <*n2*>,<*size2*>[…]]** **OK** Parameters **<N>:** Numeric type. Indicates the number of available messages. **<size>:** Numeric type. Indicates the total size of the messages. **<n#>:** Numeric type. Indicates the index of the message. **<size#>:** Numeric type. Indicates the size in octet of the message #.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command lists available mail in the POP3 server

13.9.3. +KPOPREAD: Download A Mail

AT+KPOPREAD: Download a Mail	
Test command Syntax **AT+KPOPREAD=?**	 Response **+KPOPREAD: <index>** **OK**
Write command Syntax **AT+KPOPREAD=<index>**	 Response **CONNECT** Dataflow with **<EOF pattern>** at the end **OK** **+CME ERROR: <err>** **NO CARRIER** Parameters **<index>:** Numeric type. Indicates the index of the mail to read. **<EOF pattern>:** Set AT+KPATTERN
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Whether the asked mail ID is wrong the command returns the associated error code nonetheless the connection with the server is maintained. • Whether an error is detected during the mail transfer, the connection with the server is closed. • Hardware flow control(AT&K3) is required for serial link • The behaviour of DTR drop meet with AT&D • Using "+++" can abort sending data and using ATO[n] to return back

13.9.4. +KPOPDEL: Delete A Mail

AT+KPOPDEL: Delete a Mail	
Test command Syntax **AT+KPOPDEL=?**	 Response **+KPOPDEL: <index>** **OK**
Write command Syntax **AT+KPOPDEL=<index>**	 Response **OK** Parameters **<index>:** Numeric type. Indicates the index of the mail to delete.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • Whether the asked mail ID is wrong the command returns the associated error code nonetheless the connection with the server is maintained. • The mail actually deleted by the server after the KPOPQUIT command.

13.9.5. +KPOPQUIT: Close Connection

AT+KPOPQUIT: Close Connection	
Action command Syntax **AT+KPOPQUIT**	Response **OK**
Reference SAGEM COMMUNICATIONS Proprietary	Notes • This command closes the connection.

13.9.6. Specific Error Code For POP3 Commands

As an error can occur while there is no command in progress, an unsolicited notification is sent:

+KPOPNOTIF: <err>

For solicited and unsolicited notifications, error codes will have the following meanings:

Code of <err>	Meaning
3100	Invalid POP server name.
3101	Not connected to the server.
3104	POP session ID is not available.
3110	The login or the password got an invalid value or the server is busy.
3111	Invalid mail index.
3140	The POP transfer failed due to connection (GSM or GPRS) fails.
3141	The POP transfer failed due to TCP connection troubles.
3142	The TCP connection timeout.
3143	The POP download failed due to Request time out.
3145	The POP transfer failed due to DTR drop
3149	The POP transfer download failed due to internal error.
3150	The POP transfer failed due to POP server trouble
3151	DNS Server address error or failed to resolve the host address

14. SPECIFIC FLASH COMMANDS

14.1. +KFSFILE: Flash file operation command

AT+KFSFILE: File operation command	
Test command Syntax **AT+KFSFILE =?**	 Response **+KFSFILE: (0,1,2,3,4),(URI),(SIZE)** **OK**
Write command Syntax **AT+KFSFILE=<action>,<uri>[,<NbData>]**	 Response: **CONNECT** **OK** **+KFSFILE: <entity type> <name> <size>** **+KFSFILE: <size> bytes free** Parameters **<action>:** 0 Write file 1 Read file 2 Delete file 3 Return file size 4 List directory and file information **<uri>:** "/<directory name>/<file name>" (warning: the "/" is important) **<NbData>:** Number of bytes to read/write (mandatory for both reading and writing) **<entity type>:** F File D Directory **<name>:** File name or directory name **<size>:** File size or free size of the directory.
Reference SAGEM COMMUNICATIONS Proprietary	Notes • The minimum reserved memory is 100 KBytes; Maximum quota is 1MBytes • The user can abort read/write operation by DTR or +++ • Currently user can only use <**data**> and <**ftp**>, two directories. • CME error 20 will be reported, if memory is full when writing. • Example**:** on next page.

Example	• To add a file: **AT+KFSFILE=0,"/data/dummyfile.bin",1024** **CONNECT** The module is ready to receive the file. Once received, the answer is: **OK** • To read the newly added file: **AT+KFSFILE=1,"/data/dummyfile.bin",1024** **CONNECT** <lists file content…> **OK** • To delete the file: **AT+KFSFILE=2,"/data/dummyfile.bin"** **OK** • To list the size of the file: **AT+KFSFILE=3,"/data/dummyfile.bin"** **+KFSFILE: 1024** **OK** • To list the information of directory and file: **AT+KFSFILE=4,"/data/ "** **+KFSFILE: <F> dummyfile.bin 1024** **+KFSFILE: 1048004 bytes free** **OK** • To list the information of root directory: **AT+KFSFILE=4,"/"** **+KFSFILE: <D> ftp 0** **+KFSFILE: <D> data 1024** **+KFSFILE: 1048004 bytes free** **OK**

15. MMS COMMANDS

15.1. Command set overview

The MMS commands are a set of dedicated commands to exchange object between a TE and a ME.

AT+KMMCNF	MMS Configuration
AT+KPSL	List of objects
AT+KPSR	Reading an object
AT+KPSW	Writing an object
AT+KPSD	Deleting an object
AT+KPSSEND	Send MMS
AT+KPSCAP	Retrieving Capabilities of the mobile
AT+KMMRET	Retrieve MMS from MMS server

+KMMA	Notification : New MMS available on MMS Center
+KMMREC	Notification : retrieve of MMS from MMSC (to ME)

15.2. Automatic retrieval

By default, each time a new MMS is present on the MMSC, a notification is sent to the modem, that sent itself a notification +KMMA to the TE.

Then, the modem retrieves automatically the new MMS : the MMS is got from the MMSC to the ME. When the retrieval is done, the ME send a notification +KMMREC to the TE.

15.3. Examples

The procedure to configure the modem for MMS use is :

- AT+KMMCNF to configure the modem
- AT+KPSCAP to get the MMS capabilities of the modem

The procedure to send a MMS is :

- AT+KPSW=? to check the space available for a new MMS
- AT+KPSW to write a MMS onto the mobile
- AT+KPSSEND to send this MMS on the network
- AT+KPSD to delete this MMS

Typical reception of MMS :

- +KMMA : notification of new MMS on the MMSC
- +KMMREC : notification of MMS retrieval
- AT+KPSR to read this MMS
- AT+KPSD to delete this objects

The procedure to manage MMS in the modem is :

- AT+KPSL to get the list of object in all locations
- AT+KPSD to delete objects

When automatic retrieval does not work or is not required, the procedure to get a MMS from the MMS Center is :

- AT+KMMRET to get the MMS
- AT+KPSR to read one MMS
- AT+KPSD to delete this MMS

15.4. MMS PDU

MMS are manipulated under a PDU (Protocol Data Unit) format. This format defined in the GSM standard is used to exchange the MMS on the network.

15.5. Parameter <index>

The parameter <index> is defined as a string type; 10-bytes type values, Unique ID from which ME identifies the MMS.

For instance, the 10 following bytes, given in hexadecimal notation 11 22 33 44 55 66 77 88 99 AA represent the index 112233445566778899AA in hexadecimal notation.

Just notice that these 10 bytes may contain bytes that cannot be displayed (code hexadecimal from 00 to 1F), and in these codes stands the NULL character (code 0x00).

sagemcommunications

15.6. +KMMCNF Command: MMS Configuration

AT+KMMCNF: MMS Configuration	
Test command Syntax **AT+KMMCNF=?**	 Response **+KMMCNF:** (list of supported **<mode>**s),(list of supported **<unsolicited messages states>**s),(list of supported **<port type>**s),(list of supported **<numbering mode>**s)
Read command Syntax **AT+KMMCNF?**	 Response **+KMMCNF: 0,<unsolicited messages state>** **+KMMCNF: 1,< url server>** **+KMMCNF: 3,<apn>,<login>,<password>,<IP address>,<port type>** **+KMMCNF: 4, <connection type>**
Write command Syntax **AT+KMMCNF =** **0,< unsolicited messages state >** **AT+KMMCNF =1,< url server >** **AT+KMMCNF =3,< apn>, <login>, <password>,<IP address>,<port type>** **AT+KMMCNF =4,< connection type >**	 Response **OK** Parameters **< unsolicited messages state >:** 0 unsolicited messages deactivate 1 unsolicited messages activate **< url server >:** string type ; the url server of MMSC **< login>:** string type ; the user name of the GPRS connection **<password>:** string type ; password of the GPRS connection **<IP address>:** Consists of dot-separated numeric (0-255) parameters on the form a1.a2.a3.a4, indicates the IP address of the operator's proxy. **<port type>:** type of port of the GPRS connection : 0 unsecured 1 secured **<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 **< connection type >:** 1 GPRS
Reference SAGEM S.A. Proprietary	Notes Only GPRS bearer is supported.

sagemcommunications

15.7. +KPSL Command: List of Objects

AT+KPSL: List of Objects	
Test command Syntax **AT+KPSL =?**	 Response **+KPSL: (**list of supported **<category>**s or not)
Read command Syntax **AT+KPSL?**	 Response **OK**
Write command Syntax **AT+KPSL=** **<category>,[<mode>]**	 Response If <mode> = 0 or omitted : **[+KPSL: <index1>,<hidden>]** **…** **[+KPSL: <indexn>,<hidden>]** If <mode> = 1 : **[+KPSL:<index1>,<hidden>,<obj_size>,<category>,<content>,<location>,[<flag>],<desc_str>,<sname>]** **…** **[+KPSL:<indexn>,<hidden>,<obj_size>,<category>,<content>,<location>,[<flag>],<desc_str>,<sname>]** Parameters **<category>:** use "MMS" only; other values are reserved **<mode>:** 0 only basic information are returned 1 extended information **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS. **<hidden>:** numeric parameter; indicates if the entry is hidden or not 0: entry not hidden or hidden property not supported by <category> 1: entry hidden (MMS is copyrighted) **<obj_size>:** numeric parameter; size of the object in bytes. **<content>:** only one value possible with MMS : “MMS” : Multimedia message **<location>:** string type; location of message. Currently defined location are: ”INBOX” : the MMS that are read or unread or unretrieved ”DRAFT” : the MMS that are drafts ”OUTBOX” : the MMS that are unsent ”SENTBOX” : the MMS that have been sent **<flag>:** string type ; status of message in INBOX. Currently defined status are: “READ” : the MMS is read (and stored in INBOX ME) “UNREAD” : the MMS is unread (and stored in INBOX ME) “UNRETRIEVED” : the MMS is unretrieved (and stored in INBOX ME) **<desc_str>:** string type of max 30 characters. This string may be used to give specific informations about the object to the user. May be an empty string if no specific info available. Character set as specified by command Select TE Character Set +CSCS. **<sname>:** string type; short name. This string is the first 30 characters of the name of the object, if the object has one. Empty string if no name is available for this object. Character set as specified by command Select TE Character Set +CSCS.

