



CDMA AT Commands Interface Specification

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CDMA AT Commands Interface Specification

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1 Introduction

As a wireless module, the AT command set is one of the main interfaces for the module to interact with an external application layer. CDMA AT commands are defined in TIA/EIA/IS707.3. However, as the wireless applications increases, TIA/EIA/IS707.3 is not sufficient. In addition, a lot of GSM applications already exist and GSM customers would like to maintain the same interface in order to make no or minimum changes to the applications to be used with CDMA module. To meet the all these needs, Wavecom WISMOQ CDMA AT command set is designed to cover: 1) IS707.3 AT commands; 2) GSM 07.07 when applicable; 3) GSM 07.05 when applicable, 4) ITU-T v25 when applicable; 5) Wavecom proprietary AT set; 6) Customer specific AT commands; 7) Qualcomm defined AT commands. Please note that is several instances, the GSM 7.07 and 7.05 specifications could not be followed because of fundamental differences between CDMA and GSM call processing behaviors. In these cases, minimal changes were made to the GSM related commands.

1.1 Scope of this document

This document describes the WISMOQ CDMA AT command, its syntax, its response, and result codes. It serves as the reference for wireless application development based on WISMOQ CDMA module, and for the integration and testing.

This document is also intended to be used for North American market, SIM/R-UIM and its related AT commands are not documented here.

1.2 Related references

This interface specification is based on the following recommendations or standards:

[1] ETSI GSM 07.05: Digital cellular telecommunications system (Phase 2); Use of DTE-DCE interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)

[2] ETSI GSM 07.07: Digital cellular telecommunications system (Phase 2); AT command set for GSM Mobile Equipment (ME)

[3] ITU-T Recommendation V.25 ter: Serial asynchronous automatic dialing and control

[4] ETSI GSM 03.40: Digital cellular telecommunications system (Phase 2); Technical implementation of the Short Message Service (SMS) Point-to-Point (PP)

[5] ETSI GSM 03.38: Digital cellular telecommunications system (Phase 2); Alphabets and language-specific information

[6] ETSI GSM 04.80: Digital cellular telecommunications system (Phase 2): Mobile radio interface layer 3, Supplementary service specification, Formats and coding

[7] WAVECOM AT Commands Interface Guide version 001/9.1

[8] TIA/EIA/IS-707.3: Data Service Options for Wideband Spread Spectrum Systems: AT Command Processing and the Rm Interface

[9] Qualcomm Application Note (CL93-V0327-1 X10): AT COMMANDS FOR DMSS

1.3 Definitions

This is an alphabetical list of terms and acronyms used throughout this document and the CDMA cellular industry:

2G: Second Generation. All digital cellular systems developed to replace the first analog cellular systems (GSM and CDMA).

3G: Third Generation. Next generation digital cellular systems designed to have high-speed data access and higher voice capacity (WCDMA & CDMA2000).

CBM: Cell Broadcast Message. An SMS message that is broadcast to all mobiles on the network.

CDMA : Code Division Multiple Access. CDMA is a spread spectrum, digital wireless modulation scheme for cellular communication systems. It has approximately 3 times the voice capacity of GSM networks. See IS-95, IS-95A, IS-95B, IS-2000.

CDMA2000: See IS-2000.

DCE: Data Communications Equipment. This is the modem in the traditional serial communication paradigm of a computer connected via two modems to another computer.

DTE: Data Terminal Equipment. This is the computer in the traditional serial communication paradigm of a computer connected via two modems to another computer.

DTMF: Dual Tone Multi-Frequency: A pre-defined set of tones sent over the air when keys are pressed on the keypad.

Handset (Path): The audio path (microphone & speaker) that connects to a traditional hand held telephone receiver, usually dual balanced electrical lines.

Headset (Path): The audio path (microphone & speaker) that connects to an earpiece with a microphone, usually single electrical lines.

IMSI: International Mobile Station ID. This is an international 15 digit phone number that uniquely identifies a mobile. IMSI = MCC + MNC + MIN.

IS-95: The first CDMA standard published by Qualcomm in 1993.

IS-95A: A CDMA standard with improved voice quality. This standard is widely used throughout the world.

IS-95B: This CDMA standard contains Medium Data Rate capabilities and bug fixes for system access failures. It is considered a 2.5G system. This standard is mostly deployed in Korea.

IS-2000: The first 3G CDMA standard based on IS-95B. It contains a significant increase in voice capacity and high-speed data rates. It is backward compatible with IS-95B and IS-95A. The CDMA WISMOQ is IS-2000 compatible.

MCC: Mobile Country Code. A pre-defined 3-digital number that represents a country in the IMSI.

MIN: Mobile ID Number: The traditional 10 digit phone number of the mobile.

MNC: Mobile Network Code. A pre-defined 2-digital number that represents a sub-network in the IMSI (usually set to "00").

MO: Mobile Originated. An action (usually a call) that is first started from the phone. An outgoing call or SMS.

MS: Mobile Station. The term MS is commonly used to represent the phone or mobile.

MT: Mobile Terminated: An action (usually a call) that is first started from a land based network. An incoming call or SMS.

MSM: Mobile Station Modem. This is the main processing ASIC for a CDMA phone.

NAM: Number Assignment Module. The NAM is collection of internal parameters that define a working phone for a given network (phone number, access parameters, etc.). The WISMOQ supports up to four NAMs.

NID: Network ID. The NID is an identification number that represents geographic location of a common coverage area; but is a subset of the SID, usually a neighborhood in a large city. NID is usually not used and is set to zero. Also see SID.

NV-RAM: Non-Volatile Random Access Memory. NV-RAM is a data storage device that does not lose it's data when power is turn off.

OTAPA: Over The Air Parameter Administration. An automatic update in internal software parameters (PRL for example) by means of a specially defined CDMA data call that is mobile terminated (MT).

OTASP: Over The Air Service Programming. An automatic update in internal software parameters (PRL for example) by means of a specially defined CDMA data call that is mobile originated (MO).

PDU: A GSM SMS standard where any type of binary data can be transported via an SMS message. In the CDMA system, the PDU mode will not be supported; instead, the Unicode format message is supported.

PN Offset: Pseudorandom Noise Offset: In a CDMA network, the PN offset is a variable time delay offset of a repeating random noise generator that is used to distinguish individual sectors of a base station.

P-REV: The CDMA revision of the mobile or base station.

PRL: Preferred Roaming List. The PRL is a collection of Frequencies, SIDs, and NIDs that the call processing software uses to search for approved and unapproved CDMA networks. The PRL is loaded into the phone and is save in NV-RAM.

PSTN: Public Switching Telephone Network. The traditional telephone network.

RF: Radio Frequency.

RSSI: Receive Signal Strength Indicator: This parameter represents the total RF received signal power from the base station(s) the mobile sees.

SID: System ID. The SID is an identification number that represents geographic location of a common coverage area, usually a large city. Also see NID.

SMS: Short Messaging Service: A supplement service that is capable of sending and receiving short length text messages to/from the mobile.

TA/TE: Terminal Application/Terminal Equipment. This is the end "device" (combination of hardware and software) that communicates with a modem via a serial link. In this context, it is the device (PDA/Computer) connected to the WISMOQ. Also see DTE.

V24-V25: A data compression algorithm.

V42: A data compression algorithm.

2 AT commands features

2.1 Wavecom line settings

A serial link handler is set with the following default values (factory settings): autobaud, 8 bits data, 1 stop bit, no parity, RTS/CTS flow control.

Please use the +IPR, +IFC and +ICF commands to change these settings.

2.2 Command line

Commands always start with AT (which means ATtention) and finish with a <CR> character.

2.3 Information responses and result codes

Responses start and end with <CR><LF>, except for the ATV0 DCE response format) and the ATQ1 (result code suppression) commands.

- If command syntax is incorrect, an **ERROR** string is returned.
- If extended error reports are enabled (+CMEE), the **+CME ERROR: <Err>** or **+CMS ERROR: <SmsErr>** strings are returned with different error codes.
- If the command line has been performed successfully, an **OK** string is returned.

In the following examples <CR> and <CR><LF> are intentionally omitted.

3 General commands

3.1 Request revision identification +CGMR

3.1.1 Description :

This command is used to get the revised software version.

3.1.2 Syntax :

Command syntax : AT+CGMR

Command	Possible responses
AT+CGMR <i>Note : Get software version</i>	+CGMR: S/W VER: WISMOQ WQ1.1 Mar 20 2002 17:30:00 OK <i>Note : Software Version WISMOQ, revision WQ1.1 generated on the March 20th, 2002 at 17:30:00</i>

3.2 Product Serial Number +CGSN

3.2.1 Description :

This command allows the user application to get the ESN of the product.

3.2.2 Syntax :

Command syntax : AT+CGSN

Command	Possible responses
AT+CGSN <i>Note : Get the ESN</i>	+CGSN: FE7A7704 OK <i>Note : ESN read from NV</i>

3.3 Select TE character set +CSCS

3.3.1 Description :

This command informs the MS which character set is used by the TE. The MS can convert each character of entered or displayed strings. This is used to send, read or write short messages.

3.3.2 Syntax :

Command syntax : AT+CSCS=<Character Set>

Command	Possible responses
AT+CSCS="CDMA" <i>Note : CDMA default alphabet</i>	OK <i>Note : Command valid</i>
AT+CSCS="PC437" <i>Note : PC character set code page 437</i>	OK <i>Note : Command valid</i>
AT+CSCS=? <i>Note : Get possible values</i>	+CSCS: ("PC437", "CDMA", "CUST") OK <i>Note : Possible values</i>

3.3.3 Defined values :

<Character Set>

"CDMA" CDMA default alphabet.

"PC437" PC character set code page 437.

"CUST" Custom Character set.

3.4 Request IMSI +CIMI

3.4.1 Description :

This command is used to read and identify the IMSI (International Mobile Subscriber Identity) of the SIM card. The PIN may need to be entered before reading the IMSI.

3.4.2 Syntax :

Command syntax : AT+CIMI

Command	Possible responses
AT+CIMI <i>Note : Read the IMSI</i>	+CIMI: 310008585551212 OK <i>Note : IMSI value (15 digits)</i>

3.5 Capabilities list +GCAP

3.5.1 Description :

This command gets the complete list of capabilities.

3.5.2 Syntax :

Command syntax : AT+GCAP

Command	Possible responses
AT+GCAP <i>Note : Get capabilities list</i>	+GCAP: +CGSM, +CIS707-A, +MS, +ES, +DS, +FCLASS OK

3.6 Repeat last command A/

3.6.1 Description :

This command repeats the previous command. Only the A/ command itself cannot be repeated.

3.6.2 Syntax :

Command syntax : A/

Command	Possible responses
A/ <i>Note : Repeat last command</i>	

3.7 Phone Offline +CPOF

3.7.1 Description :

This **specific** command sends all CDMA software stack tasks offline. AT command can still be received, however, there is no RF functionality. The AT+CFUN=0 command is equivalent to +CPOF.

3.7.2 Syntax :

Command syntax : AT+CPOF

Command	Possible responses
AT+CPOF <i>Note : Stop CDMA stack</i>	+CPOF: OK <i>Note : Command valid</i>

3.8 Set phone functionality +CFUN

3.8.1 Description :

This command selects the mobile station's level of functionality. AT+CFUN=0 is equivalent to AT+CPOF

The AT+CFUN=1 (by default, AT+CFUN will act the same as AT+CFUN=1) command restarts the entire CDMA stack and CDMA functionality: **a complete software reset is performed**. In addition, the OK response will be sent at the last baud rate defined by the +IPR command.

3.8.2 Syntax :

Command syntax : AT+CFUN=<functionality level>

Command	Possible responses
AT+CFUN? <i>Note : Ask for current functionality level</i>	+CFUN: 1 OK <i>Note : Full functionality</i>
AT+CFUN=0 <i>Note : Set phone offline</i>	OK <i>Note : Command valid</i>
AT+CFUN=1 <i>Note : Perform software reset</i>	<i>Note : Command valid</i>

3.9 Phone activity status +CPAS

3.9.1 Description :

This command returns the activity status of the mobile equipment.

3.9.2 Syntax :

Command syntax : AT+CPAS

Command	Possible responses
AT+CPAS <i>Note : Current activity status</i>	+CPAS: <pas> OK

3.9.3 Defined values :

- <pas>
- 0 ready (allow commands from TA/TE)
 - 1 unavailable (does not allow commands)
 - 2 unknown
 - 3 ringing (ringer is active)
 - 4 call in progress
 - 5 asleep (low functionality)

3.10 Report Mobile Equipment errors +CMEE

3.10.1 Description :

This command disables or enables the use of the "+CME ERROR : <xxx>" or "+CMS ERROR : <xxx>" result code instead of simply "ERROR". See section 20.1 for +CME ERROR result codes description and section 20.2 for +CMS ERROR result codes.

