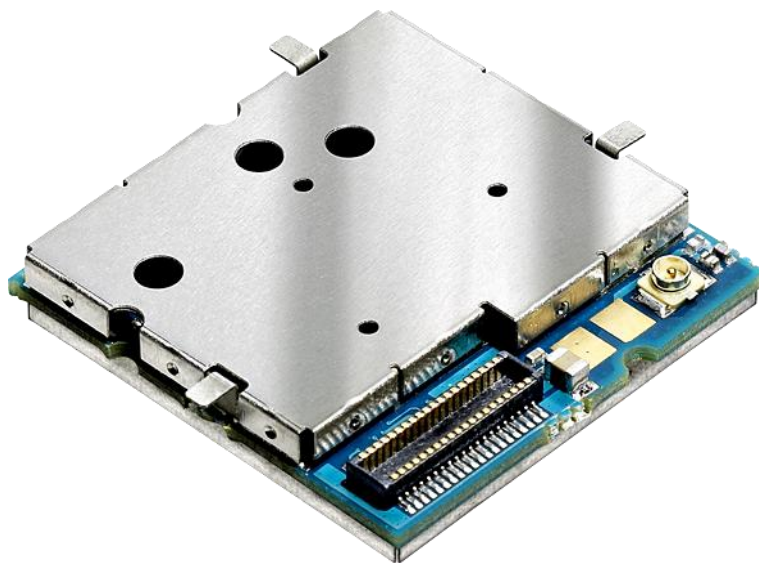


AT COMMAND SET HILO 3G



~ Freedom of speech
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SAGEMCOM



REVISION HISTORY

Date	Comments
2010/03/12	Add AT commands : +CGEQMIN and +CGEQREQ +CGEQNEG
2010/04/07	+KNOISE : remove the <transmit> parameter
2010/04/19	+IPR : add speeds 921600,460800,230400 -> draft specification 0.1 release
2010/04/29	+IPR: removed autobaud rate support
2010/04/29	Add SMS restriction
2010/04/29	Add Phonebook restriction
2010/05/04	The data of STK UCS2 using ASCII string in chapter 10.1
2010/05/13	+IPR: add speeds 600, 300
2010/05/13	+CBST: modify <speed> and <name> parameter
2010/05/20	ATD: change String of dialing digits
2010/05/20	+CEER: follow 3GPP 27.007
2010/05/20	+CIND modification
2010/05/20	+CFUN parameter modification
2010/06/02	Add &E into chapter 2.34
2010/06/02	+KECHO parameter modification
2010/06/02	+COPS parameter modification
2010/06/24	+CFUN mode definition
2010/06/24	&V modification
2010/06/24	ATI3 modification
2010/06/24	KFSFILE: remove ftp folder
2010/06/24	CLCC remove mode 3-8 support
2010/08/11	The parameter definition for AT&S
2010/08/12	ATX parameter modification
2010/08/12	ATW parameter modification
2010/08/27	+VIP: add a parameter for PCM path
2010/08/27	Add the parameter usage notice for KSYNC
2010/08/27	+KST: adjust the range of side tone gain
2010/08/31	Add +KGPIOCFG
2010/08/31	Add +KGPIO -> draft specification 0.2 release



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1. INTRODUCTION

1.1. Scope of the document

This document presents the AT Command Set of the SAGEMCOM **HILO 3G** modules.

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

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

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	
<i>Execute command</i> <u>Syntax</u> A/	<u>Response</u> Depend on the previous command <u>Parameters</u> None
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Execute command</i> <u>Syntax</u> +++	<u>Response</u> 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 <u>Parameters</u> None
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Test command</i> <u>Syntax</u> ATO or ATO[<n>]	<u>Response</u> TA returns to data mode from command mode: CONNECT <text> If connection is not successfully resumed NO CARRIER <u>Parameter</u> <n>: 0: switch from command mode to data mode
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Execute command</i> <u>Syntax</u> ATE[<value>]	<u>Response</u> OK <u>Parameters</u> <value>: 0 : Echo mode off 1 : Echo mode on
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Execute command</i> <u>Syntax</u> ATQ[<n>]	<u>Response</u> OK (if <n> = 0) <i>Nothing</i> (if <n> = 1) <u>Parameters</u> <n>: 0: result codes transmitted by TA 1: no result code transmitted by TA
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Read command</i> <u>Syntax</u> ATS0?	<u>Response</u> <n> OK
<i>Write command</i> <u>Syntax</u> ATS0=<n>	<u>Response</u> OK <u>Parameters</u> <n>: 0: automatic answering deactivated 1-255: number of rings before automatically answering
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• 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)	
<i>Read command</i> <u>Syntax</u> ATS2?	<u>Response</u> <n> OK
<i>Write command</i> <u>Syntax</u> ATS2=<n>	<u>Response</u> OK <u>Parameters</u> <n> : only 43 (“+”) is supported
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• The default character is “+” (043) and cannot be changed.



2.8. S3 Command: Command line termination character

ATS3 Command line termination character	
<i>Read command</i> <u>Syntax</u> ATS3?	<u>Response</u> <n> OK
<i>write command</i> <u>Syntax</u> ATS3=<n>	<u>Response</u> OK <u>Parameters</u> <n> : 13: command line termination character<CR>: carriage return.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Read command</i> <u>Syntax</u> ATS4?	<u>Response</u> <n> OK
<i>Write command</i> <u>Syntax</u> ATS4=<n>	<u>Response</u> OK <u>Parameters</u> <n>: 10: response formatting character <LF>: line feed.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Read command</i> <u>Syntax</u> ATS5?	<u>Response</u> <n> OK
<i>write command</i> <u>Syntax</u> ATS5=<n>	<u>Response</u> OK <u>Parameters</u> <n> : 8: command line editing character <BS>: back space.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Read command</i> <u>Syntax</u> ATS7?	<u>Response:</u> <n> OK
<i>Write command</i> <u>Syntax</u> ATS7=<n>	<u>Response:</u> OK <u>Parameters:</u> <n>: 1...255: number of second to wait for connection completion
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Execute command</i> <u>Syntax</u> ATV[<value>]	<u>Response</u> 0 (When numeric mode activated) OK (When verbose mode activated) <u>Parameters</u> <value>: 0: Short result code format: <numeric code> . 1: Long result code format: <verbose code>
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Write command</i> <u>Syntax</u> ATX[<value>]	<u>Response</u> OK <u>Parameters</u> <value>: 0 : CONNECT result code only returned 1 : CONNECT<text> result code only returned 2 : CONNECT<text> result code only returned 3 : CONNECT<text> result code only returned 4 : CONNECT<text> result code only returned
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• See Data stored by &W for default value.• mode 1,2,3,4 are the same. But we have to keep these values to be compatible with old drivers.



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

AT&C Set circuit Data Carrier Detect (DCD) function mode	
<i>Execute command</i> <u>Syntax</u> AT&C<value>	<u>Response</u> OK <u>Parameters</u> <value>: 0 : DCD line is always active 1 : DCD line is active in the presence of data carrier only.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Execute command</i> <u>Syntax</u> AT&D<value>	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Execute command</i> <u>Syntax</u> AT&F[<value>]	<u>Response</u> OK <u>Parameters</u> <value>: 0: Restore parameters to manufactory values
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• See also AT&V• Restore manufactory values to active profile



2.17. &W Command: Save stored profile

AT&W Save stored profile	
<i>Execute command</i> <u>Syntax</u> AT&W	<u>Response</u> OK <u>Parameters</u>
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• 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. <p>Configuration saved :</p> <p>E: Echo</p> <p>Q: Set result code presentation mode</p> <p>V: Verbose</p> <p>X: Extended result code</p> <p>&C: DCD control</p> <p>&D: DTR behavior</p> <p>&R: RTS control</p> <p>&S0 DSR control</p> <p>&K Flow control</p> <p>FCLASS: FCLASS</p> <p>S0: Set number of rings before automatically answering the call</p> <p>S3: Write command line termination character</p> <p>S4: Set response formatting character</p> <p>S5: Write command line editing character</p> <p>S7: Set number of seconds to wait for connection completion</p> <p>S8: Comma dial modifier time</p> <p>S10: Automatic disconnect delay</p>



2.18. &V Command: Display current configuration

AT&V Display current configuration	
<p><i>Execute command</i></p> <p><u>Syntax</u> AT&V[<value>]</p>	<p><u>Response</u> ACTIVE PROFILE: <current configuration> STORED PROFILE : <user default configuration></p> <p><u>Parameters</u> <value>: 0: display active profil 1: Stored profile.</p> <p>AT&V :show all profile (active profile and stored profile) When system reboot, Stored profile should copy to the Active profile</p>
<p><u>Reference</u> SAGEMCOM Proprietary</p>	<p><u>Notes</u></p> <ul style="list-style-type: none">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. <p><u>Example:</u> 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</p> <ul style="list-style-type: none">This command indicates the result of certain actions as shown below: <div><pre>graph TD AP[Active Profile] -- ATZ --> SP[Stored profile] SP -- AT&W --> AP DS[Default Settings] -- AT&F --> AP</pre></div>



2.19. IPR Command: Set fixed local rate

AT+IPR Set fixed local rate	
<i>Test command</i> <u>Syntax</u> AT+IPR=?	<u>Response</u> +IPR: (list of supported fixed-only <rate>s) OK
<i>Read command</i> <u>Syntax</u> AT+IPR?	<u>Response</u> +IPR: <rate> OK
<i>Write command</i> <u>Syntax</u> AT+IPR=<rate>	<u>Response</u> OK <u>Parameters</u> <rate>: bit rate per second 921600 460800 230400 115200 57600 38400 19200 9600 4800 2400 1200 600 300
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• The speed is modified after sending the answer



2.20. B: Data rate selection

ATB Data Rate Selection	
<i>Execute Command</i> <u>Syntax</u> ATB<rate>	<u>Response</u> OK <u>Parameters</u> <rate> : number from [0, 99], but meaningless.
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Execute Command</i> <u>Syntax</u> AT\N<x>	<u>Response</u> OK <u>Parameters</u> <x>: 0: transparent mode 4, 6: RLP mode (non transparent)
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• 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



2.22. &K Command: Flow control option

AT&K Flow control command	
<i>Execute command</i> <u>Syntax</u> AT&K<mode>	<u>Response</u> OK <u>Parameters</u> <mode>: 0: Disable all flow control 3: Enable bi-directional hardware flow control. 4: Enable XON/XOFF flow control.
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• Use AT&V0 to display the current flow control setting



2.23. L Command: Monitor speaker loudness

ATL Monitor speaker loudness	
<i>Write command</i> <u>Syntax</u> ATL [<volume>]	<u>Response</u> OK <u>Parameter</u> <volume> : 0..9
<u>Reference</u> ITU-T V.250 §6.3.13	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Write command</i> <u>Syntax</u> ATM[<mode>]	<u>Response</u> OK <u>Parameter</u> <mode> : 0..9
<u>Reference</u> ITU-T V.250 §6.3.14	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Write command</i> <u>Syntax</u> ATS6=<time>	<u>Response</u> OK <u>Parameter</u> <time> : 0..999
<u>Reference</u> ITU-T V.250 §6.3.9	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Read command</i> <u>Syntax</u> ATS8?	<u>Response</u> <time> OK
<i>Write command</i> <u>Syntax</u> ATS8=<time>	<u>Response</u> OK <u>Parameter</u> <time> : 0..255. See Data stored by &W for default value.
<u>Reference</u> ITU-T V.250 §6.3.11	<u>Notes</u> <ul style="list-style-type: none">The responses of this command are compliant with the recommendation but this command has no effect.



2.27. S10 Command: Automatic disconnect delay

AT10 Automatic disconnect delay	
<i>Read command</i> <u>Syntax</u> ATS10?	<u>Response</u> <time> OK
<i>Write command</i> <u>Syntax</u> ATS10=<time>	<u>Response</u> OK <u>Parameter</u> <time> : 1..254. See Data stored by &W for default value.
<u>Reference</u> ITU-T V.250 §6.3.12	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Write command</i> <u>Syntax</u> ATN[<option>]	<u>Response</u> OK <u>Parameter</u> <option> : 0..9
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Read command</i> <u>Syntax</u> ATS1?	<u>Response</u> <num> OK <u>Parameter</u> <num> : 0..255. See Data stored by &W for default value.
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">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	
<i>Write command</i> <u>Syntax</u> ATS11=<time>	<u>Response</u> OK <u>Parameter</u> <time> : 0..999
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Write command</i> <u>Syntax</u> ATW <mode>	<u>Response</u> OK <u>Parameter</u> <mode> : 0 : only CONNECT 1 : CONNECT <text>
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">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	
<u>Write command</u> <u>Syntax</u> AT&S[<override>]	<u>Response</u> OK <u>Parameter</u> <override> : 0,1 (See Data stored by &W for default value) AT&S : DSR signal always ON AT&S0 : DSR signal always ON (this is the default value) AT&S1 : DSR signal always OFF
<u>Reference</u>	<u>Notes</u>



2.33. &R Command: RTS/CTS option

AT&R RTS/CTS option	
<i>Write command</i> <u>Syntax</u> AT&R <option>	<u>Response</u> OK <u>Parameter</u> <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).
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">• 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

2.34. &E Command: data rate option for data call

AT&E data rate option for data call	
<i>Write command</i> <u>Syntax</u> AT&E <option>	<u>Response</u> OK <u>Parameter</u> <option> : 0: default is 0 the data rate is the wireless connection speed in data call 1 : the data rate should be the serial connection rate in data call if connection port is UART port
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">•





3. GENERAL AT COMMANDS

3.1. I Command: Request Identification Information

ATI Request identification information	
<i>Execute command</i> <u>Syntax</u> ATI[<value>]	<u>Response</u> <text> (depends on <value>) OK <u>Parameter</u> <value>: (nothing): Model identifier 0: Model identifier 3: Project identifier
<u>Reference</u> V.25ter	<u>Notes</u> <ul style="list-style-type: none">• Ex• ATI3• HI3GC• OK• • ATI• Hilo 3G



3.2. Z Command: Reset and restore user configuration

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



3.3. +CGMI Command: Request manufacturer identification

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



3.4. +CGMM Command: Request model identification

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



3.5. +CGMR Command: Request revision identification

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



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

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



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

AT+KGSN Request product serial number identification (IMEI)	
<i>Test command</i> <u>Syntax</u> AT+KGSN=?	<u>Response</u> +KGSN: (list of supported <imei type>s) OK
<i>Execute command</i> <u>Syntax</u> AT+KGSN=<imei type>	<u>Response</u> If <imei type> = 0: +KGSN: <IMEI> OK If <imei type> = 1: +KGSN: <IMEISV> OK If <imei type> = 2: +KGSN: <IMEISV_STR> OK <u>Parameters</u> <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>
<u>Reference</u> SAGEM S.A. proprietary	<u>Notes</u> <ul style="list-style-type: none">This command has been developed to provide the IMEI SV through an AT Command <u>Example</u> AT+KGSN=0 +KGSN: 351578000023006 OK AT+KGSN=1 +KGSN: 3515780000230001 OK



3.8. +CSCS Command: Set TE character set

AT+CSCS Set TE character set	
<i>Test command</i> <u>Syntax</u> AT+CSCS=?	<u>Response</u> +CSCS: (list of supported <chset>) OK
<i>Read command</i> <u>Syntax</u> AT+CSCS?	<u>Response</u> +CSCS: <chset> OK
<i>Write command</i> <u>Syntax</u> AT+CSCS=<chset>	<u>Response</u> OK <u>Parameter</u> <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
<u>Reference</u> [27.007] §5.5	<u>Notes</u> <ul style="list-style-type: none">• Select the character set used for all string types (Phonebook entries, SMS data, ...)



