AT Command Manual
For ZTE Corporation's AD3812 Module
Version: V1.0

This manual is applicable for AD3812 module.

Copyright Statement

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1 Definitions and abbreviations

1.1 Command line

See figure 2 for general structure of a command line. Standardized basic commands are found only in V.250 [14].

GSM/UMTS commands use syntax rules of extended commands. Every extended command has a test command

(trailing =?) to test the existence of the command and to give information about the type of its subparameters.

Parameter type commands also have a read command (trailing ?) to check the current values of subparameters. Action

type commands do not store the values of any of their possible subparameters, and therefore do not have a read

command.
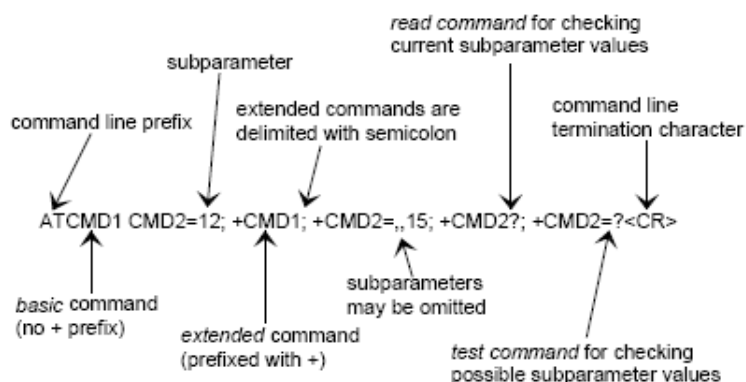
Figure 2: Basic structure of a command line

If verbose responses are enabled with command V1 and all commands in a command line has been performed

successfully, result code <CR><LF>OK<CR><LF> is sent from the TA to the TE. If numeric responses are enabled

with command V0, result code 0<CR> is sent instead.

If verbose responses are enabled with command V1 and subparameter values of a command are not accepted by the TA

(or command itself is invalid, or command cannot be performed for some reason), result code

<CR><LF>ERROR<CR><LF> is sent to the TE and no subsequent commands in the command line are processed. If

numeric responses are enabled with command V0, result code 4<CR> is sent instead. ERROR (or 4) response may be

replaced by +CME ERROR: <err> (refer clause 9) when command was not processed due to an error related to MT

operation.

1.2 Information responses and result codes

The TA response for the example command line of figure 2 could be as shown in figure 3. Here, verbose response

format is enabled with command V1. If numeric format V0 would have been used, <CR><LF> headers

of *information*

*response*s would have been left out and *final result code* changed to 0<CR>.
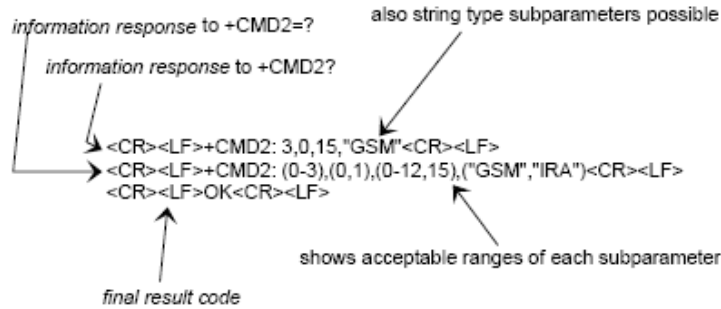
Figure 3: Response to a command line

So called *intermediate result code*s inform about progress of TA operation (e.g. connection establishment CONNECT),

and so called *unsolicited result code*s indicate occurrence of an event not directly associated with issuance of a

command from TE (e.g. ring indication RING).

1.3 Abbreviations

AT ATtention; this two-character abbreviation is always used to start a command line to be sent from TE to TA

ASCI Advanced Speech Call Items, including VGCS, VBS and eMLPP

BCD Binary Coded Decimal

eMLPP Enhanced Multi-Level Precedence and Pre-emption Service

ETSI European Telecommunications Standards Institute

FTM Frame Tunnelling Mode (refer 3GPP TS 27.001 [41] and 3GPP TS 29.007[42])

HSCSD High Speed Circuit Switched Data

IMEI International Mobile station Equipment Identity

IRA International Reference Alphabet (ITU-T T.50 [13])

IrDA Infrared Data Association

ISO International Standards Organization

ITU-T International Telecommunication Union - Telecommunications Standardization Sector

ME Mobile Equipment

MoU Memorandum of Understanding (GSM operator joint)

MT Mobile Termination

PCCA Portable Computer and Communications Association

PTT Push to Talk

RDI Restricted Digital Information

RLP Radio Link Protocol

SIM Subscriber Identity Module

TA Terminal Adaptor, e.g. a GSM data card (equal to DCE; Data Circuit terminating Equipment)

TE Terminal Equipment, e.g. a computer (equal to DTE; Data Terminal Equipment)

TIA Telecommunications Industry Association

UDI Unrestricted Digital Information

UE User Equipment

UICC Universal Integrated Circuit Card

USIM Universal Subscriber Identity Module

VBS Voice Broadcast Service

VGCS Voice Group Call Service

2 General commands

2.1 +CGMI   Request manufacturer identification

Description	Execution command causes the TA to return one or more lines of information text <manufacturer>, determined by	
	the MT manufacturer, which is intended to permit the user of the TA to identify the manufacturer of the MT to which it	
	is connected to. Typically, the text will consist of a single line containing the name of the manufacturer, but	
	manufacturers may choose to provide more information if desired. Refer subclause 9.2 for possible <err> values.	
Command	+CGMI	<manufacturer> *+CME ERROR: <err>*
	+CGMI=?	
Defined values	<manufacturer>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.	

2.2 +CGMM Request model identification

Description	Execution command causes the TA to return one or more lines of information text <model>, determined by the MT	
	manufacturer, which is intended to permit the user of the TA to identify the specific model of the MT to which it is	
	connected to. Typically, the text will consist of a single line containing the name of the product, but manufacturers may	
	choose to provide more information if desired. Refer to subclause 9.2 for possible <err> values.	
Command	+CGMM	<model> *+CME ERROR: <err>*
	+CGMM=?	
Defined values	<model>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.	

2.3 +CGMR Request revision identification

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

	version, revision level or date, or other
	pertinent information of the MT to which it is connected to. Typically, the text will consist of a single line containing
	the version of the product, but manufacturers may choose to provide more information if desired. Refer subclause 9.2
	for possible <err> values.

Command	+CGMR	<revision>
		+CME ERROR: <err>
	+CGMR=?	
Defined values	<revision>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.	

2.4 +CGSN   Request product serial number identification

Description	Execution command causes the TA to return one or more lines of information text <sn>, determined by the MT	
	manufacturer, which is intended to permit the user of the TA to identify the individual MT to which it is connected to.	
	Typically, the text will consist of a single line containing the IMEI (International Mobile station Equipment Identity;	
	refer 3GPP TS 23.003 [7]) number of the MT, but manufacturers may choose to provide more information if desired.	
	Refer subclause 9.2 for possible <err> values.	
Command	+CGSN	<sn>
		+CME ERROR: <err>
	+CGSN=?	
Defined values	<sn>: the total number of characters, including line terminators, in the information text shall not exceed 2048 characters.	

2.5   +CSCS Select TE character set

Description	Set command informs TA which character set <chset> is used by the TE. TA is then able to convert character strings	
	correctly between TE and MT character sets.	
	When TA-TE interface is set to 8-bit operation and used TE alphabet is 7-bit, the highest bit shall be set to zero.	
Command	+CSCS=[<chset>]	
	+CSCS?	+CSCS: <chset>
	+CSCS=?	+CSCS: (list of supported <chset>s)
Defined values	<chset> (conversion schemes not listed here can be defined by manufacturers):	
	"GSM" GSM 7 bit default alphabet (3GPP TS 23.038); this setting causes easily software flow control	

	(XON/XOFF) problems
	"HEX" character strings consist only of hexadecimal numbers from 00 to FF; e.g. "032FE6" equals three 8-bit
	characters with decimal values 3, 47 and 230; no conversions to the original MT character set shall be
	done.
	"IRA" international reference alphabet (ITU-T T.50 [13])
	"PCCP*xxx*" PC character set Code Page *xxx*
	"PCDN" PC Danish/Norwegian character set
	"UCS2" 16-bit universal multiple-octet coded character set (ISO/IEC10646 [32]); UCS2 character strings are
	converted to hexadecimal numbers from 0000 to FFFF; e.g. "004100620063" equals three 16-bit
	characters with decimal values 65, 98 and 99
	"8859-*n*" ISO 8859 Latin *n* (1-6) character set
	"8859-C" ISO 8859 Latin/Cyrillic character set
	"8859-A" ISO 8859 Latin/Arabic character set
	"8859-G" ISO 8859 Latin/Greek character set
	"8859-H" ISO 8859 Latin/Hebrew character set

2.6 +CIMI Request international mobile subscriber identity

Description	Execution command causes the TA to return <IMSI>, which is intended to permit the TE to identify the individual	
	SIM card or active application in the UICC (GSM or USIM) which is attached to MT. Refer subclause 9.2 for possible	
	<err> values.	
Command	+CIMI	<IMSI> *+CME ERROR: <err>*
	+CIMI=?	
Defined values	<IMSI>: International Mobile Subscriber Identity (string without double quotes)	

2.7 +WS46 select wireless network

Description	Set command selects the WDS side stack <n> to be used by the TA. Read command shows current setting and test	
	command displays side stacks implemented in the TA.	
Command	+WS46=[<n>]	
	+WS46?	<n>
	+WS46=?	(list of supported <n>s)
Defined values	<n>:	
	12 GSM Digital Cellular Systems (GERAN only)	
	22 UTRAN only	
	25 3GPP Systems (both GERAN and UTRAN)	

2.8 +GCAP Capabilities List +GCAP

Description	This command gets the complete list of capabilities.	
Command	AT+GCAP	+GCAP: +CGSM, +CIS707-A, +MS, +ES, +DS, +FCLASS OK
	+ CGREG =?	+CGREG: (list of supported <n>s)
Defined values		

2.9 +CMEE Repor Mobile Equipment Errors

Description	This command disables or enables the use of the "+CME ERROR : <xxx>" or "+CMS ERROR :<xxx>" result code instead of simply "ERROR". See chapter 20 (MS Error Result Codes) for +CME ERROR result codes description and chapter 20 (Message Service Failure Result Codesfor +CMS ERROR result codes.	
Command	+ CMEE =[<n>]	OK
	+ CGREG =?	CMEE: (0,1,2)
	+ CGREG?	+CMEE: 2 OK
Defined values	0 Disable MS error reports, use only « ERROR » 1 Disable MS error reports, use only « ERROR »	

2.10 +ZHWV Request hardware revision identification

Description	Execution command causes the TA to return hardware revision identification	
Command	+ ZHWV	<revision> + ZHWV: <err>
	+ ZHWV=?	
Defined values		

2.11 +ZDRNT Request status of dormant

Description	Execution command causes the TA to return status of dormant	
Command	+ ZDRNT	1 *+CME ERROR: <err>*
	+ ZDRNT = ?	
Defined values	0: MT is dormant 1: MT is not dormant	

2.12 +ZSSPA Request System Status and System Parameter

Description	Execution command causes the TA to return system status and system parameter	
Command	+ ZSSPA	ROAM:,RSSI:,SIM:,SRV: *+CME ERROR: <err>*
	+ ZSSPA = ?	
Defined values	ROAM:ROAM_STATUS_OFF(0),ROAM_STATUS_ON(1),ROAM_STATUS_BLINK(2), RSSI: 0－5 SIM: SIM_STATE_AVAILABLE(1), SIM_STATE_NOT_AVAILABLE(0) SRV: 0:No service,1:Limited service, 2:Service available,3:Limited regional service ,4:MS is in power save or deep sleep	

2.13 +ZMDS Request System Set Network Mode

Description	Execution command causes the TA to select system mode:AUTOMATIC,GSM OLNY,WCDMA OLNY	
Command	+ ZMDS=<MOEE>	+ZMDS:OK *+CME ERROR: <err>*
	+ ZMDS = ?	(list of supported <n>s)
	+ ZMDS?	n ok
Defined values	4:automatic network mode 13:gsm olny 14:wcdma olny	