3.10.2 Syntax :

Command syntax : AT+CMEE=<error reporting flag>

Command	Possible responses
AT+CMEE=0 <i>Note : Disable MS error reports, use only « ERROR »</i>	OK
AT+CMEE=1 <i>Note : Enable «+CME ERROR: <xxx>» or «+CMS ERROR: <xxx>»</i>	OK

3.11 Keypad control +CKPD

3.11.1 Description :

This command emulates the MS keypad by sending each keystroke as a character in a <keys> string.
 If emulation fails, a +CME ERROR: <err> is returned.
 If emulation succeeds, the result depends on the CDMA sequence activated:
 <keys>: string of the following characters (0-9,*,#).

3.11.2 Syntax :

Command syntax : AT+CKPD=<keys>

Command	Possible responses
AT+CKPD="*#21#" <i>Note : Key sequence allowed</i>	OK
AT+CKPD=1234 <i>Note : Sequence not allowed</i>	+CME ERROR 3

3.12 Clock Management +CCLK

3.12.1 Description :

This command is used to set or get the current date and time of the MS real-time clock.
 String format for date/time is: "yy/MM/dd,hh:mm:ss".
 Valid years are 98 (for 1998) to 97 (for 2097). The seconds field is not mandatory.
 Default date/time is "98/01/01,00:00:00" (January 1st, 1998 / midnight).

3.12.2 Syntax :

Command syntax : AT+CCLK=<date and time string>

Command	Possible responses
AT+CCLK="00/06/09,17:33:00" <i>Note : set date to June 9th, 2000, and time to 5:33pm</i>	OK or ERROR <i>Note : Date/Time stored - ERROR returned when RTC not enabled.</i>
AT+CCLK="00/13/13,12:00:00" <i>Note : Incorrect month entered</i>	+CME ERROR 3
AT+CCLK?	+CCLK: "00/06/09,17:34:23"

<i>Note : Get current date and time</i>	<i>Note : current date is June 9th, 2000 current time is 5:34:23 pm – network time if available, otherwise RTC time if enabled.</i>
---	--

3.13 Ring Melody Playback +CRMP

3.13.1 Description

This command allows a melody to be played. All melodies are manufacturer defined. Ten manufacturer-defined melodies can be played back (in a loop).

Note:

Loop melodies must be stopped by a +CRMP command with the <index> field set to 0 (example: +CRMP=0,,0).

When the +CRMP command is performed, the <volume> parameter overwrites the <sound level> value of the +CRSL command.

3.13.2 Syntax :

Command syntax : AT+CRMP=<call type>[,<volume>,<type>,<index>]

Command	Possible responses
AT+CRMP=0,2,0,2 <i>Note : Play voice call melody index 2 with volume level 2.</i>	OK <i>Note : Melody Playback.</i>
AT+CRMP=0,,0 <i>Note : Stop the melody.</i>	OK <i>Note : The melody is stopped.</i>
AT+CRMP=? <i>Note : supported parameters</i>	+CRMP: (0-3),(0-4),(0-0),(0-10) OK

3.13.3 Defined values :

<call type>

- 0 Incoming voice call
- 1 Incoming data call
- 2 Incoming fax call
- 3 Incoming short message (SMS)

<volume>

- 0 Min volume (mute)
- ...
- 1 Default volume
- 4 Max volume

<type>

- 0 Manufacturer Defined (default)

<index>

- 0 Stop Melody Playback
- 1-10 Melody ID for voice/data/fax call type (default : 1)

3.14 Ringer Sound Level +CRSL

3.14.1 Description :

This command is used to set/get the sound level of the ringer on incoming calls.

3.14.2 Syntax :

Command syntax : AT+CRSL=<sound level>

Command	Possible responses
AT+CRSL=0 <i>Note : Set volume to Min (muted).</i>	OK <i>Note : Current ring playing is muted.</i>
AT+CRSL=4 <i>Note : Set volume to Max.</i>	OK <i>Note : Current ring playing with Max. volume.</i>
AT+CRSL? <i>Note : get current ringer sound level</i>	+CRSL: 4 OK <i>Note : Current level is 4</i>
AT+CRSL=? <i>Note : supported parameters</i>	+CRSL: (0-4) OK

3.14.3 Defined values :

<sound level>

- 0 Min volume (muted)
- 1 Default volume (default)
- 4 Max volume

3.15 Subscriber Number +CNUM

3.15.1 Description :

This command is used to return the subscriber MSISDN. If the subscriber has different MSISDNs for different services, each MSISDN is returned in a separate line.

3.15.2 Syntax :

Command syntax : AT+CNUM

Command	Possible responses
AT+CNUM <i>Note : Get MSISDN</i>	+CNUM : "Phone", "8585551212", 129 <i>Note : MSISDNs</i>
AT+CNUM=?	+CNUM: OK

3.15.3 Defined values :

- <alphax> optional alphanumeric string associated with <numberx>
- <numberx> string type phone number with format as specified by
- <typex>
- <typex> type of address byte in integer format – only supports 129

3.16 Select Type of Address +CSTA

3.16.1 Description :

This command is used to select the type of phone address to use.

3.16.2 Syntax :

Command syntax : AT+CSTA=<typex>

Command	Possible responses
AT+CSTA? <i>Note : Get type of address</i>	+CSTA: 129 <i>Note: Local Number format</i>
AT+CSTA=? <i>Note : Get supported address types</i>	+CSTA: (129-129) OK

3.16.3 Defined values :

- <typex> type of address byte in integer format – only supports 129

3.17 View Module Timers +WTMR

3.17.1 Description :

This command is used to read the module’s accumulated internal timers. These timers include Uptime, Call Time, and Call Count. Uptime is the number of seconds the module has been running since boot-up. Call Time is the total number of seconds the module has been in a call since manufacture (Voice, Data, Fax, OTASP, and CDMA Test Calls; but SMS is not included). Call count is the total number of calls made since manufacture. The range of all the returned items is 0 to 4294967295 (136 years).

3.17.2 Syntax :

Command syntax: AT+WTMR

Response syntax:

+WTMR: <Uptime>,<Call Time>,<Call Count>

Command	Possible responses
AT+WTMR	+WTMR: 1029, 45670,289

Note : See Module Timers

OK

Note: Uptime = 1029 seconds

Call Time = 45670 seconds

Call Count = 289 calls

4 Call Control commands

4.1 Dial command D

4.1.1 Description :

The ATD command is used to originate a **voice, data or fax call**. The dial command also controls supplementary services.

For a **data** or a **fax call**, the application sends the following ASCII string to the product:

ATD<nb> where <nb> is the destination phone number.

Note: **ATD<nb>** is followed by PPP negotiation.

For a **voice call**, the application sends the following ASCII string to the product: **ATD<nb>;** where <nb> is the dialing string or destination phone number, followed a semicolon ";". The dialing string may only contain characters "0-9", "#", "*" only. Note that some countries may have specific numbering rules for their CDMA handset numbering.

The response to the ATD command is one of the following:

Verbose code	result	Numeric code (with ATVO set)	Description
OK		0	Command executed (voice)
CONNECT <speed>		10,11,12,13,14,15	if the call succeeds, for data calls only, <speed> takes the value negotiated by the product.
BUSY		7	If the called party is already in communication,
NO ANSWER		8	If no hang up is detected after a fixed network time-out
NO CARRIER		3	Call setup failed or remote user release.

4.1.2 Syntax :

Command syntax : ATD<nb>[:]

Command	Possible responses
ATD18005551212; <i>Note: Attempt a voice call.</i>	OK <i>Note: Command executed</i> +WORG:18005551212 <i>Note: Voice call origination sent to Base Station with dial string "18005551212".</i>

	<p><i>+WCNT: 9</i> <i>Note: Call Connected, CDMA traffic channel established with service option 9. You can now hear audio of the calling party's phone ringing. However, this event does not means the other calling party has answered. See section 14.7 Unsolicited commands.</i></p>
<p>ATD5551212; <i>Note : Example of a failed voice call attempt.</i></p>	<p>OK <i>Note: Command executed</i></p> <p>+WORG:5551212 <i>Note: Voice call origination sent to Base Station with dialing string "5551212".</i></p> <p>+WEND: 3 <i>Note: Call Attempt failed/ended. Reason 3, signal faded. See section 14.7 Unsolicited commands.</i></p>

Direct Dialing from a phonebook (stored in the RUIM card or NV) can be performed with the following command:

ATD><index>; to call <index> from the selected phonebook (by the +CPBS command)

ATD>"Bill"; to call "Bill" from the selected phonebook (by the +CPBS command)

ATD>mem<index>; (mem is a phone book listed by the +CPBS=? Command) and <index> is a valid location from the phonebook

Note: A semicolon must be used at the end of the AT command to signal phonebook dialing. Otherwise, the command will result in error.

4.1.3 Syntax:

Command syntax : ATD><index>[<|>];]

ATD>[<mem>]<name>[<|>];]

ATD>[<mem>]<index>[<|>];]

<p>AT+CPBS? <i>Note: Which phonebook is selected.</i></p>	<p>+CPBS: ME,11,100 OK <i>Note: Command executed</i></p>
<p>ATD>5; <i>Note : Dial location #1 from ME phonebook.</i></p>	<p>OK <i>Note: Command executed</i></p> <p>+WORG:5551212 <i>Note: Voice call origination sent to Base Station with dialing string "5551212".</i></p> <p>+WEND: 3 <i>Note: Call Attempt failed/ended. Reason 3, signal faded. See section 14.7</i></p>

ATD>SM202; <i>Note: Dial location 202 from the SM(RUIM card) phonebook.</i>	<i>Unsolicited commands.</i> OK <i>Note: Command executed</i> +WORG:5551212 <i>Note: Voice call origination sent to Base Station with dialing string "5551212".</i> +WEND: 3 <i>Note: Call Attempt failed/ended. Reason 3, signal faded. See section 14.7</i> <i>Unsolicited commands.</i>
ATD>"Bill"; <i>Note: This command is NOT valid for MC, RC, and LD phonebooks as they are supported in CDMA networks</i>	OK <i>Note: Command executed</i> +WORG:5551212

4.2 Hang-Up command **H**

4.2.1 Description :

The ATH (or ATH0) command is used by the application to disconnect the remote user. In the case of multiple calls, all calls are released (active, on-hold and waiting calls).

The specific Wavecom ATH1 command has been appended to disconnect the current outgoing call, only in dialing or alerting state (i.e. ATH1 can be used only after the ATD command, and before its terminal response (OK, NO CARRIER, ...). It can be useful in the case of multiple calls.

4.2.2 Syntax :

Command syntax : ATH

Command	Possible responses
ATH <i>Note : Ask for disconnection</i>	OK +WEND: 10 <i>Note : Every call, if any, is released</i>
ATH1 <i>Note : Ask for outgoing call disconnection</i>	ERROR +WEND: 10 <i>Note : Outgoing call, if any, is released</i>

4.3 Answer a call **A**

4.3.1 Description :

When the product receives a call, it sets the **RingInd** signal and sends the ASCII "RING" or "+CRING: <type>" string to the application (+CRING if the

cellular result code +CRC is enabled). Then it waits for the application to accept the call with the ATA command.

4.3.2 Syntax :

Command syntax : ATA

Command	Possible responses
	RING <i>Note : Incoming call</i>
ATA <i>Note : Answer to this incoming call</i>	+WANS:0 +WCNT: 10 <i>Note : Call accepted</i>
ATH <i>Note : Disconnect call</i>	OK +WEND: 10 <i>Note : Call disconnected</i>

4.4 Remote disconnection

This message is used by the product to inform the application that the remote user has released an active call.

The product sends +WEND:<result code> to the application. The DCD signal may be set based upon the AT&C2 setting for packet calls.

4.5 Extended error report +CEER

4.5.1 Description :

This command gives the cause of any general call processing error or malfunction. See section 20.4.

Syntax :

Command syntax : AT+CEER

Command	Possible responses
ATD18005551212;	OK +WORG:18005551212 +WCNT:3
ATD1234567; <i>Note : Outgoing voice call while already in a call</i> AT+CEER	ERROR <i>Note : Call setup failure</i> +CEER: Error 2 OK <i>Note: Operation not allowed when call in progress</i>
AT+CEER <i>Note : Ask for reason of release</i>	+CEER : Error <x> OK <i>Note : <x>is the cause information element values</i>

4.6 DTMF signals +VTD, +VTS

4.6.1 +VTD Description :

The product enables the user application to send DTMF tones over the CDMA network. This command is used to define tone duration (the default value is 0,0).

To define this duration, the application uses:

AT+VTD=<on>,<off>

4.6.2 +VTD Syntax :

Command syntax : AT+VTD=<on>,<off>

Command	Possible responses
AT+VTD=4,3 <i>Note : To define 300 ms on tone duration and 200 ms off tone duration.</i>	OK <i>Note : Command valid</i>
AT+VTD=?	+VTD: (0-5), (0-3) OK

4.6.3 Defined values :

<on> on tone duration

0 : 95 milliseconds

1 : 150 milliseconds

2 : 200 milliseconds

3: 250 milliseconds

4: 300 milliseconds

5: 350 milliseconds

<off> string type phone number with format as specified by <typex>

0 : 60 milliseconds

1 : 100 milliseconds

2 : 150 milliseconds

3: 200 milliseconds

4.6.4 +VTS Description :

The product enables the user application to send DTMF tones over the CDMA network. This command enables tones to be transmitted.