+KPSL List of Objects (Continue)	
Reference	Notes • A MMS "hidden" is a temporary MMS, hidden to the user. • Copyrighted MMS are not set as hidden. See AT+KPSR for this kind of MMS. • "UNRETRIEVED" means that the MMS is available on the MMSC. This is a temporary MMS in the ME that refers to the MMS in the MMSC. • With automatic retrieval, "UNRETRIEVED" state should be temporary. That means that the modem is trying to retrieve the MMS at now. A special case may occur when the ME cannot retrieve itself the MMS. The TE is then advised with the notification +KMMREC. • When automatic retrieval is failed or is not required, a MMS "UNRETRIEVED" must be retrieved with AT+KMMRET command before reading : MMS "UNRETRIEVED" cannot be accessed by read operation. • When using AT+KMMRET, a MMS in the list given by +KPSL, and with the state "UNRETRIEVED", is retrieved ant its state goes to "UNREAD". • When using AT+KPSR, a MMS in the list given by +KPSL, and with the state "UNREAD", goes to the state "READ".

sagemcommunications

15.8. +KPSR Command: Reading an Object

AT+KPSR: Reading an Object	
Test command Syntax **AT+KPSR =?**	 Response **OK**
Read command Syntax **AT+KPSR?**	 Response **OK**
Write command Syntax **AT+KPSR =<index>**	 Response **+KPSR: <size>** **CONNECT** **<data>** **NO CARRIER** Parameters **<index>:** string type; (10-bytes), Unique ID from which ME identifies the MMS. **<size>:** numeric type; number of bytes of MMS pdu **<data>:** MMS pdu
Reference SAGEM S.A. Proprietary	Notes • Execution command read specified entry, identified by its <index>. TE informs ME that it wants to establish a data connection to retrieve an object. If ME has succeeded in establishing a logical link between application protocols and external interface, it will send CONNECT message to the TE, preceded by +KPSR: <size> so TE is able to know how big the received object will be. Otherwise, the NO CARRIER response will be returned. If the CONNECT response is sent, the ME will follow with sending object. After sending the object, the ME will return in command mode. • In case of a DTR drop from active to inactive during the transfer (when in “Data” mode), transmission will be aborted. In that case, ME will return in command mode. • When the index corresponds with a protected (copyrighted) MMS, then MMS headers ONLY can be read by the TE. Moreover after first reading of MMS, MMS status changes from “UNREAD” to “READ”. • Notice that this command executed on a MMS "UNRETRIEVED" produce an error.

sagemcommunications

15.9. +KPSW Command: Writing an object

AT+KPSW: Writing an object	
Test command Syntax **AT+KPSW =?**	 Response **+KPSW:** (list of supported **<content>**s), **<maximum size>**
Read command Syntax **AT+KPSW?**	 Response **OK**
Write command Syntax **AT+KPSW=<content>, <size>**	 Response **CONNECT** **<data>** **NO CARRIER** Parameters **<content>:** use "MMS" only; other values are reserved **<size>:** numeric type; number of bytes of the MMS pdu **<maximum size>:** long type values, the size of the biggest receivable object in bytes. **<data>:** MMS pdu
Reference SAGEM S.A. Proprietary	Notes TE informs ME that it wants to establish a data connection to send an object. If ME has succeeded in establishing a logical link between application protocols and external interface, it will send CONNECT message to the TE, Otherwise, the NO CARRIER response will be returned. If the CONNECT response is send, the TE will follow with sending the object. After receiving the object, the ME will return in command mode and return: - the <index> of the object if the object was in a correct format. - +CME ERROR: 100, <err_code> if the object was not in a correct format. In case of a DTR drop from active to inactive during the transfer (when in “Data” mode), transmission will be aborted. In that case, ME will return in command mode by sending the OK response.

sagemcommunications

15.10. +KPSD Command: Deleting an Object

AT+KPSD: Deleting an Object	
Test command Syntax **AT+KPSD =?**	 Response **OK**
Read command Syntax **AT+KPSD?**	 Response **OK**
Write command Syntax **AT+KPSD =<index>** **AT+KPSD=** **,<category>,<location>** **[,<flag>]**	 Response **OK** Parameters **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS. **<category>:** use "MMS" only; other values are reserved **<location>:** string type; location of messages to delete. ”ALL” : delete all MMS in ME ”INBOX” : delete all MMS that are read or unread or unretrieved in ME ”DRAFT” : delete all MMS that are drafts in ME ”OUTBOX” : delete all MMS that are unsent in ME ”SENTBOX” : delete all MMS that have been sent in ME **<flag>:** string type ; status of message in INBOX. ”ALL” : delete all MMS (stored in INBOX ME) “READ” : delete all MMS read (and stored in INBOX ME) “UNREAD” : delete all MMS unread (and stored in INBOX ME) “UNRETRIEVED” : delete all MMS unretrieved (and stored in INBOX ME)
Reference SAGEM S.A. Proprietary	Notes When “INBOX” is specified in <location>, <flag> must be specified. When a MMS is being retrieved, its deletion is not possible. Example : at+kpsd=,"MMS","ALL"

sagemcommunications

15.11. +KPSSEND Command: Send MMS

AT+KPSSEND: Send MMS	
Test command Syntax **AT+KPSSEND =?**	 Response **OK**
Read command Syntax **AT+KPSSEND?**	 Response **OK**
Write command Syntax **AT+KPSSEND=** **,<category>,<flag>**	 Response **+KPSSEND: <nbEligibleMMS>** **OK** is returned immediately. Then, the result of the sending of each MMS is sent to TE in unsolicited messages (one message for each MMS): **+KPSSR: <index>,<result>,<TrID>[,<MsgID>]** Parameters **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS. **<category>:** use "MMS" only; other values are reserved**.** **<flag>:** number used for sending MMS based upon status. Use "ALL" only (send all MMS stored in ME) **<nbEligibleMMS>:** number of MMS that are eligible to be sent (correctly formatted, at least one “To” field present in headers, …). Thus, this indicates how many unsolicited messages will be returned to TE. **<result>:** result of the sending of the MMS corresponding to <index>. It may be 0 if the result of the sending was OK, or an error code if NOK. In any case, ME will continue to send the remaining MMS. **<TrID>:** (transaction ID)string type; 20-bytes type value, indicates of unique means a transaction between the ME and the server. **<MsgID:** (message ID) string type; 20-bytes type value is possibly given by the server to identify a message of unique means.
Reference SAGEM S.A. Proprietary	Notes If the result code is NOK, the network may be in cause; it may be also an non-existent destination address. Example : AT+KPSSEND="53079300000008FF03E9"

15.12. +KPSCAP Command: Retrieving MOBILE capabilities

AT+KPSCAP: Retrieving Mobile Capabilities	
Test command Syntax **AT+KPSCAP=?**	 Response **+KPSCAP:** (list of supported **<category>**s)
Read command Syntax **AT+KPSCAP?**	 Response **OK**
Write command Syntax **AT+KPSCAP=<category>**	 Response **+KPSCAP:** **CONNECT[...]** **NO CARRIER** Parameters **<MMSE Version>:** Version of the MMSE protocol used by the module **<WSP version>:** Version of the WSP protocol used by the module **<WTP Version>:** Version of the WTP protocol used by the module
Reference SAGEM S.A. Proprietary	

sagemcommunications

15.13. +KMMRET Command: Retrieve MMS

AT+KMMRET: Retrieve MMS	
Test command Syntax **AT+KMMRET=?**	 Response **OK**
Read command Syntax **AT+KMMRET?**	 Response **OK**
Write command Syntax **AT+KMMRET=<index>** **AT+KMMRET=,<flag>**	 Response **+KMMRET: <nbEligibleMMS>** **OK** is returned immediately. Then, the result of the retrieving of each MMS is sent to TE in unsolicited messages (one message for each MMS): **+KMMREC: <index>,<result>** Parameters **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS. **<flag>:** string type; indicates the status of message to retrieve; only one value allowed : "ALL". **<nbEligibleMMS>:** number of MMS eligible to be retrieved. Thus, this indicates how many unsolicited messages will be returned to TE. **<result>:** result of the retrieving of the MMS corresponding to <index>. In any case of error, ME will continue to retrieve the remaining MMS. 0 The MMS is retrieved without error. 1 Network problem 2 MMS retrieval refused by MMSC 3 Wap stack busy
Reference SAGEM S.A. Proprietary	Notes • This command retrieves the MMS from the MMSC, and to store it in the modem. Refer to AT+KPSR to read this MMS • This command is useful only in the case of automatic retrieval failed or not required

15.14. +KMMA notification: MMS In MMSC notification

+KMMA: MMS in MMSC Notification	
Unsolicited notification	Unsolicited Message **+KMMA: <index>** Parameters **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS.
Reference SAGEM S.A. proprietary	Notes • When a MMS is available in MMSC then an indication is routed to the TE using unsolicited result code This MMS is not directly available by read operation. AT+KMMRET must be used to retrieved it from MMSC : this notification is useful only in the case of automatic retrieval not required.