2.14 +ZGMS Request System Service Type

Description	Execution command causes the TA to return me to surport the service type	
Command	+ZGMS	+ZGMS: DS:1,VS:1,SS:1,PS:1 *+CME ERROR: <err>*

	+ ZGMS = ?	OK
Defined values	DS: data service: 1 support, 0 not support VS: voice service: 1 support, 0 not support SS: sms service: 1 support, 0 not support PS: pbk service: 1 support, 0 not support	

2.15 +ZUCT Request System Service Type

Description	Execution command causes the TA to return the card type and initial processing state	
Command	+ZUCT	+ZUCT:<card_type>,<sim_state> *+CME ERROR: <err>*
	+ ZUCT = ?	+ZUCT:(0,1,2,3) OK

Defined values	Card_type: 0: NONE CARD or NONE INIT
	     1: USIM
	     2: SIM
	     3: SIM_USIM
	sim_state:
	     0:not initialize
	     1:initialized	

2.16 +ZGVT Request UE Voice channel Type

Description	Execution command causes the TA to return the voice channel type , it by PC or no PC	
Command	+ZGVT	+ZGVT:<voice_type> *+CME ERROR: <err>*
	+ ZGVT = ?	
Defined values	voice_type: 0: by PC 1: not by PC	

3 Call control commands and methods

3.1 ATD\ATA\ATH\ATS0

V.250 [14] dial command D lists characters that may be used in a dialling string for making a call or controlling

supplementary services in accordance with 3GPP TS 22.030 [19]. Their use in GSM/UMTS is listed in this subclause,

as well as new dial modifiers applicable only to GSM/UMTS are introduced. For a MT supporting AT commands only,

it is mandatory to support the control of supplementary services in accordance with 3GPP TS 22.030 [19] through the

dial command or through the specific supplementary service commands (+CCFC, +CLCK, etc.), where 3GPP TS 22.030

[19] identifies the supplementary services as mandatory.

V.250 dialling digits

1 2 3 4 5 6 7 8 9 0 * # + A B C (implementation of these characters is mandatory for GSM/UMTS)

D (implementation of this character is optional for GSM/UMTS, and it is ignored)

V.250 modifier characters

, (implementation of this character is mandatory for GSM/UMTS, but it may be ignored)

T P (implementation of these characters is mandatory for GSM/UMTS, but they are ignored)

! W @ (implementation of these characters is optional for GSM/UMTS, and they are ignored)

V.250 semicolon character

In GSM/UMTS, when semicolon character is given after dialling digits (or modifiers), a voice call originated to the

given address. TA returns to command state immediately (or after possible +COLP result code; refer subclause

"Connected line identification presentation +COLP"). Refer Annex G for a detailed example.

GSM/UMTS modifier characters

> (refer subclause "Direct dialling from phonebooks")

I or i (override the CLIR supplementary service subscription default value for this call; I = invocation (restrict CLI

presentation) and i = suppression (allow CLI presentation); refer subclause "Calling line identification restriction

+CLIR")

G or g (control the CUG supplementary service information for this call; uses index and info values set with command

+CCUG; refer subclause "Closed user group +CCUG")

3.2 +CSTA Select type of address

Description	Set command selects the type of number for further dialling commands (D) according to GSM/UMTS specifications.
	Test command returns values supported a compound value.

Command	+CSTA=[<type>]	
	+CSTA?	
	+CSTA=?	
Defined values	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7); default 145 when dialling	
	string includes international access code character "+", otherwise 129	

3.3 +CMOD Call mode

Description	Set command selects the call mode of further dialling commands (D) or for next answering command (A). Mode can be	
	either single or alternating (in the present document, terms "alternating mode" and "alternating call" refer to all	
	GSM/UMTS bearer and teleservices that incorporate more than one basic service (voice, data, fax) within one call).	
	When single mode is selected the call originating and hangup procedures are similar to procedures specified in ITU-T	
	Recommendations V.250 [14], T.31 [11] and T.32 [12]. In GSM/UMTS there can be voice followed by data (refer	
	3GPP TS 22.002 [1]), alternating voice/data (refer 3GPP TS 22.002 [1]) and alternating voice/fax calls (refer 3GPP TS	
	22.003 [2]). Refer next two subclauses for alternating call control methods.	
Command	+CMOD=[<mode>]	
	+CMOD?	
	+CMOD=?	+CMOD: (list of supported <mode>s)
Defined values	<mode>:	
	0 single mode	
	1 alternating voice/fax (teleservice 61)	
	2 alternating voice/data (bearer service 61)	
	3 voice followed by data (bearer service 81)	
	also all other values below 128 are reserved by the present document	

3.4 +CHUP Hangup call

Description	Execution command causes the TA to hangup the current GSM/UMTS call of the MT.	
Command	+CHUP	
	+CHUP=?	

3.5 +CBST Select bearer service type

Description	Set command selects the bearer service <name> with data rate <speed>, and the connection element <ce> to be used	
	when data calls are originated (refer 3GPP TS 22.002 [1]). Values may also be used during mobile terminated data call	
	setup, especially in case of single numbering scheme calls (refer +CSNS).	
Command	+CBST=[<speed>[	
	+CBST?	
	+CBST=?	+CBST: (list of supported <speed>s),(list of
		supported <name>s),(list of supported <ce>s)
Defined values	<speed>:	
	0 autobauding (automatic selection of the speed; this setting is possible in case of 3.1 kHz modem	
	and non-transparent service)	
	1 300 bps (V.21)	
	2 1200 bps (V.22)	
	3 1200/75 bps (V.23)	
	4 2400 bps (V.22bis)	
	5 2400 bps (V.26ter)	
	6 4800 bps (V.32)	
	7 9600 bps (V.32)	
	12 9600 bps (V.34)	
	14 14400 bps (V.34)	
	15 19200 bps (V.34)	
	16 28800 bps (V.34)	
	17 33600 bps (V.34)	
	34 1200 bps (V.120)	
	36 2400 bps (V.120)	
	38 4800 bps (V.120)	
	39 9600 bps (V.120)	
	43 14400 bps (V.120)	
	47 19200 bps (V.120)	
	48 28800 bps (V.120)	
	49 38400 bps (V.120)	
	50 48000 bps (V.120)	
	51 56000 bps (V.120)	
	65 300 bps (V.110)	
	66 1200 bps (V.110)	
	68 2400 bps (V.110 or X.31 flag stuffing)	
	70 4800 bps (V.110 or X.31 flag stuffing)	
	71 9600 bps (V.110 or X.31 flag stuffing)	

	75 14400 bps (V.110 or X.31 flag stuffing)
	79 19200 bps (V.110 or X.31 flag stuffing)
	80 28800 bps (V.110 or X.31 flag stuffing)
	81 38400 bps (V.110 or X.31 flag stuffing)
	82 48000 bps (V.110 or X.31 flag stuffing)
	83 56000 bps (V.110 or X.31 flag stuffing; this setting can be used in conjunction with asynchronous
	non-transparent UDI or RDI service in order to get FTM)
	84 64000 bps (X.31 flag stuffing; this setting can be used in conjunction with asynchronous nontransparent
	UDI service in order to get FTM)
	115 56000 bps (bit transparent)
	116 64000 bps (bit transparent)
	120 32000 bps (PIAFS32k)
	121 64000 bps (PIAFS64k)
	130 28800 bps (multimedia)
	131 32000 bps (multimedia)
	132 33600 bps (multimedia)
	133 56000 bps (multimedia)
	134 64000 bps (multimedia)
	also all other values below 128 are reserved by the present document.
	<name>:
	0 data circuit asynchronous (UDI or 3.1 kHz modem)
	1 data circuit synchronous (UDI or 3.1 kHz modem)
	2 PAD Access (asynchronous) (UDI)
	3 Packet Access (synchronous) (UDI)
	4 data circuit asynchronous (RDI)
	5 data circuit synchronous (RDI)
	6 PAD Access (asynchronous) (RDI)
	7 Packet Access (synchronous) (RDI)
	also all other values below 128 are reserved by the present document.
	<ce>:
	0 transparent
	1 non-transparent
	2 both, transparent preferred
	3 both, non-transparent preferred

3.6 +CRLP Radio link protocol

Description	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).

Command	+CRLP=[<iws>[,<mws>[,<T1>[,<N2 >[,<ver>[,<T4>]]]]]]	
	+CRLP?	+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver1>[,<T4>]] [<CR><LF>+CRLP: <iws>,<mws>,<T1>,<N2>[,<ver2>[,<T4>]] [...]]
	+CRLP=?	+CRLP: (list of supported <iws>s),(list of supported <mws>s), (list of supported <T1>s),(list of supported <N2>s)[,<ver1> [,(list of supported <T4>s)]] [<CR><LF>+CRLP: (list of supported <iws>s),(list of supported <mws>s),(list of supported <T1>s),(list of supported <N2>s) [,<ver1>[,(list of supported <T4>s)]] [...]]
Defined values	<ver>, <verx>: RLP version number in integer format; when version indication is not present NOTE 2: Versions 0 and 1 share the same parameter set. Read and test commands shall return set (where <verx> is not present). <iws>, <mws>, <T1>, <N2>, <T4>: IWF to MS window size, MS to IWF window size, acknowledgement T1, retransmission attempts N2, re-sequencing period T4 in integer format (default values depend on RLP version; refer 3GPP TS 24.022 [18]): T1 and T4 are in units of 10 ms.	

3.7 +CR Service reporting control

Description	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.	
Command	+CR=[<mode>]	+CR?
	+CR=?	+CR: <mode>
	+CR?	+CR: (list of supported <mode>s)
Defined values	<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.

3.8 +CEER Extended error report

Description	Execution command causes the TA to return one or more lines of information text <report>, determined by the MT	
	manufacturer, which should offer the user of the TA an extended report of the reason for	
	- the failure in the last unsuccessful call setup (originating or answering) or in-call modification;	
	- the last call release;	
	- the last unsuccessful GPRS attach or unsuccessful PDP context activation;	
	- the last GPRS detach or PDP context deactivation.	
	Typically, the text will consist of a single line containing the cause information given by GSM/UMTS network in	
	textual format.	
Command	+CEER	+CEER: <report>
	+CEER=?	
Defined values	<report>: the total number of characters, including line terminators, in the information text shall not exceed 2041 characters.	

3.9 +CRC Cellular result codes

Description	Set command controls whether or not the extended format of incoming call indication or GPRS network request for	
	PDP context activation or notification for VBS/VGCS calls is used. When enabled, an incoming call is indicated to the	
	TE with unsolicited result code +CRING: <type> instead of the normal RING.	
	Test command returns values supported as a compound value.	
Command	+CRC=[<mode>]	
	+CRC?	+CRC=[<mode>]
	+CRC=?	+CRC: (list of supported <mode>s)

Defined values	<mode>:
	0 disables extended format
	1 enables extended format
	<type>:
	ASYNC [,<priority>[,<subaddr>,<satype>]] asynchronous transparent
	SYNC [,<priority>[,<subaddr>,<satype>]] synchronous transparent
	REL ASYNC [,<priority>[,<subaddr>,<satype>]] asynchronous non-transparent
	REL SYNC [,<priority>[,<subaddr>,<satype>]] synchronous non-transparent
	FAX [,<priority>[,<subaddr>,<satype>]] facsimile (TS 62)
	VOICE [,<priority>[,<subaddr>,<satype>]] normal voice (TS 11)
	VOICE/*XXX* [,<priority>[,<subaddr>,<satype>]] voice followed by data (BS 81) (*XXX* is
	ASYNC, SYNC, REL ASYNC or REL SYNC)
	ALT VOICE/*XXX* [,<priority>[,<subaddr>,<satype>]] alternating voice/data, voice first (BS 61)
	ALT *XXX*/VOICE [,<priority>[,<subaddr>,<satype>]] alternating voice/data, data first (BS 61)
	ALT VOICE/FAX [,<priority>[,<subaddr>,<satype>]] alternating voice/fax, voice first (TS 61)
	ALT FAX/VOICE [,<priority>[,<subaddr>,<satype>]] alternating voice/fax, fax first (TS 61)
	GPRS <PDP_type>, <PDP_addr>[, [<L2P>][,<APN>]] GPRS network request for PDP context
	VGC <GCA>, <GId>, <ackflag> [,<priority>] voice group call (TS 91)
	VBC <GCA>, <GId>, <ackflag> [,<priority>] voice broadcast call (TS 92)
	The optional <priority> indicates the eMLPP priority level of the incoming call by paging, notification or setup
	message. The priority level values are as defined in eMLPP specification 3GPP TS 22.067 [54].
	<subaddr>: string type subaddress of format specified by <satype>
	<satype>: type of subaddress octet in integer format (refer 3GPP TS 24.008 [8] subclause 10.5.4.8)
	<PDP_type> ,<PDP_addr> and <APN> are as defined in the Define PDP Context (+CGDCONT) command. 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. If the MT is unable to announce to the TE the network's request (for example it is in
	V.250 online data state) the MT shall reject the request. No corresponding unsolicited result code shall be issued when
	the MT returns to a command state.
	<GCA> is a part of the group call reference as specified in 3GPP TS 23.003 [7] and indicates group call area.
	<GId> is a part of the group call reference as specified in 3GPP TS 23.003 [7] and indicates group call
	identification.The <ackflag>=1 proposes that a predefined confirmation procedure is to be used after the call is ended.
	For <ackflag>=0 no confirmation procedure is required.