To transmit DTMF tones (only when there is an active call), the application uses:

AT+VTS=<Tone> where <Tone> is in {0-9,*,#}

4.6.5 +VTS Syntax :

Command syntax : AT+VTS=<Tone>

Command	Possible responses
AT+VTS=#	OK <i>Note : Command valid</i>
AT+VTS=11	OK
AT+VTS=4	OK

4.6.6 Informative example :

To send tone sequence 13#, the application sends :
AT+VTS=13#

4.7 DTMF START and STOP Continuous +WSDT, +WSDS

4.7.1 Description:

Starts and stops a DTMF tone while in a call state (conversation).

4.7.2 Syntax:

Command syntax: AT+WSDT=<X>

Command	Possible responses
AT+WSDT=2	OK <i>Starts DTMF tone</i>
AT+WSDS	OK <i>Stops DTM tone</i>

4.7.3 Defined values :

<X>:(0-9, #,*)

4.8 Redial last telephone number ATDL

4.8.1 Description :

This command is used by the application to redial the last number used in the ATD command. The last number dialed is displayed. This does not use the phonebook to redial this number.

4.8.2 Syntax :

Command syntax : ATDL

Command	Possible responses
---------	--------------------

<p>ATDL <i>Note : Redial last number</i></p>	<p>OK +WORG: 8585551212 <i>Note : Last call was a voice call.</i> <i>Command valid</i></p>
---	---

4.9 Automatic dialing with DTR AT%Dn

4.9.1 Description :

This command enables and disables:

- automatic sending of the short message (SMS) stored in the first location.

The number is dialed and then short message is sent when DTR OFF switches ON.

Syntax :

Command syntax : AT%D<n>

Command	Possible responses
<p>AT%D2 <i>Note : Activates DTR short message sending</i></p>	<p>OK <i>Note : Command has been executed</i></p>

4.9.2 Defined values :

<n> (0-2)

to enable or disable automatic message transmission or number dialing. Informs the product that the number is a voice rather than a fax or data number.

AT%D0

Disables automatic DTR number dialing / message transmission.

AT%D1

Currently not implemented.

AT%D2

Activates automatic DTR message transmission if DTR switches from OFF to ON.

4.10 Automatic answer ATSO

4.10.1 Description :

This S0(zero) parameter determines and controls the product automatic answering mode.

4.10.2 Syntax :

Command syntax : ATSO=<value>

Command	Possible responses
ATS0=2 <i>Note : Automatic answer after 2 rings</i>	OK
ATS0? <i>Note : Current value</i>	002 OK <i>Note : always 3 characters padded with zeros</i>
ATS0=0 <i>Note : No automatic answer</i>	OK <i>Note : Command valid</i>

All others S-parameters (S6,S7,S8 ...) are not implemented.

4.11 Incoming Call Bearer +CICB

4.11.1 Description :

This **specific** command is used to set the type of incoming calls when no incoming bearer is given (see +CSNS).

Note:

setting the +CICB command affects the current value of +CSNS.

4.11.2 Syntax :

Command syntax : AT+CICB=<mode>

Command	Possible responses
AT+CICB=1 <i>Note : If no incoming bearer, force a fax call</i>	OK <i>Note : Command accepted</i>
AT+CICB=2 <i>Note : If no incoming bearer, force a voice call</i>	OK <i>Note : Command accepted</i>
AT+CICB? <i>Note : Interrogate value</i>	+CICB: 2 OK <i>Note : Default incoming bearer: voice call</i>
AT+CICB=? <i>Note : Test command</i>	+CICB: (0-4) OK <i>Note : Speech, data or fax default incoming bearer</i>

4.11.3 Defined values :

<mode>

0 : Data

1 : Fax

2 : Speech

3: Data once (10 minute timeout)

4: Fax once (10 minute timeout)

4.12 Single Numbering Scheme +CSNS

4.12.1 Description :

This command selects the bearer to be used when an MT single numbering scheme call is set up (see +CICB, these commands are the same).

Note:

setting the +CSNS command affects the current value of +CICB.

4.12.2 Syntax :

Command syntax : AT+CSNS

Command	Possible responses
AT+CSNS=2 <i>Note : force a fax call</i>	OK <i>Note : Command accepted</i>
AT+CSNS=0 <i>Note : force a voice call</i>	OK <i>Note : Command accepted</i>
AT+CSNS? <i>Note : Interrogate value</i>	+CSNS: 0 OK <i>Note : Default incoming bearer: voice call</i>
AT+CSNS=? <i>Note : Test command</i>	+CSNS: (0-4) OK <i>Note : Voice, data or fax default incoming bearer</i>

4.12.3 Defined values :

<mode>

0 : Voice

2 : Fax

4 : Data

4.13 Microphone Gain +VGT

4.13.1 Description:

This command set the microphone gain of the current audio path.

4.13.2 Syntax:

Command syntax : AT+VGT=<MicGain>

Command	Possible responses
AT+VGT=2	OK <i>Note : Command valid</i>
AT+VGT? <i>Note : Interrogate value</i>	+VGT: 2 OK

AT+VGT=? <i>Note : Test command</i>	<i>Note : Current value</i> +VGT : (0-3) OK <i>Note : Possible values</i>
--	--

4.13.3 Defined values :

<MicGain> value to Microphone relative gain:

AT+VGT value	Microphone relative gain step (dB)
0	-2
1	+6
2	+8
3	+16

4.14 Volume Gain control +VGR

4.14.1 Description :

This command is used by the application to tune the receive gain of the speaker.

4.14.2 Syntax :

Command syntax : AT+VGR=<Rgain>

Command	Possible responses
AT+VGR=2	OK <i>Note : Command valid</i>
AT+VGR? <i>Note : Interrogate value</i>	+VGR: 2 OK <i>Note : Current value</i>
AT+VGR=? <i>Note : Test command</i>	+VGR : (0-4) OK <i>Note : Possible values; default: 3</i>

4.14.3 Defined values :

<RGain> value to Speaker relative gain:

AT+VGR value	Speaker relative gain step (dB)
0	Mute
1	-23
2	-17
3	-11
4	-5

4.15 Microphone Mute Control +CMUT

4.15.1 Description :

This command is used to mute the microphone input on the product (for the active microphone set with the +SPEAKER command). This command is only allowed during a call.

4.15.2 Syntax :

Command syntax : AT+CMUT=<mode>

Command	Possible responses
AT+CMUT=? <i>Note : Test command</i>	+CMUT : (0-1) OK <i>Note : Enable / disable mute</i>
AT+CMUT? <i>Note : Ask for current value</i>	+CMUT : 0 OK <i>Note : Current value is OFF</i>
AT+CMUT=1 <i>Note : Mute ON (call active)</i>	OK <i>Note : Command valid</i>
AT+CMUT? <i>Note : Ask for current value</i>	+CMUT : 1 OK <i>Note : Mute is active (call active)</i>
AT+CMUT=0 <i>Note : Mute OFF (call not active)</i>	+CME ERROR: 3 <i>Note : Command not valid</i>

4.15.3 Defined values :

<mode>

0 : microphone mute off (default value).

1 : microphone mute on.

4.16 Speaker & Microphone selection +SPEAKER

4.16.1 Description

This command is used to select the speaker and the microphone set.

4.16.2 Syntax :

Command syntax : AT+SPEAKER=<ActiveSpkMic>

Command	Possible responses
AT+SPEAKER=0 <i>Note : Speaker ONE and Micro ONE</i>	OK <i>Note : Command valid</i>
AT+SPEAKER?	+SPEAKER: 0 OK <i>Note : Speaker ONE and Micro ONE are active</i>

4.16.3 Defined values :

<mode>
 0 : HEADSET
 1 : HANDSET

4.17 Echo Cancellation +ECHO

4.17.1 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.

4.17.2 Syntax :

Command syntax :
 AT+ECHO= <mode>

Command	Possible responses
AT+ECHO? <i>Note : Read current settings</i>	+ECHO: 0 OK
AT+ECHO=0 <i>Note : Set Echo Cancellation Off</i>	OK
AT+ECHO=1 <i>Note : Set Echo Cancellation to Ear Seal</i>	OK
AT+ECHO=2 <i>Note : Set Echo Cancellation to Headset</i>	OK
AT+ECHO=4 <i>Note : Set Echo Cancellation to Handset</i>	OK

4.17.3 Defined values:

<mode>
 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

4.18 Side Tone modification +SIDET

4.18.1 Description :

This **specific** command is used to set the level of audio feedback in the speaker (microphone feedback in the speaker).

4.18.2 Syntax :

Command syntax : AT+SIDET=<val1>,<val2>

Command	Possible responses
AT+SIDET=1,0	OK <i>Note : Command valid</i>
AT+SIDET? <i>Note : Current value</i>	+SIDET: 1,0 OK <i>Note : Command valid</i>

4.18.3 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

4.19 Initialize Voice Parameters +VIP**4.19.1 Description:**

This command allows voice parameters to be restored from NV memory.

4.19.2 Syntax:

Command syntax : AT+VIP

Command	Possible responses
AT+VIP	OK <i>Note : Command valid</i>

4.19.3 Defined Values:

Gain controls are restored (+VGT and +VGR)
Voice path selection is restored (+SPEAKER)
Echo cancellation is restored (+ECHO)
And sidetone values are restored (+SIDET)

4.20 TTY Mode +WTTY

4.20.1 Description:

This command enables TTY mode on the headset audio path. The module must be in a voice call to set this command, and when the call ends it goes back to standard audio mode.

4.20.2 Syntax :

Command syntax : AT+WTTY

Command	Possible responses
AT+WTTY	OK <i>Note : Command valid</i>

5 Network service commands

5.1 Signal Quality +CSQ

5.1.1 Description :

This command is used to ascertain the *received signal strength indication* (<rss>) and the *channel frame error rate* (<fer>).

5.1.2 Syntax :

Command syntax : AT+CSQ

Command	Possible responses
AT+CSQ	+CSQ: <rss>,<fer> OK <i>Note : <rss> and <ber> as defined below</i>

5.1.3 Defined values :

<rss> : 0-31 valid value ranges. Exact meaning of the SQM(RSSI) shall be manufacturer defined. The lowest defined value is 0 and the highest is 31.

<fer> :

99: not known or not detectable Currently always returns 99.

5.2 Mode Preference +COPS

5.2.1 Description :

The Mode Preference of a CDMA module governs the basic system acquisition behavior of the MS in conjunction with the PRL (Preferring Roaming List). It's important to note that the PRL takes precedence over mode preference when guiding the phone to a band or system. The PRL must allow a particular band first, before the mode preference can take effect. In other words, a mode preference change is simply a request; the PRL decides whether or not to allow it. After execution of the +COPS command, an unsolicited +COPS: <mode> will follow soon to confirm the new mode selection, but not in all cases. See section 17.11 unsolicited result codes. All changes to +COPS are automatically saved in NV RAM.

Note1: AMPS selection is only available for modules which support AMPS mode.

Note2: please refer to Appendices 20.10 for AT commands that applicable to the AMPS operation.

5.2.2 Syntax :

The application must send the following command:

Command syntax: AT+COPS=<mode>,<term>

Command	Possible responses
AT+COPS? <i>Note : Ask for current Mode Preference</i>	+COPS: 0,0 OK <i>Note : Automatic mode, use PRL order, Permanent</i>
AT+COPS=?	+COPS: (0-3),(0-2) OK <i>Note: Modes: Automatic, PCS, Cellular, AMPS ; Term: Permanent, Power Cycle, 1 call. If AMPS not supported on the module, mode range will be returned as (0-2).</i>
AT+COPS=0,0 <i>Note : Ask for Automatic mode</i>	OK +COPS:0,0 <i>Note: Unsolicited +COPS result confirms Automatic mode, Permanent term is requested</i>
AT+COPS=1,1 <i>Note : Ask for PCS mode</i>	OK +COPS:1,1 <i>Note: Unsolicited +COPS result confirms PCS mode, Power Cycle term is requested</i>
AT+COPS=2,2 <i>Note : Ask for Cellular mode</i>	OK +COPS:2,2 <i>Note : Unsolicited +COPS result confirms Cellular mode, 1 call term is requested</i>
AT+COPS=3,0 <i>Note : Ask for Cellular mode</i>	OK +COPS:3,0 <i>Note : Unsolicited +COPS result confirms AMPS mode, Permanent term is requested. If AMPS not supported on the module, this command will return ERROR.</i>

5.2.3 Defined values :

The parameters values are the following ones:

<mode>

0: Automatic, follow PRL (**default** value)

1: Automatic in PCS frequencies (1900Mhz only)

2: Automatic in Cellular frequencies (800Mhz only)

3: AMPS only – only allowed for modules which support AMPS

<term>

0: Permanent – this mode persists until another +COPS command is issued

1: Power cycle – this mode persists until power cycle is performed

2: 1 call – this mode persist for one call only

Note:

1: AT+COPS by itself is a short-hand equivalent to AT+COPS=0,0.