3.9. +CIMI Command: Request international subscriber identity

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



3.10. +GCAP Command: Request complete TA capability list

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



3.11. +GMI Command: Request manufacturer identification

AT+GMI Request manufacturer identification	
<i>Test command</i> <u>Syntax</u> AT+GMI=?	<u>Response</u> OK
<i>Execute command</i> <u>Syntax</u> AT+GMI	<u>Response</u> (manufacturer identification text) OK
<u>Reference</u> V.25ter	<u>Notes</u>



3.12. +GMM Command: Request model identification

AT+GMM Request model identification	
<i>Test command</i> <u>Syntax</u> AT+GMM=?	<u>Response</u> OK
<i>Execute command</i> <u>Syntax</u> AT+GMM	<u>Response</u> (model identification text) OK
<u>Reference</u> V.25ter	<u>Notes</u>



3.13. +GMR Command: Request revision identification

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



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

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



3.15. #CLS Command: Service Class

AT#CLS Service Class	
<i>Test command</i> <u>Syntax</u> AT#CLS=?	<u>Response</u> #CLS: (list of currently available <class> s) OK
<i>Read command</i> <u>Syntax</u> AT#CLS?	<u>Response</u> #CLS <class> OK
<i>Write command</i> <u>Syntax</u> AT #CLS=<class>	<u>Response</u> OK <u>Parameter</u> <class> : 0, 1
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• Same behavior than +FCLASS command. Needed for Microsoft agreement.



4. CALL CONTROL COMMANDS

4.1. A Command: Answer a call

ATA Answer a call	
<i>Execute command</i> <u>Syntax</u> ATA	<u>Response:</u> CONNECT[<text>] Data Connection established OK Voice Connection established or if cancellation of the command ERROR Response if no connection
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• See ATX for setup of the CONNECT message



4.2. H Command: Disconnect existing connection

ATH Disconnect existing connection	
<i>Execute command</i> <u>Syntax</u> ATH[<type>]	<u>Response:</u> OK <u>Parameters:</u> <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)
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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	
<i>Test command</i> <u>Syntax</u> ATD=?	<u>Response</u> 1 2 3 4 5 6 7 8 9 0 * # + A B CDT OK
<i>Read command</i> <u>Syntax</u> ATD?	<u>Response</u> 1 2 3 4 5 6 7 8 9 0 * # + A B CDT OK
<i>Execute command</i> <u>Syntax</u> ATD[<n>][:;]	<u>Response:</u> 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 <u>Parameters:</u> <n>: String of dialing digits and optionally V.25ter modifiers (dialing digits): 0-9, *, #, +, A, B, C, D,T (maximum length: 20 digits) <;>: Only required to set up voice calls. TA remains in command mode.
<u>Reference</u> V.25Ter	<u>Notes</u> <ul style="list-style-type: none">• 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 5.11) Dial string length: maximum length: 20 digits



4.4. D>: Direct dialing from phonebook

ATD> Direct dialing from phonebook	
<i>Execute command</i> <u>Syntax</u> ATD><str>[:] ATD>[<mem>]<n>[:]	<u>Response</u> See ATD <u>Parameters:</u> <str>: alphanumeric field (if possible all available memories should be searched for correct entry) <mem>: memory storage ("ME", "SM"...) <n>: entry location
<u>Reference</u> [27.007] § 6.2	<u>Notes</u> <ul style="list-style-type: none">• For memory storage locations, see AT+CPBS



4.5. +CHUP Command: Hang up call

AT+CHUP Hang up call	
<i>Execute command</i> <u>Syntax</u> AT+CHUP	<u>Response</u> OK
<i>Test command</i> <u>Syntax</u> AT+CHUP=?	<u>Response</u> OK
<u>Reference</u> [27.007] § 6.5	<u>Notes</u> <ul style="list-style-type: none">• “AT+CHUP” Hang up waiting/active MT calls and MO calls.



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

AT+CRC Set Cellular Result Codes for incoming call indication	
<i>Test command</i> <u>Syntax</u> AT+CRC=?	<u>Response</u> +CRC: (list of supported <mode>) OK
<i>Read command</i> <u>Syntax</u> AT+CRC?	<u>Response</u> +CRC:<mode> OK
<i>Write command</i> <u>Syntax</u> AT+CRC=[<mode>]	<u>Response</u> OK <u>Parameters</u> <mode>: 0: disable extended format 1: enable extended format
<u>Reference</u> [27.007] § 6.11	<u>Notes</u> <ul style="list-style-type: none">When enabled, an incoming call is indicated with +CRING: <type>. <type> :FAX or VOICE or ASYNC



4.7. +CSTA Command: Select type of address

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



4.8. +CMOD Command: Call mode

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



4.9. +CEER Command: Extended error report

AT+CEER Extended error report	
<i>Test command</i> <u>Syntax</u> AT+CEER=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+CEER	<u>Response</u> +CEER: <report> OK <report>: the total number of characters, including line terminators, in the information text shall not exceed 2041 characters. Text shall not contain the sequence 0<CR> or OK<CR>. Execution command causes the TA to return one or more lines of information text <report>, determined by the MT manufacturer, which should offer the user of the TA an extended report of the reason for - the failure in the last unsuccessful call setup (originating or answering) or in-call modification; - the last call release; - the last unsuccessful GPRS attach or unsuccessful PDP context activation; - the last GPRS detach or PDP context deactivation. Typically, the text will consist of a single line containing the cause information given by GSM/UMTS network in textual format.
<u>Reference</u> [27.007] § 6.10	



4.10. +CVHU Command: Voice hang up control

AT+CVHU Voice hang up control	
<i>Test command</i> <u>Syntax</u> AT+CVHU=?	<u>Response</u> +CVHU: (list of supported <mode> s) OK
<i>Read command</i> <u>Syntax</u> AT+CVHU?	<u>Response</u> +CVHU: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+CVHU=[<mode>]	<u>Response</u> OK <u>Parameter</u> <mode> : see [27.007].
<u>Reference</u> [27.007] § 6.20	<u>Notes</u> <ul style="list-style-type: none">• If DTR signal is inactive (if DTR is not a pulse), then “Drop DTR” does not respond “OK”.



4.11. +CSNS Command: Single Numbering Scheme

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



MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS

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

AT+CACM Accumulated call meter (ACM) reset or query	
<i>Test command</i> <u>Syntax</u> AT+CACM=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CACM?	<u>Response</u> +CACM: <acm> (current acm value) OK
<i>Write command</i> <u>Syntax</u> AT+CACM=<password> (reset the value)	<u>Response</u> OK <u>Parameters</u> <password> : SIM PIN2
<u>Reference</u> [27.007] §8.25	<u>Notes</u> <ul style="list-style-type: none">• This AT command needs SIM and network where AOC are allowed.



4.13. +CAMP Command: Accumulated call meter maximum (ACM max) set or query

AT+CAMP Accumulated call meter maximum (ACM max) set or query	
<i>Test command</i> <u>Syntax</u> AT+CAMP=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CAMP?	<u>Response</u> +CAMP: <acmmax> OK
<i>write command</i> <u>Syntax</u> AT+CAMP= [<acmmax>[,<passwd>]]	<u>Response</u> +CAMP: <acmmax> OK <u>Parameters</u> <acmmax>: string type; three bytes of the max ACM value in hexadecimal format 0 disables ACMmax feature <passwd>: SIM PIN2
<u>Reference</u> [27.007] § 8.26	<u>Notes</u> <ul style="list-style-type: none">This AT command needs SIM and network where AOC are allowed.



4.14. +CCWE Command: Call Meter maximum event

AT+CCWE Call Meter maximum event	
<i>Test command</i> <u>Syntax</u> AT+CCWE=?	<u>Response</u> +CCWE: (list of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+CCWE?	<u>Response</u> +CCWE: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+CCWE=<mode>	<u>Response</u> OK <u>Parameter</u> <mode>: 0: Disable the call meter warning event 1: Enable the call meter warning event
<u>Reference</u> [27.007] §8.28	<u>Notes</u> <ul style="list-style-type: none">• 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.



4.15. +CALA Command: Set alarm time

AT+CALA Set alarm time	
<i>Test command</i> <u>Syntax</u> AT+CALA=?	<u>Response</u> +CALA: <time>,(list of supported <n>s),(list of supported <recurr>s) OK
<i>Read command</i> <u>Syntax</u> AT+CALA?	<u>Response</u> [+CALA: <time>,<n1>,<recurr>]<CR><LF> [+CALA: <time>,<n2>,<recurr>]<CR><LF> OK
<i>Write command</i> <u>Syntax</u> AT+CALA=<time>[,<n>[,<recurr>]]	<u>Response</u> OK <u>Parameters</u> <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). <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.
<u>Reference</u> [27.007] §8.16	<u>Notes</u> <ul style="list-style-type: none">• 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 +CPOF command, +CALV: <n> correctly received if autobaud speed is not selected. <u>Examples</u> - 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



4.16. +CALD Command: Delete alarm

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



4.17. +CCLK Command: Real time clock

AT+CCLK Real time clock	
<i>Test command</i> <u>Syntax</u> AT+CCLK=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CCLK?	<u>Response</u> +CCLK: <time> OK
<i>Write command</i> <u>Syntax</u> AT+CCLK=<time>	<u>Response</u> OK <u>Parameter</u> <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;
<u>Reference</u> [27.007] § 8.15	<u>Notes</u>



4.18. +CPOF Command: Power off

AT*PSCPOF Power off	
<i>Execute command</i>	
<u>Syntax</u> AT+CPOF	<u>Response</u> OK
<u>Reference</u> [27.007]	<u>Notes</u> <ul style="list-style-type: none">• 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.



4.19. +CIND Command: Indicator control

AT+CIND Indicator control	
<i>Test command</i> <u>Syntax</u> AT+CIND=?	<u>Response</u> +CIND: ("battchg",(0-5)),("signal",(0-5)),("service",(0-1)),("message",(0-1)),("call",(0-1)),("roam",(0-1)),("smsfull",(0-1)), ("GPRS coverage",(0-1)),("callsetup",(0-3)) OK
<i>Read command</i> <u>Syntax</u> AT+CIND?	<u>Response</u> +CIND: <battchg>,<signal>, <service>,<message>,<call>,<roam>, <smsfull>,<GPRS coverage>, <callsetup> OK <u>Parameters</u> <battchg> : battery charge level (0-5) <signal> : signal quality (0-5) <service> : service availability (GSM) (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 <GPRS coverage> : GPRS attached status (0-1) 0: detached status 1: attached status <callsetup> : call setup status (0-3) 0: No active call setup 1: MT call is waiting of ringing 2: MO call was initialed 3: MO call ringing at B-party
<u>Reference</u> [27.007] § 8.9	<u>Notes</u> <ul style="list-style-type: none">• <smsfull> indication not available on all products



4.20. +CLAC Command: List all available AT commands

AT+CLAC List all available AT commands	
<i>Execute command</i> <u>Syntax</u> AT+CLAC	<u>Response</u> List of all supported AT Commands +CLAC: <CR> <LF> <AT Command1><CR> <LF> <AT Command2><CR> <LF> [...]] OK <u>Parameters</u>
<u>Reference</u> [27.007] § 8.37	<u>Notes</u> <ul style="list-style-type: none">• This command provides the AT Command list available for the user



4.21. +CMEC Command: Mobile Equipment control mode

AT+CMEC Mobile Equipment control mode	
<i>Test command</i> <u>Syntax</u> AT+CMEC=?	<u>Response</u> +CMEC: (list of supported <keyp>s),(list of supported <disp>s),(list of supported <ind>s) OK
<i>Read command</i> <u>Syntax</u> AT+CMEC?	<u>Response</u> +CMEC: <keyp>,<disp>,<ind> OK
<i>Write command</i> <u>Syntax</u> AT+CMEC=[<keyp>[,<disp>[,<ind>]]]	<u>Response</u> OK <u>Parameters</u> <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)
<u>Reference</u> [27.007] § 8.6	<u>Notes</u> <ul style="list-style-type: none">Set command selects the equipment, which operates ME keypad, writes to ME display and sets ME indicators



4.22. +CFUN Command: Set Phone Functionality

AT+CFUN Set Phone Functionality	
<i>Test command</i> <u>Syntax</u> AT+CFUN=?	<u>Response</u> +CFUN: (list of supported <fun>s), (list of supported <rst>s) OK +CFUN: (0-1,4-7), (0-1)
<i>Read command</i> <u>Syntax</u> AT+CFUN?	<u>Response</u> +CFUN: <fun> OK
<i>Write command</i> <u>Syntax</u> AT+CFUN=[<fun>[,<rst>]]	<u>Response</u> OK <u>Parameters</u> <fun>: 0 Low Power Mode - Protocols are deactivated(no RF), but able to go to ONLINE, since RF cal/provisioning is ok. - Typically used for airplane mode or charge-only mode. - All tasks are still running fine. 1 Normal functionality; - Protocols are fully activated. Normal operation. 4 disable phone both transmit and receive RF circuits; -just for disabling Tx & Rx RF off 5 Factory Test Mode - Protocols are activated in FTM mode. - This is only for RF calibration purpose only - All tasks are running like ONLINE or LPM. 6 Reset UE : -will power-cycle the phone 7 Offline mode - Protocols are deactivated(no RF) - No activity is allowed at all, except power-off or power-cycle, since RF was not calibrated or phone was not provisioned properly. - Even all(or most) of tasks are in offline. Similar to power-off, but power is still there. <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



<u>Reference</u>	<u>Notes</u>
[27.007] § 8.2	<ul style="list-style-type: none">• AT+CFUN=1,1 generates a software 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).