3.10 +CVHU Voice Hangup Control

Description	Set command selects whether ATH or "drop DTR" shall cause a voice connection to be disconnected or not. By voice	
	connection is also meant alternating mode calls that are currently in voice mode. (See subclause 6.6).	
Command	+CVHU=[<mode>]	
	+CVHU?	+CVHU:<mode>
	+CVHU=?	+CVHU:(list of supported <mode>s)
Defined values	<mode>:	
	0 "Drop DTR" ignored but OK response given. ATH disconnects.	
	1 "Drop DTR" and ATH ignored but OK response given.	
	2 "Drop DTR" behaviour according to &D setting. ATH disconnects.	

3.11 +VGR Receive gain selection

Description	This refers to the amplification by the TA of audio samples sent from the TA to the computer. The command operates	
	on an integer <n>, range 0...255. Values larger than 128 indicate a larger gain than nominal. Values less than 128	
	indicate a smaller gain than nominal. The entire range of 0...255 does not have to be provided. A value of zero implies	
	the use of automatic gain control by the TA.	
Command	+VGR=<n>	+VGR? <n>
	+VGR=? (list of supported <n>s)	
	+VGR=<n>	+VGR? <n>

3.12 +CMUT Mute control

Description	This command is used to enable and disable the uplink voice muting during a voice call. Refer subclause 9.2 for	
	possible <err> values.	
	Test command returns supported values as compound value.	
Command	+CMUT=<n>	*+CME*
	+CMUT?	+CMUT:
	+CME	*ERROR:*
Defined values	<n>:	
	0 mute off	
	1 mute on	

3.13 +VTD Tone duration

Description	This refers to an integer <n> that defines the length of tones emitted as a result of the +VTS command. This does not	
	affect the D command. A value different than zero causes a tone of duration <n>/10 seconds. The value zero causes a	
	"manufacturer specific" value.	
Command	+VTD=<n>	+VTD? <n>
	+VTD=? (list of supported <n>s)	
	+VTD=<n>	+VTD? <n>
Defined values	<n>: 0 mute off 1 mute on	

3.14 +VTS DTMF and tone generation

Description	This command allows the transmission of DTMF tones and arbitrary tones (see note). These tones may be used (for	
	example) when announcing the start of a recording period. The command is write only. In this profile of commands,	
	this command does not operate in data or fax modes of operation (+FCLASS=0,1,2-7).	
Command	+VTS=as	above
	+VTS=?	(list
Defined values	1. <DTMF>. A single ASCII character in the set 0-9, #,*,A-D. This is interpreted as a single ACSII character whose	
	duration is set by the +VTD command.	
	NOTE 2: In GSM this operates only in voice mode.	
	2. [<tone1>,<tone2>,<duration>]. This is interpreted as a dual tone of frequencies <tone1> and <tone2>,	
	lasting for a time <duration> (in 10 ms multiples).	
	NOTE 3: This does not operate in GSM.	
	3. {<DTMF>,<duration>}. This is interpreted as a DTMF tone of different duration from that mandated by the	
	+VTD command.	

3.15 +CLCC List current calls

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

	TE. Refer subclause 9.2 for possible <err> values.	
Command	+CLCC [+CLCC: <id1>,<dir>,<stat>,<mode>,<mpty>[,	<number>,<type>[,<alpha>[,<priority>]]]
	[<CR><LF>+CLCC: <id2>,<dir>,<stat>,<mode>,<mpty>[,	<number>,<type>[,<alpha>[,<priority>]]]
Defined values	<idx>: integer type; call identification number as described in 3GPP TS 22.030 [19] subclause 4.5.5.1; this number can be used in +CHLD command operations <dir>: 0 mobile originated (MO) call 1 mobile terminated (MT) call <stat> (state of the call): 0 active 1 held 2 dialing (MO call) 3 alerting (MO call) 4 incoming (MT call) 5 waiting (MT call) <mode> (bearer/teleservice): 0 voice 1 data 2 fax 3 voice followed by data, voice mode 4 alternating voice/data, voice mode 5 alternating voice/fax, voice mode 6 voice followed by data, data mode 7 alternating voice/data, data mode 8 alternating voice/fax, fax mode 9 unknown <mpty>: 0 call is not one of multiparty (conference) call parties 1 call is one of multiparty (conference) call parties <number>: string type phone number in format specified by <type> <type>: type of address octet in integer format (refer TS 24.008 [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 <priority>: optional digit type parameter indicating the eMLPP priority level of the call, values specified in 3GPP TS 22.067 [54]	

3.16 S<X>   Basic S-Register

Description	The S-registers store configuration parameters that are used for dialing or during an	
	established call. The value of an S-register may be set by using the syntax: ATSn=<value>	
	where n is the register number and <value> is a decimal value.	
Command	ATS<X>= <value>	*+CME ERROR: <err>*
	ATS<X>?	ATS<X>: <value> *+CME ERROR: <err>*
Defined values	ATS0?	
	Note: Disable or enable automatic answering (value: 0-255)	
	0: Disable;	
	1-255: Enable after [(value-1)x6 sec.]	
	ATS3?	
	Note: Carriage return character	
	ATS4?	
	Note: Line feed character	
	ATS5?	
	Note: Backspace character	
	ATS6?	
	Note: Pause before blind dialing (value: 2-10)	
	ATS7?	
	Note: Number of seconds to establish end-to-end data connection (value: 1-255)	
	Note: Number of seconds to pause when "," is encountered in dial string (value: 0-255)	
	ATS9?	
	Note: Carrier detect threshold in increments of 0.1 seconds (value: 0-255)	
	ATS10?	
	Note: Number of tenths of a second from carrier loss to disconnect (value: 1-254)	
	Value 255: disable carrier detect	
	ATS11?	
	Note: DTMF tone duration and spacing in milliseconds (value: 50-255)	

3.17 +ZFLSH Send Flash/Flash with Information

Descriptions	The command is used to send a Flash/Flash with information to the base station, and it is usually used for call waiting and conference call. When receiving a call from a third party, use AT+ZFLSH command to send FLASH signals to switch between two differenct lines. If one FLASH signal is sent to the base station, the module will return with +ZFLSH. Please note that this doesn't guarantee the switching between two lines for CDMA network because the network does not return the confirmation to the module. In a conference call, define the first called party as the first party, dial the first party, use AT+ZFLSH=< second called party's number to call the second party, and the first party would automatically enter the call held status; once the second call is connected, use AT+ZFLSH command to realize the conference call. If you send a FLASH signal again, it will disconnect the call from the second party. Use ATH command to hang up all calls.	
Format	AT+ZFLSH AT+ZFLSH=<phone number>	
Example	ATD13333333333； Originate a voice call	OK +ZCORG：13333333333 +ZCCNT：3 +CCWA："26010681",129 the second incoming call
	AT+ZFLSH Send a FLASH signal to switch to the second call	OK +ZFLSH Not every switching is always successful
	ATH Release all calls	OK +ZCEND：10
	ATD13316819064； Connect the first voice call	OK +ZCORG：13316819064 +ZCCNT：3
	AT+ZFLSH=26010681 Hold the first call and dial the second call	OK +ZFLSH
	AT+ZFLSH Realize a conference call	OK +ZFLSH
	AT+ZFLSH Hold the second call and switch to the first call	OK +ZFLSH （parameter is a must）
	ATH Hang up all calls	OK +ZCEND：10

3.18 +VGT Transmit gain selection

Description	The command is used to set MIC gain of currently selected audio path.	
Format	AT+VGT=<MicGain>	
Example	AT+VGT=2	OK

	AT+VGT？ Check current settings (FYI, no actual meaning)	+VGT：2 OK
	AT+VGT=？ Check the parameters	+VGT： （0-3） OK
Parameter	Check the volume range, 0 minimum	

3.19 +ZCORG ORIGINATE CALL

Description	This indicates a one-time call orgination.	
Format	+ZCORG:<call_type>,<call_x>	
Example	ATD18005551212;	OK +ZCORG:0,1 +ZCCNT:0，1 OK
Parameter	<number> telephone number Call_type: call type, voice all（0）,OTA call (standard OTASP numbers)(7),OTA call （none standard otasp numgbers） （8）emergency call（9） Call_type: call ID	

3.20 +ZCCNT: CALL CONNECT

Description	This indicates a one-time call termination or origination.	
Format	+ZCCNT: <call_type>,<call_x>	
Example	ATD18005551212;	OK +ZCORG:0，1 +ZCCNT:0，1 Call connection service 3

3.21 +ZCEND: CALL END

Description	This indicates the end of a voice call end or tryting to end a voice call.	
Format	+ZCEND: <call_X>,<duration>,<end_status>[,<cc_cause]	
Example	ATD18005551212; ATH	OK +ZCORG:0，1 +ZCCNT:0，1 +ZCEND:1,30,0,0
Parameter	<call_x>: call ID <duration>: call duration <end_status>: end status <cc_cause>: call control information end_status： 0： phone is offline 21：phone has no service （Backwards compatibility） 25：received release from BS 27：received incoming call from BS 29：client ended the call 34：RUIM is not present 35：Access attempt already in progress 36：Access failure for reason other than the above 38：Concurrent servive is not supported by base station 39：No response recived from base station 100：rxd a reason from lower layer 101：call orig request failed 102：client rejected the incoming call 103：client rejected the setup_ind 104：network ended the call 106：Phone has no service Other value reserved	

3.22 +CCWA: Call waiting +CCWA

Description	This command allows control of the Call Waiting supplementary service according to 3GPP TS 22.083 [5]. Activation, deactivation and status query are supported. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>. Parameter <n> is used to disable/enable the presentation of an unsolicited result code +CCWA: <number>,<type>,<class>,[<alpha>][,<CLI validity>[,<subaddr>,<satype> [,<priority>]]]] to the TE when call waiting service is enabled. Command should be abortable when network is interrogated.	
	The interaction of this command with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standards.	
	Test command returns values supported as a compound value.	
Command	+CCWA=[<n>[,<mode>[,<class>]]]	+CME ERROR: <err>
		when <mode>=2 and command successful
		+CCWA: <status>,<class1>
		[<CR><LF>+CCWA: <status>,<class2> [...]]
	+CCWA?	+CCWA: <n>
	+CCWA=?	+CCWA: (list of supported <n>s)
Defined values	<n> (sets/shows the result code presentation status to the TE):	
	0 disable	
	1 enable	
	<mode> (when <mode> parameter is not given, network is not interrogated):	
	0 disable	
	1 enable	
	2 query status	
	<classx> is a 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	
	64 dedicated packet access	

	128 dedicated PAD access
	<status>:
	0 not active
	1 active
	<number>: string type phone number of calling address in format specified by <type>
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
	<alpha>: optional string type alphanumeric representation of <number> corresponding to the entry found in phonebook; used character set should be the one selected with command Select TE Character Set +CSCS
	<CLI validity>:
	0 CLI valid
	1 CLI has been withheld by the originator.
	2 CLI is not available due to interworking problems or limitations of originating network.
	When CLI is not available (<CLI validity>=2), <number> shall be an empty string ("") and <type> value will not be significant. Nevertheless, TA may return the recommended value 128 for <type> ((TON/NPI unknown in accordance with TS 24.008 [8] subclause 10.5.4.7).
	When CLI has been withheld by the originator, (<CLI validity>=1) and the CLIP is provisioned with the "override category" option (refer 3GPP TS 22.081[3] and 3GPP TS 23.081[40]), <number> and <type> is provided. Otherwise, TA shall return the same setting for <number> and <type> as if the CLI was not available.
	<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)
	<priority>: optional digit type parameter indicating that the eMLPP priority level of the incoming call. The priority level values are as defined in eMLPP specification 3GPP TS 22.067 [54].