2: When make one call only on a certain mode, after the call, the module will go back to the previous permanent mode.

e.g.

AT+COPS=3,0 # set to permanent AMPS mode

AT+COPS=3,1 # set to AMPS mode until reboot

AT+COPS=3,2 # set to make one call only on APMS

Make a call

AT+COPS? # query current mode

+COPS: 3,0 # shows it on permanent AMPS mode, not 3,1

5.3 Roam Preference +WRMP

5.3.1 Description :

The Roam Preference of a CDMA module informs the MS whether it is allowed to roam on foreign CDMA networks or only allow operation on home networks. The determination of what is a foreign or home network is programmed into the PRL (Preferring Roaming List). This command simply enables or disables the capability of the MS to roam, based on the PRL configuration.

After execution of the +WRMP command, the MS may change roaming states. The unsolicited result +WROM:<mode> will indicate the new state. See section 18.6 Unsolicited result codes.

5.3.2 Syntax :

The application must send the following command:

Command syntax: AT+WRMP=<mode>

Command	Possible responses
AT+WRMP? <i>Note : Ask for current Mode Preference</i>	+WRMP: 0 OK <i>Note : Home only</i>
AT+WRMP=?	+WRMP: (0-2) OK <i>Note: Home, Affiliated, Any</i>
AT+WRMP=0 <i>Note : Allow Home only networks</i>	OK . . . +WROM:0 <i>Note: Unsolicited +WROM may or may not appear based on current circumstances</i>
AT+WRMP=1 <i>Note : Allow Roaming Affiliated Networks</i>	OK . . . +WROM:1

	<i>Note: Unsolicited +WROM may or may not appear based on current circumstances</i>
AT+WRMP=2 <i>Note : Allow Roaming on Any Network</i>	OK . . . +WRMP:2 <i>Note: Unsolicited +WROM may or may not appear based on current circumstances</i>

5.3.3 Defined values :

The parameters values are the following ones:

<mode>

0: Home Networks only, as defined in the PRL (**default** value)

1: Roaming on Affiliated networks, as defined in the PRL

2: Roaming on Any Network, as defined in the PRL.

5.4 Network registration & roaming +CREG

5.4.1 Description

This command is used by the application to ascertain the registration and roaming status of the product. Note: Also see +WROM unsolicited command for CDMA roaming status.

5.4.2 Syntax :

Command syntax : AT+CREG= <mode>

Response syntax : +CREG : <mode>, <stat>

Command	Possible responses
AT+CREG=0 <i>Note : Disable network registration unsolicited result code</i>	+CREG: 0,1 OK <i>Note : Command valid</i>
AT+CREG=1 <i>Note : Enable network registration unsolicited result code</i>	+CREG:1,1 OK <i>Note : Command valid</i>
AT+CREG?	+CREG: 1,5 OK <i>Note : Unsolicited enabled, MS currently roaming.</i>
AT+CREG=?	+CREG: (0-1) OK <i>Note : 0,1 <mode> values are supported</i>
Example of the unsolicited result code. MS is searching for a base station	+CREG:2

--	--

5.4.3 Defined values :

<mode>

- 0: Disable network registration unsolicited result code (**default**)
- 1: Enable network registration unsolicited code result code +CREG : <stat>

<stat>

- 0: not registered, MS is not currently searching for a new operator.
- 1: registered, home network.
- 2: not registered, MS currently searching for a base station.
- 4: unknown.
- 5: registered, roaming

5.5 Change NAM Selection +WNAM

5.5.1 Description :

This command is used to request a change in the NAM (Number Assignment Module) selection. The module supports up to 4 NAMs. However, if a NAM is not full programmed, the module will not switch to the requested NAM. The default NAM for the module is 1. The response to this command is only OK, and this is no guarantee that the NAM will change. If the NAM selection request is accepted, the unsolicited command +WNAM: <nam> will be returned. If or when the actual NAM changes, the unsolicited command +WCNM: <nam> will be returned. See section 19, unsolicited result codes.

5.5.2 Syntax :

Command syntax: AT+WNAM=<nam>

Command	Possible responses
AT+WNAM=2 <i>Note : Use NAM 2, if programmed</i>	OK +WNAM: 2 +WCNM: 2
AT+WNAM=3 <i>Note :</i>	OK <i>Note : No unsolicited response indicates that NAM 3 is not valid, thus no change in NAM.</i>
AT+WNAM=5 <i>Note : Try Auto NAM</i>	OK +WNAM: 5 +WCNM: 1 <i>Note : Auto NAM is selected, NAM 1 chosen.</i>

5.5.3 Defined values :

<nam>

- 1: NAM 1

- 2: NAM 2
- 3: NAM 3
- 4: NAM 4
- 5: Auto NAM

5.6 Read Current NAM +WCNM

5.6.1 Description :

This command is used to read the current NAM (Number Assignment Module). The module supports up to 4 NAMs. Also, note that there exist an unsolicited command +WCNM: <nam> that is returned any time the NAM changes. See section 19, unsolicited result codes.

5.6.2 Syntax :

Command syntax : AT+WCNM

Command	Possible responses
AT+WCNM	+WCNM: 1 OK
<i>Note : Ask for the current NAM</i>	<i>Note : NAM 1 in use</i>

6 Security commands

6.1 Enter PIN +CPIN

6.1.1 Description :

This command is used to enter the ME passwords (CHV1 / CHV2 / PUK1 / PUK2, etc.), that are required before any ME functionality can be used. CHV1/CHV2 is between 4 and 8 digits long, PUK1/PUK2 is only 8 digits long. The application is responsible for checking the PIN after each reset or power on - if the PIN was enabled.

6.1.2 Syntax :

Command syntax : AT+CPIN=<pin>

Command	Possible responses
AT+CPIN=1234	OK <i>Note : PIN code is correct</i>

After 3 unsuccessful attempts to enter the PIN (Personal Identification Number), the PUK (Personal Unblocking Key) will be required. PUK validation forces the user to enter a new PIN code as a second parameter and this will be the new PIN code if PUK validation succeeds. CHV1 is then enabled if PUK1 is correct. The application therefore uses this command:
AT+CPIN=<Puk>,<NewPin>

Command	Possible responses
AT+CPIN=00000000,1234 <i>Note : Enter PUK and new PIN</i>	+CME ERROR: 16 <i>Note : Incorrect PUK</i>
AT+CPIN=12345678,1234 <i>Note : Enter PUK and new PIN, 2ne attempt</i>	OK <i>Note : PUK correct, new PIN stored</i>

To ascertain which code must be entered (or not), the following query command can be used:

AT+CPIN?

The possible responses are :

+CPIN: READY	ME is not pending for any password
+CPIN: UIM PIN	CHV1 is required
+CPIN: UIM PUK	PUK1 is required
+CPIN: UIM PIN2	CHV2 is required
+CPIN: UIM PUK2	PUK2 is required
+CPIN: PH-UIM PIN	UIM lock (phone-to-UIM) is required
+CPIN: PH-NET PIN	Network personalization is required
+CME ERROR: <err>	SIM failure (13) absent (10) etc.

Please note that in this case the mobile equipment does not end its response with the OK string. The response +CME ERROR : 13 (SIM failure) is returned after 10 unsuccessful PUK attempts. The SIM card is then out of order and must be replaced by a new one.

6.2 Enter PIN2 +CPIN2

6.2.1 Description :

This specific command is used to validate the PIN2 code (CHV2), or to validate the PUK2 code (UNBLOCK CHV2) and to define a new PIN2 code. Of course, the +CPIN command allows PIN2 or PUK2 codes to be validated, but only when the last command executed resulted in PIN2 authentication failure. PIN2 length is between 4 and 8 digits, PUK2 length is 8 digits only.

6.2.2 Syntax :

Command syntax : AT+CPIN2=<pin2>

Command	Possible responses
AT+CPIN2=1234	OK <i>Note : PIN2 code is correct</i>

After 3 unsuccessful attempts, PUK2 will then be required. PUK2 validation forces the user to enter a new PIN2 code as a second parameter and this will be the new PIN2 code if PUK1 validation succeeds. The application therefore uses this command:

AT+CPIN2=<puk2>,<NewPin2>

Command	Possible responses
AT+CPIN2=00000000,1234 <i>Note : Enter PUK2 and new PIN2</i>	+CME ERROR: 16 <i>Note : Incorrect PUK2</i>
AT+CPIN2=12345678,1234 <i>Note : Enter PUK2 and new PIN2, 2ne attempt</i>	OK <i>Note : PUK2 correct, new PIN2 stored</i>

To ascertain which code must be entered (or not), the following query command can be used:

AT+CPIN?

The possible responses are :

+CPIN: READY ME is not pending for any password
 +CPIN: UIM PIN2 CHV2 is required
 +CPIN: UIM PUK2 PUK2 is required
 +CME ERROR: <err> SIM failure (13) absent (10) etc.

6.3 PIN Remaining Attempt Number +CPINC

6.3.1 Description :

This specific command is used to get the number of valid attempts for PIN1 (CHV1), PIN2 (CHV2), PUK1 (UNBLOCK CHV1) and PUK2 (UNBLOCK CHV2) identifiers.

6.3.2 Syntax :

Command syntax : AT+CPINC

Response syntax : +CPINC : <n1>,<n2>,<k1>,<k2>

Command	Possible responses
AT+CPINC <i>Note : Get the number of attempts left</i>	+CPINC : 2,3,10,10 OK <i>Note : First CHV1 attempt was a failure</i>
AT+CPINC? <i>Note : Get the number of attempts left</i>	+CPINC : 2,3,10,10 OK <i>Note : First CHV1 attempt was a failure</i>

6.3.3 Defined values :

<n1>, <n2> are the attempts left for PIN1, PIN2 (0 = blocked, 3 max)
 <k1>, <k2> are the attempts left for PUK1, PUK2 (0 = blocked, 10 max)
 For this to work, the card should be present at the time of initialization,
 otherwise an error will be sent (+CME ERROR : 10).

6.4 Facility Lock +CLCK

6.4.1 Description :

This command is used by the application to lock, unlock or interrogate an ME or network facility <fac>. Note that the call barring facilities require a password to be properly performed, however, these passwords are not enforced (any 4 digit sequence can be entered). Builds without UIM support will not feature "SC" and "P2" facilities.

6.4.2 Syntax :

Command syntax: AT+CLCK= <fac>,<mode>[,<passwd>]

Response syntax: +CLCK: <status>

Command	Possible responses
AT+CLCK="SC",1,1234 <i>Note : Enable PIN</i>	OK <i>Note : PIN correct</i>
AT+CLCK? <i>Note : Get status</i>	+CLCK:(("SC",0),("P2",0),("AO",1),("AI",1)) OK <i>Note : PIN1 is disabled, PIN2 is disabled, Outgoing call barring is enabled, Incoming call barring is enabled</i>
AT+CLCK="SC",0,555555 <i>Note : Disable PIN</i>	+CME ERROR: 16 <i>Note : PIN incorrect</i>

6.4.3 Defined values :

The following <fac> values are supported:

- "SC" : PIN1 enabled (<mode> = 1) / disabled (<mode> = 0)
- "P2" : PIN2 enabled (<mode> = 1) / disabled (<mode> = 0)
- "AO" : BAOC (Barr All Outgoing Calls)
- "AI" : BAIC (Barr All Incoming Calls)

<mode>
 0 : unlock the facility
 1 : lock the facility
 2 : query status

6.5 Change Password +CPWD

6.5.1 Description :

This command is used by the application to change a password. (PIN1, PIN2). "SC" and "P2" facilities are only supported for builds, which include UIM.

6.5.2 Syntax :

Command syntax : AT+CPWD= <fac>, <oldpwd>, <newpwd>

Command	Possible responses
AT+CPWD="SC",1234,5555 <i>Note : Change UIM PIN1</i>	OK <i>Note : PIN correct</i>
AT+CPWD="SC",1234,5555 <i>Note : Change UIM PIN1</i>	+CME ERROR: 16 <i>Note : PIN incorrect</i>
AT+CPWD? <i>Note : Get status</i>	+CPWD:("SC",8),("P2",8) OK <i>Note : PIN1 & PIN2 passwords are supported with 8 digit maximum</i>

6.5.3 Defined values :

The following <fac> values are supported:

"SC" : PIN1
 "P2" : PIN2

7 Short Messages commands

For SMS messages, in the CDMA system, the PDU mode will not be supported, instead, the Unicode format message is supported. The Unicode header code will start at 0x80 and above.