4.23. +CMER Command: Mobile Equipment event reporting

AT+CMER Mobile Equipment event reporting	
<i>Test command</i> <u>Syntax</u> AT+CMER=?	<u>Response</u> +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
<i>Read command</i> <u>Syntax</u> AT+CMER?	<u>Response</u> +CMER: <mode>,<keyp>,<disp>,<ind>,<bfr> OK
<i>Write command</i> <u>Syntax</u> AT+CMER=[<mode>[,<keyp>[,<disp>[,<ind>[,<bfr>]]]]]	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] § 8.10	<u>Notes</u>



4.24. +CMEE Command: Report Mobile Termination error

AT+CMEE Report Mobile Termination Error	
<i>Test command</i> <u>Syntax</u> AT+CMEE=?	<u>Response</u> +CMEE: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CMEE?	<u>Response</u> +CMEE: <n> OK
<i>Write command</i> <u>Syntax</u> AT+CMEE=[<n>]	<u>Response</u> OK <u>Parameter</u> <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
<u>Reference</u> [27.007] § 9.1	<u>Notes</u> <ul style="list-style-type: none">• See Data impacted by &F for default value.



4.25. +CMUT Command: Mute control

AT+CMUT Mute control	
<i>Test command</i> <u>Syntax</u> AT+CMUT=?	<u>Response</u> +CMUT: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CMUT?	<u>Response</u> +CMUT: <n> OK
<i>Write command</i> <u>Syntax</u> AT+CMUT=<n>	<u>Response</u> OK <u>Parameter</u> <n>: 0 mute off 1 mute on
<u>Reference</u> [27.007] § 8.24	<u>Notes</u> <ul style="list-style-type: none">• Be careful, this command can only be used during voice call.

4.26. +CPIN Command: Enter pin

AT+CPIN Enter pin	
<u>Test command</u> <u>Syntax</u> AT+CPIN=?	<u>Response</u> OK
<u>Read command</u> <u>Syntax</u> AT+CPIN?	<u>Response</u> +CPIN: <code> OK
<u>Write command</u> <u>Syntax</u> AT+CPIN=<pin> [,<newpin>]	<u>Response</u> OK <u>Parameters</u> <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 SIMLOCKED <pin>, <newpin>: string type value (8 characters max.)
<u>Reference</u> [27.007] § 8.3	<u>Notes</u> <ul style="list-style-type: none"> 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



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

AT+CPUC Price per unit and currency table	
<i>Test command</i> <u>Syntax</u> AT+CPUC=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CPUC?	<u>Response</u> +CPUC: <currency>,<ppu> OK
<i>Write command</i> <u>Syntax</u> AT+CPUC=<currency>,<ppu>[,<passwd>]	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> [27.007] § 8.27	<u>Notes</u> <ul style="list-style-type: none">• This AT command needs SIM and network where AOC are allowed.



4.28. +CPWC Command: Power class

AT+CPWC Power class	
<i>Test command</i> <u>Syntax</u> AT+CPWC=?	<u>Response</u> +CPWC: list of supported (<band>,(list of <class>s)) pairs OK
<i>Read command</i> <u>Syntax</u> AT+CPWC?	<u>Response</u> +CPWC: <curr_class1>,<def_class1>,<band1>[,<curr_class2>,<def_class2>,<band2>[...]] OK
<i>Write command</i> <u>Syntax</u> AT+CPWC=[<class> [,<band>]]	<u>Response</u> OK <u>Parameters</u> <class>, <curr_classn>, <def_classn>: 0 default (not applicable to <curr_class>s or <def_classn>s) 1... MS output power class as in GSM 45.005 [38] <band>, <bandn>: 0 GSM900 AND GSM850 1 GSM1800 2 GSM1900
<u>Reference</u> [27.007] § 8.29	<u>Notes</u> <ul style="list-style-type: none">Module must be rebooted for the selection to be effective





4.29. +CPAS Command: Phone Activity Status

AT+CPAS Phone activity status	
<i>Test command</i> <u>Syntax</u> AT+CPAS=?	<u>Response</u> +CPAS: (list of supported <pas>s) OK
<i>Execute command</i> <u>Syntax</u> AT+CPAS	<u>Response</u> +CPAS: <pas> OK <u>Response</u> <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)
<u>Reference</u> [27.007] § 8.1	<u>Notes</u>



4.30. +CSQ Command: Signal quality

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



4.31. +KRIC Command: Ring indicator control

AT+KRIC Ring indicator control	
<i>Test command</i> <u>Syntax</u> AT+KRIC=?	<u>Response</u> +KRIC: (list of supported <mask>s),(list of supported <shape>s) OK
<i>Read command</i> <u>Syntax</u> AT+KRIC?	<u>Response</u> +KRIC: <mask>,< shape > OK
<i>Write command</i> <u>Syntax</u> AT+KRIC=<mask>[,<shape>]	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• For a SMS and other unsolicited messages, only one pulse is set.• 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...



4.32. +KSREP Command: Mobile start-up reporting

AT+KSREP Mobile start-up reporting	
<i>Test command</i> <u>Syntax</u> AT+KSREP=?	<u>Response</u> +KSREP: (list of supported <act>s) OK
<i>Read command</i> <u>Syntax</u> AT+KSREP?	<u>Response</u> +KSREP: <act>,<stat> OK
<i>Write command</i> <u>Syntax</u> AT+KSREP=<act>	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• 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



4.33. +KSLEEP Command: Power Management Control

AT+KSLEEP Power management control	
<i>Test command</i> <u>Syntax</u> AT+KSLEEP=?	<u>Response</u> +KSLEEP: (list of supported <mngt>s) OK
<i>Read command</i> <u>Syntax</u> AT+KSLEEP?	<u>Response</u> +KSLEEP: <mngt> OK
<i>Write command</i> <u>Syntax</u> AT+KSLEEP=<mngt>	<u>Response</u> OK <u>Parameters</u> <mngt> : 0: The module doesn't go in sleep mode as long as DTR is active (low level) DTR has to be active to send AT commands. 1: The module decides by itself (internal timing) when it goes in sleep mode 2: The module never goes in sleep mode whatever DTR state is.
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• This parameter is part of the profile (see AT&V, ATZ, AT&F)• For KSLEEP=0, the following methods can wake up the module.<ol style="list-style-type: none">1) DTR signal turn ON2) Receive a voice or data call3) Receive a SMS indication4) RTC alarm expired• For KSLEEP=1, the following methods can wake up the module.<ol style="list-style-type: none">1) send character 0x00 then wait for 100ms before sending any AT command, can not work with hardware flow control if DTR is OFF2) Receive a voice or data call3) Receive a SMS indication4) RTC alarm expired5) RTS signal• See the documents related to the power saving methods to have more details of the possible methods



4.34. +KCELL Command: Cell Environment Information

AT+KCELL Cell Environment Information	
<i>Test command</i> <u>Syntax</u> AT+KCELL=?	<u>Response</u> +KCELL: (list of supported <revision>s) OK
<i>Read command</i> <u>Syntax</u> AT+KCELL?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+KCELL=<revision>	<u>Response</u> +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 <u>Parameters</u> <revision>: reserved for future purposes (only 0 for the moment). <nbcells>: number of base stations available. The first base station is the serving cell ($0 \leq i \leq 7$). <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.



<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• 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. <u>Example</u> 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
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4.35. +CRMP Command: Ring Melody Playback

AT+CRMP Ring Melody Playback	
<u>Test command</u> <u>Syntax</u> AT+CRMP=?	<u>Response</u> +CRMP: (list of supported <call type>s),(list of supported <volume>s),(0),(list of supported <index>s) OK
<u>Write command</u> <u>Syntax</u> AT+CRMP= <call type> [,<volume>[,<type>, <index>]]	<u>Response</u> OK <u>Parameters</u> <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)
<u>Reference</u> [27.007] § 8.35	<u>Notes</u> <ul style="list-style-type: none">• If a melody is played, it's just played for 10 sec., and then stopped.



4.36. +CRSM Command: SIM Restricted Access

AT+CRSM SIM RESTRICTED ACCESS	
<i>Test command</i>	
<u>Syntax</u> AT+CRSM=?	<u>Response</u> OK
<i>Write command</i>	
<u>Syntax</u> AT+CRSM=<command>[<fileid>[,<P1>,<P2>,<P3> >[,<data>]]]	<u>Response</u> +CRSM: <sw1>,<sw2>[,<response>] OK <u>Parameters</u> <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



AT+CRSM SIM RESTRICTED ACCESS	
Reference [27.007] § 8.18	<p>Notes</p> <ul style="list-style-type: none">• 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 <p><u>Example :</u></p> <p>Read EF_{ICCID} (ICC Identification, unique identification number of the SIM) : AT+CRSM=176,12258,0,0,10 +CRSM: 144,0,"89330126239181282150"</p> <p>so ICC number is 98331062321918821205</p>



4.37. +CSIM Command: Generic SIM access

AT+CSIM Generic SIM access	
<i>Test command</i> <u>Syntax</u> AT+CSIM =?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+CSIM=<length>,<command>	<u>Response</u> +CSIM: <length>,<response> OK <u>Parameters</u> <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)
<u>Reference</u> [27.007] § 8.17	<u>Notes</u> <ul style="list-style-type: none">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.



4.38. +CALM Command: Alert sound mode

AT+CALM Alert sound mode	
<i>Test command</i> <u>Syntax</u> AT+CALM=?	<u>Response</u> +CALM: (list of supported <mode> s) OK
<i>Read command</i> <u>Syntax</u> AT+CALM?	<u>Response</u> +CALM: <mode > OK
<i>Write command</i> <u>Syntax</u> AT+CALM=[<mode>]	<u>Response</u> OK <u>Parameter</u> <mode> : see [27.007]
<u>Reference</u> [27.007] § 8.20	<u>Notes</u> <ul style="list-style-type: none">• 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).



4.39. +CRSL Command: Ringer sound level

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



4.40. +CLAN Command: Set Language

AT+CLAN Set Language	
<i>Test command</i> <u>Syntax</u> AT+CLAN=?	<u>Response</u> +CLAN: (list of supported <code> s) OK
<i>Read command</i> <u>Syntax</u> AT+CLAN?	<u>Response</u> +CLAN: <code> OK
<i>Write command</i> <u>Syntax</u> AT+CLAN=<code>	<u>Response</u> OK <u>Parameter</u> <code> : “auto” , “en”
<u>Reference</u> [27.007] § 8.30	<u>Notes</u> <ul style="list-style-type: none">• The responses of this command are compliant with the recommendation but this command has no effect.



4.41. +CSGT Command: Set Greeting Text

AT+CSGT Set Greeting Text	
<i>Test command</i> <u>Syntax</u> AT+CSGT=?	<u>Response</u> +CSGT: (list of supported <mode> s), <ltext> OK
<i>Read command</i> <u>Syntax</u> AT+CSGT?	<u>Response</u> +CSGT: <text>, <mode> OK
<i>Write command</i> <u>Syntax</u> AT+CSGT=<mode> [, <text>]	<u>Response</u> OK <u>Parameter</u> <text> : see [27.007] <mode> : 0, 1
<u>Reference</u> [27.007] § 8.32	<u>Notes</u> <ul style="list-style-type: none">• The responses of this command are compliant with the recommendation but this command has no effect.



4.42. +CSVM Command: Set Voice Mail Number

AT+CSVM Set Voice Mail Number	
<i>Test command</i> <u>Syntax</u> AT+CSVM=?	<u>Response</u> +CSVM: (list of supported mode > s), (list of supported <type> s) OK
<i>Read command</i> <u>Syntax</u> AT+CSVM?	<u>Response</u> +CSVM: <mode> , <number> , <type> OK
<i>Write command</i> <u>Syntax</u> AT+CSVM=<mode> [, <number> [, <type>]]	<u>Response</u> OK <u>Parameter</u> <mode> : 0, 1 <number> : see [27.007] <type> : 129, 145
<u>Reference</u> [27.007] § 8.33	<u>Notes</u> <ul style="list-style-type: none">• <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.



4.43. +KMCLASS Command: Change GPRS Multislot class

AT+KMCLASS : Change GPRS Multislot class	
<i>Test command</i> <u>Syntax</u> AT+KMCLASS=?	<u>Response</u> +KMCLASS: (list of supported <class>s) OK
<i>Read command</i> <u>Syntax</u> AT+KMCLASS?	<u>Response</u> +KMCLASS: <class> OK
<i>Write command</i> <u>Syntax</u> AT+KMCLASS= <mclass>	<u>Response</u> OK <u>Parameter</u> <mclass>: 1: 1 + 1 2: 2 + 1 4: 3 + 1 8: 4 + 1 10: 4 + 2 12: 4 + 4
<i>Reference</i> SAGEMCOM Proprietary	<u>Notes</u> This command needs a restart in order to be effective.



4.44. +KTEMPMON Command: Temperature Monitor

AT+KTEMPMON Temperature Monitor	
<i>Test command</i> <u>Syntax</u> AT+KTEMPMON=?	<u>Response</u> +KTEMPMON: <mod>,<temperature>,<urcMode>,<action>,<hystTime>,<repGPIO> OK
<i>Read command</i> <u>Syntax</u> AT+KTEMPMON?	<u>Response</u> +KTEMPMON: <mod>,<temperature>,<urcMode>,<action>,<hystTime>,<repGPIO> OK
<i>Write command</i> <u>Syntax</u> AT+KTEMPMON= <mod>, [<temperature> [,<urcMode> [,<action> [,<hystTime> [,<repGPIO>]]]]	<u>Response</u> +KTEMPMON: <level>,<value> OK <u>Parameters</u> <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>: ONLY 1 GPIO IS AVAILABLE. GPIO number. valid range is "any output pin" (see "Hardware User's Guide"). This parameter is mandatory only if <action>=2 is required.