3.23 +CHLD: Call related supplementary services +CHLD

Description	This command allows the control of the following call related services:
	- a call can be temporarily disconnected from the MT but the connection is retained by the network;
	- multiparty conversation (conference calls);
	- the served subscriber who has two calls (one held and the other either active or alerting) can connect the other parties and release the served subscriber's own connection.
	Calls can be put on hold, recovered, released, added to conversation, and transferred similarly as defined in 3GPP TS 22.030 [19]. Refer subclause 9.2 for possible <err> values.

	This is based on the GSM/UMTS supplementary services HOLD (Call Hold; refer 3GPP TS 22.083 [5] clause 2), MPTY (MultiParty; refer 3GPP TS 22.084 [22]) and ECT (Explicit Call Transfer; refer 3GPP TS 22.091 [29]). The interaction of this command with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS standards.	
	NOTE: Call Hold, MultiParty and Explicit Call Transfer are only applicable to teleservice 11.	
	It is recommended (although optional) that test command returns a list of operations which are supported. The call number required by some operations shall be denoted by "x" (e.g. +CHLD: (0,1,1x,2,2x,3)).	
Command	+CHLD=[<n>]	*+CME ERROR: <err>*
	+CHLD=?	[+CHLD: (list of supported <n>s)]
Defined values	<n>: integer type; equals to numbers entered before SEND button in 3GPP TS 22.030 [19] subclause 4.5.5.1	
	NOTE: The "directory number" case shall be handled with dial command D, and the END case with hangup command H (or +CHUP). The 4*"directory number" case is handled with +CTFR command.	

3.24 +CCFC: Call forwarding number and conditions +CCFC

Description	This command allows control of the call forwarding supplementary service according to 3GPP TS 22.082 [4]. Registration, erasure, activation, deactivation, and status query are supported. When querying the status of a network service (<mode>=2) the response line for 'not active' case (<status>=0) should be returned only if service is not active for any <class>.	
Command	+CCFC=<reason>,<mode> [,<number>[,<type> [,<class> [,<subaddr>[,<satype> [,<time>]]]]]]	*+CME ERROR: <err>* **when <mode>=2 and command successful:** +CCFC: <status>,<class1>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]][<CR><LF>+CCFC: <status>,<class2>[,<number>,<type> [,<subaddr>,<satype>[,<time>]]] [...]]
	+CCFC=?	+CCFC: (list of supported <reason>s)
Defined values	<reason>: 0 unconditional 1 mobile busy 2 no reply 3 not reachable	

	4 all call forwarding (refer 3GPP TS 22.030 [19])
	5 all conditional call forwarding (refer 3GPP TS 22.030 [19])
	<mode>:
	0 disable
	1 enable
	2 query status
	3 registration
	4 erasure
	<number>: string type phone number of forwarding address in format specified by <type>
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7); default 145 when dialling
	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
	<class*x*> is a 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
	64 dedicated packet access
	128 dedicated PAD access
	<time>:
	1...30 when "no reply" is enabled or queried, this gives the time in seconds to wait before call is forwarded,
	default value 20
	<status>:
	0 not active
	1 active

4 Network service related commands

4.1 +CNUM Subscriber number

Description	This command allows the transmission of DTMF tones and arbitrary tones (see note). These tones may be used (for	
	example) when announcing the start of a recording period. The command is write only. In this profile of commands,	
	this command does not operate in data or fax modes of operation (+FCLASS=0,1,2-7).	
Command	+VTS=*as*	*above*
	+VTS=?	(list
Defined values	1. <DTMF>. A single ASCII character in the set 0-9, #,*,A-D. This is interpreted as a single ACSII character whose	
	duration is set by the +VTD command.	
	NOTE 2: In GSM this operates only in voice mode.	
	2. [<tone1>,<tone2>,<duration>]. This is interpreted as a dual tone of frequencies <tone1> and <tone2>,	
	lasting for a time <duration> (in 10 ms multiples).	
	NOTE 3: This does not operate in GSM.	
	3. {<DTMF>,<duration>}. This is interpreted as a DTMF tone of different duration from that mandated by the	
	+VTD command.	

4.2 +CREGNetwork registration

Description	This command allows the transmission of DTMF tones and arbitrary tones (see note). These tones may be used (for	
	example) when announcing the start of a recording period. The command is write only. In this profile of commands,	
	this command does not operate in data or fax modes of operation (+FCLASS=0,1,2-7).	
Command	+VTS=*as*	*above*
	+VTS=?	(list
Defined values	1. <DTMF>. A single ASCII character in the set 0-9, #,*,A-D. This is interpreted as a single ACSII character whose	
	duration is set by the +VTD command.	
	NOTE 2: In GSM this operates only in voice mode.	
	2. [<tone1>,<tone2>,<duration>]. This is interpreted as a dual tone of frequencies <tone1> and <tone2>,	
	lasting for a time <duration> (in 10 ms multiples).	
	NOTE 3: This does not operate in GSM.	
	3. {<DTMF>,<duration>}. This is interpreted as a DTMF tone of different	

| | duration from that mandated by the |
| | +VTD command. |

4.3 +COPS PLMN selection

Description	Set command forces an attempt to select and register the GSM/UMTS network operator. <mode> is used to select	
	whether the selection is done automatically by the MT or is forced by this command to operator <oper> (it shall be	
	given in format <format>) to a certain access technology, indicated in <AcT>. If the selected operator is not	
	available, no other operator shall be selected (except <mode>=4). If the selected access technology is not available,	
	then the same operator shall be selected in other access technology. The selected operator name format shall apply to	
	further read commands (+COPS?) also. <mode>=2 forces an attempt to deregister from the network. The selected	
	mode affects to all further network registration (e.g. after <mode>=2, MT shall be unregistered until <mode>=0 or 1 is	
	selected). Refer subclause 9.2 for possible <err> values. This command should be abortable when	
	registration/deregistration attempt is made.	
	Read command returns the current mode, the currently selected operator and the current Access Technology. If no	
	operator is selected, <format>, <oper> and < AcT> are omitted.	
	Test command returns a set of five parameters, each representing an operator present in the network. A set consists of	
	an integer indicating the availability of the operator <stat>, long and short alphanumeric format of the name of the	
	operator, numeric format representation of the operator and access technology. Any of the formats may be unavailable	
	and should then be an empty field. The list of operators shall be in order: home network, networks referenced in SIM or	
	active application in the UICC (GSM or USIM) in the following order: HPLMN selector, User controlled PLMN	
	selector, Operator controlled PLMN selector and PLMN selector (in the SIM or GSM application), and other networks.	
Command	+COPS=[<mode>[,<format> [,<oper>[,< AcT>]]]]	*+CME ERROR: <err>*
	+COPS?	+COPS: <mode>[,<format>,<oper>[,< AcT>]] *+CME ERROR: <err>*

	+COPS=?	+COPS: [list of supported (<stat>,long alphanumeric <oper>
		,short alphanumeric <oper>,numeric <oper>[,< AcT>])s]
		[,,(list of supported <mode>s),(list of supported <format>s)]
		+CME ERROR: <err>
Defined values	<mode>： 0 automatic (<oper> field is ignored) 1 manual (<oper> field shall be present, and <AcT> optionally) 2 deregister from network 3 set only <format> (for read command +COPS?), do not attempt registration/deregistration (<oper> and < AcT> fields are ignored); this value is not applicable in read command response 4 manual/automatic (<oper> field shall be present); if manual selection fails, automatic mode (<mode>=0) is entered <format>: 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> <oper>: string type; <format> indicates if the format is alphanumeric or numeric; long alphanumeric format can be upto 16 characters long and short format up to 8 characters (refer GSM MoU SE.13 [9]); numeric format is the GSM Location Area Identification number (refer TS 24.008 [8] subclause 10.5.1.3) which consists of a three BCD digit country code coded as in ITU-T E.212 Annex A [10], plus a two BCD digit network code, which is administration specific; returned <oper> shall not be in BCD format, but in IRA characters converted from BCD; hence the number has structure: (country code digit 3)(country code digit 2)(country code digit 1)(network code digit 3)(network code digit 2)(network code digit 1) <stat>: 0 unknown 1 available 2 current 3 forbidden <AcT> access technology selected: 0 GSM 1 GSM Compact 2 UTRAN

4.4 +CLCK Facility lock

Description	Execute command is used to lock, unlock or interrogate a MT or a network facility <fac>. Password is normally
	needed to do such actions. When querying the status of a network service (<mode>=2) the response line for 'not active'
	case (<status>=0) should be returned only if service is not active for any <class>. Refer subclause 9.2 for possible
	<err> values. This command should be abortable when network facilities are set or interrogated.
	Call barring facilities are based on GSM/UMTS supplementary services (refer 3GPP TS 22.088 [6]). The interaction of
	these with other commands based on other GSM/UMTS supplementary services is described in the GSM/UMTS
	standard.
	Test command returns facility values supported as a compound value.
Command	AT+CLCK+CLCK=<fac>,<mode>[,<passwd>[,<class>]]
Defined values	<fac> values reserved by the present document:
	"CS" CNTRL (lock CoNTRoL surface (e.g. phone keyboard))
	"PS" PH-SIM (lock PHone to SIM/UICC card) (MT asks password when other than current SIM/UICC card
	inserted; MT may remember certain amount of previously used cards thus not requiring password when they
	are inserted)
	"PF" lock Phone to the very First inserted SIM/UICC card (also referred in the present document as PH-FSIM)
	(MT asks password when other than the first SIM/UICC card is inserted)
	"SC" SIM (lock SIM/UICC card) (SIM/UICC asks password in MT power-up and when this lock command
	issued)
	"AO" BAOC (Barr All Outgoing Calls) (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)
	"NT" barr incoming calls from numbers Not stored to TA memory
	"NM" barr incoming calls from numbers Not stored to MT memory
	"NS" barr incoming calls from numbers Not stored to SIM/UICC memory
	"NA" barr incoming calls from numbers Not stored in Any memory
	"AB" All Barring services (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 dialling memory feature (if PIN2
	authentication has not been done during the current session, PIN2 is required as <passwd>)
	"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])
	"PC" Corporate 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 MT user interface or with
	command Change Password +CPWD
	<class*x*> is a sum of integers each representing a class of information (default 7):
	1 voice (telephony)
	2 data (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
	64 dedicated packet access
	128 dedicated PAD access

4.5 +CPWD Change password

Description	Action command sets a new password for the facility lock function defined by command Facility Lock +CLCK. Refer	
	subclause 9.2 for possible <err> values.	
	Test command returns a list of pairs which present the available facilities and the maximum length of their password.	
Command	+CPWD=<fac>,<oldpwd>,<newpwd>	+*CME ERROR: <err>*

	+CPWD=?	+CPWD: list of supported (<fac>,<pwdlength>)s
		+CME ERROR: <err>
Defined values	<fac>: "P2" SIM PIN2 refer Facility Lock +CLCK for other values <oldpwd>, <newpwd>: string type; <oldpwd> shall be the same as password specified for the facility from the MT user interface or with command Change Password +CPWD and <newpwd> is the new password; maximum length of password can be determined with <pwdlength> <pwdlength>: integer type maximum length of the password for the facility	

4.6 +CLIP Calling line identification presentation

Description	This command refers to the GSM/UMTS supplementary service CLIP (Calling Line Identification Presentation) that enables a called subscriber to get the calling line identity (CLI) of the calling party when receiving a mobile terminated call. Set command enables or disables the presentation of the CLI at the TE. It has no effect on the execution of the supplementary service CLIP in the network. When the presentation of the CLI at the TE is enabled (and calling subscriber allows), +CLIP: <number>,<type>[,<subaddr>,<satype>[,[<alpha>][,<CLI validity>]]] response is returned after every RING (or +CRING: <type>; refer subclause "Cellular result codes +CRC") result code sent from TA to TE. It is manufacturer specific if this response is used when normal voice call is answered. Read command gives the status of <n>, and also triggers an interrogation of the provision status of the CLIP service according 3GPP TS 22.081 [3] (given in <m>).Test command returns values supported as a compound value.	
Command	+CLIP=[<n>]	
	+CLIP?	+CLIP: <n>,<m>
	+CLIP=?	+CLIP: (list of supported <n>s)
Defined values	<n> (parameter sets/shows the result code presentation status to the TE): 0 disable 1 enable <m> (parameter shows the subscriber CLIP service status in the network): 0 CLIP not provisioned 1 CLIP provisioned	

	2 unknown (e.g. no network, etc.)
	<number>: string type phone number of format specified by <type>
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)
	<subaddr>: string type subaddress of format specified by <satype>
	<satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8)
	<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.