15.15. +KMMREC notification: MMS in ME notification

+KMMREC Notification: MMS in ME Notification	
Unsolicited notification	Unsolicited Message **+KMMREC: <index>,<result>** Parameters **<index>:** string type; 10-bytes type values, Unique ID from which ME identifies the MMS. **<result>:** result of the retrieving of the MMS corresponding to <index>. In any case of error, ME will continue to retrieve the remaining MMS. 0 The MMS is retrieved without error. 1 Network problem 2 MMS retrieval refused by MMSC 3 Wap stack busy
Reference	Notes • When a MMS is available in ME, after it has been retrieved, then an indication is routed to the TE using unsolicited result code • This unsolicited message is sent, for example, after the use of AT+KMMRET. If the retrieval fails, after several retries, the ME send to the TE a +KMMREC notification with the adequate error code. In this case, the TE must correct the error cause, and the perform the AT+KMMRET command itself.

sagemcommunications

APPENDIX

APPENDIX 1. RESULT CODES AND UNSOLICITED MESSAGES

Verbose result code	Numeric	Type	Description
+CCCM: <ccm>	like verbose	Unsolicited	
+CCWA: <number>,<type>,<class>[,<alpha>]	like verbose	Unsolicited	
+CLIP: <number>,<type>[,<subaddr>,<satype>[,<alpha>]]	like verbose	Unsolicited	
+CME ERROR: <err>	like verbose	Final	
+CMS ERROR: <err>	like verbose	Final or unsolicited	
+CMTI	like verbose	Unsolicited	
+CBM	like verbose	Unsolicited	
+CDS	like verbose	Unsolicited	
+COLP: <number>,<type>[,<subaddr> ,<satype>[,<alpha>]]	like verbose	Intermediate	
+CR: <type>	like verbose	Intermediate	
+CREG: <stat>[,<lac>,<ci>]	like verbose	Unsolicited	
+CRING: <type>	like verbose	Unsolicited	
+CSSI: <code1>[,<index>]	like verbose	Intermediate	
+CSSU: <code2>[,<index>[,<number>,<type>[,<subaddr>,<satype>]]]	like verbose	Unsolicited	
+CUSD: <m>[,<str>,<dcs>]	like verbose	Unsolicited	
BUSY	6	Final	
CONNECT	1	Intermediate	connection has been established
CONNECT <text>	manufacturer specific	Intermediate	like CONNECT but manufacturer specific <text> gives additional information (e.g. connection data rate)
ERROR	4	Final	command not accepted
NO ANSWER	7	Final	connection completion timeout
NO CARRIER	3	Final	connection terminated
NO DIALTONE	5	Final	no dial tone detected
OK	0	Final	acknowledges execution of a command line
RING	2	Unsolicited	incoming call signal from network

APPENDIX 2. ERROR CODES

A2.1. CME ERROR codes

Code of <err>	Meaning
0	Phone failure
1	No connection to phone
2	Phone-adapter 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 timeout
32	network not allowed - emergency call 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
100	Synchronization error, see details below for additional parameter

The error +CME ERROR: 100, 65xxx means a synchronization error, where 65xxx may be

65501	content type unsupported
65502	empty binary
65503	too much objects
65504	mobile memory full
65505	unknown object
65506	no activity log
65507	reading error
65508	writing error
65509	invalid parameters
65510	operation aborted by user
65511	mobile busy
65512	invalid index
65535	invalid parameters
65534	error allocating memory
65533	write error
65532	read error
65531	too many opened sessions
65530	unknown session
65529	too many (sub-)objects
65528	object unknown
65527	wap communication aborted
65526	read error in multimedia processing
65525	object type not supported
65524	object format not supported
65523	not enough memory for object upload
65522	invalid object size
65521	empty object
65001	network problem
65003	Wap session has been stopped
65004	Memory full
65005	Message too big

The error +CME ERROR: 100, 645xx means a protocol error, where 645xx may be :

+CME ERROR: 100,6450x	FTP errors :
64500	the file sent is corrupted
64501	the file received is corrupted
64502	the file does not exist
64503	the file has not been deleted
64504	an user abort is queried during the downloading
64505	DTR drop from active to inactive during the data transfer
64506	no FTP context is open
64507	the directory does not exist
64540	GPS_LTO_DATA_CORRUPTED
+CME ERROR: 100,6452x	TCP errors :
64520	DTR drop from active to inactive during the data transfer
64521	data send by ktcpsnd are incoherent
64522	no more data in tcp socket (ktcprcv)
64523	TCP disconnection by the server not properly (ktcpsnd)
+CME ERROR: 100,6453x	TCP and FTP errors :
64530	The profile index doesn't exist
64531	The active profile index doesn't exist

The error +CME ERROR: 100,9x means a session manager error, where 9x may be:

90	No more memory
91	No more sockets

92	Bad session ID
93	Session is already running

A2.2. CMS ERROR codes

Code of <err>	Meaning
1	Unassigned (unallocated) number
8	Operator determined barring
10	Call barred
21	Short message transfer rejected
27	Destination out of service
28	Unidentified subscriber
29	Facility rejected
30	Unknown subscriber
38	Network out of order
41	Temporary failure
42	Congestion
47	Resources unavailable, unspecified
50	Requested facility not subscribed
69	Requested facility not implemented
81	Invalid short message transfer reference value
95	Invalid message, unspecified
96	Invalid mandatory information
97	Message type non-existent or not implemented
98	Message not compatible with short message protocol state
99	Information element non-existent or not implemented
111	Protocol error, unspecified
127	Interworking, unspecified
128	Telematic interworking not supported
129	Short message Type 0 not supported
130	Cannot replace short message
143	Unspecified TP-PID error
144	Data coding scheme (alphabet) not supported
145	Message class not supported
159	Unspecified TP-DCS error
160	Command cannot be actioned
161	Command unsupported
175	Unspecified TP-Command error
176	TPDU not supported
192	SC busy
193	No SC subscription
194	SC system failure
195	Invalid SME address
196	Destination SME barred
197	SM Rejected-Duplicate SM
198	TP-VPF not supported
199	TP-VP not supported
208	D0 SIM SMS storage full
209	No SMS storage capability in SIM
210	Error in MS
211	Memory Capacity Exceeded
212	SIM Application Toolkit Busy
213	SIM data download error
255	Unspecified error cause
300	ME failure
301	SMS service of ME reserved

302	Operation not allowed
303	Operation not supported
304	Invalid PDU mode parameter
305	Invalid text mode parameter
310	SIM not inserted
311	SIM PIN required
312	PH-SIM PIN required
313	SIM failure
314	SIM busy
315	SIM wrong
316	SIM PUK required
317	SIM PIN2 required
318	SIM PUK2 required
320	Memory failure
321	Invalid memory index
322	Memory full
330	SMSC address unknown
331	no network service
332	Network timeout
340	NO +CNMA ACK EXPECTED
500	Unknown error

A2.3. GPRS ERROR codes

Code of <err>	Meaning
Errors related to a failure to perform an Attach	
103	Illegal MS (#3)
106	Illegal ME (#6)
107	GPRS services not allowed (#7)
111	PLMN not allowed (#11)
112	Location area not allowed (#12)
113	Roaming not allowed in this location area (#13)
Errors related to a failure to activate a Context	
132	service option not supported (#32)
133	requested service option not subscribed (#33)
134	service option temporarily out of order (#34)
Other GPRS Errors	
149	PDP authentication failure
148	unspecified GPRS error
150	invalid mobile class

Values in parentheses are TS 24.008 cause codes.

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

A2.4. FTP Reply Codes

110 Restart marker reply.
120 Service ready in nnn minutes.
125 Data connection already open; transfer starting.
150 File status okay; about to open data connection.
200 Command okay.
202 Command not implemented, superfluous at this site.
211 System status, or system help reply.
212 Directory status.
213 File status.
214 Help message.
215 NAME system type.
220 Service ready for new user.
221 Service closing control connection. Logged out if appropriate.
225 Data connection open; no transfer in progress.
226 Closing data connection. Requested file action successful (for example, file transfer or file abort).
227 Entering Passive Mode (h1,h2,h3,h4,p1,p2).
230 User logged in, proceed.
250 Requested file action okay, completed.
257 "PATHNAME" created.
331 User name okay, need password.
332 Need account for login.
350 Requested file action pending further information.
421 Service not available, closing control connection. This may be a reply to any command if the service knows it must shut down.
425 Can't open data connection.
426 Connection closed; transfer aborted.
450 Requested file action not taken. File unavailable (e.g., file busy).
451 Requested action aborted: local error in processing.
452 Requested action not taken. Insufficient storage space in system.
500 Syntax error, command unrecognized. This may include errors such as command line too long.
501 Syntax error in parameters or arguments.
502 Command not implemented.
503 Bad sequence of commands.
504 Command not implemented for that parameter.
530 Not logged in.
532 Need account for storing files.
550 Requested action not taken.File unavailable (e.g., file not found, no access).
551 Requested action aborted: page type unknown.
552 Requested file action aborted. Exceeded storage allocation (for current directory or dataset).
553 Requested action not taken. File name not allowed.

APPENDIX 3. PIN CODE REQUIREMENT

Most of the AT Commands are rejected (i.e. an error is returned to the DTE) if the PIN Code has not been entered before (SIM requirement as described in [SIM]).

The list of the main commands which can be sent without code PIN is given below:

- ATD (emergency calls)
- AT+CPIN
- ATI
- AT+CGMI, AT+GMI
- AT+CGMM, AT+GMM
- AT+CGMR, AT+GMR
- AT+CGSN, AT+GSN
- AT+GCAP
- AT+CPAS
- AT+CIND
- AT+CMEE
- AT+KSREP
- AT+IPR
- ATE, ATV, ATS, ATZ
- AT&F, AT&K, AT&D, AT&C
- AT+CBST,
- AT+CLVL
- …

This list may be modified in case of special needs from the customer (contact SAGEM S.A. directly to treat this kind of request)

Moreover, some of the commands required the PIN2 code. The list will be added in a next release of this document. If need be, the reader can find the information in the [SIM] document.

sagemcommunications

APPENDIX 4. GSM 27.010 MULTIPLEXING PROTOCOL

Main options	BASIC	YES
	ADVANCED	YES
	ADVANCED WITH ERROR RECOVERY	NO
Frames	SABM	YES
	UA	YES
	DM	YES
	DISC	YES
	I (ERM)	NO
	RR (ERM)	NO
	RNR (ERM)	NO
	REJ (ERM)	NO
	UI	YES
	UIH	YES
Multiplexer Controls	DLC parameters negotiation (PN) (optional)	YES
	Power Saving control (PSC)	YES
	Multiplexer Close Down (CLD)	YES
	Test Command (Test)	YES
	Flow control On Command (Fcon)	YES
	Flow control Off Command (Fcoff)	YES
	Modem Status Command (MSC)	YES
	Non Supported Command response (NSC)	YES
	Remote Port Negotiation (RPN). (optional)	NO
	Remote Line Status command (RLS).(optional)	YES
	Service Negotiation Command (SNC)	NO
Convergence Layers	Type 1 - Unstructured Octet Stream	YES
	Type 2 - Unstructured Octet Stream with flow control, break signal handling and transmission of v24 signal states	YES
	Type 3 – Uninterruptible Framed Data	NO
	Type 4 - Interruptible Framed Data	NO
CMUX parameters	Link speed	9600, 19200, 38400, 57600, 115200
	Maximum frame size	256
	Acknowledgment timer	100
	Maximum number of retransmissions	100
	Response timer for control channel	30
	Wake up response timer	10 seconds
Others	Wake up procedure (see [RE2] sub clause 5.4.7)	YES
	Priority management	YES
	DLCI number limitation	8

sagemcommunications

APPENDIX 5. SET OF COMMANDS SUPPORTED

The following table lists all the commands available in HILO module

Legend: Column A:
- ● Command is Supported
- ○ Command is optional and may be activated or not based on the product definition discussed between SAGEM S.A. and the customer
- ✪ Command is supported and can be set according to different options