AT+KTEMPMON Temperature Monitor	
Reference	<div>Notes</div> <ul style="list-style-type: none">The module internal temperature reaches either operating or extreme levels; the unsolicited message is in the format: +KTEMPMEAS: <level>,<value> <p>where:</p> <ul style="list-style-type: none"><level> - threshold level<ul style="list-style-type: none">-2 - extreme temperature lower bound (see below Note)-1 - operating temperature lower bound (see below Note)0 - normal temperature1 - operating temperature upper bound (see below Note)2 - extreme temperature upper bound (see below Note)<value> - actual temperature expressed in Celsius degrees. <ul style="list-style-type: none">Typical temperature bounds are represented as following;<ul style="list-style-type: none">Extreme Temperature Lower Bound -40 °COperating Temperature Lower Bound -20 °COperating Temperature Upper Bound +55 °CExtreme Temperature Upper Bound +85 °CDue to temperature measurement uncertainty there is a tolerance of +/-2 °CBe aware that if GPIO 6, 7, 8 are used no debug traces can be used.CME error 23 will be reported, when module start up, because of boot up of file system.



4.45. +KSYNC Command: Generation of Application synchronization signal

AT+KSYNC Generation of Application synchronization signal	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+KSYNC=?</p>	<p><u>Response</u> +KSYNC: (list of supported <mod>s),(list of supported <IO>s),(range of <Duty Cycle>),(range of <Pulse Duration>)</p> <p>OK</p>
<p><i>Read command</i></p> <p><u>Syntax</u> AT+KSYNC?</p>	<p><u>Response</u> +KSYNC: <mod>,<IO>,<Duty Cycle>,<Pulse Duration></p> <p>OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> AT+KSYNC=<mod>[,<IO>[,<Duty Cycle>[,<Pulse Duration>]]]</p>	<p><u>Response</u> OK</p> <p><u>Parameters</u> <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 affect 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. </p> <p><IO>: ONLY 1 GPIO IS AVAILABLE.</p> <p><Duty Cycle>: inter type; range: 1--100; the limitation depends on <Pulse Duration>.</p> <p><Pulse Duration> : integer type: range 1:8000(ms)</p> <p>EX: If <Pulse Duration> = 8000, then <Duty Cycle> must be equal to 100 (minimum freq. is 0.125Hz)</p> <p>If <Pulse Duration> = 6000, then <Duty Cycle> must great than 75</p> <p>If <Pulse Duration> = 4000, then <Duty Cycle> must great than 50</p> <p>If <Pulse Duration> = 2000, then <Duty Cycle> must great than 25</p> <p>If the minimum freq is lower than 0.125Hz, Module will set the frequency to 0.125Hz with <Duty Cycle> =50</p>
<p><u>Reference</u></p>	<p><u>Notes</u></p> <ul style="list-style-type: none"> The setting of the <mod>, <IO>, <Duty Cycle>, <Pulse Duration> was automatically saved in Hilo. For write command, CME error 23 will be reported, when module start up, because of boot up of file system.

4.46. +KNETSCAN Command: Network scan functionality

AT+KNETSCAN Network Scan functionality	
<i>Test command</i> <u>Syntax</u> AT+KNETSCAN=?	<u>Response</u> +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
<i>Read command</i> <u>Syntax</u> AT+KNETSCAN?	<u>Response</u> +KNETSCAN: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+KNETSCAN=<mode>[,<oper>[,<max_cells>[,<URC>[,<timeout>[,<ext>]]]]]	<u>Response</u> OK when <mode>=2 and command successful +KNETSCAN: <nbcells>[,<ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>[,<ARFCN _{iiiiiii OK <u>Parameters</u> <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}



<i>Unsolicited Notification</i>	+KNETSCAN: <nbcells>[,<ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>[,<ARFCN_i>,<BSIC_i>,<PLMN_i>,<LAC_i>,<CI_i>,<RSSI_i>]]
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<p><u>Reference</u> SAGEMCOM Proprietary</p>	<p><u>Notes</u></p> <ul style="list-style-type: none"> • Switch from nominal mode to network scan mode (<mode>=1) makes the <u>HILO reboot</u> 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 <u>HILO reboot</u>: 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 • 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. <p><u>Restrictions:</u></p> <ul style="list-style-type: none"> • <u>No normal network activity is possible</u> (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) <p><u>Example:</u> Network scan activation:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>AT+KNETSCAN=1,"20801"</p> <p>OK</p> <p>+KNETSCAN: 7,567,22,02f810,3802,4f24,29,4,586,26,0 2f810,3802,4f27,31,571,13,02f810,3802, ae3b,20,8,20,02f810,3802,7c95,21,535,2 9,02f810,3802,c186,11,24,12,02f810,380 2,4f29,12,39,22,02f810,3802,7c96,15</p> </div> <div style="width: 35%;"> <p>Define the PLMN to use in numeric format, the number of cells, the sending of notification, the timeout: reboot</p> <p>Module launches a power campaign.</p> <p>Wait for unsolicited message : +KNETSCAN</p> <p>Power campaign is finished and all information about the serving and neighbours cells has been received.</p> </div> </div> <p>Retrieving cells information:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>AT+KNETSCAN=2</p> <p>+KNETSCAN: 7,567,22,02f810,3802,4f24,29,4,586,26,0 2f810,3802,4f27,31,571,13,02f810,3802, ae3b,20,8,20,02f810,3802,7c95,21,535,2 9,02f810,3802,c186,11,24,12,02f810,380 2,4f29,12,39,22,02f810,3802,7c96,15</p> <p>OK</p> </div> <div style="width: 35%;"> <p>To check cells information at any time.</p> </div> </div> <p>Network scan deactivation:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>AT+KNETSCAN=0</p> <p>OK</p> </div> <div style="width: 35%;"> <p>Return to nominal mode: reboot.</p> </div> </div>
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4.47. +KCELLSCAN Command: Cell scan functionality

AT+KCELLSCAN Network Scan functionality	
<i>Test command</i> <u>Syntax</u> AT+KCELLSCAN=?	<u>Response</u> +KCELLSCAN: (list of supported <mode>s), (list of supported <URC>s), (list of supported <timeout>s), (list of supported <ext>s) OK
<i>Read command</i> <u>Syntax</u> AT+KCELLSCAN?	<u>Response</u> +KCELLSCAN: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+KCELLSCAN=<mode>[,<ARFCN>[,<URC>[,<timeout>[,<ext>]]]]	<u>Response</u> OK when <mode>=2 and command successful +KCELLSCAN: <ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC> OK <u>Parameters</u> <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
<i>Unsolicited Notification</i>	+KCELLSCAN: <ARFCN>,<BSIC>,<PLMN>,<LAC>,<CI>,<RSSI>,<RAC>

**AT+KCELLSCAN Network Scan functionality****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 conversely.

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

OK

Define the Arfcn, the sending of notification, the timeout: reboot

Module launches a power campaign and synchronizes on Arfcn.

Wait for unsolicited message :
+KCELLSCAN

Power campaign is finished and all information about the cell have been received

+KCELLSCAN:

567,22,02f810,3802,4f24,29,4

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



5. NETWORK SERVICE RELATED COMMANDS

5.1. +CAOC Command: Advice of charge information

AT+CAOC Advice of charge information	
<i>Test command</i> <u>Syntax</u> AT+CAOC=?	<u>Response</u> +CAOC: (list of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+CAOC?	<u>Response</u> +CAOC: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+CAOC=<mode>	<u>Response</u> If <mode> = 0 +CAOC: <ccm> OK Else OK
<i>Execute command</i> <u>Syntax</u> AT+CAOC	<u>Response</u> +CAOC: <ccm> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] §7.16	<u>Notes</u> <ul style="list-style-type: none">• 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.



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

AT+CCFC Call forwarding number and conditions control	
<i>Test command</i>	
<u>Syntax</u> AT+CCFC=?	<u>Response</u> +CCFC: (list: range of supported <reas>) OK
<i>Write command</i>	
<u>Syntax</u> AT+CCFC=<reas>,<mode>[,<number>[,<type>[,<class>[,<subaddr>[,<satype>[,<time>]]]]]	<u>Response</u> 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 <u>Parameter</u> <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 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 queried, this gives the time in seconds to wait before call is forwarded (default value is 20) <status>: 0: not active 1: active
<u>Reference</u> [27.007] § 7.11	<u>Notes</u> <ul style="list-style-type: none">This command allows control of the call forwarding supplementary service according to GSM 02.84



5.3. +CCWA Command: Call waiting

AT+CCWA Call waiting	
<i>Test command</i> <u>Syntax</u> AT+CCWA=?	<u>Response</u> +CCWA: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CCWA?	<u>Response</u> +CCWA: <n> OK

<p><i>Write command</i></p> <p><u>Syntax</u> AT+CCWA=[<n> [,<mode>[,<class>]]]</p>	<p><u>Response</u> when <mode>=2 and command successful +CCWA: <status>,<class1> [+CCWA: <status>,<class2>[...]] OK</p> <p><u>Parameters</u> <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.</p>
<p><u>Reference</u> [27.007] § 7.12</p>	<p><u>Notes</u> • When enabled (<n>=1), the following unsolicited code is sent to the TE: +CCWA: <number>,<type>,<class>[,<alpha>][,<CLI validity>]</p>

5.4. +CHLD Command: Call hold and multiparty

AT+CHLD Call hold and multiparty	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+CHLD=?</p>	<p><u>Response</u> +CHLD: (list of supported <n>s) OK</p>



<i>Execute command</i> <u>Syntax</u> AT+CHLD=[<n>]	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] §7.13	<u>Notes</u>

5.5. +CUSD: Unstructured Supplementary Service Data

AT+CUSD Unstructured supplementary service data	
<i>Test command</i> <u>Syntax</u> AT+CUSD=?	<u>Response</u> +CUSD: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CUSD?	<u>Response</u> +CUSD: <n> OK
<i>Unsolicited Notification</i>	+CUSD: <m>[,<str>,<dcs>]
<i>Write command</i> <u>Syntax</u> AT+CUSD=[<n>[,<str>[,<dcs>]]]	<u>Response</u> OK <u>Parameters</u> <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 II (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



AT+CUSD Unstructured supplementary service data	
<u>Reference</u> [27.007] §7.15	<u>Notes</u> <ul style="list-style-type: none">• 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.



5.6. +CLCC Command: List current call

AT+CLCC List current call	
<u>Test command</u> <u>Syntax</u> AT+CLCC=?	<u>Response</u> OK
<u>Execute command</u> <u>Syntax</u> AT+CLCC	<u>Response</u> [+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>[,<alpha>]]] [+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,<number>,<type>[,<alpha>]]] [...] OK <u>Parameters</u> <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 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
<u>Reference</u> [27.007] §7.18	<u>Notes</u> <ul style="list-style-type: none">• This commands returns the current list of calls of ME• Example: Outgoing voice call in progress +CLCC: 1,0,0,0,0

5.7. +CLCK Command: Facility lock

AT+CLCK Facility lock	
<u>Test command</u> <u>Syntax</u> AT+CLCK=?	<u>Response</u> +CLCK: (list of supported <fac>) OK
<u>Execute command</u> <u>Syntax</u> AT+CLCK=<fac>,<mode> e>[,<passwd> [,<class>]]	<u>Response</u> If <mode> <> 2 and command is successful OK If <mode> = 2 and command is successful +CLCK:<status>[,<class1>[<CR>,<LF>+CLCK:<status>,class2...]] OK <u>Parameters</u> <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



AT+CLCK Facility lock	
Reference [27.007] §7.4	Notes <ul style="list-style-type: none">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

5.8. +CLIP Command: Calling line identification presentation

AT+CLIP Calling line identification presentation	
<i>Test command</i> <u>Syntax</u> AT+CLIP=?	<u>Response</u> +CLIP: (list of supported <n>) OK
<i>Read command</i> <u>Syntax</u> AT+CLIP?	<u>Response</u> +CLIP: <n>,<m> OK
<i>Read command</i> <u>Syntax</u> AT+CLIP=<n>	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> [27.007] § 7.6	<u>Notes</u> <ul style="list-style-type: none"> 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>]]]



5.9. +CLIR Command: Calling line identification restriction

AT+CLIR Calling line identification restriction	
<i>Test command</i> <u>Syntax</u> AT+CLIR=?	<u>Response</u> +CLIR: (list of supported <n>) OK
<i>Read command</i> <u>Syntax</u> AT+CLIR?	<u>Response</u> +CLIR: <n>,<m> OK
<i>Execute command</i> <u>Syntax</u> AT+CLIR=<n>	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] § 7.7	<u>Notes</u>



5.10. +CNUM Command: Subscriber number

AT+CNUM Subscriber number	
<i>Test command</i> <u>Syntax</u> AT+CNUM=?	<u>Response</u> +CNUM: (0-1),(129,145,161,128-255) OK
<i>Execute command</i> <u>Syntax</u> AT+CNUM	<u>Response</u> +CNUM: [<alpha1>,<number1>,<type1>,<speed>,<service>,<itc>][<CR><LF>+CNUM: [<alpha2>,<number2>,<type2>,<speed>,<service>,<itc>][...]] OK <u>Parameters</u> <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
<u>Reference</u> [27.007] § 7.1	<u>Notes</u> <ul style="list-style-type: none">• 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 <u>Example:</u> AT+CNUM +CNUM: "TEL","0612345678",129 +CNUM: """,",255 +CNUM: """,",255 +CNUM: """,",255 OK



5.11. +COLP Command: Connected line identification presentation

AT+COLP Connected line identification presentation	
<i>Test command</i> <u>Syntax</u> AT+COLP=?	<u>Response</u> +COLP: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+COLP?	<u>Response</u> +COLP: <n>,<m> OK
<i>Execute command</i> <u>Syntax</u> AT+COLP=[<n>]	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] § 7.8	<u>Notes</u> <ul style="list-style-type: none">• 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 to TE 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)



5.12. +COPN Command: Read operator name

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



5.13. +COPS Command: Operator selection

AT+COPS Operator selection	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+COPS=?</p>	<p><u>Response</u> +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</p>
<p><i>Read command</i></p> <p><u>Syntax</u> AT+COPS?</p>	<p><u>Response</u> +COPS: <mode>[,<format>,<oper>[,< AcT>]] OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> AT+COPS=[<mode>[,<format>[,<oper>[,< AcT>]]]]</p>	<p><u>Response</u> OK</p> <p><u>Parameters</u></p> <p><mode>: 0 automatic (<oper> field is ignored) 1 manual (<oper> field shall be present, and <AcT> optionally) 2 deregister from network 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</p> <p><format>: 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper></p> <p><oper>: string type; <format> indicates if the format is alphanumeric or numeric</p> <p><stat>: 0 unknown 1 available 2 current 3 forbidden</p> <p><AcT>: access technology selected: 0 GSM 1 GSM Compact 2 UTRAN</p>
<p><u>Reference</u> [27.007] §7.3</p>	<p><u>Notes</u></p> <ul style="list-style-type: none"> Only mode 0,1, 3 and 4 are supported

5.14. +CPOL Command: Preferred PLMN list

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



5.15. +CPWD Command: Change password

AT+CPWD Change password	
<i>Test command</i> <u>Syntax</u> AT+CPWD=?	<u>Response</u> +CPWD: list of supported (<fac>,<pwdlength>)s OK
<i>Write command</i> <u>Syntax</u> AT+CPWD=<fac>,<oldpwd>,<newpwd>	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] §7.5	<u>Notes</u> <ul style="list-style-type: none">• 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..