4.7 +CLIR Calling line identification restriction

Description	This command refers to CLIR-service according to 3GPP TS 22.081 [3] that allows a calling subscriber to enable or	
	disable the presentation of the CLI to the called party when originating a call.	
	Set command overrides the CLIR subscription (default is restricted or allowed) when temporary mode is provisioned as	
	a default adjustment for all following outgoing calls. This adjustment can be revoked by using the opposite command..	
	If this command is used by a subscriber without provision of CLIR in permanent mode the network will act according	
	3GPP TS 22.081 [3].	
	Read command gives the default adjustment for all outgoing calls (given in <n>), and also triggers an interrogation of	
	the provision status of the CLIR service (given in <m>). Test command returns values supported as a compound value.	
Command	+CLIR=[<n>]	
	+CLIR?	+CLIR: <n>,<m>
	+CLIR=?	+CLIR: (list of supported <n>s)
Defined values	<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

4.8 +COLP Connected line identification presentation

Description	This command refers to the GSM/UMTS supplementary service COLP (Connected Line Identification Presentation)
	that enables a calling subscriber to get the connected line identity (COL) of the called party after setting up a mobile
	originated call. The command enables or disables the presentation of the COL at the TE. It has no effect on the
	execution of the supplementary service COLR in the network.
	When enabled (and called subscriber allows), +COLP:
	<number>,<type>[,<subaddr>,<satype> [,<alpha>]] intermediate result code is returned from TA to
	TE before any +CR or V.250 [14] responses. It is manufacturer specific if this response is used when normal voice call
	is established.
	Read command gives the status of <n>, and also triggers an interrogation of the provision status of the COLP service
	according 3GPP TS 22.081 [3] (given in <m>).
	Test command returns values supported as a compound value.

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

Defined values	<n> (parameter sets/shows the result code presentation status to the TE):
	0 disable
	1 enable
	<m> (parameter shows the subscriber COLP service status in the network):
	0 COLP not provisioned
	1 COLP provisioned
	2 unknown (e.g. no network, etc.)
	<number>, <type>, <subaddr>, <satype>, <alpha>: refer +CLIP

4.9 +CDIP Called line identification presentation

| Description | This command related to a network service that provides "multiple called numbers (called line identifications) service" |
| | to an MT. This command enables a called subscriber to get the called line identification of the called party when |

	receiving a mobile terminated call. Set command enables or disables the presentation of the called line identifications at	
	the TE.	
	When the presentation of the called line identification at the TE is enabled,	
	+CDIP:<number>,<type>[,<subaddr>,<satype>] response is returned after every RING (or +CRING:	
	<type>; refer subclause "Cellular result codes +CRC") result code sent from TA to TE. It is manufacturer specific if	
	this response is used when normal voice call is answered.	
	Read command gives the status of <n>, and also triggers an interrogation of the provision status of the "multiple called	
	numbers" service. Test command returns values supported as a compound value.	
Command	+CDIP=[<n>]	
	+CDIP?	+CDIP: <n>,<m>
	+CDIP=?	+CDIP: (list of supported <n>s)
Defined values	<n> (parameter sets/shows the result code presentation status to the TE):	
	0 disable	
	1 enable	
	<m> (parameter shows the subscriber "multiple called numbers" service status in the network):	
	0 "multiple called numbers service" is not provisioned	
	1 "multiple called numbers service" is provisioned	
	2 unknown (e.g. no network, etc.)	
	<number>: string type phone number of format specified by <type>	
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<subaddr>: string type subaddress of format specified by <satype>	
	<satype>: type of subaddress octet in integer format (refer TS 24.008 [8] subclause 10.5.4.8)	

4.10 +CPOL Preferred PLMN list

Description	This command is used to edit the PLMN selector with Access Technology lists in the SIM card or active application in
	the UICC(GSM or USIM).
	Execute command writes an entry in the SIM/USIM list of preferred PLMNs, previously selected by the command
	+CPLS. If no list has been previously selected, the User controlled PLMN selector with Access Technology,
	EFPLMNwAcT, is the one accessed by default. If <index> is given but <oper> is left out, entry is deleted. If <oper> is

	given but <index> is left out, <oper> is put in the next free location. If only <format> is given, the format of the	
	<oper> in the read command is changed. The Access Technology selection parameters, <GSM_AcT>,	
	<GSM_Compact_AcT> and <UTRAN_AcT>, are required when writing User controlled PLMN selector with Access	
	Technology, EF EFPLMNwAcT, Operator controlled PLMN selector with Access Technology EFOPLMNwAcT and HPLMN	
	selector with Access Technology EFHPLMNwAcT, see TS 31.102. Refer subclause 9.2 for possible <err> values.	
Command	+CPOL=[<index>][, <format>[,<oper>[,<GS M_AcT>,<GSM_Compact_A cT>,<UTRAN_AcT>]]]	*+CME ERROR: <err>*
	+CPOL?	+CPOL: <index1>,<format>,<oper1>[,<GSM_AcT1 >,<GSM_Com pact_AcT1>,<UTRAN_AcT1>] [<CR><LF>+CPOL: <index2>,<format>,<oper2>[,<GSM_AcT2 >,<GSM_Com pact_AcT2>,<UTRAN_AcT2>] [...]] *+CME ERROR: <err>*
	+CPOL=?	+CPOL: (list of supported <index>s),(list of supported <format>s) *+CME ERROR: <err>*
Defined values	<indexn>: integer type; the order number of operator in the SIM/USIM preferred operator list <format>: 0 long format alphanumeric <oper> 1 short format alphanumeric <oper> 2 numeric <oper> <opern>: string type; <format> indicates if the format is alphanumeric or numeric (see +COPS) <GSM_AcTn>: GSM access technology: 0 access technology not selected 1 access technology selected <GSM_Compact_AcTn>: GSM compact access technology: 0 access technology not selected 1 access technology selected	

	<UTRA_AcT*n*>: UTRA access technology: 0 access technology not selected 1 access technology selected

4.11 +CPLS Selection of preferred PLMN list

Description	This command is used to select one PLMN selector with Access Technology list in the SIM card or active application in the UICC(GSM or USIM), that is used by +CPOL command. Execute command selects a list in the SIM/USIM. Refer subclause 9.2 for possible <err> values. Read command returns the selected PLMN selector list from the SIM/USIM Test command returns the whole index range supported lists by the SIM./USIM	
Command	+CPLS=<list>	*+CME ERROR: <err>*
	+CPLS?	+CPLS: <list> *+CME ERROR: <err>*
	+CPLS=?	+CPLS: (list of supported <list>s) *+CME ERROR: <err>*
Defined values	<list>: 0 User controlled PLMN selector with Access Technology EFPLMNwAcT, if not found in the SIM/UICC then PLMN preferred list EFPLMNsel (this file is only available in SIM card or GSM application selected in UICC) 1 Operator controlled PLMN selector with Access Technology EFOPLMNwAcT 2 HPLMN selector with Access Technology EFHPLMNwAcT	

4.12 +COPN Read operator names

Description	Execute command returns the list of operator names from the MT. Each operator code <numeric*n*> that has an alphanumeric equivalent <alpha*n*> in the MT memory shall be returned. Refer subclause 9.2 for possible <err> values.

Command	+COPN	+COPN: <numeric1>,<alpha1> [<CR><LF>+COPN: <numeric2>,<alpha2> [...]] *+CME ERROR: <err>*
	+COPN=?	
Defined values	<numeric*n*>: string type; operator in numeric format (see +COPS) <alpha*n*>: string type; operator in long alphanumeric format (see +COPS)	

4.13 +CGREG GPRS network registration status

Description	The set command controls the presentation of an unsolicited result code +CGREG: <stat> when <n>=1 and there is a change in the MT's GPRS network registration status, or code +CGREG: <stat>[,<lac>,<ci>] when <n>=2 and there is a change of the network cell. The read command returns the status of result code presentation and an integer <stat> which shows whether the network has currently indicated the registration of the MT. Location information elements <lac> and <ci> are returned only when <n>=2 and MT is registered in the network.	
Command	+CGREG=[<n>]	+CGREG: <n>,<stat>[,<lac>,<ci>] *+CME ERROR: <err>*
	+ CGREG =?	+CGREG: (list of supported <n>s)
	+ CGREG?	+CGREG: <n>,<stat>[,<lac>,<ci>] *+CME ERROR: <err>*
Defined values	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, MT is not currently searching an operator to register to The UE is in GMM state GMM-NULL or GMM-DEREGISTERED-INITIATED. The GPRS service is disabled, the UE is allowed to attach for GPRS if requested by the user. 1 registered, home network The UE is in GMM state GMM-REGISTERED or GMM-ROUTING-AREA-UPDATING-INITIATED INITIATED on the home PLMN.	

	2 not registered, but MT is currently trying to attach or searching an operator to register to
	The UE is in GMM state GMM-DEREGISTERED or GMM-REGISTERED-INITIATED. The GPRS service is
	enabled, but an allowable PLMN is currently not available. The UE will start a GPRS attach as soon as an
	allowable PLMN is available.
	3 registration denied
	The UE is in GMM state GMM-NULL. The GPRS service is disabled, the UE is not allowed to attach for GPRS
	if requested by the user.
	4 unknown
	5 registered, roaming
	The UE 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

4.14 +IPR   Fixed DTE Rate

Description	This command specifies the data rate at which the DCE will accept commands.	
Command	+ IPR=[\<n>]	+*CME ERROR: \<err>*
	+ IPR =?	+ ECHO: \<level> +*CME ERROR: \<err>*
	+ IPR?	+ SIDET: (list of supported \<level>s) +*CME ERROR: \<err>*
Defined values	0 Enable autobaud 38400 Disable autobaud and set rate to 38400 bps	

4.15 +FCLASS   Select mode

Description	This command puts the TA into a particular mode of operation (data, fax, voice etc.). This causes the TA to process
	information in a manner suitable for that type of information (rather than for other types of information).
	Voice mode is of particular interest here, and has an additional result code +VCON. Specifically, +VCON indicates that
	the TA is entering the voice command mode and there is a voice connection to at least one audio input or output. This

	presupposes that some mechanism has previously initiated a connection to that audio I/O.	
Command	+ FCLASS=[<n>]	*+CME ERROR: <err>*
	+ FCLASS =?	+ ECHO: <level> *+CME ERROR: <err>*
	+ FCLASS?	+ SIDET: (list of supported <level>s) *+CME ERROR: <err>*
Defined values	0 data 1 fax class 1 (TIA-578-A) 1.0 fax class 1 (ITU-T T.31 [11]) 2 fax (manufacturer specific) 2.0 fax class 2 (ITU-T T.32 [12] and TIA-592) 3...7 reserved for other fax modes 8 voice 9...15 reserved for other voice modes 16..79 reserved 80 VoiceView (Radish)	

5 Mobile Termination control and status commands

5.1 +CPAS Phone activity status

Description	Execution command returns the activity status <pas> of the MT. It can be used to interrogate the MT before requesting action from the phone. Refer subclause 9.2 for possible <err> values. Test command returns values supported by the MT as a compound value.	
command	+CPAS	+CPAS: <pas> *+CME ERROR: <err>*
	+CPAS=?	+CPAS: (list of supported <pas>s) *+CME ERROR: <err>*
Defined values	<pas>: 0 ready (MT allows commands from TA/TE) 1 unavailable (MT does not allow commands from TA/TE) 2 unknown (MT is not guaranteed to respond to instructions) 3 ringing (MT is ready for commands from TA/TE, but the ringer is active) 4 call in progress (MT is ready for commands from TA/TE, but a call is in	

progress)