7.1 Parameters definition

<cbn>	Call Back Number
<da>	Destination Address
<dcs>	Data Coding Scheme, coded like in document [5].
<dt>	Discharge Time in string format : "yy/MM/dd, hh :mm :ss" (Year [00-99], Month [01-12], Day [01-31], Hour, Minute, Second
<encod>	Encoding
<fo>	First Octet, coded like SMS-SUBMIT first octet in document [4], default value is 17 for SMS-SUBMIT
<index>	Place of storage in memory.
<lang>	Language
<mem1>	Memory used to list, read and delete messages (+CMGL, +CMGR and +CMGD).
<mem2>	Memory used to write and send messages (+CMGW, +CMSS).
<mid>	CBM Message Identifier.
<mr>	Message Reference.
<oa>	Originator Address.
<pid>	Protocol Identifier.
<priority>	Message Priority
<ra>	Recipient Address.
<sca>	Service Center Address
<scts>	Service Center Time Stamp in string format : "yy/MM/dd, hh :mm :ss" (Year/Month/Day, Hour:Min:Seconds)
<sn>	CBM Serial Number
<st>	Status of a SMS-STATUS-REPORT (see section 17.7 for possible values)
<stat>	Status of message in memory.
<toa>	Type-of-Address of <oa>.
<tora>	Type-of-Address of <ra>.
<tosca>	Type-of-Address of <sca>.
<total1>	Number of message locations in <mem1>.
<total2>	Number of messages locations in <mem2>.
<ts>	Timestamp for MT SMS.
<used1>	Total number of messages locations in <mem1>.
<used2>	Total number of messages locations in <mem2>.
<vp>	Validity Period of the short message, default value is 167

7.2 Select message service +CSMS

7.2.1 Description :

The supported services are originated (SMS-MO) and terminated short message (SMS-MT) + Cell Broadcast Message (SMS-CB) services.

7.2.2 Syntax :

Command syntax : AT+CSMS?

Command	Possible responses
AT+CSMS? <i>Note : Current values ?</i>	+CSMS: <MO>,<MT>,<CB> OK <i>Note : SMS-MO, SMS-MT and SMS-CB support</i>

7.2.3 Defined values :

<MO>

0: Mobile Originated SMS not supported.

1: Mobile Originated SMS supported.

<MT>

0: Mobile Terminated SMS not supported.

1: Mobile Terminated SMS supported.

<CB>

0: Broadcast SMS not supported.

1: Broadcast SMS supported.

7.3 New Message Acknowledgement +CNMA

7.3.1 Description:

This command allows reception of a new message routed directly to the TE to be acknowledged.

In TEXT mode, only positive acknowledgement to the network (RP-ACK) is possible.

Acknowledge with +CNMA is possible only when a +CMT or +CDS indication is shown (see +CNMI command).

Note: This AT command is not designed for inputting the command in the Hyper terminal by hand, since the acknowledgement will not be quick enough to be received by the network. However, it is possible that client system automatically sends this command when the +CNMI is set to "2,2,0,0,0".

7.3.2 Syntax :

Command syntax in text mode :
AT+CNMA

Example of acknowledgement of a new message in TEXT mode

Command	Possible responses
AT+CNMI=2,2,0,0,0	OK
	+CMT:"8587351530","02/04/03,11 :06 :38",129,7,0<CR><LF> Testing <i>Note : message received</i>
AT+CNMA <i>Note : acknowledge the message received</i>	OK <i>Note : send positive acknowledgement to the network</i>
AT+CNMA <i>Note : try to acknowledge again</i>	+CMS ERROR : 340 <i>Note : no +CNMA acknowledgment expected</i>

7.4 Preferred Message Storage +CPMS

7.4.1 Description :

This command allows the message storage area to be selected (for reading, writing, etc).

7.4.2 Syntax :

Command syntax : AT+CPMS=<mem1>,[<mem2>]

Command	Possible responses
AT+CPMS=? <i>Note : Possible message storages</i>	+CPMS: ("MT","BC","SR"),("MO") OK <i>Note : Read, list, delete: SMS, CBM or SMS Status Report Write, send: SMS</i>
AT+CPMS? <i>Note : Read</i>	+CPMS: "MT",3, 10,"MO",3,10 OK
AT+CPMS="AM" <i>Note : Select false message storage</i>	+CMS ERROR: 302
AT+CPMS="BC" <i>Note : Select CBM message storage</i>	+CPMS:2,10,3,10 OK <i>Note : Read, list, delete CBM from NV RAM</i>

7.4.3 Defined values :

<mem1>: Memory used to list, read and delete messages. It can be:

- “MT”: SMS Mobile Terminated message storage in NV (default)
- “BC”: CBM message storage in NV.
- “SR” : Status Report message storage in NV.

<mem2>: Memory used to write and send messages

- “MO” : Mobile Originated SMS message storage.

If the command is correct, the following message indication is sent:

+CPMS: <used1>,<total1>,<used2>,<total2>

When <mem1> is selected, all following +CMGL, +CMGR and +CMGD commands are related to the type of SMS stored in this memory.

7.5 Show text mode parameters +CSDH

7.5.1 Description :

This command gives additional information on text mode result codes. This information is given in brackets in the +CMTI, +CMT, +CDS, +CMGR, +CMGL commands.

7.5.2 Syntax :

Command syntax : AT+CSDH

Command	Possible responses
AT+CSDH? <i>Note : Current value</i>	+CSDH: 0 OK <i>Note : Do not show header values</i>

7.6 New message indication +CNMI

7.6.1 Description :

This command selects the procedure for message reception from the network.

7.6.2 Syntax :

Command syntax : AT+CNMI=<mode>,<mt>,<bm>,<ds>,<bfr>

Command	Possible responses
AT+CNMI=2,1,0,0,0 <i>Note : <mt>=1</i>	OK
	AT+CMTI : “MT”,1 <i>Note : message received</i>
AT+CNMI=2,2,0,0,0 <i>Note : <mt>=2</i>	OK
	+CMT : “8585551212”,“98/10/01,12 :30 00”,129,1,2,5,0<CR><LF>

	Hello <i>Note : message received</i>
AT+CNMI=2,0,0,1,0 <i>Note : <ds>=1</i>	OK
AT+CMGS="8585551212"<CR> Message to send <ctrl-Z> <i>Note : Send a message in text mode</i>	+CMGS : 7 OK <i>Note : Successful transmission</i>
	+CDS : 2, 116, "8585551212", 129, "98/10/01,12 :30 :07", "98/10/01 12 :30 :08", 32768 <i>Note : message was correctly delivered</i>

7.6.3 Defined values :

<mode> : controls the processing of unsolicited result codes

Only <mode>=2 is supported.

Any other value for <mode> (0,1 or 3) is accepted (return code will be *OK*), but the processing of unsolicited result codes will be the same as with <mode>=2.

<mode>

0: Buffer unsolicited result codes in the TA. If TA result code buffer is full, indications can be buffered in some other place or the oldest indications may be discarded and replaced with the new received indications

1: Discard indication and reject new received message unsolicited result codes when TA-TE link is reserved. Otherwise forward them directly to the TE

2: Buffer unsolicited result codes in the TA when TA-TE link is reserved 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 in band used to embed result codes and data when TA is in on-line data mode

<mt> : sets the result code indication routing for SMS-DELIVERs. Default is 2.

<mt>

0: No SMS-DELIVER indications are routed.

1: SMS-DELIVERs are routed using unsolicited code : +CMTI:

"MT",<index>

2: SMS-DELIVERs (except class 2 messages) are routed using unsolicited code :

+CMT : <oa>,<scts>,<tooa>,

<lang>,<encod>,<priority>[,<cbn>],<length><CR><LF><data> (text mode)

<bm> : sets the result code indication routing for received CBMs (Cell Broadcast Message) Default is 2.

<bm>

0: No CBM indications are routed to the TE. The CBMs are stored.

1: The CBM is stored and an indication of the memory location is routed to the customer application using unsolicited result code: +CBMI: "BC", <index>

2: New CBMs are routed directly to the TE using unsolicited result code (format matches that of +CBM : <oa>,[<alpha>] <scts> [,<tooa>, <length>] <CR><LF><data> (text mode)

<ds> for SMS-STATUS-REPORTs. Default is 1.

<ds>

0: No SMS-STATUS-REPORTs are routed.

- 1: SMS-STATUS-REPORTs are routed using unsolicited code : +CDS : <fo>,<mr>, [<ra>] , [<tora>], <scts>,<dt>,<st> (Text mode)
- 2: SMS-STATUS-REPORTs are stored and routed using the unsolicited result code : +CDSI: "SR",<index>

<bfr> Default is 0.

<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.

7.7 Read message +CMGR

7.7.1 Description :

This command allows the application to read stored messages. The messages are read from the memory selected by +CPMS command.

7.7.2 Syntax :

Command syntax : AT+CMGR=<index>

Response syntax:

+CMGR :<stat>,<oa>, <scts>,<lang>,<encod>,<priority>[,<cbn>]<CR><LF>
<data> (for **SMS-DELIVER** only)

+CMGR : <stat>,<da>,<dt>,<lang>,<encod><priority>[,<cbn>]<CR><LF>
<data> (for **SMS-SUBMIT** only)

+CMGR : <stat>,<mr>,<scts>,<dt>,<st> (for **SMS-STATUS-REPORT** only)

A message read with status "REC UNREAD" will be updated in memory with the status "REC READ".

Note :

the <stat> parameter for SMS Status Reports is always "READ".

Example :

Command	Possible responses
	+CMTI: "MT",1 <i>Note : New message received</i>
AT+CMGR=1 <i>Note : Read the message</i>	+CMGR: "REC UNREAD","8585551212", "98/10/01,18 :22 :11+00",1,2,0,"858555 0000"<CR><LF> ABCdefGHI OK
AT+CMGR=1 <i>Note : Read the message again</i>	+CMGR: "REC READ","8585551212", "98/10/01,18 :22 :11",1,2,0,"8585550000 "<CR><LF> ABCdefGHI OK <i>Note : Message is read now</i>
AT+CMGR=2	+CMS ERROR: 321

<i>Note : Read at a wrong index</i>	<i>Note : Error : invalid index</i>
AT+CPMS="SR";+CNMI=,,,2 <i>Reset to text mode, set read memory to "SR", and allow storage of further SMS Status Report into "SR" memory</i>	+CPMS:0,10,0,10 OK
AT+CMSS=3 <i>Send an SMS previously stored</i>	+CMSS: 160 OK
	+CDSI: "SR",1 <i>New SMS Status Report stored in "SR" memory at index 1</i>
AT+CMGR=1 <i>Read the SMS Status Report</i>	+CMGR: "READ",160, "8585551212",129,"01/05/31,15:15:09", "01/05/31,15:15:09",0 OK

7.7.3 Defined values

<stat> Status of message in memory.
<oa> : Origination Address Value in string format.
<scts>: Service Center Time Stamp in string format
<lang>: Language.
<encod>: Encoding
<priority>: Message priority:
 0 – NORMAL
 1 – INTERACTIVE
 2 – URGENT
 3 – EMERGENCY
<cbn>: Call Back Number

7.8 List message +CMGL

7.8.1 Description :

This command allows the application to read stored messages, by indicating the type of the message to read. The messages are read from the memory selected by the +CPMS command.

7.8.2 Syntax :

Command syntax : AT+CMGL=<stat>

Response syntax:

+CMGL : <index>,<stat>,<da/oa>,<lang>,<encod> <CR><LF><data> (for **SMS-DELIVER** and **SMS-SUBMIT**, may be followed by other <CR><LF>+CMGL:<index>...)

+CMGL : <index>,<stat>,<fo>,<mr>,<scts>,<dt>,<st> (for **SMS-STATUS-REPORT** only, may be followed by other <CR><LF>+CMGL:<index>...)

Command	Possible responses
AT+CMGL="UREAD" <i>Note : List unread messages in text mode</i>	+CMGL: 1,"REC UNREAD","8585551212",1,2 <CR><LF> Unread message ! +CMGL: 3,"REC UNREAD", "8585551212", 1,2<CR><LF> OK <i>Another message unread!</i> <i>Note : 2 messages are unread, these messages will then have their status changed to "REC READ" (+CSDH:0)</i>
AT+CMGL="READ" <i>Note : List read messages in text mode</i>	+CMGL: 2,"REC READ","8585551212",1,2 <CR><LF> Keep cool OK
AT+CMGL="SENT" <i>Note : List stored and sent messages in text mode</i>	OK <i>Note : No message found</i>

7.8.3 Defined values

<stat> possible values (status of messages in memory) :

Text mode possible values	Status of messages in memory
"UREAD"	received unread messages
"READ"	received read messages
"USENT"	stored unsent messages
"SENT"	stored sent messages
"ALL"	all messages

Note :

For SMS Status Reports, only "ALL" and "READ" values of the <stat> parameter will list messages ; other values will only return OK.