5.16. +CREG Command: Network registration

AT+CREG Network registration	
<i>Test command</i> <u>Syntax</u> AT+CREG=?	<u>Response</u> +CREG: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CREG?	<u>Response</u> +CREG: <n>,<stat>[,<lac>,<ci>] OK
<i>Execute command</i> <u>Syntax</u> AT+CREG=<n>	<u>Response</u> OK <u>Parameters</u> <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
<u>Reference</u> [27.007] § 7.2	<u>Notes</u> <ul style="list-style-type: none">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.



5.17. +CSSN Command: Supplementary service notification

AT+CSSN Supplementary service notification	
<i>Test command</i> <u>Syntax</u> AT+CSSN=?	<u>Response</u> +CSSN: (list of supported <n>s), (list of supported <m>s) OK
<i>Read command</i> <u>Syntax</u> AT+CSSN?	<u>Response</u> +CSSN: <n>,<m> OK
<i>Write command</i> <u>Syntax</u> AT+CSSN=<n>[,<m>]	<u>Response</u> OK <u>Parameters</u> <n>: 0: Suppresses the +CSSI messages 1: Activates the +CSSI messages <m>: 0: Suppresses the +CSSU messages 1: Activates the +CSSU messages
<u>Reference</u> [27.007] § 7.17	<u>Notes</u> Currently, Modules support the following values: <ul style="list-style-type: none">• CSSI: 0 to 6• CSSU: 0 to 5



5.18. +CPLS Command: Selection of preferred PLMN list

AT+CPLS Selection of preferred PLMN list	
<i>Test command</i> <u>Syntax</u> AT+CPLS=?	<u>Response</u> +CPLS: (list of supported <list> s) OK
<i>Read command</i> <u>Syntax</u> AT+CPLS?	<u>Response</u> +CPLS: <list> OK
<i>Write command</i> <u>Syntax</u> AT+CPLS=<list>	<u>Response</u> OK <u>Parameter</u> <list> : 0, 1
<u>Reference</u> [27.007] § 7.20	<u>Notes</u> <ul style="list-style-type: none">• This command appears in 27.007 Release 5, but SIM files EFPLMNwAcT, EFOPLMNwAcT exists in Release 99.



5.19. +CTFR Command: Call deflection

AT+CTFR Call deflection	
<i>Test command</i> <u>Syntax</u> AT+CTFR=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+CTFR=<number> [, <type> [, <subaddr> [, <satype>]]]	<u>Response</u> +CME ERROR: <err> <u>Parameter</u> <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
<u>Reference</u> [27.007] § 7.14	<u>Notes</u>



5.20. +CGEQMIN Command: 3G Quality of Service Profile (Minimum acceptable)

Sets the UMTS QoS profile that is used in the Activate PDP Context Request message

AT+CGEQMIN 3G Quality of Service Profile (Minimum acceptable)	
<i>Test command</i> <u>Syntax</u> AT+CGEQMIN=?	<u>Response</u> +CGEQMIN: "IP",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2),(0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"),("0E0","5E2","1E2","5E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3) +CGEQMIN: "PPP",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2),(0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"),("0E0","5E2","1E2","5E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3) +CGEQMIN: "IPv6",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2),(0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"),("0E0","5E2","1E2","5E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3) OK
<i>Write command</i> <u>Syntax</u> +CGEQMIN = <cid>, <Traffic_class>, <maximum_bitrate_UL>, <maximum_bitrate_DL>, <Guaranteed_bitrate_UL>, <Guaranteed_bitrate_DL>, <Delivery_order>, <Maximum_SDU_size>, <SDU_error_ratio>, <Residual_bit_error_ratio>, <Delivery_of_erroneous_SDUs>,<Transfer_delay>, <Traffic_handling_priority>	<u>Response</u> OK <u>Parameter</u> values per specifications; parameter values supported are: <cid> :1 to 16 <Traffic_class> : 0 to 4 <maximum_bitrate_UL> : 0 to 384 <maximum_bitrate_DL> : 0 to 384 <Guaranteed_bitrate_UL> : 0 to 384 <Guaranteed_bitrate_DL> :0 to 384 <Delivery_order> :0 to 2 <Maximum_SDU_size> : 0 to 1520 <SDU_error_ratio> : 0E0 , 1E1 , 1E2 , .7E3, 1E3 , 1E4, 1E5, 1E6 <Residual_bit_error_ratio>: .. 0E0 , 5E2 , 1E2 , 5E3, 4E3, 1E3 ,1E4,1E5,1E6, 6E8 <Delivery_of_erroneous_SDUs> : 0 to 3 <Transfer_delay>: 0,100 to 4000 <Traffic_handling_priority> :0 to 3 Set values are saved across power cycles
<u>Reference</u> [27.007] § 10.1.7	<u>Notes</u> Setting these parameters will reset +CGQMIN and +CGQREQ to defaults

5.21. +CGEQREQ Command: 3G Quality of Service Profile (Requested)

AT+CGEQREQ 3G Quality of Service Profile (Requested)	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+CGEQREQ=?</p>	<p><u>Response</u> +CGEQREQ: "IP",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2),(0-1520), ("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"), ("0E0","5E2","1E2","5E3","4E3","1E3","1E4","1E5","1E6","6E8"), (0-3),(0,100-4000),(0-3) +CGEQREQ: "PPP",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2), (0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"), ("0E0","5E2","1E2","5E3","4E3","1E3","1E4","1E5","1E6","6E8"),(0-3), (0,100-4000),(0-3) +CGEQREQ: "IPV6",(0-4),(0-5760),(0-7168),(0-5760),(0-7168),(0-2), (0-1520),("0E0","1E1","1E2","7E3","1E3","1E4","1E5","1E6"), ("0E0","5E2","1E2","5E3","4E3","1E3", "1E4","1E5","1E6","6E8"),(0-3),(0,100-4000),(0-3) OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> +CGEQREQ= <cid>, <Traffic_class>, <maximum_bitrate_UL>, <maximum_bitrate_DL>, <Guaranteed_bitrate_UL>, <Guaranteed_bitrate_DL>, <Delivery_order>, <Maximum_SDU_size>, <SDU_error_ratio>, <Residual_bit_error_ratio>, <Delivery_of_erroneous_SDUs>, <Transfer_delay>, <Traffic_handling_priority></p>	<p><u>Response</u> OK</p> <p><u>Parameter</u> values per specifications; parameter values supported are: <cid> :1 to 16 <Traffic_class> : 0 to 4 <maximum_bitrate_UL> : 0 to 384 <maximum_bitrate_DL> : 0 to 384 <Guaranteed_bitrate_UL> : 0 to 384 <Guaranteed_bitrate_DL> : 0 to 384 <Delivery_order> :0 to 2 <Maximum_SDU_size> : 0 to 1520 <SDU_error_ratio> : 0E0 , 1E1 , 1E2 , .7E3, 1E3 , 1E4, 1E5, 1E6 <Residual_bit_error_ratio>: .. 0E0 , 5E2 , 1E2 , 5E3, 4E3, 1E3 ,1E4,1E5,1E6, 6E8 <Delivery_of_erroneous_SDUs> : 0 to 3 <Transfer_delay>: 0, 100 to 4000 <Traffic_handling_priority> : 0 to 3 Set values are saved across power cycles</p>
<p><u>Reference</u> [27.007] § 10.1.6</p>	<p><u>Notes</u> Setting these parameters will reset +CGQMIN and +CGQREQ to defaults</p>

**5.22. +CGEQNEG Command: 3G Quality of Service Profile (Negotiated)**

AT+CGEQMIN 3G Quality of Service Profile (Negotiated)	
<i>Test command</i>	
<u>Syntax</u> AT+CGEQNEG=?	<u>Response</u> +CGEQNEG: (list of <cid>s associated with active contexts) OK
<i>Write command</i>	
<u>Syntax</u> +CGEQNEG = [<cid> [, <cid> [, ...]]]	<u>Response</u> +CGEQNEG: <cid>, <Traffic class>, <Maximum bitrate UL> , <Maximum bitrate DL>, <Guaranteed bitrate UL> , <Guaranteed bitrate DL>, <Delivery order>, <Maximum SDU size>, <SDU error ratio>, <Residual bit error ratio>, <Delivery of erroneous SDUs>, <Transfer delay>, <Traffic handling priority> [<CR><LF> +CGEQNEG: <cid>, <Traffic class>, <Maximum bitrate UL> , <Maximum bitrate DL>, <Guaranteed bitrate UL> , <Guaranteed bitrate DL>, <Delivery order>, <Maximum SDU size>, <SDU error ratio>, <Residual bit error ratio>, <Delivery of erroneous SDUs>, <Transfer delay>, <Traffic handling priority> [<CR><LF> [...] OK
<u>Reference</u> [27.007] § 10.1.8	<u>Notes</u>



6. PHONE BOOK MANAGEMENT

Supporting storages:

- "DC" ME dialed calls list
Maximum number of records: 10
Maximum length of number(bytes): 40
Maximum length of name(bytes): 180 bytes
- "EN" SIM/USIM (or MT) emergency number
Maximum number of records: 50
Maximum length of number(bytes): 40
Maximum length of name(bytes): 180 bytes
- "FD" SIM fix dialing-phonebook
Maximum number of records: card dependency
Maximum length of number(bytes): 40
Maximum length of name(bytes): card dependency,
but 180 bytes limitation due to AT command parser
- "MC" MT missed (unanswered received) calls list
Maximum number of records: 10
Maximum length of number(bytes): 40
Maximum length of name(bytes): 180 bytes
- "ON" SIM (or ME) own numbers (MSISDNs) list
Maximum number of records: card dependency
Maximum length of number(bytes): 40
Maximum length of name(bytes): card dependency,
but 180 bytes limitation due to AT command parser
- "RC" MT received calls list
Maximum number of records: 10
Maximum length of number(bytes): 40
Maximum length of name(bytes): 180 bytes
- "SM" SIM phonebook
Maximum number of records: card dependency
Maximum length of number(bytes): 40
Maximum length of name(bytes): card dependency,
but 180 bytes limitation due to AT command parser
- "ME" ME file system
Maximum number of records: 100
Maximum length of number(bytes): 40
Maximum length of name(bytes): 180 bytes
- "LD" SIM/USIM last dialed list
Maximum number of records: card dependency
Maximum length of number(bytes): 40
Maximum length of name(bytes): card dependency,
but 180 bytes limitation due to AT command parser



6.1. +CPBF Command: Find phonebook entries

AT+CPBF Find phonebook entries	
<i>Test command</i> <u>Syntax</u> AT+CPBF=?	<u>Response</u> +CPBF: [<nlength>],[<tlength>] OK
<i>Execute command</i> <u>Syntax</u> AT+CPBF=<findtext>	<u>Response</u> [+CPBF: <index1>,<number>,<type>,<text>] [+CBPF: <index2>,<number>,<type>,<text>] OK <u>Parameters</u> <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>
<u>Reference</u> [27.007] §8.13	<u>Notes</u> <ul style="list-style-type: none">• Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS)



6.2. +CPBR Command: Read current phonebook entries

AT+CPBR Read current phonebook entries	
<i>Test command</i> <u>Syntax</u> AT+CPBR=?	<u>Response</u> +CPBR: (list of supported <index>s),[<nlength>],[<tlength>] OK
<i>Execute command</i> <u>Syntax</u> AT+CPBR=<index1> [,<index2>]	<u>Response</u> [+CPBR: <index1>,<number>,<type>,<text>] [+CPBR: <index2>,<number>,<type>,<text>] OK <u>Parameters</u> <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>
<u>Reference</u> [27.007] §8.12	<u>Notes</u> <ul style="list-style-type: none">• Execution command returns phonebook entries in location number range <index1>... <index2> from the current phonebook memory storage selected with +CPBS.



6.3. +CPBS Command: Select phonebook memory storage

AT+CPBS Select phonebook memory storage	
<i>Test command</i> <u>Syntax</u> AT+CPBS=?	<u>Response</u> +CPBS: (list of supported <storage>s) OK
<i>Read command</i> <u>Syntax</u> AT+CPBS?	<u>Response</u> +CPBS: <storage>[,<used>,<total>] OK
<i>Execute command</i> <u>Syntax</u> AT+CPBS=<storage>	<u>Response</u> OK <u>Parameters</u> <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 "ME" ME file system (up to 50 entries) <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
<u>Reference</u> [27.007] §8.11	<u>Notes</u> <ul style="list-style-type: none">Set command selects phonebook memory storage <storage>, which is used by other phonebook commands



6.4. +CPBW Command: Write phonebook entries

AT+CPBW Write phonebook entries	
<i>Test command</i> <u>Syntax</u> AT+CPBW=?	<u>Response</u> +CPBW: (list of supported <index>s),[<nlength>], (list of supported <type>s),[<tlength>] OK
<i>Execute command</i> <u>Syntax</u> AT+CPBW=[<index>],[<number>],[<type>],[<text>]]]	<u>Response</u> OK <u>Parameters</u> <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>
<u>Reference</u> [27.007] §8.14	<u>Notes</u> <ul style="list-style-type: none">• Execution command writes phonebook entry in location number <index> in the current phonebook memory storage selected with +CPBS



7. SMS AT COMMANDS

7.1. 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.