Legend: Column B:
- ● Command can be supported even without SIM card
- ⊙ Command can not be supported without SIM card

Colors are for **advised** Timeout for AT commands, time changes according SIM Cards and Networks:

	2 seconds
	30 seconds
	60 seconds
	120 seconds
	no advised timeout : Data size dependent

	HILO	A	B
2	**V25TER AT COMMANDS**		
2.1.	A/ Command : Repeat previous command line	●	⊙
2.2.	+++ Command : Switch from data mode to command mode	●	⊙
2.3.	O Command : Switch from command mode to data mode	●	⊙
2.4.	E Command : Enable command echo	●	●
2.5.	Q Command : Set result code presentation mode	●	●
2.6.	S0 Command : Set number of rings before automatically answering the call	●	●
2.7.	S2 Command : Set character for the escape sequence (data to command mode)	●	⊙
2.8.	S3 Command : Write command line termination character	●	⊙
2.9.	S4 Command : Set response formatting character	●	⊙
2.10.	S5 Command : Write command line editing character	●	⊙
2.11.	S7 Command : Set number of seconds to wait for connection completion	●	●
2.12.	V Command : Set result code format mode	●	●
2.13.	X Command : Set CONNECT result code format and call monitoring	●	⊙
2.14.	&C Command : Set circuit Data Carrier Detect (DCD) function mode	●	●
2.15.	&D Command : Set circuit Data Terminal Ready (DTR) function mode	●	●
2.16.	&F Command : Restore manufactory configuration	●	●
2.17.	&W Command : Save stored profile	●	⊙

2.18.	&V Command : Display current configuration	●	⊙
2.19.	+IPR Command : Set fixed local rate	●	●
2.20.	B: Data rate selection	●	⊙
2.21.	\N: Data transmission mode	●	⊙
2.22.	&K Command : Flow control command	●	●
2.23.	L Command : Monitor speaker loudness	●	⊙
2.24.	M Command : Monitor speaker mode	●	⊙
2.25.	S6 Command : Pause before blind dialing	●	⊙
2.26.	S8 Command : Comma dial modifier time	●	⊙
2.27.	S10 Command : Automatic disconnect delay	●	⊙
2.28.	N Command : Negotiate handshake option	●	⊙
2.29.	S1 Command : Ring count	●	⊙
2.30.	S11 Command : DTMF Dialing speed	●	⊙
2.31.	W Command : Extended result code	●	⊙
2.32.	&S Command : DSR option	●	⊙
2.33.	&R Command : RTS/CTS option	●	⊙
3.	**GENERAL AT COMMANDS**		
3.1.	I Command : Request Identification Information	●	●
3.2.	Z Command : Reset and restore user configuration	●	⊙
3.3.	+CGMI Command : Request manufacturer identification	●	●
3.4.	+CGMM Command : Request model identification	●	●
3.5.	+CGMR Command : Request revision identification	●	●
3.6.	+CGSN Command : Request product serial number identification (IMEI)	●	●
3.7.	+KGSN Command : Request product serial number identification and SW Version	●	⊙
3.8.	+CSCS Command : Set TE character Set	●	⊙
3.9.	+CIMI Command : Request international subscriber identity	●	⊙
3.10.	+GCAP Command : Request complete TA capability list	●	⊙
3.11.	+GMI Command : Request manufacturer identification	●	●
3.12.	+GMM Command : Request model identification	●	●
3.13.	+GMR Command : Request revision identification	●	●
3.14.	+GSN Command : Request product serial number identification (IMEI)	●	⊙
3.15.	+CMUX Command : Multiplexing mode	●	⊙
3.16.	#CLS Command : Service Class	●	⊙
3.17.	*PSLOCUP Command :	●	⊙
3.18.	*PSCSCN Command : Call State Change Notification	●	⊙
3.19.	*PSFSNT Command : Field Strength Notification with Threshold	●	⊙
3.20.	*PSSSURC Command :	●	⊙
3.21.	*PSALS Command : Alternate Line Service	●	⊙
3.22.	*PSDCIN Command : Diverted Call Indicator Notification	●	⊙
3.23.	*PSMBNB Command : Mailbox Numbers	●	⊙
3.24.	*PSCSP Command : Customer Service Profile	●	⊙
3.25.	*PSSEAV Command : Service Availability	●	⊙
3.26.	*PSCHRU Command : Channel Registration URC	●	⊙

3.27	*PSCSSC Command : Call Successful setup control	●	⊙
4.	**CALL CONTROL COMMANDS**		
4.1.	A Command : Answer a call	●	⊙
4.2.	H Command : Disconnect existing connection	●	⊙
4.3.	D Command : Mobile originated call to dial a number	●	⊙
4.4.	D> : Direct dialing from phonebook	●	⊙
4.5.	+CHUP Command : Hang up call	●	⊙
4.6.	+CRC Command : Set Cellular Result Codes for incoming call indication	●	⊙
4.7.	+CSTA Command : Select type of address	●	⊙
4.8.	+CMOD Command : Call mode	●	●
4.9.	+CEER Command : Extended error report	●	⊙
4.10.	+CVHU Command : Voice hang up control	●	⊙
4.11.	+KFILTER Command: Make a filter on incoming call	●	⊙
4.12.	+CSNS Command: Single Numbering Scheme	●	⊙
4.13.	+KATH Command: Choose ATH Mode		
5.	**MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS**		
5.1.	+CACM Command : Accumulated call meter (ACM) reset or query	●	⊙
5.2.	+CAMM Command : Accumulated call meter maximum (ACM max)	●	⊙
5.3.	+CCWE Command : Call meter maximum event	●	⊙
5.4.	+CALA Command : Set alarm time	●	●
5.5.	+CALD Command : Delete alarm	●	●
5.6.	+CCLK Command : Real time clock	●	●
5.7.	*PSCPOF Command : Power off	●	●
5.8.	+CIND Command : Indicator control (without <smsfull>)	●	●
5.9.	+CLAC Command : List all available AT commands	●	⊙
5.10.	+CMEC Command : Mobile Equipment control mode	●	⊙
5.11.	+CFUN Command : Set Phone Functionality	●	●
5.12.	+CMER Command : Mobile Equipment event reporting	●	⊙
5.13.	+CMEE Command : Report Mobile Termination error	●	●
5.14.	+CMUT Command : Mute control	●	⊙
5.15.	+CPIN Command : Enter pin	●	⊙
5.16.	*PSPRAS Command: Pin Remaining Attempt Status	●	⊙
5.17.	+CPUC Command : Price per unit and currency table	●	⊙
5.18.	+CPWC Command : Power class	●	⊙
5.19.	*PSRDBS Command : Change Frequency Band	●	●
5.20.	+CPAS Command : Phone Activity Status	●	⊙
5.21.	+CSQ Command : Signal quality	●	●
5.22.	+KRIC Command : Ring Indicator control	●	●
5.23.	+KSREP Command : Mobile start-up reporting	●	●
5.24.	+KGPIO Command : Hardware IO control	●	●
5.25.	+KSLEEP Command : Power Management control	●	●
5.26.	+KCELL Command : Cell Environnent Information	●	●
5.27.	+CRMP Command : Ring Melody Playback	●	●

5.28.	*PSVMWN Command: Voice Message Waiting Notification	●	⊙
5.29.	+CRSM Command : Restricted SIM Access	●	⊙
5.30.	+KPWM Command : PWM control	●	●
5.31	+KGPIOCFG user GPIO configuration	●	●
5.32	+KADC analog digital converter	●	●
5.33	+CSIM Generic SIM access +CSIM	●	⊙
5.34	+CALM Command : Alert sound mode	●	⊙
5.35	+CRSL Command : Ringer sound level	●	⊙
5.36	+CLAN Command : Set Language	●	⊙
5.37	+CSGT Command : Set Greeting Text	●	⊙
5.38	+CSVM Command: Set Voice Mail Number	●	⊙
5.39	+KGSMAD Antenna Detection	●	⊙
5.40	+KMCLASS Command: Change GPRS Multislot class	●	⊙
5.41.	+KTEMPMON Command: Temperature Monitor		
5.42.	+KSIMDET Command: SIM Detection		
5.43.	+KSYNC Command: Generation of Application synchronization signal		
5.44.	+KBND Command: Current GSM Networks Band Indicator		
5.45.	+KNETSCAN Command: Network scan functionality	●	●
5.46.	+KCELLSCAN Command: Cell scan functionality	●	●
6.	**NETWORK SERVICE RELATED COMMANDS**		
6.1.	+CAOC Command : Advice of charge Information	●	⊙
6.2.	+CCFC Command : Call forwarding number and conditions control	●	⊙
6.3.	+CCWA Command : Call waiting	●	⊙
6.4.	+CHLD Command : Call hold and multiparty	●	⊙
6.5.	+CUSD Command : Unstructured Supplementary Service Data	●	⊙
6.6.	+CLCC Command : List current call	●	⊙
6.7.	+CLCK Command : Facility lock	●	⊙
6.8.	+CLIP Command : Calling line identification presentation	●	⊙
6.9.	+CLIR Command : Calling line identification restriction	●	⊙
6.10.	+CNUM Command : Subscriber number	●	⊙
6.11.	+COLP Command : Connected line identification presentation	●	⊙
6.12.	+COPN Command : Read operator name	●	⊙
6.13.	+COPS Command : Operator selection	●	●
6.14.	+CPOL Command : Preferred PLMN list	●	⊙
6.15.	+CPWD Command : Change password	●	⊙
6.16.	+CREG Command : Network registration	●	●
6.17.	+CSSN Command : Supplementary service notification	●	⊙
6.18.	+CPLS Command : Selection of preferred PLMN list	●	⊙
6.19.	+CTFR Command : Call deflection	●	⊙
7.	**PHONE BOOK MANAGEMENT**		
7.1.	+CPBF Command : Find phonebook entries	●	⊙
7.2.	+CPBR Command : Read current phonebook entries	●	⊙
7.3	+CPBS Command : Select phonebook memory storage	●	⊙