7.9 Send message +CMGS

7.9.1 Description :

The <address> field is the address of the terminal to which the message is sent. To send the message, simply type, <ctrl-Z> character (ASCII 26). This command can be aborted using the <ESC> (ASCII 27) character when entering text.

The <length> parameter is optional, it is used to set the length of the text string. The command will only process the number of bytes as specified by

<length> regardless of whether it contains <ctrl-Z>, <ESC>, or <backspace> characters.

The <priority> and <cbm> parameters are optional, and are used to set message priority and call back number. Default message priority is NORMAL, and call back number is not included in the message unless it is specified using this optional field.

7.9.2 Syntax :

Command syntax:

AT+CMGS= <da> [,<length>] [,<priority>][,<cbn>] <CR>
text is entered <ctrl-Z / ESC >

Command	Possible responses
AT+CMGS="8585551212"<CR> Please call me soon, Fred. <ctrl-Z> <i>Note : Send a message</i>	+CMGS:<mr> OK
AT+CMGS="8585551212",12 Please call.<ctrl-Z> <i>Note : Send 12 byte message</i>	+CMGS:<mr> OK
AT+CMGS="8585551212",,2,"5550000" Please call ASAP<ctrl-Z> <i>Note : Send a message with specified priority and call back number. Notice length field is omitted.</i>	+CMGS:<mr> OK

7.9.3 Defined values :

Parameter Definition :

<da> : Destination Address Value in string format.

<length> : Length of the text message (in bytes).

<priority>: Message priority:
 0 - NORMAL
 1 - INTERACTIVE
 2 - URGENT
 3 - EMERGENCY

<cbn>: Call Back Number

7.10 Write Message to Memory +CMGW

7.10.1 Description :

This command stores a message in memory (either SMS-SUBMIT or SMS-DELIVERS). The memory location <index> is returned (no choice possible as with phonebooks +CPBW).

Text or Unicode message is entered as described for the Send Message +CMGS command.

The <length> parameter is optional, it is used to set the length of the text string. The command will only process the number of bytes as specified by <length> regardless of whether it contains <ctrl-Z>, <ESC>, or <backspace> characters. The <priority> and <cbm> parameters are optional, and are used to

set message priority and call back number. Default message priority is NORMAL, and call back number is not included in the message unless it is specified using this optional field.

7.10.2 Syntax :

Command syntax:

AT+CMGW= <oa/da> [,<length>] [,<priority>][,<cbn>]<CR>
enter text <ctrl-Z / ESC>

Response syntax:

+CMGW: <index> or +CMS ERROR: <err> if writing fails

Command	Possible responses
AT+CMGW="8585551212"<CR> Hello how are you ?<ctrl-Z> <i>Note : Write a message</i>	+CMGW: 4 OK <i>Note : Message stored in index 4</i>
AT+CMGW="8587777777",6<CR> A Lř?<ctrl-Z> <i>Note : Write a message with specified length of 6 bytes</i>	+CMGW: <index> OK <i>Note : Message stored in <index></i>
AT+CMGW="8585551212",,2,"5550000"<CR> Please call ASAP<ctrl-Z> <i>Note : Write a message with specified priority and a call back number. Notice length field is omitted.</i>	+CMGW: 5 OK <i>Note : Message stored in index 5</i>

7.10.3 Defined values :

Parameter Definition :

- <oa/da> : Originating or Destination Address Value in string format.
- <length> : Length of the text message (in bytes).
- <priority>: Message priority:
 - 0 - NORMAL
 - 1 - INTERACTIVE
 - 2 - URGENT
 - 3 - EMERGENCY
- <cbn>: Call Back Number

7.11 Send Message From Storage +CMSS

7.11.1 Description :

This command sends a message stored at location value <index>.

7.11.2 Syntax :

Command syntax: AT+CMSS=<index>[,<da> [,<toda>]]

Response syntax:

+CMSS : <mr> or +CMS ERROR: <err> if sending fails
 If a new recipient address <da> is given, it will be used instead of the one stored with the message

Command	Possible responses
AT+CMGW="8585551212"<CR> Today is my birthday <CTRL-Z> <i>Note :</i>	+CMGW : 5 OK <i>Note :Message stored with index 5</i>
AT+CMSS=5,8582221212 <i>Note : Send the message 5 to a different destination number</i>	+CMSS :<mr> OK <i>Note : Successful transmission</i>
AT+CMSS=5,8583331212 <i>Note : Send the message 5 to a different destination number</i>	+CMSS :<mr> OK <i>Note : Successful transmission</i>

7.12 Delete message +CMGD

7.12.1 Description :

This command is used to delete one or several messages from preferred message storage.

7.12.2 Syntax :

Command syntax : AT+CMGD=<Index> [,<DelFalg>]

Command	Possible responses
	+CMTI:"MT",3 <i>Note : New message received</i>
AT+CMGR=3 <i>Note : Read it</i>	+CMGR: "REC UNREAD","8585551212", "98/10/01,18 :19 :20",1,2,0 <CR><LF> Message received! OK <i>Note : Unread message received from 8585551212 on the 01/10/1998 at 18H19m 20s</i>
AT+CMGD=3 <i>Note : Delete it</i>	OK <i>Note : Message deleted</i>
AT+CMGD=1,0	OK <i>Note : The message from the preferred message storage at the location 1 is deleted</i>
AT+CMGD=1,1	OK <i>Note : All READ messages from the preferred message storage are deleted</i>
AT+CMGD=1,2	+CMS ERROR:341 <i>Note : NV Error deleting READ messages and SENT</i>
AT+CMGD=1,3	OK

	<i>Note : All READ, SENT and UNSENT messages are deleted</i>
AT+CMGD=1,4	OK <i>Note : All messages are deleted</i>

7.12.3 Defines values

<index>

0-9

When the preferred message storage is "BC". Integer type values in the range of location numbers of Message memory when the preferred message storage is "MT" or "SR".

<DelFlag>

- 0 Delete message at location <index>
- 1 Delete All READ messages
- 2 Delete All READ and SENT messages
- 3 Delete All READ, SENT and UNSENT messages
- 4 Delete All messages.

Note :

when the preferred message storage is "SR", as SMS status reports are assumed to have a "READ" status, if <DelFlag> is greater than 0, all SMS status reports will be deleted.

7.13 Select Broadcast Messages +CSCB

7.13.1 Description :

This command turns on/off the reception of Broadcast SMS messages.

7.13.2 Syntax :

Command syntax: AT+CSCB=<mode>

The <bm> parameter of +CNMI command controls the indication of an incoming BC SMS message.

<mode> = 0 Activates reception of BC SMS.

<mode> = 1 Turns off reception of BC SMS. Emergency BC SMS will be received in this mode.

Command	Possible responses
AT+CSCB=0 <i>Note : Turn on reception of BC SMS</i>	OK <i>Note : BC SMS can be received</i>
+CBMI: "BC",5 <i>Note : A BC SMS was received, and stored in slot 5</i>	
AT+CSCB=1 <i>Note : Turn off reception of BC SMS</i>	OK <i>Note : Only Emergency BC SMS can be received. Reception of all other BC SMS will be stopped.</i>

7.14 Message status modification +WMSC

7.14.1 Description :

This command is used to change the status of one message from preferred message storage.

7.14.2 Syntax :

Command syntax : AT+WMSC= <loc>, <status>

<loc> location number of the stored message (integer)

<status> new status to be stored, as for +CMGL command :

Text Mode
"UREAD"
"READ"
"USENT"
"SENT"

Possible responses:

OK	location is valid and has been changed
+CMS ERROR: 341	Non-volatile memory error
+CMS ERROR: 321	Invalid index (out of range or no SMS stored)
+CMS ERROR: 302	if attempting to change Status Report SMS or if syntax is incorrect

Note:

Status of SENT or USENT indicate changing MO memory SMS. Status of READ or UREAD implies using preferred memory. Changes are not accepted when preferred memory is set to Status Report (all status reports are always assumed to be READ and cannot be changed).

Command	Possible responses
AT+WMSC=4,"UREAD"	OK <i>Note : Message stored in preferred memory index 4 status changed to NOT READ</i>
AT+WMSC=8,"USENT"	+CMS ERROR: 321 <i>Note : Invalid index, no message at location 8 of MO memory</i>
AT+CPMS="SR" <i>Note: Change preferred memory to Status Report</i>	+CPMS:1,10,4,10 OK
AT+WMSC=0,"UREAD"	+CMS ERROR: 302 <i>Note : Cannot change Status Report messages</i>

7.15 Message overwriting +WMGO

7.15.1 Description :

The +CMGW command writes an SMS to the first location available. To write an SMS to a specified location, the +WMGO **specific** command forces the product to write an SMS (with the +CMGW command) to the location specified with +WMGO, but for just one +CMGW command.

7.15.2 Syntax :

Command syntax : AT+WMGO= <loc>

<loc> location number of the record to write or overwrite

Command	Possible responses
AT+WMGO=0	OK <i>Note : Next MSG write will be to index 0</i>
AT+WMGO=30	+CMS ERROR: 302 <i>Note : Invalid index (out of range)</i>

On the next AT+CMGW command, the record number used will be the one specified by the AT+WMGO command. The location is forgotten and, in order to perform a second overwrite, +WMGO has to be used again.

If the external application specifies a free location, and if an incoming message is received before the AT+CMGW command, the product may store the incoming message at a location available. This could be the one specified by +WMGO (the product does not prevent from this). If the user then issues an AT+CMGW command without changing the AT+WMGO location, the new message will be overwritten!

Note that this location number is not kept over a software reset.

7.16 Unchange SMS Status +WUSS

7.16.1 Description :

The +WUSS command allows to keep the SMS Status to UNREAD after +CMGR or +CMGL.

7.16.2 Syntax :

Command syntax : AT+WUSS = <mode>

<mode> : 1 The SMS Status will not change.

<mode> : 0 The SMS Status will change.

Command	Possible responses
AT+WUSS=1	OK
AT+WUSS=0	OK <i>Note : If lower layer failure, +CMS ERROR: 513</i>

7.17 Set SMS compose language and encoding +WSCL

7.17.1 Description :

The +WSCL command sets the SMS composition language and encoding types. When composing a message (+CMGS, +CMGW), the SMS language and encoding fields will be set using the current +WSCL value.

7.17.2 Syntax :

Command syntax : AT+WSCL = <lang>, <encod>

Command	Possible responses
AT+WSCL=1,2	OK <i>Note: Set language to English, encoding to ASCII</i>
AT+CMGW="8585551212" <CR> Hello how are you ?<ctrl-Z> <i>Note : Write a message in English</i>	+CMGW: 4 OK <i>Note : Message stored in index 4</i>
AT+WSCL=6,4	OK <i>Note: Set language to Chinese, encoding to UNICODE</i>
AT+CMGS="8585551212" <CR> ÃÃ<ctrl-Z> <i>Note : Send a message in Chinese</i>	+CMGS: <mr> OK <i>Note : Message sent</i>

7.17.3 Defined values

<lang>

- 0: Unspecified
- 1: English
- 2: French
- 3: Spanish
- 4: Japanese
- 5: Korean
- 6: Chinese
- 7: Hebrew

<enc>

- 0: Octet (or Unspecified)
- 1: IS91EP
- 2: ASCII
- 3: IA5
- 4: UNICODE

7.18 Set timestamp of MT SMS +WSTM

7.18.1 Description :

The +WSTM command sets the timestamp that will be used when the module receives a Mobile Terminated SMS. When a new MT SMS message is received the setting of this command determines if the timestamp that was received with the message is kept, or module's CDMA time, which represents the actual time of message arrival is used. When choosing to use module's CDMA time, the command gives the option of using local or GMT time.

7.18.2 Syntax :

Command syntax : AT+WSTM = <ts>

Command	Possible responses
AT+WSTM=2	OK <i>Note: Set MT SMS timestamp to time of arrival (local time zone)</i>

7.18.3 Defined values

<ts>

0: Original Time Stamp of the received MT SMS

1: Time of arrival – GMT Time

2: Time of arrival – Local Time

8 Supplementary Services commands

Supplementary Service commands are specialized call processing commands used to control carrier features on the module such as caller ID, call forwarding, call waiting, 3-way calls, and specialized CDMA test calls.

8.1 Call forwarding +CCFC

8.1.1 Description :

This commands allows control of the call forwarding supplementary service, if supported by the carrier. All calls will be forwarded unconditionally to the phone number specified. The module will actually make a brief call to the CDMA network to set up the call forwarding or cancel it. An audio tone will be produced in the audio path to confirm the change of call forwarding. Please note that that canceling call forward on some CDMA networks has failed during field testing.