7.2. 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 in 3G TS 27.007 [9]); type of address given by <to>
<data>:	In the case of SMS: 3G TS 23.040 [3] TP-User-Data in text mode responses; format: <ul style="list-style-type: none">- if <dc> 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 II (GSM 7 bit default alphabet 23) is presented as 17 (IRA 49 and 55))

- if <dc> 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 <dc> 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 <dc> 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

<dc>:	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)

SMS restriction

Only support SM and ME . Max records and data length as following

“ME”

Maximum number of records: 50
Maximum length of data(bytes): 176



“SM”

Maximum number of records: card dependence
Maximum length of data(bytes): 176



7.3. +CMGD Command: Delete SMS message

AT+CMGD Delete SMS message	
<i>Test command</i> <u>Syntax</u> AT+CMGD=?	<u>Response</u> +CMGD: (list of supported <index>s)[,(list of supported <delflag>s)] OK
<i>Execute command</i> <u>Syntax</u> AT+CMGD=<index>[,<delflag>]	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> [27.005] §3.5.4	<u>Notes</u> <ul style="list-style-type: none">• 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



7.4. +CMGF Command: Select SMS message format

AT+CMGF Select SMS message format	
<i>Test command</i> <u>Syntax</u> AT+CMGF=?	<u>Response</u> +CMGF: (list of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+CMGF?	<u>Response</u> +CMGF: <mode> OK
<i>Execute command</i> <u>Syntax</u> AT+CMGF=[<mode>]	<u>Response</u> OK <u>Parameters</u> <mode>: 0: PDU mode 1: text mode
<u>Reference</u> [27.005] §3.2.3	<u>Notes</u> <ul style="list-style-type: none">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.



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

AT+CMGL List SMS messages from preferred store	
<i>Test command</i> <u>Syntax</u> AT+CMGL=?	<u>Response</u> +CMGL: (list of supported <stat>s) OK
<i>Execute command</i> <u>Syntax</u> AT+CMGL=[<stat>]	<u>Response</u> 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 <u>Parameters</u> <stat>: 0, 1, 2, 3, 4 in PDU mode "REC UNREAD", "REC READ", "STO UNSET", "STO SENT", "ALL" in text mode
<u>Reference</u> [27.005] § 3.4.2 and 4.1	<u>Notes</u> <ul style="list-style-type: none">• 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.



7.6. +CMGR Command: Read SMS message

AT+CMGR Read SMS message	
<i>Write command</i> <u>Syntax</u> AT+CMGR=<index>	<u>Response</u> if PDU mode (+CMGF=0) and command successful: +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> OK
<u>Reference</u> [27.005] §3.4.3 and 4.2 (+CMGR)	<u>Notes</u> <ul style="list-style-type: none">• 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.



7.7. +CMGS Command: Send SMS message

AT+CMGS Send SMS message	
<i>Test command</i> <u>Syntax</u> AT+CMGS=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> if PDU mode (+CMGF=0): AT+CMGS=<length><CR>PDU is given<ctrl-Z/ESC>	<u>Response</u> if PDU mode (+CMGF=0) and sending successful: +CMGS: <mr>[,<ackpdu>] OK
<u>Reference</u> [27.005] § 3.5.1 and 4.3	<u>Notes</u> <ul style="list-style-type: none">• <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



7.8. +CMGW Command: Write SMS message to memory

AT+CMGW Write SMS message to memory	
<i>Test command</i> <u>Syntax</u> AT+CMGW=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> if PDU mode (+CMGF=0): AT+CMGW=<length>[, <stat>]<CR>PDU is given<ctrl-Z/ESC>	<u>Response</u> +CMGW: <index> OK
<u>Reference</u> [27.005] § 3.5.3 and 4.4	<u>Notes</u> <ul style="list-style-type: none">• 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.



7.9. +CMSS Command: Send SMS message from storage

AT+CMSS Send SMS message from storage	
<i>Test command</i> <u>Syntax</u> AT+CMSS=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+CMSS=<index>[,<da>[,<toda>]]	<u>Response</u> if PDU mode (+CMGF=0) and sending successful: +CMSS: <mr>[,<ackpdu>] OK
<u>Reference</u> [27.005] § 3.5.2 and 4.7	<u>Notes</u> <ul style="list-style-type: none">• 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...)

7.10. +CNMI Command: New SMS message indication

AT+CNMI New SMS message indication	
<i>Test command</i> <u>Syntax</u> AT+CNMI=?	<u>Response</u> +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
<i>Read command</i> <u>Syntax</u> AT+CNMI?	<u>Response</u> +CNMI: <mode>,<mt>,<bm>,<ds>,<bfr> OK
<i>Write command</i> <u>Syntax</u> AT+CNMI=[<mode>] [,<mt>][,<bm>] [,<ds>][,<bfr>]	<u>Response</u> OK <u>Parameters</u> <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: Class 2 SMS are stored in SM and notification +CMTI: "SM",<index> is sent to TE. Other SMS are routed directly to TE and notification sent to TE is +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled) +CMT: <oa>,<alpha>,<scts>,<tooa>,<fo>,<pid>,<dcsc>,<sca>,<tosca>,<length><CR><LF><data> (text mode enabled) <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>,<dcsc>,<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.
<u>Reference</u> [27.005] § 3.4.1	<u>Notes</u>



7.11. +CSCB Command: Select cell broadcast message

AT+CSCB Select cell broadcast message	
<i>Test command</i> <u>Syntax</u> AT+CSCB=?	<u>Response</u> +CSCB: (list of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+CSCB?	<u>Response</u> +CSCB: <mode>,<mids>,<dcss> OK
<i>Write command</i> <u>Syntax</u> AT+CSCB=[<mode>[,<mids>]]	<u>Response</u> OK <u>Parameters</u> <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. <u>Intervals not allowed.</u> <dcss>: string type; all different possible combinations of CBM data coding schemes (refer <dc>) (default is empty string); e.g. "0-3,5"
<u>Reference</u> [27.005] § 3.3.4	<u>Notes</u> <ul style="list-style-type: none">• 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)



7.12. +CSCA Command: SMS service center address

AT+CSCA SMS service center address	
<i>Test command</i> <u>Syntax</u> AT+CSCA=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CSCA?	<u>Response</u> +CSCA: <sca>,<tosca> OK
<i>Write command</i> <u>Syntax</u> AT+CSCA=<sca>[,<tosca>]	<u>Response</u> OK
<u>Reference</u> [27.005] § 3.3.1	<u>Notes</u> <ul style="list-style-type: none">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.



7.13. +CSMP Command: Set SMS text mode parameters

AT+CSMP Set SMS text mode parameters	
<i>Test command</i> <u>Syntax</u> AT+CSMP=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+CSMP?	<u>Response</u> +CSMP: <fo>,<vp>,<pid>,<dc> OK
<i>Write command</i> <u>Syntax</u> AT+CSMP=[<fo>,<vp>,<pid>,<dc>]	<u>Response</u> OK
<u>Reference</u> [27.005] § 3.3.2	<u>Notes</u> <ul style="list-style-type: none">• 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



7.14. +CSMS Command: Select Message service

AT+CSMS Select Message service	
<i>Test command</i> <u>Syntax</u> AT+CSMS=?	<u>Response</u> +CSMS: (list of supported <service> s) OK
<i>Read command</i> <u>Syntax</u> AT+CSMS?	<u>Response</u> +CSMS: <service> , <mt> , <mo> , <bm> OK
<i>Write command</i> <u>Syntax</u> AT+CSMS=<service>	<u>Response</u> +CSMS: <mt> , <mo> , <bm> OK <u>Parameters</u> <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
<u>Reference</u> [27.005] §3.2.1	<u>Notes</u> <ul style="list-style-type: none">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.



7.15. +CPMS Command: Preferred Message Storage

AT+CPMS Preferred Message Storage	
<i>Test command</i> <u>Syntax</u> AT+CPMS=?	<u>Response</u> +CPMS: (list of supported <mem1>s), (list of supported <mem2>s), (list of supported <mem3>s) OK
<i>Read command</i> <u>Syntax</u> AT+CPMS?	<u>Response</u> +CPMS: <mem1>,<used1>,<total1>,<mem2>,<used2>,<total2>,<mem3>,<used3>,<total3> OK
<i>Write command</i> <u>Syntax</u> AT+CPMS=<mem1>[,<mem2>[,<mem3>]]	<u>Response</u> +CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3> OK <u>Parameters</u> See chapter 7.2
<u>Reference</u> [27.005] §3.2.2	<u>Notes</u> <ul style="list-style-type: none">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. <u>Example</u> 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 Preferred Storage :

	Preferred storage SIM		Preferred 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



7.16. +CSDH Command: Show text mode parameters

AT+CSDH Show Text Mode Parameters	
<i>Test command</i> <u>Syntax</u> AT+CSDH=?	<u>Response</u> +CSDH: (list of supported <show>s) OK
<i>Read command</i> <u>Syntax</u> AT+CSDH?	<u>Response</u> +CSDH: <show> OK
<i>Write command</i> <u>Syntax</u> AT+CSDH=[<show>]	<u>Response</u> OK <u>Parameter</u> <show> : 0 : do not show header values defined in commands +CSCA and +CSMP (<sca>, <tosca>, <fo>, <vp>, <pid> and <dc>) nor <length>, <toda> or <too> 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
<u>Reference</u> [27.005] §3.3.3	<u>Notes</u> <ul style="list-style-type: none">Set command controls whether detailed header information is shown in text mode result codes



7.17. +CSAS Command: Save settings

AT+CSAS Save Settings	
<i>Test command</i> <u>Syntax</u> AT+CSAS=?	<u>Response</u> +CSAS: (list of supported <profile>s) OK
<i>Write command</i> <u>Syntax</u> AT+CSAS=[<profile>]	<u>Response</u> OK <u>Parameter</u> <profile> : profile number where user settings are to be stored
<u>Reference</u> [27.005] §3.3.3	<u>Notes</u> <ul style="list-style-type: none">• Save the active message service settings (+CSMP) to a non volatile memory.



7.18. +CRES Command: Restore settings

AT+CRES Restore Settings	
<i>Test command</i> <u>Syntax</u> AT+CRES=?	<u>Response</u> +CRES: (list of supported <profile>s) OK
<i>Write command</i> <u>Syntax</u> AT+CRES=[<profile>]	<u>Response</u> OK <u>Parameter</u> <profile> : profile number where user settings are stored 0 : values saved by the user 1: default factory settings
<u>Reference</u> [27.005] §3.3.3	<u>Notes</u> <ul style="list-style-type: none">Restore the saved message service settings (+CSMP) from a non volatile memory.



7.19. +CMT Command: Received SMSPP content

+CMT: Received SMSPP content	
<i>Unsolicited notification</i>	<u>Response</u> +CMT: [<alpha>, <length><CR><LF><pdu> +CMT: <oa> , [<alpha>], <scts> [, <tooa> , <fo>, <pid> , <dc>, <sca> , <tosca> , <length>] <CR> <LF> <data>
<u>Reference</u> [27.005]	<u>Notes</u> <ul style="list-style-type: none">• All parameters are extracted from received message• Text .About parameters in italics, refer command Show Text Mode Parameters +CSDH



8. DATA AND FAX AT COMMANDS

8.1. +CBST Command: Select bearer service type

AT+CBST Select bearer service type	
<i>Test command</i> <u>Syntax</u> AT+CBST=?	<u>Response</u> +CBST: (list of supported <speed>s),(list of supported <name>s),(list of sup-ported <ce>s) OK
<i>Read command</i> <u>Syntax</u> AT+CBST?	<u>Response</u> +CBST: <speed>,<name>,<ce> OK

<p><i>Write command</i></p> <p><u>Syntax</u> AT+CBST=[<speed> [,<name>[,<ce>]]]</p>	<p><u>Response</u> OK</p> <p><u>Parameter</u> <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) 12 9600 bps (V.34) 14 14400 bps (V3.4) 16 28800 bps (V3.4) 17 33600 bps (V3.4) 39 9600 bps (V.120) 43 14400 bps (V.120) 48 28800 bps (V.120) 51 48000 bps (V.120) 71 9600 bps (V.110 or X.31 flag stuffing) 75 14400 bps (V.110) 80 28800 bps (V.110) 81 38400 bps (V.110) 83 56000 bps (X.31 flag stuffing, UDI) 116 64000 bps 134 64000 bps (multimedia) <name>: 0 data circuit asynchronous (UDI or 3.1 kHz modem) 1 data circuit synchronous (UDI or 3.1 kHz modem) 4 data circuit asynchronous (RDI) <ce>: 0 transparent 1 non-transparent</p>
<p><u>Reference</u> [27.007] §6.7</p>	<p><u>Note</u></p> <ul style="list-style-type: none"> 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.



8.2. +CRLP Command: Select radio link protocol parameter

AT+CRLP Select radio link protocol parameter	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+CRLP=?</p>	<p><u>Response</u> +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</p>
<p><i>Read command</i></p> <p><u>Syntax</u> AT+CRLP?</p>	<p><u>Response</u> +CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]] OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> AT+CRLP=[<iws>[,<mws>[,<T1>[,<N2>[,<ver>[,<T4>]]]]]]</p>	<p><u>Response</u> OK</p> <p><u>Parameters</u> <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.</p>
<p><u>Reference</u> [27.007] §6.8</p>	<p><u>Notes</u></p> <ul style="list-style-type: none"> 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).



8.3. +CR Command: Service reporting control

AT+CR Service reporting control	
<i>Test command</i> <u>Syntax</u> AT+CR=?	<u>Response</u> +CR: (list of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+CR?	<u>Response</u> +CR: <mode> OK
<i>Write command</i> <u>Syntax</u> AT+CR=[<mode>]	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> [27.007] §6.9	<u>Notes</u> <ul style="list-style-type: none">• 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.



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

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



8.5. +FRM Command: Receive data

AT+FRM Receive data	
<i>Test command</i> <u>Syntax</u> AT+FRM=?	<u>Response</u> (List of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT+FRM?	<u>Response</u> +FRM:<mode> OK
<i>Write command</i> <u>Syntax</u> AT+FRM=<mode>	<u>Response</u> CONNECT Or NO CARRIER <u>Parameters</u> <mode>: Modulation used by the other modem to transmit data. The mobile phone should then enter in a receiving mode, using that modulation. 72: V29 7200 bps 96: V29 9600 bps
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">• 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



8.6. +FTM Command: Transmit data

AT+FTM Transmit data	
<i>Test command</i> <u>Syntax</u> AT+FTM=?	<u>Response</u> (List of supported < mode >s) OK
<i>Read command</i> <u>Syntax</u> AT+FTM?	<u>Response</u> +FTM:<mode> OK
<i>Write command</i> <u>Syntax</u> AT+FTM=< mode >	<u>Response</u> CONNECT Or NO CARRIER <u>Parameters</u> < mode >: Modulation used by the other modem to transmit data. The mobile phone should then enter in a receiving mode, using that modulation. 72: V29 7200 bps 96: V29 9600 bps
<u>Reference</u> TIA578A	<u>Notes</u> <ul style="list-style-type: none">• 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



8.7. +FRS Command: Receive silence

AT+FRS Receive silence	
<i>Test command</i> <u>Syntax</u> AT+FRS=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+FRS?	<u>Response</u> ERROR
<i>Write command</i> <u>Syntax</u> AT+FRS=<n>	<u>Response</u> OK <u>Parameters</u> <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)
<u>Reference</u> TIA578A	<u>Notes</u> <ul style="list-style-type: none">Not support. This command is fully supported only in fax mode (AT+FCLASS=1).