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

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

5.2 +CFUN Set phone functionality

Description	Set command selects the level of functionality <fun> in the MT. Level "full functionality" is where the highest level of	
	power is drawn. "Minimum functionality" is where minimum power is drawn. Level of functionality between these may	
	also be specified by manufacturers. When supported by manufacturers, MT resetting with <rst> parameter may be	
	utilized. Refer subclause 9.2 for possible <err> values.	
command	+CFUN=[<fun>[,<rst>]]	+*CME ERROR: <err>*
	+CFUN?	+CFUN: <fun> +*CME ERROR: <err>*
	+CFUN=?	+CFUN: (list of supported <fun>s), (list of supported <rst>s) +*CME ERROR: <err>*
Defined values	<fun>: 0 minimum functionality 1 full functionality 2 disable phone transmit RF circuits only 3 disable phone receive RF circuits only 4 disable phone both transmit and receive RF circuits 5...127 reserved for manufacturers as intermediate states between full and minimum functionality <rst>: 0 do not reset the MT before setting it to <fun> power level NOTE: This shall be always default when <rst> is not given. 1 reset the MT before setting it to <fun> power level	

5.3 +CPIN Enter PIN

Description	Set command sends to the MT a password which is necessary before it can be operated (SIM PIN, SIM PUK, PH-SIM
	PIN, etc.). If the PIN is to be entered twice, the TA shall automatically repeat the PIN. If no PIN request is pending, no
	action is taken towards MT and an error message, +CME ERROR, is returned to TE. Refer subclause 9.2 for possible
	<err> values.
	If the PIN required is SIM PUK or SIM PUK2, the second pin is required. This second pin, <newpin>, is used to
	replace the old pin in the SIM.

command	+CPIN=<pin>[,<newpin>]	*+CME ERROR: <err>*
	+CPIN?	+CPIN: <code>
		+CME ERROR: <err>
	+CPIN=?	

Defined values	<pin>, <newpin>: string type values
	<code> values reserved by the present document:
	READY MT is not pending for any password
	SIM PIN MT is waiting SIM PIN to be given
	SIM PUK MT is waiting SIM PUK to be given
	PH-SIM PIN MT is waiting phone-to-SIM card password to be given
	PH-FSIM PIN MT is waiting phone-to-very first SIM card password to be given
	PH-FSIM PUK MT is waiting phone-to-very first SIM card unblocking password to be given
	SIM PIN2 MT is waiting SIM PIN2 to be given (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 MT does not block its operation)
	SIM PUK2 MT 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 MT does not
	block its operation)
	PH-NET PIN MT is waiting network personalization password to be given
	PH-NET PUK MT is waiting network personalization unblocking password to be given
	PH-NETSUB PIN MT is waiting network subset personalization password to be given
	PH-NETSUB PUK MT is waiting network subset personalization unblocking password to be given
	PH-SP PIN MT is waiting service provider personalization password to be given
	PH-SP PUK MT is waiting service provider personalization unblocking password

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

5.4 +CSQ Signal quality

Description	Execution command returns received signal strength indication <rssi> and channel bit error rate <ber> from the MT. Refer subclause 9.2 for possible <err> values.	
command	+CSQ	+CSQ: <rssi>,<ber> *+CME ERROR: <err>*
	+CSQ=?	+CSQ: (list of supported <rssi>s),(list of supported <ber>s)
Defined values	<rssi>: 0 -113 dBm or less 1 -111 dBm 2...30 -109... -53 dBm 31 -51 dBm or greater 99 not known or not detectable <ber> (in percent): 0...7 as RXQUAL values in the table in TS 45.008 [20] subclause 8.2.4 99 not known or not detectable	

5.5 +CCLK Clock

Description	Set command transmits to the MT the <command> it then shall send as it is to the SIM.	
Command	+CCLK=<time>	*+CME ERROR: <err>*
	+CCLK?	+CCLK: <time> *+CME ERROR: <err>*
	+CCLK=?	
Defined values	<time>: string type value; format is "yy/MM/dd,hh:mm:ss zz", where characters indicate year (two last digits), month, day, hour, minutes, seconds and time zone (indicates the difference, expressed in quarters of an hour, between the local time and GMT; range -96...+96). E.g. 6th of May 1994,	

	22:10:00 GMT+2 hours equals to "94/05/06,22:10:00+08"

5.6 +CSIM

Description	Set command transmits to the MT the <command> it then shall send as it is to the SIM.
Command	at+CSIM=<length>,<command>
Defined values	<length> : integer type; length of the characters that are sent to TE in <command> or <response> (two times the actual length of the command or response) <command> : command passed on by the MT to the SIM in the format as described in GSM 51.011 [28] (hexadecimal character format; refer +CSCS) <response> : response to the command passed on by the SIM to the MT in the format as described in GSM 51.011 [28] (hexadecimal character format; refer +CSCS)

5.7 +CRSM

Description	By using this command instead of Generic SIM Access +CSIM TE application has easier but more limited access to the SIM database. Set command transmits to the MT the SIM <command> and its required parameters. MT handles internally all SIM-MT interface locking and file selection routines. As response to the command, MT sends the actual SIM information parameters and response data. MT error result code +CME ERROR may be returned when the command cannot be passed to the SIM, but failure in the execution of the command in the SIM is reported in <sw1> and <sw2> parameters. Refer to subclause 9.2 for <err> values. Coordination of command requests to SIM and the ones issued by GSM/UMTS application inside the MT is implementation dependent. However the TE should be aware of the precedence of the GSM/UMTS application commands to the TE commands.
Command	+CRSM=<command>[,<fileid> [,<P1>,<P2>,<P3> [,<data>[,<pathid>]]]]

Defined values	<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 203 RETRIEVE DATA 219 SET DATA

5.8 +CLAC

Description	Execution command causes the MT to return one or more lines of AT Commands.	
Command	+CLAC	
	+CLAC	<AT Command1> [<CR> <LF> <AT Command2>[…]] *+CME ERROR: <err>*
	+CLAC=?	*+CME ERROR: <err>*
Defined values	<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 203 RETRIEVE DATA 219 SET DATA	

5.9 +CTZU

Description	Set command enables and disables automatic time zone update via NITZ. If setting fails in an MT error, +CME ERROR: <err> is returned. Refer subclause 9.2 for <err> values. Read command returns the current settings in the MT. Test command returns supported on- and off-values.	
Command	+CTZU=<onoff>	*+CME ERROR: <err>*
	+CTZU?	+CTZU: <onoff> *+CME ERROR: <err>*

	+CTZU=?	+CTZU: (list of supported <onoff>s)
		+*CME ERROR: <err>*
Defined values	<onoff>: integer type value indicating:	
	0 – Disable automatic time zone update via NITZ (default).	
	1 – Enable automatic time zone update via NITZ.	

5.10 +CTZR

Description	This set command enables and disables the time zone change event reporting. If the reporting is enabled the MT returns	
	the unsolicited result code +CTZV: <tz> whenever the time zone is changed. If setting fails in an MT error, +CME	
	ERROR: <err> is returned. Refer subclause 9.2 for <err> values.	
	Read command returns the current reporting settings in the MT.	
	Test command returns supported <onoff>-values.	
Command	+CTZR=<onoff>	+*CME ERROR: <err>*
	+CTZR?	+CTZR: <onoff>
		+*CME ERROR: <err>*
	+CTZR=?	+CTZR: (list of supported <onoff>s)
		+*CME ERROR: <err>*
Defined values	<onoff>: integer type value indicating:	
	0 – disable time zone change event reporting (default).	
	1 – Enable time zone change event reporting.	

5.11 +CLVL Loudspeaker volume level

Description	This command is used to select the volume of the internal loudspeaker of the MT. Refer subclause 9.2 for possible	
	<err> values.	
	Test command returns supported values as compound value.	
Command	+CLVL=<level>	+*CME ERROR: <err>*
	+ CLVL?	+CLVL: <level>
		+*CME ERROR: <err>*
	+ CLVL =?	+CLVL: (list of supported <level>s)
		+*CME ERROR: <err>*

Defined values	<level>: integer type value with manufacturer specific range (smallest value represents the lowest sound level)

5.12 +ECHO   Echo Cancellation

Description	This command is used to enable, disable or configure the Echo Cancellation functions for voice calls (in rooms, in cars, etc.). The +SPEAKER function automatically sets echo cancellation based upon handset or headset choice and this command allows non-standard operation.	
Command	+ECHO=<level>	+*CME ERROR: <err>*
	+ ECHO?	+ ECHO: <level> +*CME ERROR: <err>*
	+ ECHO =?	+ ECHO: (list of supported <level>s) +*CME ERROR: <err>*
Defined values	**0**: Vocoder Echo Cancellation Off **1**: Ear Seal Echo Cancellation **2**: Head Set Echo Cancellation **3**: AEC **4**: Speaker Echo Cancellation for car kit operation **5**: Default Echo Cancellation for current path settings	

5.13 +SIDET Side Tone Modification

Description	This command is used to set the level of audio feedback in the speaker (microphone feedback in the speaker).	
Command	AT+SIDET=1,0	+*CME ERROR: <err>*
	+ SIDET?	+ SIDET: <level> +*CME ERROR: <err>*
	+ SIDET=?	+ SIDET: (list of supported <level>s) +*CME ERROR: <err>*
Defined values	**<val1>** **0**: Sidetone is disabled **1**: Sidetone is enabled **<val2>** **0**: No side tone **1**: Handset Sidetone levels **2**: Headset Sidetone levels **3**: Max Sidetone level	

6 SMS command

6.1 +CMGC: Send Command

Description	Execution command sends a command message from a TE to the network (SMS-COMMAND). The entering of PDU is done similarly as specified in command Send Message +CMGS. 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. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values. This command should be abortable.	
Command	**if PDU mode (+CMGF=0):** +CMGC=<length><CR> **PDU is given**<ctrl-Z/ESC>	**if PDU mode (+CMGF=0) and sending successful:** +CMGC: <mr>[,<ackpdu>] **if sending fails:** +CMS ERROR: <err>
Defined values		

6.2 6.2 +CMGD: Delete Message

Description	Execution command deletes message from preferred message storage <mem1> location <index>. If <delflag> is present and not set to 0 then the ME shall ignore <index> and follow the rules for <delflag> shown below. If deleting fails, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for <err> values. Test command shows the valid memory locations and optionally the supported values of <delflag>.	
Command		
Defined values	<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.

6.3 +CMGF: Message Format

Description	Set command tells the TA, which input and output format of messages to use. <mode> indicates the format of messages	
	used with send, list, read and write commands and unsolicited result codes resulting from received messages. Mode can	
	be either PDU mode (entire TP data units used) or text mode (headers and body of the messages given as separate	
	parameters). 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.	
	Test command returns supported modes as a compound value.	
Command	+CMGF=[<mode>]	
	+CMGF?	+CMGF: <mode>
	+CMGF=?	+CMGF: (list of supported <mode>s)
Defined values	<mode>: 0 PDU mode (default when implemented) 1 text mode	

6.4 +CMGL: List Messages

Description	Execution command returns messages with status value <stat> from preferred message storage <mem1> to the TE.
	Entire data units <pdu> are returned. If status of the message is 'received unread', status in the storage changes to
	'received read'. If listing fails, final result code +CMS ERROR: <err> is returned. See chapter Message Service
	Failure Result Code for <err> values.
	Test command shall give a list of all status values supported by the TA.