8.1.2 Syntax :

Command syntax :
AT+CCFC= <number>

Response syntax:
OK

Command	Possible responses
AT+CCFC=8585551212 <i>Note : Register to an unconditional call forwarding</i>	OK <i>Note : Command valid</i> <i>Note : Call forwarding active for all incoming calls to phone number 858-555-1212</i>
AT+CCFC=0 <i>Note : Cancel unconditional call forwarding</i>	OK <i>Note : Call forwarding cancelled.</i>

8.1.3 Defined values

<number>

<number> The phone number to forward all calls to.

8.2 Call barring +CLCK

8.2.1 Description :

This command allows control of the call barring supplementary service. Barring Calls or querying the status of call barring is possible for Data and Voice Calls, except Emergency Voice Calls.

8.2.2 Syntax :

Command Syntax : AT+CLCK= <fac>,<mode>[,<password>]

Response Syntax: +CLCK: <status>

Command	Possible responses
AT+CLCK="AO",1,1234 <i>Note : Bar Outgoing Calls only</i>	OK <i>Note : Command valid</i>
AT+CLCK="AI",1,1234 <i>Note : Bar Incoming Calls Only</i>	OK <i>Note : Incoming Calls are Barred</i>
AT+CLCK="AO",2 <i>Note : Query outgoing call barring status</i>	+CLCK: 1 OK <i>Note : Outgoing call barring is active</i>

Note: see security section for more information on +CLCK command.

8.3 Calling line identification restriction +CLIR

8.3.1 Description :

This command allows control of the outgoing caller ID restriction supplementary service.

8.3.2 Syntax :

Command syntax : AT+CLIR=<mode>

Response syntax : +CLIR :<mode> (for AT+CLIR ?)

Command	Possible responses
AT+CLIR=1 <i>Note :</i>	OK <i>Note : Command valid</i>
AT+CLIR ? <i>Note : Ask for current functionality</i>	+CLIR :<mode> OK <i>Note : <mode> as defined below</i>

8.3.3 Defined values :

<mode>: sets the caller ID restriction for outgoing calls

<mode>

0: Outgoing Caller ID works normally, according to the subscription of the Caller ID service.

1 : Outgoing Caller ID is restricted. The called party will see 'Restricted' on their Caller ID display.

Please note that this command works by automatically pre-pending a *67 to the outgoing dialing string. Thus, this command will only work on CDMA networks that recognizes a *67 to suppress outgoing caller ID. Also, the original dialing string cannot be longer than 29 characters in length.

8.4 Calling line identification presentation +CLIP

8.4.1 Description :

This command allows control of the incoming caller ID presentation supplementary service. When presentation of the CLI (Calling Line Identification) is enabled (and the carrier allows), +CLIP response is returned after the RING unsolicited result code. By default, +CLIP is enabled.

8.4.2 Syntax :

Command syntax : AT+CLIP=<mode>

Response syntax : +CLIP: <mode> for AT+CLIP?

+CLIP: <number>, <type> for an incoming call, after a RING indication

Command	Possible responses
AT+CLIP=1 <i>Note : Enable CLIP</i>	OK <i>Note : CLIP is enabled</i>
AT+CLIP? <i>Note : Ask for current functionality</i>	+CLIP:<mode> OK <i>Note : <mode> defined as below</i>
	RING <i>Note : Incoming call</i> +CLIP: "8585551212",129 <i>Note : Incoming call with number presentation</i>
AT+CLIP=0 <i>Note : Disable CLIP presentation</i>	OK <i>Note : Command valid</i>

8.4.3 Defined values :

<mode>: parameter enable or disables the caller ID unsolicited command

<mode>

0: Disable

1: Enable

8.5 Send Flash to Base Station +WFSH

8.5.1 Description :

This command sends a flash or flash with information to the base station. The flash command is used to manage call waiting and 3-way calls. For call waiting situations when the 3rd party call is received, send a flash (AT+WFSH) to toggle between the two different call parties. The +WFSH unsolicited AT command will return if a flash was sent to the base station over the air. Please note that on CDMA networks, this does not guarantee that an actual switch between calls took place, because there is no acknowledgement to the module. For 3-way calls, initiate the first call to party # 1 (see ATD). Then send a flash with information (AT+WFSH=18005551212) to initiate a call to party # 2, party # 1 will automatically be placed on hold. The "information" is the phone number of party # 2. Once a conversation with party # 2 is established, send a regular flash (AT+WFSH) to connect all 3 parties. Send another flash (AT+WFSH) to disconnect party # 2, or End call (see ATH) to end the call with all parties.

8.5.2 Syntax :

Command syntax: AT+WFSH

OK

Command syntax: AT+WFSH= < phone_number > (for a flash with information)

OK

Unsolicited result syntax: +WFSH (confirms a flash was sent to the base station) See section 19.

Command	Possible responses
ATD8585551212; <i>Note: Make a voice call</i>	OK +WORG:8585551212 +WCNT:3 <i>Note: Conversation...</i> +CCWA:"8582701234",129 <i>Note: Indication of another incoming call</i>
AT+WFSH <i>Note: Send a flash to the Base Station (toggle to the second call).</i> <i>Note: Conversation with second call.</i>	OK +WFSH <i>Note: Flash sent to the Base Station. Call switches to the second call. However, this is not 100% guaranteed because there is not confirmation from the Base Station.</i>
AT+WFSH Send a flash to the Base <i>Note: Send a flash to the Base Station (toggle to the first call).</i>	OK +WFSH <i>Note: Flash sent to the Base Station. Call</i>

<p>ATH <i>Note: Release the all calls.</i></p>	<p><i>switches to the first call. However, this is not 100% guaranteed because the there is not confirmation from the Base Station.</i></p> <p>OK +WEND:10 <i>Note: All Calls End</i></p>
<p>ATD8585551212; <i>Note: Make a voice call</i></p> <p>AT+WFSH=6195552121 <i>Note: Place first call on hold, connect to second party.</i></p> <p>AT+WFSH <i>Note: Connect all 3 parties.</i></p> <p>AT+WFSH</p> <p>ATH</p>	<p>OK +WORG:8585551212 +WCNT:3 <i>Note: Conversation...</i></p> <p>OK +WFSH <i>Note: Module now places first call on hold, and attempts connection to second call.</i></p> <p>OK +WFSH <i>Note: All 3 parties now connected.</i></p> <p>OK +WFSH <i>Note: Disconnect second party, connected to first party only.</i></p> <p>OK +WEND:10</p>

8.6 List current call state +CLCC

8.6.1 Description :

This command is used to return the current call state of the module.

8.6.2 Syntax :

Command syntax : AT+CLCC
+CLCC : <state>, <mode>, <termination>
OK

Command	Possible responses
<p>AT+CLCC <i>Note: Seek current phone state</i></p>	<p>+CLCC: 0,9,0 OK <i>Note : Command valid</i></p>

8.6.3 Defined values :

<state> (state of the call):

0: no call

1: traffic

2: dialing (MO call)

3: incoming (MT call)

<mode> (teleservice) :

0: voice

1: data

2: fax

3: sms

4: otasp

5: markov or loopback

9: unknown or not applicable

<termination>

0: unknown or not applicable

1: mobile terminated (MT) call

2: mobile originated (MO) call

9 Data commands

9.1 Using AT Commands during a data connection

To use AT Commands during a data connection (e.g. while the product is in online mode), it is necessary either to switch to offline mode, or to use the specific **+WMUX** command to enable Commands / Data multiplexing.

Note: currently the +WMUX command is not supported yet.

9.1.1 Switch from online to offline mode

To switch from online mode to offline mode, the “+++” sequence must be sent. Following this, the product gets back to offline mode with an “OK” response, and an AT command can be sent.

Note :

the “+++” sequence only works with the **+ICF** command using the following settings:

- 8 data bits, with no parity
- 7 data bits, with even parity

9.1.2 Switch from offline to online mode

See the **ATO** command description.

9.2 Select mode **+FCLASS**

9.2.1 Description

This command puts the product into a particular operating mode for fax.

9.2.2 Syntax :

Command syntax: **AT+FCLASS= <n>**

Command	Possible responses
AT+FCLASS=? <i>Note : Test command</i>	+FCLASS: 0, 2.0 OK <i>Note : If fax class 1 not supported</i>
AT+FCLASS=0 <i>Note : Data mode requested</i>	OK <i>Note : Command valid</i>
AT+FCLASS=2.0 <i>Note : Fax class 2 mode requested</i>	OK <i>Note : Command valid</i>
AT+FCLASS? <i>Note : Current value</i>	+FCLASS: 2.0 OK <i>Note : Command valid</i>

9.2.3 Defined values :

- <n>
- 0: Data
- 1: Fax class 1
- 2.0: Fax class 2.0

9.3 Cellular result codes +CRC

9.3.1 Description :

This command gives more detailed ring information for an **incoming call**. Instead of the string "RING", an extended string is used to indicate which type of call is ringing (e.g. +CRING:VOICE).

These extended indications are:

+CRING:VOICE	for normal voice calls
+CRING:DATA	for all types of data calls
+CRING:FAX	for all types of fax calls
+CRING:OTAPA	for OTAPA calls
+CRING:TEST	for markov, loopback, and test calls
+CRING:UNKNOWN	for unknown/undefined calls types

9.3.2 Syntax :

Command syntax : AT+CRC

Command	Possible responses
AT+CRC=0 <i>Note : Extended reports disabled</i>	OK <i>Note : Command valid</i>
AT+CRC=1 <i>Note : Extended reports enabled</i>	OK <i>Note : Command valid</i>

9.4 DTE-DCE local rate reporting +ILRR

9.4.1 Description :

This parameter controls whether or not the extended-format "+ILRR:<rate>" information text is transmitted from the DCE to the DTE. Currently the product only supports 0 = OFF.

9.4.2 Syntax :

Command syntax : AT+ILRR

Command	Possible responses
AT+ILRR=0 <i>Note : Local port rate report disabled</i>	OK <i>Note : Command valid</i>

9.5 V42 bis data compression +DS
9.5.1 Description :

This command enables or disables V.42bis data compression if this feature is provided on the PSTN in the IWF.

9.5.2 Syntax :

Command syntax : AT+DS=<dir>,<neg>,<P1>,<P2>

Command	Possible responses
AT+DS=3,0,4096,250 <i>Note : Set new parameters</i>	OK <i>Note : Command valid</i>
AT+DS? <i>Note : Current values</i>	+DS: 3,0,4096,250 OK <i>Note : Command valid</i>

9.5.3 Defined values :

Four numeric sub-parameters are accepted:

< dir >: specifies the desired direction(s) of operation of the data compression function; from the DTE point of view, **(default is 3)**,

< dir >

0: Negotiated ... no compression

1: Transmit only

2: Receive only

3: Both directions, accept any direction

< neg >: specifies whether or not the DCE should continue to operate if the desired result is not obtained, **(default is 0)**,

< neg >

0: Do not disconnect if V.42 bis is not negotiated by the remote DCE as specified in < dir >

1: Disconnect if V.42 bis is not negotiated by the remote DCE as specified in < dir >

< P1 >

512-4096: specifies the maximum number of dictionary entries that should be negotiated, **(default is 4096)**,

< P2 >

6-250: specifies the maximum string length to be negotiated, (default is 250).

9.6 V42 bis data compression report +DR

9.6.1 Description :

If this feature is provided by the product this command determines whether or not the use of V42bis is given in an **incoming or outgoing data call**. The intermediate result code represents current DCE-DCE data compression type. The format of this result code is as follows:

+DR: NONE	Data compression is not in use
+DR: V42B	Rec. V.42 bis is in use in both directions
+DR: V42B RD	Rec. V.42 bis is in use in receive direction only
+DR: V42B TD	Rec. V.42 bis is in use in transmit direction only

The +DR intermediate result code, if enabled, is issued before the final result code, before the +ILRR intermediate report and after the service report control +CR.

9.6.2 Syntax :

Command syntax : AT+DR

Command	Possible responses
AT+DR=1 <i>Note : Reporting enabled</i>	OK <i>Note : Command valid</i>
AT+DR? <i>Note : Current value</i>	+DR: 1 OK <i>Note : Command valid</i>

10 V24-V25 commands

10.1 Fixed DTE rate +IPR

10.1.1 Description :

This commands specifies the data rate at which the DCE will accept commands.

10.1.2 Syntax :

Command syntax : AT+IPR

Command	Possible responses
AT+IPR? <i>Note :</i>	+IPR: 9600 OK <i>Note : Current rate is 9600 bps</i>
AT+IPR=? <i>Note :</i>	+IPR: (0,1200,2400,4800,9600,19200), (45,50,75,110,150,300,600,38400,57600, ,115200,230400) OK <i>Note : Possible value (*)</i>
AT+IPR=38400 <i>Note :</i>	OK <i>Note : Disable autobaud and set rate to 38400 bps</i>
AT+IPR=0 <i>Note :</i>	OK <i>Note : Enable autobaud</i>

Note:

When in the autobaud mode, the supported auto baud rate is up to 19200. User needs to set the speed rate specifically if it is more than 19200.

10.2 DTE-DCE character framing +ICF

10.2.1 Description :

This command is used to determine the local serial port start-stop (asynchronous) character framing that the DCE uses.