8.8. +FTS Command: Stop transmission and wait

AT+FTS Stop transmission and wait	
<i>Test command</i> <u>Syntax</u> AT+FTS=?	<u>Response</u> OK
<i>Read command</i> <u>Syntax</u> AT+FTS?	<u>Response</u> ERROR
<i>Write command</i> <u>Syntax</u> AT+FTS=< mode >	<u>Response</u> OK <u>Parameters</u> < 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)
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">• Not support. This command is fully supported only in fax mode (AT+FCLASS=1).



8.9. +FRH Command: Receive data using HDLC framing

AT+FRH Receive data using HDLC framing	
<i>Test command</i> <u>Syntax</u> AT+FRH=?	<u>Response</u> (list of supported < mode >s) OK
<i>Read command</i> <u>Syntax</u> AT+FRH?	<u>Response</u> +FRH:<mode> OK
<i>Write command</i> <u>Syntax</u> AT+FRH=< mode >	<u>Response</u> OK <u>Parameters</u> < mode >: modulation used by the other modem to transmit data, using HDLC protocol. <u>3:</u> V21 channel 2 300 bps
<u>Reference</u> TIA578A	<u>Notes</u> <ul style="list-style-type: none">• This command is fully supported only in fax mode (AT+FCLASS=1).• Set command only supported during FAX communication established.



8.10. +FTH Command: Transmit data using HDLC framing

AT+FTH Transmit data using HDLC framing	
<i>Test command</i> <u>Syntax</u> AT+FTH=?	<u>Response</u> (List of supported < mode >s) OK
<i>Read command</i> <u>Syntax</u> AT+FTH?	<u>Response</u> +FTH:<mode> OK
<i>Write command</i> <u>Syntax</u> AT+FTH=< mode >	<u>Response</u> OK <u>Parameters</u> < mode >:modulation used by the other modem to transmit data, using HDLC protocol. 3: V21 channel 2 300 bps
<u>Reference</u>	<u>Notes</u> <ul style="list-style-type: none">This command is fully supported only in fax mode (AT+FCLASS=1).



8.11. +FMI Command: Manufacturer identification

AT+FMI Manufacturer identification	
<i>Test command</i> <u>Syntax</u> AT+FMI=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+FMI	<u>Response</u> <manufacturer> OK <u>Parameter</u>
<u>Reference</u> EIA/TIA-578-D	<u>Notes</u> <ul style="list-style-type: none">• See Manufacturer identification +CGMI



8.12. +FMM Command: Model identification

AT+FMM Model identification	
<i>Test command</i> <u>Syntax</u> AT+FMM=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+FMM	<u>Response</u> <model> OK <u>Parameter</u>
<u>Reference</u> EIA/TIA-578-D	<u>Notes</u> <ul style="list-style-type: none">• See Model identification +CGMM



8.13. +FMR Command: Revision identification

AT+FMR Revision identification	
<i>Test command</i> <u>Syntax</u> AT+FMR=?	<u>Response</u> OK
<i>Write command</i> <u>Syntax</u> AT+FMR	<u>Response</u> <revision> OK <u>Parameter</u>
<u>Reference</u> EIA/TIA-578-D	<u>Notes</u> <ul style="list-style-type: none">• See Revision identification +CGMR



9. GPRS AT COMMANDS

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

9.1. +CGATT Command: PS Attach or Detach

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



9.2. +CGACT Command: PDP context activate or deactivate

AT+CGACT PDP context activate or deactivate	
<i>Test command</i> <u>Syntax</u> AT+CGACT=?	<u>Response</u> +CGACT: (list of supported <state>s) OK
<i>Read command</i> <u>Syntax</u> AT+CGACT?	<u>Response</u> +CGACT: <cid>, <state> OK
<i>Write command</i> <u>Syntax</u> AT+CGACT= <state>[, <cid>]	<u>Response</u> OK <u>Parameters</u> <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.
<u>Reference</u> [27.007] §10.1.10	<u>Notes</u> After CGACT it is impossible to use ATD*99... or *98... commands. Use +CGDATA instead.



9.3. +CGCLASS Command: GPRS mobile station class

AT+CGCLASS GPRS mobile station class	
<i>Test command</i> <u>Syntax</u> AT+CGCLASS=?	<u>Response</u> +CGCLASS: (list of supported <class>s) OK
<i>Read command</i> <u>Syntax</u> AT+CGCLASS?	<u>Response</u> +CGCLASS: <class> OK
<i>Write command</i> <u>Syntax</u> AT+CGCLASS=<class>	<u>Response</u> OK <u>Parameters</u> <class>: A string parameter which indicates the GPRS mobile class (in descending order of functionality) "A" class A "B" class B "CC" class C in circuit switched only mode (lowest)
<u>Reference</u> [27.007] §10.1.17	<u>Notes</u>



9.4. +CGDCONT Command: Define PDP context

AT+CGDCONT Define PDP context	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+CGDCONT=?</p>	<p><u>Response</u> +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</p>
<p><i>Read command</i></p> <p><u>Syntax</u> AT+CGDCONT?</p>	<p><u>Response</u> +CGDCONT: <cid>, <PDP_type>, <APN>,<PDP_addr>, <data_comp>,<head_comp>[,<pd1>[,...[,<pdN>]]] OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> AT+CGDCONT=<cid> ,<PDP_type>,<APN> ,<PDP_addr> ,<d_comp>,<h_comp></p>	<p><u>Response</u> OK</p> <p><u>Parameters</u></p> <p><cid>: (PDP Context Identifier) a numeric parameter which specifies a particular PDP context definition.</p> <p><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.</p> <p><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.</p> <p><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.</p> <p><d_comp>: a numeric parameter that controls PDP data compression. 0: off (default and only value supported)</p> <p><h_comp>: a numeric parameter that controls PDP header compression 0: off (default and only value supported)</p> <p><pd1>, ... <pdN>: zero to N string parameters whose meanings are specific to the <PDP_type></p>



<u>Reference</u> [27.007] §10.1.1	<u>Notes</u> <ul style="list-style-type: none">• 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.• APN is stored in eeprom memory after the use of +CGDCONT
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9.5. +CGDATA Command: Enter data state

AT+CGDATA Command Enter data state	
<u>Test command</u>	
<u>Syntax</u> AT+CGDATA=?	<u>Response</u> +CGDATA: (list of supported <L2P>s) OK
<u>Write command</u>	
<u>Syntax</u> AT+CGDATA=[<L2P> ,[<cid> [,<cid> [...]]]]	<u>Response</u> CONNECT <u>Parameters</u> <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).



<u>Reference</u>	<u>Notes</u>
[27.007] §	<ul style="list-style-type: none">• 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>)



9.6. +CGEREP Command: GPRS event reporting

AT+CGEREP GPRS event reporting	
<i>Test command</i> <u>Syntax</u> AT+CGEREP=?	<u>Response</u> +CGEREP: (list of supported <mode>s),(list of supported <bfr>s) OK
<i>Read command</i> <u>Syntax</u> AT+CGEREP?	<u>Response</u> +CGEREP: <mode>, <bfr> OK
<i>Write command</i> <u>Syntax</u> AT+CGEREP=[<mode> ,<bfr>]]	<u>Response</u> OK <u>Parameters</u> <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)
<u>Reference</u> [27.007] §10.1.18	<u>Notes</u> 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



9.7. +CGPADDR Command: Show PDP address

AT+CGPADDR Show PDP address	
<i>Test command</i> <u>Syntax</u> AT+CGPADDR=?	<u>Response</u> +CGPADDR: (list of supported <cid>s) OK
<i>Write command</i> <u>Syntax</u> AT+CGPADDR=<cid>[,<cid>,...]	<u>Response</u> +CGPADDR: <cid>, <PDP_addr> [+CGPADDR: <cid>, <PDP_addr> [...]] OK <u>Parameters</u> < 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
<u>Reference</u> [27.007] §10.1.14	<u>Notes</u> <ul style="list-style-type: none">• 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"



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

AT+CGQMIN Quality of service profile (minimum acceptable)	
<i>Test command</i> <u>Syntax</u> AT+CGQMIN=?	<u>Response</u> +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
<i>Read command</i> <u>Syntax</u> AT+CGQMIN?	<u>Response</u> +CGQMIN: <cid> ,<precedence>,<delay>,<reliability>,<peak>,<mean> [+CGQMIN: ...] OK
<i>Write command</i> <u>Syntax</u> AT+CGQMIN=[<cid>[,<precedence>[,<delay>[,<reliability>[,<peak>[,<mean>]]]]]]	<u>Response</u> OK/ <u>Parameters</u> <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)



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



9.9. +CGQREQ Command: Request quality of service profile

AT+CGQREQ Request quality of service profile	
<p><i>Test command</i></p> <p><u>Syntax</u> AT+CGQREQ=?</p>	<p><u>Response</u> +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</p>
<p><i>Read command</i></p> <p><u>Syntax</u> AT+CGQREQ?</p>	<p><u>Response</u> +CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [+CGQREQ: <cid>,<precedence>,<delay>,<reliability>,<peak>,<mean> [...]] OK</p>
<p><i>Write command</i></p> <p><u>Syntax</u> +CGQREQ=[<cid> [,<precedence > [,<delay> [<reliability.> [,<peak> [<mean>]]]]]</p>	<p><u>Response</u> OK</p> <p><u>Parameters</u> <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</p>
<p><u>Reference</u> [27.007] §10.1.4</p>	<p><u>Notes</u></p> <ul style="list-style-type: none"> • 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



9.10. +CGREG Command: GPRS network registration status

AT+CGREG GPRS network registration status	
<i>Test command</i> <u>Syntax</u> AT+CGREG=?	<u>Response</u> +CGREG: (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+CGREG?	<u>Response</u> +CGREG: <n>,<stat>[,<lac>,<ci>] OK
<i>Write command</i> <u>Syntax</u> AT+CGREG=[<n>]	<u>Response</u> OK <u>Parameters</u> <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-NUL 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 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-NUL. 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
<u>Reference</u> [27.007] §10.1.19	<u>Notes</u> <ul style="list-style-type: none">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.



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

AT+CGSMS select service for MO SMS messages	
<i>Test command</i> <u>Syntax</u> AT+CGSMS=?	<u>Response</u> +CGSMS: (list of currently available <service> s) OK
<i>Read command</i> <u>Syntax</u> AT+CGSMS?	<u>Response</u> +CGSMS: <service> OK
<i>Write command</i> <u>Syntax</u> AT+CGSMS=[<service>]	<u>Response</u> OK <u>Parameter</u> <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)
<u>Reference</u> [27.007] § 10.1.20	<u>Notes</u> <ul style="list-style-type: none">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.



10. SIM APPLICATION TOOLKIT AT COMMANDS

10.1. Preliminary comments

- SAGEMCOM 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]
- UCS2 pattern in STK text
convert UCS2 string to ASCII string (same way in AT command of SMS or phonebook)
for example UCS2 data : 0x 0065 006D 006F 006D 0065 52A0 503C
*PSSTK: "GET ITEM LIST",2,2,2,"0065006D006F006D006552A0503C",0,0,0
- 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>, <Alphald>, <IconId>, <IconQualifier>	AT*PSSTK = "NOTIFICATION", CommandNumber, IconDisplay
SETUP CALL	*PSSTK: "SETUP CALL", <CommandNumber>, <TypeOfCommand>, <Confirmation>, <Presence1>, <Alphabet1>, <Alphald1>, <IconId1>, <IconQualifier1>, <Presence2>, <Alphabet2>, <Alphald2>, <IconId2>, <IconQualifier2>, <RepeatIndicator>	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", CommandNumber, alphabet, Text, IconDisplay, HelpRequest
PLAY TONE	*PSSTK: "PLAY TONE", <Presence>, <Alphabet>, <Alphald>, <IconId>, <IconQualifier>, <CommandNumber>, <Tone>, <Duration>	AT*PSSTK = "PLAY TONE", CommandNumber, IconDisplay
SELECT ITEM	*PSSTK: "SELECT ITEM", <Presence>, <Alphald>, <Alphabet>, <IconId>, <IconQualifier>, <CommandNumber>, <DefaultItem>, <HelpInfo>, <NumberOfItem>	AT*PSSTK = "SELECT ITEM", CommandNumber, ItemIdentifier, IconDisplay, HelpRequest
SETUP MENU	*PSSTK: "SETUP MENU", <Presence>, <Alphabet>, <Alphald>, <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>, <IconQualifier>	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>, <Alphald>	NULL



10.2. *PSSTKI Command: SIM ToolKit Interface configuration

AT*PSSTKI SIM ToolKit Interface configuration	
<i>Test command</i> <u>Syntax</u> AT*PSSTKI=?	<u>Response</u> *PSSTKI: (List of supported <mode>s) OK
<i>Read command</i> <u>Syntax</u> AT*PSSTKI?	<u>Response</u> *PSSTKI:<mode> OK
<i>Write command</i> <u>Syntax</u> AT*PSSTKI=<mode>	<u>Response</u> OK <u>Parameter</u> <mode>: 1: manual mode : 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 2: auto acknowledge mode: module answers to STK without TE,. any *PSSTK unsolicited result code will be sent to TE 3: auto acknowledge mode without sending unsolicited result code to TE.
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> The aim of this AT command is to configure the AT interface for SIM ToolKit support.