Command	+CMGL[=<stat>]	**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> [...]] **otherwise:** +CMS ERROR: <err>
	+CMGL=?	+CMGL: (list of supported <stat>s)
Defined values		

6.5 +CMGR: Read Message

Description	Execution command returns message with location value <index> from preferred message storage <mem1> to the TE. Status of the message and entire message data unit <pdu> is returned. If status of the message is 'received unread', status in the storage changes to 'received read'. If reading fails, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for <err> values.	
Command	+CMGR=<index>，<mode>	**if PDU mode (+CMGF=0) and command successful:** +CMGR: <stat>,[<alpha>],<length><CR><LF><pdu> **otherwise:** +CMS ERROR: <err>
	+CMGR=?	
Defined values	Mode: 0:changed the unread flag 1:not changed the unread flag	

6.6 +CMGS: Send Message

Description	Execution command sends message from a TE to the network (SMS-SUBMIT). Message reference value <mr> is returned to the TE on successful message delivery. Optionally (when +CSMS

	<service> value is 1 and network	
	supports) <ackpdu> is returned. Values can be used to identify message upon unsolicited delivery status report result	
	code. If sending fails in a network or an ME error, final result code +CMS ERROR: <err> is returned. See chapter	
	Message Service Failure Result Code for a list of <err> values. This command should be abortable.	
	- <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 ON 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	
Command	**if PDU mode (+CMGF=0):** +CMGS=<length><CR> **PDU is given**<ctrl-Z/ESC>	**if PDU mode (+CMGF=0) and sending successful:** +CMGS: <mr>[,<ackpdu>] **if sending fails:** +CMS ERROR: <err>
	+CMGS=?	
Defined values		

6.7 +CMGW: Write Message to Memory

Description	Execution command stores a message to memory storage <mem2>. Memory location <index> of the stored message is
	returned. By default message status will be set to 'stored unsent', but parameter <stat> allows also other status values
	to be given. (ME/TA manufacturer may choose to use different default <stat>

	values for different message types.)	
	The entering of PDU is done similarly as specified in command Send Message +CMGS. If writing fails, final result code	
	+CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for <err> values.	
Command	**if PDU mode (+CMGF=0):** +CMGW=<length>[,<stat>]<CR>**PDU is given**<ctrl-Z/ESC>	+CMGW: <index> +CMS ERROR: <err>
	+CMGW=?	
Defined values		

6.8 +CMSS: Send Message from Storage

Description	Execution command sends message with location value <index> from message storage <mem2> to the network (SMSSUBMIT	
	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. If sending fails in a network or an ME error, final result	
	code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values.	
	This command should be abortable.	
Command	+CMSS=<index>[,<da>[,<toda>]]	**if PDU mode (+CMGF=0) and sending successful:** +CMSS: <mr>[,<ackpdu>] **if sending fails:** +CMS ERROR: <err>
	+CMSS=?	
Defined values		

6.9 +CNMI: New Message Indications to TE

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

	active, e.g. DTR signal is ON. If TE is inactive (e.g. DTR signal is OFF), message receiving should be done as specified in GSM 03.38.	
Command	+CNMI=[<mode>[,<mt>[,<bm>[,<ds>[, <bfr>]]]]]	+CMS ERROR: <err>
	+CNMI?	+CNMI: <mode>,<mt>,<bm>,<ds>,<bfr>
	+CNMI=?	+CNMI: (list of supported <mode>s),(list of supported <mt>s),(list of supported <bm>s),(list of supported <ds>s),(list of supported <bfr>s)
Defined values	<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 (e.g. in on-line data mode). Otherwise forward them directly to the TE. 2 Buffer unsolicited result codes in the TA when TA-TE link is reserved (e.g. in on-line data mode) and flush them to the TE after reservation. Otherwise forward them directly to the TE. 3 Forward unsolicited result codes directly to the TE. TA-TE link specific inband technique used to embed result codes and data when TA is in on-line data mode. <mt> (the rules for storing received SMs depend on its data coding scheme (refer GSM 03.38 [2]), preferred memory storage (+CPMS) setting and this value; refer table 1; NOTE: If AT command interface is acting as the only display device, the ME must support storing of class 0 messages and messages in the message waiting indication group (discard message); refer table 2): 0 No SMS-DELIVER indications are routed to the TE. 1 If SMS-DELIVER is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result code: +CMTI: <mem>,<index> 2 SMS-DELIVERs (except class 2 messages and messages in the message waiting indication group (store message)) are routed directly to the TE using unsolicited result code: +CMT: [<alpha>],<length><CR><LF><pdu> (PDU mode enabled)	

or

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

<length>]<CR><LF><data> (text mode enabled; about parameters in italics, refer command Show

Text Mode Parameters +CSDH)

If ME has its own display device then class 0 messages and messages in the message waiting indication group

(discard message) may be copied to both ME display and to TE. In this case, ME shall send the

acknowledgement to the network (refer table 2).

Class 2 messages and messages in the message waiting indication group (store message) result in indication as

defined in <mt>=1.

3 Class 3 SMS-DELIVERs are routed directly to TE using unsolicited result codes defined in <mt>=2. Messages

of other data coding schemes result in indication as defined in <mt>=1.

<bm> (the rules for storing received CBMs depend on its data coding scheme (refer GSM 03.38 [2]), the setting of

Select CBM Types (+CSCB) and this value; refer table 3):

0 No CBM indications are routed to the TE.

1 If CBM is stored into ME/TA, indication of the memory location is routed to the TE using unsolicited result

code:

+CBMI: <mem>,<index>

2 New CBMs are routed directly to the TE using unsolicited result code:

+CBM: <length><CR><LF><pdu> (PDU mode enabled)

or

+CBM: <sn>,<mid>,<dcs>,<page>,<pages><CR><LF><data> (text mode enabled)

If ME supports data coding groups which define special routing also for messages other than class 3 (e.g. SIM

specific messages), ME may choose not to route messages of such data coding schemes into TE (indication of a

stored CBM may be given as defined in <bm>=1).

3 Class 3 CBMs are routed directly to TE using unsolicited result codes defined in <bm>=2. If CBM storage is

supported, messages of other classes result in indication as defined in <bm>=1.

<ds>:

0 No SMS-STATUS-REPORTs are routed to the TE.

1 SMS-STATUS-REPORTs are routed to the TE using unsolicited result code:

+CDS: <length><CR><LF><pdu> (PDU mode enabled)

or

+CDS: <fo>,<mr>,[<ra>],[<tora>],<scts>,<dt>,<st> (text mode enabled)

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

unsolicited result code:

+CDSI: <mem>,<index>

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

6.10 +CPMS: Preferred Message Storage

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

Command	+CPMS=<mem1>[, <mem2>[,<mem3>]]	+CPMS: <used1>,<total1>,<used2>,<total2>,<used3>,<total3>
		+CMS ERROR: <err>
	+CPMS?	+CTZR: <onoff>
		+CME ERROR: <err>
	+CTZR=?	+CTZR: (list of supported <onoff>s)
		+CME ERROR: <err>
Defined values		

6.11 +CSCA: Service Centre Address

Description	Set command updates the SMSC address, through which mobile originated SMs are 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.

Command	+CSCA=<sca>[,<tosca>]	
	+CSCA?	+CSCA: <sca>,<tosca>

	+CSCA=?	
Defined values		

6.12 +CSCB: Select Cell Broadcast Message Types

Description	Set command selects which types of CBMs are to be received by the ME. Test command returns supported modes as a compound value.	
Command	+CSCB=[<mode>[,<mids>[,<dcss>]]]	
	+CSCB?	+CSCB: <mode>,<mids>,<dcss>
	+CSCB=?	+CSCB: (list of supported <mode>s)
Defined values	<mode>: 0 message types specified in <mids> and <dcss> are accepted 1 message types specified in <mids> and <dcss> are not accepted <mids>: string type; all different possible combinations of CBM message identifiers (refer <mid>) (default is empty string); e.g. "0,1,5,320-478,922" <dcss>: string type; all different possible combinations of CBM data coding schemes (refer <dcs>) (default is empty string); e.g. "0-3,5"	

6.13 +CSMP Set Text Mode Parameters

Description	Set command is used to select values for additional parameters needed when SM is sent to the network or placed in a storage when text format message mode is selected. It is possible to set the validity period starting from when the SM is received by the SMSC (<vp> is in range 0... 255) or define the absolute time of the validity period termination (<vp> is a string). The format of <vp> is given by <fo>. If TA supports the enhanced validity period format ($(EVPF)$, see GSM 03.40), it shall be given as a hexadecimal coded string (refer e.g. <pdu>) with double quotes.	
Command	+CSMP=[<fo>[,<vp>[,<pid>[,<dcs>]]]]	
	+CSMP?	+CSMP: <fo>,<vp>,<pid>,<dcs>

	+CSMP=?	
Defined values	<mode>:	
	0 message types specified in <mids> and <dcss> are accepted	
	1 message types specified in <mids> and <dcss> are not accepted	
	<mids>: string type; all different possible combinations of CBM message identifiers (refer <mid>) (default is	
	empty string); e.g. "0,1,5,320-478,922"	
	<dcss>: string type; all different possible combinations of CBM data coding schemes (refer <dcs>) (default is	
	empty string); e.g. "0-3,5"	

6.14 +CSMS Select Message Service

Description	Set command selects messaging service <service>. It returns the types of messages supported by the ME: <mt> for	
	mobile terminated messages, <mo> for mobile originated messages and <bm> for broadcast type messages. If chosen	
	service is not supported by the ME (but is supported by the TA), final result code +CMS ERROR: <err> shall be	
	returned. See chapter Message Service Failure Result Code for a list of <err> values.	
	Also read command returns supported message types along the current service setting.	
	Test command returns a list of all services supported by the TA.	
Command	+CSMS=<service>	+CSMS: <mt>,<mo>,<bm>
		+CMS ERROR: <err>
	+CSMS=?	+CSMS: (list of supported <service>s)
Defined values	<service>:	
	0 GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 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))	
	1 GSM 03.40 and 03.41 (the syntax of SMS AT commands is compatible with GSM 07.05 Phase 2+	
	version; the requirement of <service> setting 1 is mentioned under corresponding command	
	descriptions)	
	2...127 reserved	
	128... manufacturer specific	
	<mt>, <mo>, <bm>:	
	0 type not supported	
	1 type supported	

6.15 +CNMA New Message Acknowlegement

Description	Execution command confirms correct reception of a new message (SMS-DELIVER or SMS-STATUS-REPORT) which is routed directly to the TE (refer command +CNMI tables 2 and 4). This acknowledgement command (causing ME to send RP-ACK to the network) shall be used when +CSMS parameter <service> equals 1. TA shall not send another +CMT or +CDS result code to TE before previous one is acknowledged. If ME does not get acknowledgement within required time (network timeout), ME should send RP-ERROR to the network. ME/TA shall automatically disable routing to TE by setting both <mt> and <ds> values of +CNMI to zero. If command is executed, but no acknowledgement is expected, or some other ME related error occurs, final result code +CMS ERROR: <err> is returned. See chapter Message Service Failure Result Code for a list of <err> values.	
Command	**if text mode (+CMGF=1):** +CNMA	+CMS ERROR: <err>
	+CNMA?	+CSMS: <service>,<mt>,<mo>,<bm>
	+CSMS=?	+CSMS: (list of supported <service>s)
Defined values	This AT command is not designed for input of the command into the Hyper terminal by hand since the acknowledgement will not be quick enough to be received by the network. However, it is possible for the client system to automatically send this command when the +CNMI is set to "2,2,0,0,0".	

6.16 +CMMS More Messages to Send

Description	Set command controls the continuity of SMS relay protocol link. When feature is enabled (and supported by network) multiple messages can be sent much faster as link is kept open. Test command returns supported values as a compound value.	
Command	+CMMS=[<n>]	
	+CMMS?	+CMMS: <n>
	+CMMS=?	+CMMS: (list of supported <n>s)
Defined values	0 disable 1 keep enabled until the time between the response of the latest message send command (+CMGS, +CMSS, etc.) and	

	the next send command exceeds 1-5 seconds (the exact value is up to ME implementation), then ME shall close
	the link and TA switches <n> automatically back to 0
	2 enable (if the time between the response of the latest message send command and the next send command
	exceeds 1-5 seconds (the exact value is up to ME implementation), ME shall close the link but TA shall not
	switch automatically back to <n>=0)

6.17 +CGSMS Select Service for MO SMS Messages

Description	The set command is used to specify the service or service preference that the MT will use to send MO SMS messages.
	The read command returns the currently selected service or service preference.
	The test command is used for requesting information on the currently available services and service preferences.