7.4.	+CPBW Command : Write phonebook entries	●	⊙
8.	**SMS AT COMMANDS**		
8.3.	+CMGD Command : Delete SMS message	●	⊙
8.4.	+CMGF Command : Select SMS message format	●	⊙
8.5.	+CMGL Command : List SMS messages from Preferred store	●	⊙
8.6.	+CMGR Command : Read SMS message	●	⊙
8.7.	+CMGS Command : Send SMS message	●	⊙
8.8.	+CMGW Command : Write SMS message to memory	●	⊙
8.9.	+CMSS Command : Send SMS message from storage	●	⊙
8.10.	+CNMI Command : New SMS message indication	●	⊙
8.11.	+CSCB Command : Select Cell broadcast message	●	⊙
8.12.	+CSCA Command : SMS service center address	●	⊙
8.13.	+CSMP Command : Set SMS text mode parameters	●	⊙
8.14.	+CSMS Command : Select message service	●	⊙
8.15.	+CPMS Command : Preferred message storage	●	⊙
8.16.	+CSDH Command : Show text mode parameters	●	⊙
8.17.	+CSAS Command : Save settings	●	⊙
8.18.	+CRES Command : Restore settings	●	⊙
8.19.	+CMT Command : Received SMSPP content	●	⊙
9.	**DATA AND FAX AT COMMANDS**		
9.1.	+CBST Command : Select bearer service type	●	⊙
9.2.	+CRLP Command : Select radio link protocol parameter	●	⊙
9.3.	+CR Command : Service reporting control	●	⊙
9.4.	+FCLASS Command : Fax : Select, read or test service class	●	⊙
9.5.	+FRM Command : Receive data	●	⊙
9.6.	+FTM Command : Transmit data	●	⊙
9.7.	+FRS Command : Receive silence	●	⊙
9.8.	+FTS Command : Stop transmission and wait	●	⊙
9.9.	+FRH Command : Receive data using HDLC framing	●	⊙
9.10.	+FTH Command : Transmit data using HDLC framing	●	⊙
9.11.	+FMI Command : Manufacturer identification	●	⊙
9.12.	+FMM Command : Model identification	●	⊙
9.13.	+FMR Command : Revision identification	●	⊙
10	**GPRS AT COMMANDS**		
10.1.	+CGATT Command : PS Attach or Detach	●	⊙
10.2.	+CGACT Command : PDP context activate or deactivate	●	⊙
10.3.	+CGCLASS Command : GPRS Mobile station class	●	⊙
10.4.	+CGDCONT Command : Define PDP context	●	⊙
10.5.	+CGDATA Command : Enter data state	●	⊙
10.6.	+CGEREP Command : GPRS event reporting	●	⊙
10.7.	+CGPADDR Command : Show PDP address	●	⊙
10.8.	+CGQMIN Command : Quality of service profile (minimum acceptable)	●	⊙
10.9.	+CGQREQ Command : Request quality of service profile	●	⊙

10.10.	+CGREG Command : GPRS Network registration Status	●	⊙
10.11.	+CGSMS Command : Select service for MO SMS messages	●	⊙
11.	**SIM APPLICATION TOOLKIT AT COMMANDS**		
11.2.	*PSSTKI Command : SIM ToolKit Interface configuration	●	⊙
11.3.	*PSSTK Command : SIM Toolkit command	●	⊙
12	**AUDIO COMMANDS**		
12.1.	+CLVL Command : Loudspeaker volume level	●	●
12.2.	+VIP Command : Initialize Voice parameters	●	⊙
12.3.	+VTS Command : DTMF and Tone generation	●	⊙
12.4.	+VTD Command : Tone duration	●	⊙
12.5.	+VTD Command: Tone duration		
12.6.	+VGR Command: Receive Gain Selection		
12.7.	+VGT Command: Transmit Gain Selection		
12.8.	+KVGR Command: Receive Gain Selection		
12.9.	+KVGT Command: Transmit Gain Selection		
12.10.	+KECHO Command: Echo Cancellation		
12.11.	+KNOISE Command: Noise Cancellation		
12.12.	+KST Command: Side Tone		
12.13.	+KPC Command: Peak Compressor		
12.14.	+KSRAP Command: Save Restore Audio Parameters		
13.	**PROTOCOL SPECIFIC COMMANDS**		
13.2.1.	+KCNXCFG : GPRS Connection Configuration	●	⊙
13.2.2.	+KCNXTIMER : Connection Timer Configuration	●	⊙
13.2.3.	+KCNXPROFILE : Connection current profile configuration	●	⊙
13.2.4.	+KCGPADDR: Show PDP address	●	⊙
13.3.	**End Of Data pattern**		
13.3.1.	+KPATTERN: Custom End Of Data pattern	●	⊙
13.4.	**TCP Specific Commands**		
13.4.1.	+KTCPCFG : TCP Connection Configuration	●	⊙
13.4.2.	+KTCPCNX : TCP Connection	●	⊙
13.4.3.	+KTCPRCV: Receiving data through a TCP Connection	●	⊙
13.4.4.	+KTCPSND: Sending data through a TCP Connection	●	⊙
13.4.5.	+KTCPCLOSE: Closing current TCP operation	●	⊙
13.4.6.	+KTCPDEL: Delete a configured TCP session	●	⊙
13.4.7.	+KTCP_SRVREQ: Incoming client's connection request	●	⊙
13.4.8.	+KTCP_DATA: Incoming data through a TCP Connection	●	⊙
13.4.9.	+KURCCFG: Enable or disable the URC from TCP commands	●	⊙
13.4.10.	+KTCPSTAT: Get TCP socket status	●	⊙
13.4.11.	+KTCPSTART: Start a TCP connection in direct data flow	●	⊙
13.5.	**FTP Client Specific Commands**		
13.5.1.	+KFTPCFG : FTP Configuration	●	⊙
13.5.2.	+KFTPRCV : Downloading FTP files	●	⊙
13.5.3.	+KFTPSND : Uploading FTP files	●	⊙

13.5.4.	+KFTPDEL : Deleting FTP files	●	⊙
13.5.5.	+KFTPCLOSE : Ending current FTP connection	●	⊙
13.6.	**FTP Server Specific Commands**		
13.6.1.	+KFTPDCFG: FTP Server Configuration	●	⊙
13.6.2.	+KFTPDSTAT: FTP Server Status	●	⊙
13.6.3.	+KFTPDRUN: Run FTP server	●	⊙
13.6.4.	+KFTPD_NOTIF: Server's Event Notification	●	⊙
13.6.5.	+KFTPDKICK: Kick user from FTP server	●	⊙
13.6.6.	+KFTPDCLOSE: Close FTP Server	●	⊙
13.7.	**UDP Specific Commands**		
13.7.1.	+KUDPCFG : UDP Connection Configuration	●	⊙
13.7.2.	+KUDPCLOSE : Closing current UDP operation	●	⊙
13.7.3.	+KUDPSND : Sending data through a UDP Connection	●	⊙
13.7.4.	+KUDPRCV : Receiving data through a UDP Connection	●	⊙
13.7.5.	+KUDP_DATA: Incoming data through a UDP Connection	●	⊙
13.8.	**SMTP Specific Commands**		
13.8.1.	+KSMTPPARAM: Connection Configuration	●	⊙
13.8.2.	+KSMTPPWD: Authentication Configuration	●	⊙
13.8.3.	+KSMTPTO: Receivers Configuration	●	⊙
13.8.4.	+KSMTPSUBJECT: Subject Configuration	●	⊙
13.8.5.	+KSMTPUL: Send Message	●	⊙
13.8.6.	+KSMTPCLEAR: Clear Parameters	●	⊙
13.9.	**POP3 Specific Commands**		
13.9.1.	+KPOPCNX: Connection Configuration	●	⊙
13.9.2.	+KPOPLIST: List Available Mail	●	⊙
13.9.3.	+KPOPREAD: Download A Mail	●	⊙
13.9.4.	+KPOPDEL: Delete a Mail	●	⊙
13.9.5.	+KPOPQUIT: Close Connection	●	⊙
14.	**Specific flash commands**		
14.1.	+ KFSFILE : Flash file operation command	●	●
15	**MMS commands**		
15.6.	+KMMCNF Command: MMS Configuration	●	⊙
15.7.	+KPSL Command: List of Objects	●	⊙
15.8.	+KPSR Command: Reading an Object	●	⊙
15.9.	+KPSW Command: Writing an object	●	⊙
15.10.	+KPSD Command: Deleting an Object	●	⊙
15.11.	+KPSSEND Command: Send MMS	●	⊙
15.12.	+KPSCAP Command: Retrieving MOBILE capabilities	●	⊙
15.13.	+KMMRET Command: Retrieve MMS	●	⊙
15.14.	+KMMA : MMS In MMSC notification	●	⊙
15.15.	+KMMREC : MMS in ME notification	●	⊙

sagemcommunications

APPENDIX 6. HOW TO USE TCP SPECIFIC COMMANDS

A6.1. Client mode

at&k3 OK **AT+KCNXCFG=0,"GPRS","APN","log","password","0.0.0.0","0.0.0.0","0.0.0.0"** OK **AT+KCNXTIMER=0,60,2,70** OK **AT+KCNXPROFILE=0** OK **AT+CGATT=1** OK **at+ktcpcfg=0,0,"www.google.com",80** +KTCPCFG: 1 OK **AT+KTCPCNX=1** OK **AT+KTCPSND=1,18** CONNECT …Data send… OK +KTCP_DATA: 1,1380 **AT+KTCPRCV=1,10000** CONNECT HTTP/1.0 200 OK Cache-Control: private, max-age=0 Date: Tue, 24 Jun 2008 02:11:35 GMT Expires: -1 Content-Type: text/html; charset=ISO-8859-1 Set-Cookie: PREF=ID=ae1c663417e7799e:NW=1:TM=1214273495:LM=1214273495:S=5Uq9kExK4aTEv_cx; expires=Thu, 24-Jun-2010 02:11:35 GMT; path=/; domain=.google.com Server: gws Connection: Close <html><head><meta http-equiv="content-type" … a lot of data… --EOF--Pattern-- OK +KTCP_DATA: 1,1380 **AT+KTCPRCV=1,1380** CONNECT er{padding-bottom:7px !important}#gbar,#guser{font-size:13px;padding-top:1px !important}@media … a lot of data… --EOF--Pattern-- OK	**hardware flow control activation** **Set GPRS parameters (APN, login, password…)** **Set Timers** **Activate GPRS profile** **Be sure to attach to network** **Set TCP address and port number** **Initiate the connection** **Send TCP data after "CONNECT". Do not forget the PATTERN characters. For example :** **"GET / HTTP/1.0** **--EOF--Pattern--"** **Read data (10000 bytes)** **DATA read** **+KTCP_DATA notification :** **There are still 1380 bytes available on the socket** **You can read again the data** **DATA read**

+KTCP_DATA: 1,1380 **AT+KTCPCLOSE=1,1** OK	**Then you can close the socket**

A6.2. Server mode

In this simple example we emulate a daytime server. This server listen at the port 13 and for each connection it returns the date