10.3. *PSSTK Command: SIM Toolkit command

AT*PSSTK SIM Toolkit *PSSTK as command	
<u>Write command</u> <u>Syntax</u> AT*PSSTK=<msg>,<parameter1>,...,<parameterN>	<u>Response</u> OK <u>Parameters</u> <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 thetable
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> The *PSSTK can be used in two different ways: <ul style="list-style-type: none">• *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)



10.4. *PSSTK URC: SIM Toolkit unsolicited result code

*PSSTK Unsolicited result code or possible response(s)	
<i>Result code or Possible response(s)</i>	<p><u>Response</u> *PSSTK: <msg>,<parameter1>, ..., <parameterN> OK</p> <p><u>Parameters</u> <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 thetable</p>
	<p><u>Notes</u> The *PSSTK can be used in two different ways:</p> <ul style="list-style-type: none">• *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)



11. AUDIO COMMANDS

11.1. Preliminary comments

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

11.1.1. 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).

11.1.2. 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.
ATDxxxxxx;	<- Make a call in handsfree mode.
ATH	<- Release the call: “parameter change context” is still handsfree, “pre-selected communication context” is reset (as AT+VIP=0, handset mode).
AT+KVGR="5"	<- Set the Downlink gain to 5 dB for handsfree mode.
ATDxxxxxx;	<- Make a call. It is in HANDSET mode.
AT+VIP=0	<- Selects handset mode.
AT+KVG="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.



11.2. +CLVL Command: Loudspeaker volume level

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



11.3. +VIP Command: Initialize Voice Parameters

AT+VIP Initialize voice parameter	
<i>Test command</i> <u>Syntax</u> AT+VIP=?	<u>Response</u> (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+VIP?	<u>Response</u> +VIP:<n> OK
<i>Write command</i> <u>Syntax</u> AT+VIP=<n>	<u>Response</u> OK <u>Parameters</u> <n>: Mode 0 Handset 1 Handsfree 2 Handset raw 3 PCM interface
<u>Reference</u> [27.007] § C.2.6	<u>Notes</u> <ul style="list-style-type: none">• The values are automatically reset after a call (return to 0).• Level volume are accessible with AT+CLVL



11.4. +VTS Command: DTMF and Tone generation

AT+VTS DTMF and tone generation	
<i>Test command</i> <u>Syntax</u> AT+VTS=?	<u>Response</u> (list of supported <tone1>s),(list of supported <tone2>s) ,(list of supported <duration>s) OK
<i>Write command</i> <u>Syntax</u> AT+VTS="<DTMF1>,<DTMF2>, ..., <DTMFn>" Or AT+VTS= "{<DTMF1>,<duration>, {<DTMF2>,<duration>,...{<DTMFn>,<duration>}"	<u>Response</u> OK <u>Parameters</u> <DTMFi>: A single ASCII character in the set 0-9, #, *, A-D. This is interpreted as a single ASCII 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.
<u>Reference</u> [27.007] § C.2.11	<u>Notes</u> <ul style="list-style-type: none">• 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.



11.5. +VTD Command: Tone duration

AT+VTD Tone duration	
<i>Test command</i> <u>Syntax</u> AT+VTD=?	<u>Response</u> (list of supported <n>s) OK
<i>Read command</i> <u>Syntax</u> AT+VTD?	<u>Response</u> <n> OK
<i>Write command</i> <u>Syntax</u> AT+VTD=<n>	<u>Response</u> OK <u>Parameters</u> <n>: 0 (see [27.007] C.2.12)
<u>Reference</u> [27.007] § C.2.12	<u>Notes</u> <ul style="list-style-type: none">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.



11.6. +VGR Command: Receive Gain Selection

AT+VGR Chose receiving gain.	
<i>Test command</i> <u>Syntax</u> AT+VGR=?	<u>Response</u> (list of supported <n>s) OK
<i>Write command</i> <u>Syntax</u> AT+VGR?	<u>Response</u> +VGR:<n> OK
<i>Write command</i> <u>Syntax</u> AT+VGR=<n>	<u>Response</u> OK <u>Parameters</u> <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).
<u>Reference</u> [27.007] § C.2.4	Notes: <ul style="list-style-type: none">• If the actual value and the requested change go out the gain range (-20 to 18 dB), the command returns an error.



11.7. +VGT Command: Transmit Gain Selection

AT+VGT Chose transmit gain.	
<i>Test command</i> <u>Syntax</u> AT+VGT=?	<u>Response</u> (list of supported <n>s) OK
<i>Write command</i> <u>Syntax</u> AT+VGT?	<u>Response</u> +VGT:<n> OK
<i>Write command</i> <u>Syntax</u> AT+VGT=<n>	<u>Response</u> OK <u>Parameters</u> <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).
<u>Reference</u> [27.007] § C.2.5	Notes: <ul style="list-style-type: none">• If the actual value and the requested change go out the gain range (-20 to 18 dB), the command returns an error.



11.8. +KVGR Command: Receive Gain Selection

AT+KVGR Chose receiving gain.	
<i>Test command</i> <u>Syntax</u> AT+KVGR=?	<u>Response</u> (list of supported <n>s) OK
<i>Write command</i> <u>Syntax</u> AT+KVGR?	<u>Response</u> +KVGR:<n> OK
<i>Write command</i> <u>Syntax</u> AT+KVGR=<n>	<u>Response</u> OK <u>Parameters</u> “<n>”: -20 to 18: In dB, Digital gain of the downlink path.
<u>Reference</u> SAGEM COMMUNICATION Proprietary	<u>Notes</u> <ul style="list-style-type: none">The parameter is a string in order to accept negative values, so the value MUST be written between quotes (“xx”).



11.9. +KVG T Command: Transmit Gain Selection

AT+VGT Chose transmit gain.	
<i>Test command</i> <u>Syntax</u> AT+KVG T=?	<u>Response</u> (list of supported <n>s) OK
<i>Write command</i> <u>Syntax</u> AT+KVG T?	<u>Response</u> +KVG T:<n> OK
<i>Write command</i> <u>Syntax</u> AT+KVG T=<n>	<u>Response</u> OK <u>Parameters</u> “<n>”: -20 to 18: In dB, Digital gain of the uplink path.
<u>Reference</u> SAGEM COMMUNICATION Proprietary	<u>Notes</u> <ul style="list-style-type: none">The parameter is a string in order to accept negative values, so the value MUST be written between quotes (“xx”).



11.10. +KECHO Command: Echo Cancellation

AT+KECHO Choose ECHO cancellation mode	
<i>Test command</i> <u>Syntax</u> AT+KECHO=?	<u>Response</u> +KECHO: (list of supported <level>s) OK
<i>Read command</i> <u>Syntax</u> AT+KECHO?	<u>Response</u> +KECHO: <level> OK
<i>Write command</i> <u>Syntax</u> AT+KECHO=<level>	<u>Response</u> OK <u>Parameter</u> <level>: 0 Deactivate. 1 ECHO Cancellation enable
<u>Reference</u> SAGEM COMMUNICATION Proprietary	



11.11. +KNOISE Command: Noise Cancellation

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



11.12. +KST Command: Side Tone

AT+KST Choose Side Tone value	
<i>Test command</i> <u>Syntax</u> AT+KST=?	<u>Response</u> +KST: (list of supported <level>s) OK
<i>Read command</i> <u>Syntax</u> AT+KST?	<u>Response</u> +KST: <level> OK <u>Parameter</u> <level>: -96 ~ 0 Side Tone value. 20: Side Tone disable.
<i>Write command</i> <u>Syntax</u> AT+KST=<level>	<u>Response</u> OK <u>Parameter</u> <level>: -96 ~ 0: Side Tone value (the maximum side tone gain is 0dB.) 20 : Disable Side Tone.
<u>Reference</u> SAGEM COMMUNICATION Proprietary	<u>Notes</u> <ul style="list-style-type: none">• 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).



11.13. +KPC Command: Peak Compressor

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



11.14. +KSRAP Command: Save Restore Audio Parameters

AT+KSRAP Save Audio Parameters	
<i>Test command</i> <u>Syntax</u> AT+KSRAP=?	<u>Response</u> +KSRAP : (list of supported <level>s) OK
<i>Write command</i> <u>Syntax</u> AT+KSRAP=<level>	<u>Response</u> OK <u>Parameter</u> <level> : 0 Save Audio Parameter in EEPROM. 1 Restore Initial Audio Parameter. 2 Restore Audio Parameters in RAM and save in EEPROM.
<u>Reference</u> SAGEM COMMUNICATION Proprietary	<u>Notes</u> <ul style="list-style-type: none">Initial Audio Parameters are the ones before any parameter modification done by these AT commands.



12. SPECIFIC COMMANDS

12.1. +KFSFILE: Flash file operation command

AT+KFSFILE: File operation command	
<i>Test command</i>	
<u>Syntax</u> AT+KFSFILE=?	<u>Response</u> +KFSFILE: (0,1,2,3,4),(URI),(SIZE) OK
<i>Write command</i>	
<u>Syntax</u> AT+KFSFILE=<action>,<uri>[,<NbData>]	<u>Response:</u> CONNECT OK +KFSFILE: <entity type> <name> <size> +KFSFILE: <size> bytes free <u>Parameters</u> <action>: 0 Write file 1 Read file 2 Delete file 3 Return file size 4 List directory and file information <uri>: “/<directory name>/<file names>” (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.
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">• 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> directory.• CME error 20 will be reported, if memory is full when writing.• CME error 23 will be reported, when module start up, because of boot up of file system.• Example: on next page.

**AT+KFSFILE: File operation command**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



12.2 +KGPIOCFG Command: user GPIO configuration

+KGPIOCFG Command: user GPIO configuration	
<i>Test command</i> <u>Syntax</u> AT+KGPIOCFG=?	<u>Response</u> +KGPIOCFG: (list of supported <n>s),(list of supported <dir>s), (list of supported<pull mode>) OK
<i>Write command</i> <u>Syntax</u> AT+KGPIOCFG?	<u>Response:</u> +KGPIOCFG: <n>,<dir>,< pull mode >[<CR><LF> +KGPIOCFG: <n>,<dir>,< pull mode > [...] OK
<i>Write command</i> <u>Syntax</u> AT+KGPIOCFG =<n>,<dir>,<pull mode>	<u>Response:</u> OK <u>Parameters</u> <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 <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
<u>Reference</u> SAGEMCOM Proprietary	<u>Notes</u> <ul style="list-style-type: none">This command provides configuration for +KGPIO command. The current configuration is lost with a reset..



12.3 +KGPIO Command: Hardware IO Control

+KGPIO Command: Hardware IO Control	
<i>Test command</i> <u>Syntax</u> AT+KGPIO=?	<u>Response</u> +KGPIO: (list of supported <IO>s),(list of supported <cde>s) OK
<i>Write command</i> <u>Syntax</u> AT+KGPIO?	<u>Response:</u> OK
<i>Write command</i> <u>Syntax</u> AT+KGPIO=<IO>,<cde>	<u>Response:</u> f <cde> = 2: +KGPIO: <IO>, <current_value> OK Else OK <u>Parameters</u> <IO>: Selected IO 1: GPIO1, pin name of the connector. 2: GPIO2, pin name of the connector. 3: GPIO3, pin name of the connector <cde>: 0: Reset the selected IO 1: Set the selected IO 2: Request the current value of the IO

**+KGPIO Command: Hardware IO Control**

Reference
SAGEMCOM Proprietary

Notes

Be aware that this command doesn't change the level of the IO after a reset of the module.

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



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>,<dc>]	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
99	Resource limitation
100	Synchronization error



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.



APPENDIX 3. 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



APPENDIX 4. 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	<u>V25TER AT COMMANDS</u>		
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.	<u>GENERAL AT COMMANDS</u>		
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.	#CLS Command : Service Class	●	⊙
4.	<u>CALL CONTROL COMMANDS</u>		
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	●	⊙
4.12.	+CSNS Command: Single Numbering Scheme	●	⊙
5.	<u>MOBILE EQUIPMENT CONTROL AND STATUS COMMANDS</u>		
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.	+CPOF 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	●	⊙
5.17.	+CPUC Command : Price per unit and currency table	●	⊙
5.18.	+CPWC Command : Power class	●	⊙
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 Environment Information	●	●
5.27.	+CRMP Command : Ring Melody Playback	●	●
5.29.	+CRSM Command : Restricted SIM Access	●	⊙
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	●	⊙
5.40.	+KMCLASS Command: Change GPRS Multislot class	●	⊙
5.41.	+KTEMPMON Command: Temperature Monitor		
5.43.	+KSYNC Command: Generation of Application synchronization signal		

5.45.	+KNETSCAN Command: Network scan functionality	●	●
5.46.	+KCELLSCAN Command: Cell scan functionality	●	●
6.	<u>NETWORK SERVICE RELATED COMMANDS</u>		
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.	<u>PHONE BOOK MANAGEMENT</u>		
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.	<u>SMS AT COMMANDS</u>		
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.	<u>DATA AND FAX AT COMMANDS</u>		
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	<u>GPRS AT COMMANDS</u>		
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.	<u>SIM APPLICATION TOOLKIT AT COMMANDS</u>		
11.2.	*PSSTKI Command : SIM ToolKit Interface configuration	●	⊙
11.3.	*PSSTK Command : SIM Toolkit command	●	⊙
12	<u>AUDIO COMMANDS</u>		
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	<u>SPECIFIC COMMANDS</u>		
13.1	+ KFSFILE : Flash file operation command	●	●

APPENDIX 5. 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. Give response to URC "SETUP MENU". "1" is the Command Number. Send Terminal response, OK
AT*PSSTK="SETUP MENU",1,0	
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	
*PSSTK: "SELECT ITEM",0,0,"",0,0,1,0,0,2	Totally 2 menus in this level.
AT*PSSTK="GET ITEM LIST",2	
*PSSTK: "GET ITEM LIST",1,1,4,"Customer service",0,0,0	Item 1 is "Customer service", no more sub menus
*PSSTK: "GET ITEM LIST",2,2,4,"LOT",0,0,0	Item 2 is "LOT", no more sub menus
OK	
AT*PSSTK="SELECT ITEM",1,1,0,0	Select item 1 "Customer service", whose ItemIdentifier is 1
OK	
*PSSTK: "DISPLAY	URC "DISPLAY TEXT" info will be showed with Customer information. "http://www.sim-max.com/"



<p>TEXT",1,0,1,0,4,"http://www.sim-max.com/",0,0 AT*PSSTK="DISPLAY TEXT",1,0</p> <p>OK</p> <p>*PSSTK: "END SESSION"</p>	<p>You have to use "DISPLAY TEXT" command to give a response to STK.</p> <p>URC for session status.</p>
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APPENDIX 6. HOW TO SWITCH FROM DATA MODE TO COMMAND MODE

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