Command	+CGSMS= [<service>]	OK ERROR
	+ CGSMS?	+CGSMS: <service>
	+ CGSMS =?	+CGSMS: (list of currently available <service>s)

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

6.18 +CMT Incoming Message Directly Displayed

Description	This response indicates that an incoming message has been received and according to themessage storage preferences (+CNMI), is to be directly displayed.

Command	+CMT：<oa>, [<alpha>],<scts> [,<tooa>,<fo>,<pid>,<dcs>,<sca>,<tosca>,<length>]<CR><LF><data> (text mode enabled; about parameters in italics, refer command Show Text Mode Parameters +CSDH)	OK ERROR
	or +CMT：[<alpha>],<length><CR><LF><pdu> (PDU mode enabled)	

Defined values	<oa> Originator Address.
	<scts> Service Center Time Stamp in string format : "yy/MM/dd,hh :mm :ss±zz" (Year/Month/Day,Hour:Min:Seconds±TimeZone)
	<tooa> Type-of-Address of <oa>
	<lang> Language
	<encod> Encoding method
	<priority>: Message priority:
	0 – Normal
	1 – Interactive
	2 – Urgent
	3 – Emergency
	<cbn> Call Back Number
	<length> The number of characters in the following <data> field
	<data> Message contents

6.19 +CMTI Incoming Message Stored in Memory

Description	This response indicates that an incoming message has been received and according to the message storage preferences (+CNMI), is to be stored in memory.	
Command	+CMTI: <mem>,<index>	OK ERROR
Defined values	<mem> NVRAM storage area (always "MT" for this response) <index> location of message within storage area	

6.20 +ZMGF：Message Full

Description	This indicates that the message center is trying to send a short message to the module but is rejected because the message memory is full. Need use AT+CMGD command to delete some messages.
Format	+ZMGF:n
Example	+ZMGF Indicates there is a new message, but it's rejected
Parameter	n: indicates that message memory is full 1: WMS_MEMORY_STORE_RAM_GW 2: WMS_MEMORY_STORE_SIM 3: WMS_MEMORY_STORE_NV_GW Among the above, 1 and 3 might be viewed as mobile phone, 2 might be viewed as Module

7 Phonebook commands

7.1 +CPBS Select Phonebook memory storage

Description	Set command selects phonebook memory storage <storage>, which is used by other phonebook commands. If	
	setting fails in an MT error, +CME ERROR: <err> is returned. Refer subclause 9.2 for <err> values.	
	Read command returns currently selected memory, and when supported by manufacturer, number of used locations and	
	total number of locations in the memory.	
	Test command returns supported storages as compound value.	
Command	+CPBS=<storage> [,<password>]	*+CME ERROR: <err>*
	+CPBS?	+CPBS: <storage>[,<used>,<total>] *+CME ERROR: <err>*
	+CPBS =?	+CPBS: (list of supported <storage>s)
Defined values	"DC" MT dialled calls list (+CPBW may not be applicable for this storage)	
	"EN" SIM/USIM (or MT) emergency number (+CPBW is not be applicable for this storage)	
	"FD" SIM/USIM fixdialling-phonebook. If a SIM card is present or if a UICC with an active GSM application	
	is present, the information in EFFDN under DFTelecom is selected. If a UICC with an active USIM	
	application is present, the information in EFFDN under ADFUSIM is selected.	
	"LD" SIM/UICC last-dialling-phonebook	
	"MC" MT missed (unanswered received) calls list (+CPBW may not be applicable for this storage)	
	"ME" MT phonebook	
	"MT" combined MT and SIM/USIM phonebook	
	"ON" SIM (or MT) own numbers (MSISDNs) list (reading of this storage may be available through +CNUM	
	also). When storing information in the SIM/UICC, if a SIM card is present or if a UICC with an active	
	GSM application is present, the information in EFMSISDN under DFTelecom is selected. If a UICC with an	
	active USIM application is present, the information in EFM SISDN under ADFUSIM is selected.	
	"RC" MT received calls list (+CPBW may not be applicable for this storage)	
	"SM" SIM/UICC phonebook. If a SIM card is present or if a UICC with an active GSM application is present,	
	the EFADN under DFTelecom is selected. If a UICC with an active USIM application is present, the global	

	phonebook, DFPHONEBOOK under DFTelecom is selected.
	"TA" TA phonebook
	"AP" Selected application phonebook. If a UICC with an active USIM application is present, the application
	phonebook, DFPHONEBOOK under ADFUSIM is selected.
	<password>: string type value representing the PIN2-code required when selecting PIN2-code locked
	<storage>s above, e.g. "FD" or the hidden key to be verified in order to access to the hidden phonebook
	entries in the UICC/USIM or any other phonebook with hidden entries.
	If the combined phonebook is selected, "MT", the <password> will correspond to the hidden key of the USIM phonebook.
	<used>: integer type value indicating the number of used locations in selected memory
	<total>: integer type value indicating the total number of locations in selected memory
	"MC" and "RC" is not needed so no function

7.2 +CPBR Read Phonebook Entries

Description	Execution command returns phonebook entries in location number range <index1>... <index2> from the current
	phonebook memory storage selected with +CPBS. If <index2> is left out, only location <index1> is returned. Entry
	fields returned are location number <index*n*>, phone number stored there <number> (of format <type>), text
	<text> associated with the number, if the selected phonebook supports hidden entries, <hidden> indicating if the
	entry is hidden, <group> indicating a group the entry may belong to, <adnumber> an additional number (of
	format <adtype>), <secondtext> a second text field associated with the number and <email> an email
	field. If all queried locations are empty (but available), no information text lines may be returned. If listing fails in an
	MT error, +CME ERROR: <err> is returned. Refer subclause 9.2 for <err> values.
	Test command returns location range supported by the current storage as a compound value and the maximum lengths
	of <number>, <text>, <group>, <secondtext> and <email> fields. In case of (U)SIM storage, the lengths
	may not be available. If MT is not currently reachable, +CME ERROR: <err> is returned. Refer subclause 9.2 for
	<err> values.

Command	+CPBR=<index1> [,<index2>]	[+CPBR: <index1>,<number>,<type>,<text> [,<hidden>][,<group>][,<adnumber>][,<adt ype>][,<secondte xt>][,<email>]] [[...] <CR><LF>+CPBR: <index2>,<number>,<type>,<text> [,<hidden>][,<group>][,<adnumber>][,<adt ype>][,<secondte xt>][,<email>]]] +CME ERROR: <err>
	+CPBR =?	+CPBR: (list of supported <index>s),[<nlength>],[<],[<elength>]+CME ERROR: <err>
Defined values	<index1>, <index2>, <index>: integer type values in the range of location numbers of phonebook memory	
	<number>: string type phone number of format <type>	
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<text>: string type field of maximum length <tlength>; character set as specified by command Select TE	
	Character Set +CSCS	
	<group>: string type field of maximum length <glength>; character set as specified by command Select TE	
	Character Set +CSCS	
	<adnumber>: string type phone number of format <adtype>	
	<adtype>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<secondtext>: string type field of maximum length <slength>; character set as specified by command Select	
	TE Character Set +CSCS	
	<email>: string type field of maximum length <elength>; 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>	
	<glength>: integer type value indicating the maximum length of field <group>	
	<slength>: integer type value indicating the maximum length of field <secondtext>	
	<elength>: integer type value indicating the maximum length of field <email>	
	<hidden>: indicates if the entry is hidden or not	
	0: phonebook entry not hidden	
	1: phonebook entry hidden	

7.3 +CPBF Find Phonebook Entries

Description	Execution command returns phonebook entries (from the current phonebook memory storage selected with +CPBS)	
	which alphanumeric field start with string <findtext>. Entry fields returned are location number <index*n*>, phone	
	number stored there <number> (of format <type>), text <text> associated with the number, if the selected	
	phonebook supports hidden entries, <hidden> indicating if the entry is hidden, <group> indicating a group the entry	
	may belong to, <adnumber> an additional number (of format <adtype>), <secondtext> a second text field	
	associated with the number and <email> an email field. If listing fails in an MT error, +CME ERROR: <err> is	
	returned. Refer subclause 9.2 for <err> values.	
	Test command returns the maximum lengths of <number>, <text>, <group>, <secondtext> and <email>	
	fields. In case of (U)SIM storage, the lengths may not be available. If MT is not currently reachable, +CME ERROR:	
	<err> is returned. Refer subclause 9.2 for <err> values.	
Command	+CPBF=<findtext>	[+CPBF: <index1>,<number>,<type>,<text>
		[,<hidden>][,<group>][,<adnumber>][,<adtype>][,<se
		condtext>][,<email>][[...]
		<CR><LF>+CBPF: <index2>,<number>,<type>,<text>
		[,<hidden>][,<group>][,<adnumber>][,<adtype>][,<se
		condtext>][,<email>]]]
		+CME ERROR: <err>
	+CPBF =?	+CPBF:
		[<nlength>],[<tlength>],[<glength>],[<slength>],[<e length>]
		+CME ERROR: <err>
Defined values	<index1>, <index2>: integer type values in the range of location numbers of phonebook memory	
	<number>: string type phone number of format <type>	
	<type>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<group>: string type field of maximum length <glength>; character set as specified by command Select TE	
	Character Set +CSCS	
	<adnumber>: string type phone number of format <adtype>	
	<adtype>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<secondtext>: string type field of maximum length <slength>; character set as specified by command Select	
	TE Character Set +CSCS	

	<email>: string type field of maximum length <elength>; character set as specified by command Select TE
	Character Set +CSCS
	<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>
	<glength>: integer type value indicating the maximum length of field <group>
	<slength>: integer type value indicating the maximum length of field <secondtext>
	<elength>: integer type value indicating the maximum length of field <email>
	<hidden>: indicates if the entry is hidden or not
	0: phonebook entry not hidden
	1: phonebook entry hidden

7.4 +CPBW Write Phonebook Entry

Description	Execution command writes phonebook entry in location number <index> in the current phonebook memory storage
	selected with +CPBS. Entry fields written are phone number <number> (in the format <type>), text <text>
	associated with the number, if the selected phonebook supports hidden entries, <hidden> parameter, which indicates if
	the entry is hidden or not, <group> indicating a group the entry may belong to, <adnumber> an additional
	number (of format <adtype>), <secondtext> a second text field associated with the number and <email>
	an email field. If those fields are omitted, phonebook entry is deleted. If <index> is left out, but <number> is given,
	entry is written to the first free location in the phonebook (the implementation of this feature is manufacturer specific).
	If writing fails in an MT error, +CME ERROR: <err> is returned. Refer subclause 9.2 for <err> values.
	Test command returns location range supported by the current storage as a compound value, the maximum length of
	<number> field, supported number formats of the storage, the maximum length of <text> field, the maximum
	length of <group>, the maximum length of <secondtext>, and the maximum length of <email>. In case of SIM
	storage, the lengths may not be available. If MT is not currently reachable, +CME ERROR: <err> is returned. Refer
	subclause 9.2 for <err> values. If storage does not offer format information, the format list should be empty parenthesis

Command	+CPBW=[<index>][,<number> [,<type>[,<text>[,<group>[,<a dnumber>[,<adtype>[,<seconde xt>[,<email>[,<hidden>]]]]]]]]]	*+CME ERROR: <err>*
	+CPBW=?	+CPBW: (list of supported <index>s),[<nlength>],(list of supported<type>s),[<tlength>],[<glength>],[<sleng th>],[<elength>]
		+CME ERROR: <err>
Defined values	<index>: integer type values in the range of location numbers of phonebook memory	
	<number>: string type phone number of format <type>	
	<type>: type of address octet in integer format (refer TS 24.008 [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	
	<group>: string type field of maximum length <glength>; character set as specified by command Select TE	
	Character Set +CSCS	
	<adnumber>: string type phone number of format <adtype>	
	<adtype>: type of address octet in integer format (refer TS 24.008 [8] subclause 10.5.4.7)	
	<secondtext>: string type field of maximum length <slength>; character set as specified by command Select	
	TE Character Set +CSCS	
	<email>: string type field of maximum length <elength>; 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>	
	<glength>: integer type value indicating the maximum length of field <group>	
	<slength>: integer type value indicating the maximum length of field <secondtext>	
	<elength>: integer type value indicating the maximum length of field <email>	
	<hidden>: indicates if the entry is hidden or not	
	0: phonebook entry not hidden	
	1: phonebook entry hidden	