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password","0.0.0.0","0.0.0.0","0.0.0.0" OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+KCNXPROFILE=0 OK	**Activate GPRS profile**
AT+CGATT=1 OK	**Be sure to attach to network**
AT+KTCPCFG=0,1,,13 +KTCPCFG: 1 OK	**Set TCP listener and port number**
AT+KTCPCNX=1 OK	**Initiate the server**
AT+KCGPADDR +KCGPADDR: 0,"10.35.125.89" OK	**Get the IP address to initiate a connection request with a client**
+KTCP_SRVREQ: 1,2	**A client is requesting a connection. The newly created connection will be accessed with the session ID 2.**
AT+KTCPSND=2,15 CONNECT …Date and time… OK	**DATA sent to the client read**
+KTCP_SRVREQ: 1,3	**Another client is requesting a connection. The newly created connection will be accessed with the session ID 3.**
+KTCP_NOTIF: 2, 4	**The first client closed the connection.**
AT+KTCPSND=3,15 CONNECT …Date and time… OK	**DATA sent to the client read**
AT+KTCPCLOSE=3,1 OK	**Close the connection with the client**
AT+KTCPCLOSE=1,1 OK	**Close the server.**

sagemcommunications

A6.3. Polling the status of a socket

AT+KCNXCFG=0,"GPRS","APN","log","password",”0.0.0.0”,”0.0.0.0”,”0.0.0.0” OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+KCNXPROFILE=0 OK	**Activate GPRS profile**
AT+KTCPSTAT=1 **+KTCPSTAT : 0,-1,0,0** OK	**Poll the connection status :** **Socket is not defined, need to use +KTCPCFG**
AT+KTCPCFG=0,0,"www.google.com",80 +KTCPCFG: 1 OK	**Set TCP Server address and port number** **Returns the session_id : 1**
AT+KURCCFG=”TCP”,0 OK	**Disable TCP unsolicited messages**
AT+KTCPSTAT=1 **+KTCPSTAT : 1,-1,0,0** OK	**Poll the connection status :** **Socket is well defined**
AT+KTCPCNX=1 OK	**Initiate the connection, use session 1**
AT+KTCPSTAT=1 **+KTCPSTAT : 3,-1,0,0** OK	**Poll the connection status :** **Connection is UP**
AT+KTCPSND=1,3000 CONNECT …Data send… OK	**Send data on socket 1, we expect to send 3000 bytes but you can send less.** **You can send data after CONNECT** **To finish send the KPATTERN (EOF), you can define it with +KPATTERN command.**
AT+KTCPSTAT=1 **+KTCPSTAT : 3,-1,1234,0** OK	**Poll the connection status :** **Connection is UP, there are 1234 bytes not yet sent**
AT+KTCPSTAT=1 **+KTCPSTAT : 3,-1,100,0** OK	**Poll the connection status :** **Connection is UP, there are 100 bytes not yet sent**
AT+KTCPSTAT=1 **+KTCPSTAT : 3,-1,0,0** OK	**Poll the connection status :** **Connection is UP, all bytes have been sent**
AT+KTCPSTAT=1 **+KTCPSTAT : 3,-1,0,320** OK	**Poll the connection status :** **Connection is UP, 320 bytes are available for reading**
AT+KTCPRCV=1,320 CONNECT	**Read 320 bytes on socket 1** **Data are sent after CONNECT**

… a lot of data… --EOF--Pattern-- OK	**Receive KPATTERN**
AT+KTCPCLOSE=1,1 **OK**	**Use KTCPCLOSE to close the socket for session_id number 1**

A6.4. End to End TCP connection

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password",”0.0.0.0”,”0.0.0.0”,”0.0.0.0” OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+KCNXPROFILE=0 OK	**Activate GPRS profile**
AT+CGATT=1 OK	**Be sure to attach to network**
AT+KTCPCFG=0,0,"www.google.com",80 +KTCPCFG: 1 OK	**Set TCP Server address and port number** **Returns the session_id : 1**
AT+KTCPSTART=1 CONNECT …Data sent……Data received……Data sent… …Data sent……Data received……Data sent…	**Initiate the connection, use session 1** **Message CONNECT : connection to the server is established, you can send data**
+++ OK	**Use +++ to enter in command mode**
AT **OK**	
ATO1 **CONNECT** …Data sent……Data received……Data sent… …Data sent……Data received……Data sent…	**Use ATO<session_id> to switch back in data mode**
OK	**Toggle DTR (if AT&D1 or AT&D2 configuration) to enter in command mode**
AT+KTCPCLOSE=1,1 **OK**	**Use KTCPCLOSE to close the socket for session_id number 1**

A6.5. Error Case For End to End TCP connection

AT+KTCPSTART=1 **NO CARRIER** **+KTCP_NOTIF: 1,<tcp_notif>**	**Try to Initiate the connection,** **Connection fails, see the value of <tcp_notif>**
AT+KTCPSTART=1 CONNECT …Data sent……Data received……Data sent…	**Initiate the connection**

…Data sent……Data received……Data sent… **NO CARRIER** **+KTCP_NOTIF: 1,<tcp_notif>**	**Exchange some data** **An error occurs during connection (network lost, server closed…)**

sagemcommunications

APPENDIX 7. HOW TO USE FTP SPECIFIC COMMANDS

A7.1. Client mode

AT&K3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password",,, OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KFTPCFG=0,"ftp.test.fr","userlogin","user password",21,0 OK	**Set FTP server address, login,password and port number**
AT+KPATTERN="--EOF--Pattern--" OK	**Custom End Of File pattern**
AT+KFTPSND=0,,"Dir","TestFile.txt",0 CONNECT …send Data … **...send<--EOF—Pattern>...** OK	**Send data, store them in "TestFile.txt" file. After "CONNECT". Do not forget send the EOF string.**
AT+KFTPRCV=0,,"Dir","Testfile.txt",0 CONNECT **F6E6E656374696F6E20746573742E--EOF--Pattern--** OK	**Read the file named "TestFile.txt", data are sent and end by EOF string.**
AT+KFTPRCV=0,"/flashfile.ext","Dir","fsfile.txt",0 OK +KFTP_RCV_DONE:0	**Get file "fsfile.txt" from ftp server, store it in flash directory "/flashfile.ext".**
AT+KFTPSND=0,"/flashfile.ext","Dir","fsfile.txt",0 OK +KFTP_SND_DONE:0	**Send flash file "/flashfile.txt" to ftp server, store it in "Dir" directory.**
AT+KFTPDEL=0,"Dir","TestFile.txt" OK	**Delete the file called "TestFile.txt"**
AT+KFTPCLOSE=0 OK	**Then you can close the connection**

A7.2. Server mode

AT&K3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password",,, OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KFTPDCFG=0,1,"/ftp","IEUser@",21 OK	**Set FTP root path, password and port number**
AT+KFTPDRUN=1 +KFTPDRUN:"192.168.1.44" OK	**Run FTP server** *You can connect to Hilo ftp server now.* If you need accessing Hilo ftp server in programming, Please see RFC959.
AT+KFTPDCLOSE OK	**Close the ftp server.**

sagemcommunications

APPENDIX 8. HOW TO USE UDP SPECIFIC COMMANDS

A8.1. Client mode

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password",,, OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KUDPCFG=0,0 +KUDPCFG: 1 OK	**Create a new UDP socket (returned handle 1) with the parameters associated to the connection profile id number 0**
AT+KUDPSND= 1,"82.234.17.52",32,18 CONNECT …Data send… --EOF--Pattern-- OK	**Send UDP data after "CONNECT". Do not forget the PATTERN characters. For example :** **"GET / HTTP/1.0** **--EOF--Pattern--"**
… +KUDP_DATA: 1,35 …	**Received notification that indicates the presence of 35 bytes in the socket.**
AT+KUDPRCV=1, 35 CONNECT This is a simple UDP Protocol test. -EOF--Pattern-- OK +KUDP_RCV: "82.234.17.52",32	**Try to read 35 bytes from client port 32 and socket 1.**
AT+KUDPRCV=1, 16 CONNECT This is a simple -EOF--Pattern-- OK +KUDP_DATA_MISSED: 1,19	**Same test but try to read 16 bytes (instead of 35) from client port 32 and socket 1:** **there are 19 unread bytes left and missed in the UDP socket**
AT+KUDPCLOSE OK	**Definitely close the UDP socket.**

sagemcommunications

A8.2. Server mode

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password","0.0.0.0","0.0.0.0","0.0.0.0" **OK**	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 **OK**	**Set Timers**
AT+CGATT=1 **OK**	**Be sure to attach to network**
AT+KUDPCFG=0,1,3000 **+KUDPCFG: 1** **OK**	**Set UDP listener(Port 3000)** **Initiate the server. Session ID is 1**
AT+KUDPCFG? **+KUDPCFG: 1,0,1,3000** **OK**	**Check the server be initiated**
AT+KCGPADDR **+KCGPADDR: 0, "192.168.0.71"** **OK**	**Get local IP address and let client know.**
+KUDP_DATA: 1,9	**Data come in from some client.**
AT+KUDPRCV=1,9 **CONNECT** **DATA TEST--EOF--Pattern--** **OK** **+KUDP_RCV: "10.10.10.5",1111**	**Receive data and display** **These data was from "10.10.10.5"(Port:1111)**
AT+KUDPSND=1,"10.10.10.5",3100,18 **CONNECT** **OK**	**Send 18Bytes to a remote server(Port:3100)** **Some data with "-EOF--Pattern--" in the end**
AT+KUDPCLOSE=1 **OK** **NO CARRIER**	**Close the UDP server**

APPENDIX 9. HOW TO USE MAIL SPECIFIC COMMANDS

A9.1. Mail Overview

The aim of this overview is to give several bases about how to build a mail body with or without attachment. For a better understanding of mail transfer we recommend the reading of the following RFCs:

- RFC 2822 or STD11: Internet Message Format.
- RFC 2045: Multipurpose Internet Mail Extensions Part 1.
- RFC 2046: Multipurpose Internet Mail Extensions Part 2.
- RFC 2047: Multipurpose Internet Mail Extensions Part 3.
- RFC 2049: Multipurpose Internet Mail Extensions Part 5.

A9.1.1. Mail Layout

Messages are divided into lines of characters. Theses lines are delimited with the two characters carriage-return and line-feed; that is, the carriage return (CR) character (ASCII value 13) followed immediately by the line feed (LF) character (ASCII value 10). The carriage-return/line-feed pair will be written in this document as CRLF.)

A message consists of header fields (collectively called "the header of the message") followed by a body. The header is a sequence of lines of characters with special syntax that are used to describe the mail environment (from whom, for whom, when, subject, body format …). The body is simply a sequence of characters that follows the header and is separated from the header by an empty line (i.e., a line with nothing preceding the CRLF).

Note that, from the RFC, There are two limits that this standard places on the number of characters in a single line. Each line of characters must be no more than 998 characters, and should be no more than 78 characters, excluding the CRLF.

A9.1.2. Mail Header

Header fields are lines composed of a field name, followed by a colon (":"), followed by a field body, and terminated by CRLF. The header must only be composed of US-ASCII characters. Here is an example of field presents in a mail header:

MIME-Version: 1.0*<CRLF>*
to: first.receiver@a.domain.com, second.receiver@a.domain.com*<CRLF>*
cc: first.copy@a.domain.com*<CRLF>*
from: sender@another.domain.com*<CRLF>*
subject: mail example*<CRLF>*
<CRLF>

The first field is to assume conformity with the MIME specification. The others fields will be parsed by the mail application to present the message.
The header is closed by the last empty line, each character behind will be considered as part of the body.

sagemcommunications

A9.1.3. Mail Body

The body of a message is simply lines of US-ASCII characters. The only two limitations on the body are as follows:

- CR and LF MUST only occur together as CRLF; they MUST NOT appear independently in the body.
- Lines of characters in the body MUST be limited to 998 characters, and SHOULD be limited to 78 characters, excluding the CRLF.

Note that mail attachment are encapsulated in the body an defined with specific header fields of the header, this are called multipart message (cf. 3.2 MAIL ATTACHEMENT)

Here is the example of a simple mail:

MIME-Version: 1.0*<CRLF>*
to: first.receiver@a.domain.com*<CRLF>*
cc: first.copy@a.domain.com*<CRLF>*
from: sender@another.domain.com*<CRLF>*
subject: Simple mail example*<CRLF>*
<CRLF>
Hello,*<CRLF>*
<CRLF>
This is a mail example*<CRLF>*
<CRLF>
BR. *<CRLF>*
<CRLF>

A9.2. Mail Attachment

A9.2.1. Multipart Message

As we have seen before, attachments are enclosed in the message body. This kind of message is called multipart messages. Multipart messages are defined by a field in the header, the usual format is:

Content-type: multipart/mixed; boundary=<some text or hash><CRLF>

This field "*Content-Type*" defines the body as a suite of part separated by boundaries – Note that with MIME 1.0 specifications the field "*Content-type*" can be omitted an the default value is "*Content-type : text/plain; charset=us-ascii*" which means a simple body in US-ASCII characters.

Boundaries format is a double hyphen, "--", followed by the boundary value defined in the header field and the CRLF pair. In order to signify the end of the body, we use a special form of the boundary that format is a double hyphen followed by the boundary value, another double hyphen and the CRLF pair.

Each part is structured as a regular internet message with a header that describes the content and the body. The content of each part will also be described by the field "*Content-type*".

Here is an example of two part message:

MIME-Version: 1.0<*CRLF*>
to: first.receiver@a.domain.com<*CRLF*>
from: sender@another.domain.com<*CRLF*>
subject: Multipart mail example<*CRLF*>
Content-type: multipart/mixed; boundary=myboundary<*CRLF*>
<*CRLF*>
--myboundary<*CRLF*>
Content-type : text/plain; charset=us-ascii<*CRLF*>
<*CRLF*>
this is the first part<*CRLF*>
<*CRLF*>
--myboundary<*CRLF*>
<*CRLF*>
This is the second part<*CRLF*>
<*CRLF*>
--myboundary--<*CRLF*>

In the first part the content type of the body is specified and, as the second part does not specify anything, both are US-ASCII text.

A9.2.2. Attachment Format

As the body must only embed US-ASCII characters, the payload attached might be encoded. The encoding algorithm will be signified in the part's header with the field "*Content-transfer-encoding*". The commonly used encoding algorithm is Base64

The MIME type of attachment is described by the "*Content-type*" field in the part's header. For example, we want to send the image file landscape.jpg, we will build the following message:

MIME-Version: 1.0<*CRLF*>
to: first.receiver@a.domain.com<*CRLF*>
from: sender@another.domain.com<*CRLF*>
subject: Image example<*CRLF*>
Content-type: multipart/mixed; boundary=myboundary<*CRLF*>
<*CRLF*>
--myboundary<*CRLF*>
Content-type : text/plain; charset=us-ascii<*CRLF*>
<*CRLF*>
Hello,<*CRLF*>
Here is the image I was talking about :<CRLF>
<*CRLF*>
--myboundary<*CRLF*>
Content-type: image/jpeg; name="landscape.jpg"<*CRLF*>
Content-transfer-encoding: base64<*CRLF*>
<*CRLF*>
"base64 encoded file"<*CRLF*>
<*CRLF*>
--myboundary--<*CRLF*>

sagemcommunications

A9.3. How To Use SMTP Specific Commands

A9.3.1. Simple Mode

We send the following mail to *receiver.addr@domain* and *copy.addr@domain* :

Hello,<*CRLF*>
<*CRLF*>
This is a mail example<*CRLF*>
<*CRLF*>
BR. <*CRLF*>
<*CRLF*>

And another mail to receiver.addr@domain only:

Hello,<*CRLF*>
<*CRLF*>
I forgot to tell…<*CRLF*>
<*CRLF*>

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password" **,,,** OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+KCNXPROFILE=0 OK	**Activate GPRS profile**
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KSMTPPARAM=”smtp.domain.com”, 580, “sender.addr@domain” +KSMTPPARAM: **”smtp.domain.com”, 580, “sender.addr@domain”** OK	**Fill in the connection parameters, the SMTP server URL is smtp.domain.com at port 580.**
AT+KSMTPPWD=”mylogin”,”mypassword” +KSMTPPWD: **”mylogin”, “mypassword”** OK	**Fill in the authentication parameters.**
AT+KSMTPTO=”receiver.addr@domain”,””,”copy.addr@domain”,”” +KSMTPTO: **”receiver.addr@domain”,,”copy.addr@domain”,** OK	**Fill in the receiver parameters, one direct et a copy.**

AT+KSMTPSUBJECT=”Simple mail example” +KSMTPSUBJECT: **”Simple mail example”** OK	**Fill in the subject parameter.**
AT+KSMTPUL=1,46	**Send the mail in simple mode, we send 46 bytes to the module.** **The module connect the SMTP server and send the header:** MIME-Version: 1.0*<CRLF>* to: receiver.addr@domain*<CRLF>* cc: copy.addr@domain*<CRLF>* from: sender.addr@domain*<CRLF>* subject: Simple mail example*<CRLF>* *<CRLF>*
+KSMTPUL: **1**	**“1” is the session id of current SMTP connection.**
CONNECT *<CRLF>* Hello,*<CRLF>* *<CRLF>* This is a mail example*<CRLF>* *<CRLF>* BR. *<CRLF>* *<CRLF>* OK	**During uploading,** --EOF--Pattern-- **can be used to terminate current uploading.** **The mail is successfully sent.**
AT+KSMTPTO=”receiver.addr@domain”,””,””,”” +KSMTPTO: **”receiver.addr@domain”,,,** OK	**We prepare to send the second mail** **Fill in the receiver parameter.**
AT+KSMTPSUBJECT=”Second mail example” +KSMTPSUBJECT: **”Second mail example”** OK	**Fill in the subject parameter.**
AT+KSMTPUL=1,36	**Send the mail in simple mode, we send 36 bytes to the module.** **The module connect the SMTP server and send the header:** MIME-Version: 1.0*<CRLF>* to: receiver.addr@domain*<CRLF>* from: sender.addr@domain*<CRLF>* subject: Second mail example*<CRLF>* *<CRLF>*
CONNECT *<CRLF>* Hello,*<CRLF>* *<CRLF>* I forgot to tell…*<CRLF>* *<CRLF>* OK	**During uploading,** --EOF--Pattern-- **can be used to terminate current uploading.** **The mail is successfully sent.**
AT+KSMTPCLEAR	**Clear the parameter’s set.**

OK	

sagemcommunications

A9.3.2. Complex Mode

We send a mail to *receiver.addr@domain* with the image *landscape.jpg* attached. In complex mode the first part of the header is handled by the module thus we will send the following data through the KSMTPUL Command:

Content-type: multipart/mixed; boundary=myboundary<*CRLF*>
<*CRLF*>
--myboundary<*CRLF*>
<*CRLF*>
Hello,<*CRLF*>
<*CRLF*>
Here is the image I was talking about :<CRLF>
<*CRLF*>
--myboundary<*CRLF*>
Content-type: image/jpeg; name="landscape.jpg"<*CRLF*>
Content-transfer-encoding: base64<*CRLF*>
<*CRLF*>
AR15qfGTmlk[...]AAADJqdf462==<*CRLF*>
<*CRLF*>
--myboundary--<*CRLF*>

Note that the encoded file in this example is not complete. We assume that the final size of the whole data block to send is 15360.

at&k3 OK	**hardware flow control activation**
AT+KCNXCFG=0,"GPRS","APN","log","password" **,,,** OK	**Set GPRS parameters (APN, login, password…)**
AT+KCNXTIMER=0,60,2,70 OK	**Set Timers**
AT+KCNXPROFILE=0 OK	**Activate GPRS profile**
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KSMTPPARAM=”smtp.domain.com”, 580, “sender.addr@domain” +KSMTPPARAM: **”smtp.domain.com”, 580, “sender.addr@domain”** OK	**Fill in the connection parameters, the SMTP server URL is smtp.domain.com at port 580.**
AT+KSMTPPWD=”mylogin”,”mypassword” +KSMTPPWD: **”mylogin”, “mypassword”** OK	**Fill in the authentication parameters.**
AT+KSMTPTO=”receiver.addr@domain”,””,””,”” +KSMTPTO: **”receiver.addr@domain”,,””,** OK	**Fill in the receiver parameters, one direct et a copy.**

AT+KSMTPSUBJECT=”Complex mail example” +KSMTPSUBJECT: **”Complex mail example”** OK	**Fill in the subject parameter.**
AT+KSMTPUL=0,15360 +KSMTPUL: **1** CONNECT Content-type:multipart/mixed; boundary=myboundary*<CRLF>* *<CRLF>* --myboundary*<CRLF>* *<CRLF>* Hello,*<CRLF>* *<CRLF>* Here is the image I was talking about :<CRLF> *<CRLF>* --myboundary*<CRLF>* Content-type: image/jpeg; name="landscape.jpg"*<CRLF>* Content-transfer-encoding: base64*<CRLF>* *<CRLF>* AR15qfGTmlk[...]AAADJqdf462==*<CRLF>* *<CRLF>* --myboundary--*<CRLF>* OK **AT+KSMTPCLEAR** OK	**Send the mail in simple mode, we send 15360 bytes to the module.** **The module connect the SMTP server and send the first part of the header:** MIME-Version: 1.0*<CRLF>* to: receiver.addr@domain*<CRLF>* from: sender.addr@domain*<CRLF>* subject: Complex mail example*<CRLF>* **“1” is the session id of current SMTP connection.** **During uploading,** --EOF--Pattern-- **can be used to terminate current uploading.** **The mail is successfully sent.** **Clear the parameter’s set.**

A9.4. How To Use POP3 Specific Commands

at&k3 OK **AT+KCNXCFG=0,"GPRS","APN","log","password"** **,,,** OK **AT+KCNXTIMER=0,60,2,70** OK **AT+KCNXPROFILE=0**	**hardware flow control activation** **Set GPRS parameters (APN, login, password…)** **Set Timers** **Activate GPRS profile**

OK	
AT+CGATT=1 OK	**Be sure to attach to the network**
AT+KPOPCNX=”pop.domain.com”, 580, ”mylogin”,”mypassword” +KPOPCNX: **1** OK	**Connect the POP3 server URL is pop.domain.com at port 580.** **1 is the session id of current POP3 connection.** ***… Connection established …***
AT+KPOPLIST +KPOPLIST: 7 messages (214222 octets) +KPOPLIST: 1,1566 +KPOPLIST: 2,146257 +KPOPLIST: 3,7081 +KPOPLIST: 4,1190 +KPOPLIST: 5,28034 +KPOPLIST: 6,1191 +KPOPLIST: 7,28036 OK	**Checkout available messages.**
AT+KPOPREAD=6 CONNECT *X-Apparently-To: receiver.addr@domain via 217.146.182.108; Fri, 04 May 2007 01:48:13 -0700<CRLF>* [...] *MIME-Version: 1.0<CRLF>* *from: mailmodule@yahoo.fr<CRLF>* *subject: TEST SMTP in MODE : SIMPLE<CRLF>* *to: receive.addrr@domain <CRLF>* *cc:* copy.addr@domain*<CRLF>* *<CRLF>* *<CRLF>* *Hello. This is a dummy MAIL text.<CRLF>* *If you read this, test is successful<CRLF>* *<CRLF>* *<EOF>* OK	**Download mail #6** **Note that header is modified by the SMTP server, this might induce heavier payload.** **… Start of body …** **<EOF> as the end of mail downloading.**
AT+KPOPDEL=6 OK	**Delete mail #6**
AT+KPOPLIST +KPOPLIST: 6 messages (213031 octets) +KPOPLIST: 1,1566 +KPOPLIST: 2,146257 +KPOPLIST: 3,7081 +KPOPLIST: 4,1190 +KPOPLIST: 5,28034	**Check out list again:** **The mail #6 has been marked as deleted**

+KPOPLIST: 7,28036 OK **AT+KPOPQUIT** OK	**Close the connection with the POP3 server.** ***… Connection closed …***

sagemcommunications

APPENDIX 10. HOW TO USE SIM TOOLKIT

AT+CPIN="1234"	Enter PIN CODE
OK	
*PSSTK:"SETUP MENU",1,4,"SIMMAX",0,0,1,0,0,6	Soon the module sends an unsolicited message *PSSTK:"SETUP MENU" , it is the STK Setup menu There are 6 items in STK menu.
AT*PSSTK="SETUP MENU",1,0	Give response to URC "SETUP MENU". "1" is the Command Number. Send Terminal response, OK
OK	
*PSSTK: "END SESSION"	URC for Session Status : End of STK session
AT*PSSTK="GET ITEM LIST",6	Use "GET ITEM LIST" command to get the list of items
*PSSTK: "GET ITEM LIST",1,16,4,"Switch Number",0,0,0	Item 1: "Switch number".
*PSSTK: "GET ITEM LIST",2,17,4,"Utilities",0,0,0	Item 2: "Utilities"
*PSSTK: "GET ITEM LIST",3,18,4,"Auto Switch",0,0,0	Item 3: "Auto Switch"
*PSSTK: "GET ITEM LIST",4,19,4,"Hidden Phone Book",0,0,0	Item 4:"Hidden Phone Book"
*PSSTK: "GET ITEM LIST",5,20,4,"IP Call",0,0,0	Item 5: "IP Call"
*PSSTK: "GET ITEM LIST",6,22,4,"Product Info.",0,0,0	Item 6:"Product Info"
OK	
AT*PSSTK="MENU SELECTION",22	Select menu 6, whose ItemIdentifier is 22. After this operation, it will enter into submenu of menu item 6.
OK	Totally 2 menus in this level.
*PSSTK: "SELECT ITEM",0,0,"",0,0,1,0,0,2	
AT*PSSTK="GET ITEM LIST",2	Item 1 is "Customer service", no more sub menus
*PSSTK: "GET ITEM LIST",1,1,4,"Customer service",0,0,0	Item 2 is "LOT", no more sub menus
*PSSTK: "GET ITEM LIST",2,2,4,"LOT",0,0,0	
OK	Select item 1 "Customer service", whose ItemIdentifier is 1
AT*PSSTK="SELECT ITEM",1,1,0,0	
OK	URC "DISPLAY TEXT" info will be showed with Customer information, "http://www.sim-max.com/" You have to use "DISPLAY TEXT" command to give a response to STK.
*PSSTK: "DISPLAY TEXT",1,0,1,0,4,"http://www.sim-max.com/",0,0	
AT*PSSTK="DISPLAY TEXT",1,0	

OK ***PSSTK: "END SESSION"**	**URC for session status.**

APPENDIX 11. HOW TO SWITCH FROM DATA MODE TO COMMAND MODE

AT+CPIN=”0000” OK	**Enter PIN CODE**
AT+CGDCONT=1,"IP","APN","0.0.0.0",0,0 OK	**Configure the GPRS parameters**
atd*99*1#** **CONNECT**	**Dial up to have a data connection**
~ÿ}#À!}!} } }2}!}$}%Ü}"}&} }*} } }#}$À#kZ~~ÿ}#À!}!}!} }2}!}$}%Ü}"}&} }*} } }#}$À#dJ~~ÿ}#À!}!}"} }2}!}$}%Ü}"}&} }*} } }#}$À#uz~	**DATA exchanges (PPP)**
----------	**---- > Send “+++” characters**
OK	**Switch to command mode is done**
at OK	**It is possible to use AT commands**
ato **CONNECT**	**Switch to data mode, resume the data connection**
~ÿ}#À!}!}#} }2}!}$}%Ü}"}&} }*} } }#}$À#zj~~ÿ}#À!}!}$} }2}!}$}%Ü}"}&} }*} } }#}$À#W}:~~ÿ}#À!}!}%} }2}!}$}%Ü}"}&} }*} } }#}$À#X}*~~ÿ}#À!}!}&} }2}!}$}%Ü}"}&} }*} } }#}$À#I:~~ÿ}#À!}!}'} }2}!}$}%Ü}"}&} }*} } }#}$À#F*~~ÿ}#À!}!}(} }2}!}$}%Ü}"}&} }*} } }#}$À#}3Ú~~ÿ}#À!}!})} }2}!}$}%Ü}"}&} }*} } }#}$À#}<Ê~~ÿ}#À!}!}*} }2}!}$}%Ü}"}&} }*} } }#}$À#}-ú~	**DATA exchanges continue**
NO CARRIER	**End of connection**

sagemcommunications

APPENDIX 12. HOW TO USE MMS SPECIFIC COMMANDS

We will explain how to send a MMS. In this example we consider a dummy mms file of ***252*** octets named ***mymms.bin***.

at&k3 OK	**hardware flow control activation**
	… Configuration …
AT+KMMCNF=0,1 OK	**MMS notification activation**
AT+KMMCNF=1,"http://operator.mms.center" OK	**MMSC URL**
AT+KMMCNF=3,"MMS APN", "login", "password", Proxy IP address, 0 OK	**GPRS settings to access the network.**
AT+KMMCNF=4,1 OK	**Preferred network access mode (Here GPRS only)**
AT+KPSD=,"MMS","ALL" OK	**Delete all previously stored MMS**
AT+KPSW="MMS",252 CONNECT	**Write the MMS in module memory**
Send mymms.bin through serial link	***Note that there is not <ETX> here, the module switch back to command mode when 252 octets are received. NO CARRIER is normal here.***
NO CARRIER +KPSW: "53079300000008FF03E8"	**The module returns the amount of octets actually read and the index of the MMS in module memory**
AT+KPSSEND="53079300000008FF03E8" +KPSSEND: 1 OK	**Send the previously stored MMS**
	… The module connects the MMSC…
+KPSSR: "53079300000008FF03E8", 0, "4660", "Rat8pAqPv04AABLmAAAAFQAA9ZYAAAAA"	**Notification returns 0, the MMS is correctly sent, last two parameters represents the MMS IDs**

APPENDIX 13. QA FOR ADVANCED AT COMMAND

Q: How many sessions can be opened at the same time?
A: 8 sessions can be opened at the same time. But you can only have 1 FTP session at the same time.
For example : 1 FTP session, 1 FTP server and 6 TCP/UDP connections.

Q: Is it possible to have 1 UDP server and 1 TCP connection at the same time?
A: Yes.

Q: Is it possible to open 1 TCP server and 1 UDP server and 1 FTP server at the same time?
A: Yes. They can be opened at the same time.

Q: Is it possible to have FTP/SMTP/TCP/UDP session together?
A: Yes.

Q: It is impossible to send a MMS when using FTP and TCP/UDP.
A:

Q: What is the behavior of +++/DTR/ATO in advanced AT commands?
A: Please see the following table.

	+++/ATOn	DTR(AT&D0)/ATOn	DTR(AT&D1)/ATOn	DTR(AT&D2)/ATOn
TCP-Send	OK/OK	OK/OK	OK/OK	OK/OK
TCP-Receive	OK/OK	OK/OK	OK/OK	OK/OK
UDP-Send	OK/OK	OK/OK	OK/OK	OK/OK
UDP-Receive	OK/OK	OK/OK	OK/OK	OK/OK
FTP-Upload	OK/-	OK/OK	-/-	OK/OK
FTP-Download	OK/-	OK/OK	-/-	OK/OK
SMTP	OK/OK	OK/OK	OK/OK	OK/OK
POP3	OK/OK	OK/OK	OK/OK	OK/OK
MMS				
KFSFILE Read	OK/-	OK/-	OK/-	OK/-
KFSFILE Write	OK/-	OK/-	OK/-	OK/-

Sagem Communications SAS
Energy & Telecom Business Unit
Headquarters : Le Ponant de Paris
27, rue Leblanc - 75015 Paris - FRANCE
Tel : +33 1 53 23 18 16 - Fax : +33 1 58 12 42 95
www.sagem-communications.com

All rights reserved. The information and specifications included are subject to change without prior notice. Sagem Communications tries to ensure that all information in this document is correct, but does not accept liability for error or omission. Non contractual document.
All trademarks are registered by their respective owners. Simplified joint stock company - Capital 158.291.895 Euro - 440 294 510 RCS Paris - SAGEM is a registered brand from Safran Group.