10.2.2 Syntax :

Command syntax: AT+ICF= <format>, <parity>

Command	Possible responses
AT+ICF=3,3 <i>Note :</i>	OK <i>Note : New values</i>
AT+ICF? <i>Note :</i>	+ICF: 3,3 OK <i>Note : Current values</i>
AT+ICF=? <i>Note :</i>	+ICF: (3-3),(0-3) OK <i>Note : Possible values</i>

10.2.3 Defined values :

<format>

- 0: Autodetect
- 1: 8 Data 2 Stop
- 2: 8 Data 1 Parity 1 Stop
- 3: 8 Data 1 Stop
- 4: 7 Data 2 Stop
- 5: 7 Data 1 Parity 1 Stop
- 6: 7 Data 1 Stop

<parity>

- 0: Odd
- 1: Even
- 2: Mark
- 3: None

Note 1) Rm interface is supported at 8 data bits, No Parity, 1 stop bit. ERROR returned for other formats.

10.3 DTE-DCE local flow control +IFC

10.3.1 Description :

This command is used to control the operation of local flow control between the TE2 and the MT2

10.3.2 Syntax :

Command syntax : AT+IFC=<n1>,<n2>

Command	Possible responses
AT+IFC? <i>Note :</i>	+IFC: 2,2 OK <i>Note : Current values</i>
AT+IFC=? <i>Note :</i>	+IFC: (0-3),(0-2) OK <i>Note : Possible values</i>
AT+IFC=0,0 <i>Note :</i>	OK <i>Note : New values</i>

10.3.3 Defined values :

< n1 >

0: none

(supported)

1: Xon/Xoff local circuit 103

(not supported)

2: RTS

(supported)

3: Xon/Xoff global on circuit 103

(not supported)

< n2 >

0: none

1: Dc1/DC3 on circuit 104

2: Circuit 106

10.4 Set DCD signal &C

10.4.1 Description :

This commands controls the Data Carrier Detect (DCD) signal.

10.4.2 Syntax :

Command syntax : AT&C

Command	Possible responses
AT&C0 <i>Note : DCD always on</i>	OK <i>Note : Command valid</i>
AT&C1 <i>Note : DCD matches state in accordance with the specified service</i>	OK <i>Note : Command valid</i>
AT&C2 <i>Note : Always on wink on channel disconnect</i>	OK <i>Note : Command valid</i>

10.5 Set DTR signal &D

10.5.1 Description :

This commands controls the Data Terminal Ready (DTR) signal.

10.5.2 Syntax :

Command syntax : AT&D

Command	Possible responses
AT&D0 <i>Note : The DTR signal is ignored</i>	OK <i>Note : Command valid</i>
AT&D1 <i>Note : Enter online command state following ON-to-OFF transition of circuit 108/2</i>	OK <i>Note : Command valid</i>
AT&D2 <i>Note : Enter command state following ON-to-OFF transition of circuit 108/2.</i>	OK <i>Note : Command valid</i>

10.6 Back to online mode O

10.6.1 Description

If a connection has been established and the MS is in command mode, this command allows you to return to online data mode.

10.6.2 Syntax

Command syntax : ATO

Command	Possible responses
ATO Return from online mode to offline mode	OK

10.7 Result code suppression Q

10.7.1 Description :

This command determines whether the mobile equipment sends result codes or not

10.7.2 Syntax :

Command syntax : ATQ

Command	Possible responses
ATQ0 <i>Note : Return result codes</i>	OK <i>Note : Command valid</i>
ATQ1 <i>Note : Result codes are suppressed and not transmitted</i>	(none) <i>Note : No response</i>

10.8 DCE response format V

10.8.1 Description :

This command determines the DCE response format, with or without header characters <CR><LF>, and with the use of numeric result codes.

10.8.2 Syntax :

Command syntax : ATV

Command	Possible responses
ATV0 <i>Note : Display result codes as numbers</i>	0 <i>Note : Command is valid (0 means OK)</i>
ATV1 <i>Note : Display result codes as words</i>	OK <i>Note : Command valid</i>

10.9 Auto-tests &T

10.9.1 Description:

AT&T1 is used to perform audio loop back in the current audio path. This command can be used to validate the audio loop.

Command syntax : AT&T<num>

Command	Possible responses
AT&T1	OK <i>Note : Audio loopback is on.</i>
AT&T2	OK <i>Note : Audio loopback is off.</i>

10.9.2 Defined Values:

<num>

0 – not defined returns OK

1 – Audio loopback on for current path

2 – Audio loopback is off.

10.10 Echo E

10.10.1 Description :

This command is used to determine whether or not the modem echoes characters received by an external application (DTE).

10.10.2 Syntax :

Command syntax : ATE

Command	Possible responses
ATE0 <i>Note : Characters are not echoed</i>	OK <i>Note : Done</i>
ATE1 <i>Note : Characters are echoed</i>	OK <i>Note : Done</i>

10.11 Display configuration &V

10.11.1 Description

This command is used to display the modem configuration.

&V

&V0 : Display the modem configuration in RAM.

&V1 : Display the modem configuration in NV-RAM.

&V2 : Display the modem factory configuration.

The parameters displayed are the following :

&C: 2; &D: 2; &F: 0; E: 1; L: 0; M: 0; Q: 0; V: 1; X: 4; Z: 0; %D: 0; S0: 0; S10: 14; S11: 95; S3: 13; S4: 10; S5: 8; S6: 2; S7: 50 S8: 2; S9: 6; +FCLASS: 0; +CFG: ""; +FCC: 0,1,0,0,0,0,0,0 +FIS: 0,1,0,0,0,0,0,0; +CDR: 0; +CDS: 0,1,2048,6; +CFC: 0; +CQD: 10 +CRC: 0; +CRM: 0; +CTA: 0; +CXT: 0; +DR: 0; +DS: 3,0,2048,6; +EB: 1,0,30 +EFCS: 1; +ER: 0; +ES: 3,0,2; +ESR: 1; +ETBM: 1,1,20; +FAA: 0 +FAP: 0,0,0; +FBO: 0; +FBU: 0; +FCQ: 1,0; +FCR: 0; +FCT: 1E; +FEA: 0 +FFC: 0,0,0,0; +FHS: 0; +FIE: 0; +FIP: 0; +FLI: ""; +FLO: 1; +FLP:

0 +FMS: 0; +FNR: 0,0,0,0; +FNS: ""; +FPA: ""; +FPI: ""; +FPP: 0; +FPR: 8 +FPS: 1; +FPW: ""; +FRQ: 0,0; +FRY: 0; +FSA: ""; +FSP: 0; +ICF: 3,3 +IFC: 2,2; +ILRR: 0; +IPR: 115200; +MA: ; +MR: 0; +MS: ; +MV18R: 0 +MV18S: 0,0,0; +CMUX: C,2; +ADC: 0; +CALA: ""; +CCED: 0,15 +CCFC: ; +CCLK: ""; +CFUN: 1; +CICB: 2; +CKPD: ""; +CLCK: 0; +CLIP: 1 +CLIR: 0; +CMEE: 0; +CMER: 0; +CMGD: 0,0; +CMGL: "UREAD" +CMGR: 0; +CMGS: ""; +CMGW: ""; +CMSS: ; +CMUT: 0; +CNMA: 0,0 +CNMI: 2,0,0,0,0; +COPS: 0; +CPHS: 1,1; +CPMS: "MT","MO"; +CR: 0 +CREG: 0; +CRMP: 0,1,0,1; +CRSL: 1; +CSCS: "PC437"; +CSNS: 2; +CSTA: 129 +ECHO: 5; +SPEAKER: 0; +SIDET: 0,3; +VGR: 8; +VTD: 150,255; +VTS: +W32K: 0; +WCCS: 0,0,0,0; +WCDM: 0,0; +WDTMF: ; +WFSH: ; +WIND: 8 +WIOR: 0; +WIOW: 0,0; +WMGO: 0; +WMSC: ; +WNAM: 1; +WOSO: 2; +WPRV: 0 +WRIM: 0; +WRMP: 0; +WRST: ; +WSDT: ; +WSST: 0; +WSTR: 1; +WSVG: 0
+WTONE: 0,1,1,1,0; +WUSS: 0

10.11.2 Syntax :

Command syntax : AT&V

Command	Possible responses
AT&V <i>Note : Display active parameters in RAM</i>	See above OK <i>Note : Done</i>

10.12 Request Identification Information I

10.12.1 Description :

This command causes the product to transmit one or more lines of information test from the MT2.

Command syntax : ATI<num>

Command	Possible responses
ATI0	WAVECOM MODEM 800 1900 OK <i>Note : Done</i>
ATI3	S/W VER: WISMOQ WQ1.6A May 17 2002 17:30:00 OK
ATI6	+CGSM, +CIS707, +MS, +ES, +DS, +FCLASS OK

10.12.2 Defined values

Valid range <num> is 0 – 7

For ATI6 the IS-707 command, +GCAP, is more applicable for the MT2.

10.13 Restore Factory Setting &F

10.13.1 Description:

This command is used to restore the factory setting from NV memory. The settings that are restored are displayed in table 18.7. This command reset the module as the very last part of its operation.

10.13.2 Syntax:

Command syntax : AT&F

Command	Possible responses
AT&F	OK <i>Note : Command valid, module resets</i>

10.14 Save Configuration &W

10.14.1 Description:

This command writes the current configuration to NV. See table 18.7 for a list of items.

10.14.2 Syntax:

Command syntax : AT&W

Command	Possible responses
AT&W	OK <i>Note : Command valid</i>

11 Phone Book Commands

In this chapter, the AT commands are used to operate on mobile phone book.

Note: The phone book "SM" is only supported in the RUIM capable module.

11.1 Select phone book memory storage +CPBS

11.1.1 Description:

This command selects the type of memory where the phone book will be stored. Possible phone books are as list of <bk>.

11.1.2 Syntax :

Command syntax : AT+CPBS="<bk>"

Command	Possible responses
AT+CPBS="SM" <i>Note : Select the RUIM phonebook</i>	OK <i>Note : RUIM phonebook selected</i>
AT+CPBS=? <i>Note: Possible values, not all may be supported</i>	+CPBS: ("ME","MC","LD","RC","EN") <i>Note: Not all may be supported</i>
AT+CPBS? <i>Note: Return the currently selected phonebook</i>	+CPBS: EN,0,10 OK <i>Note: EN phonebook selected, 0 locations used, 10 available</i>

<bk>:

"SM": ADN (RUIM phonebook)
 "LD": LND (combined RUIM and ME last dialed phonebook)
 "EN": EN (ME NV emergency numbers)
 "MC": MSD (ME missed calls list)
 "ME": ME (ME NV phonebook)
 "MT": MT (combined ME and RUIM phonebook)
 "RC: LIC (ME received calls list)

11.2 Return selected phonebook locations +CPBU

11.2.1 Description:

This returns the currently selected phonebook locations, maximum length for the phone number, and the maximum characters for the text portion.

11.2.2 Syntax :

Command syntax : AT+CPBU?

Command	Possible responses
AT+CPBU?	+CPBU: (1-100),32,12 OK <i>Note : ME phone book previously selected, 100-location starting at 1, and 32 digits maximum, and 12 characters for the text.</i>

11.3 Find phonebook entries +CPBF

11.3.1 Description:

This command returns the first 10 phonebook entries with alphanumeric fields starting with a given string. The user can use a string that is more exact to ensure that the entry they are looking for is found.

11.3.2 Syntax :

Command syntax : AT+CPBF="string"

Command	Possible responses
AT+CPBF="TES"	+CPBF: 1,"6195551212",145,"test1" OK <i>Note : Displays location starting with "TES"</i>
AT+CPBF="NEXT" <i>Note: Find entries that start with "NEXT"</i>	+CME ERROR: 22 <i>Note: Entry not found</i>

11.4 Write phonebook entry +CPBW

11.4.1 Description:

This command writes a phone book to location <index> in the current phonebook selected with +CPBS.

11.4.2 Syntax :

Command syntax : AT+CPBW=<index>,"<phonenumber>",<TON/NPI number>,"<text string>"

Command	Possible responses
AT+CPBW=1,"6195551212",145,"test1"	OK

	<i>Note : Location 1 written to</i>
AT+CPBW=2 <i>Note: Erase location 2</i>	OK
AT+CPBW=1,"8585551212",145,"test1" <i>Note: Location 1 overwritten</i>	OK
AT+CPBW=80,"8585551212",145,"test80" <i>Note: Error left off trailing quotes</i>	ERROR
AT+CPBW="8585551212",145,"test" <i>Note: Write to the first open location</i>	OK
AT+CPBW="8585551212",145,"FullBook" <i>Note: Phone book is full</i>	+CME ERROR: 20 <i>Note: Phonebook full</i>
AT+CPBW="8585551212",145,"Text is too long for this " <i>Note: Write to first location that is open 24 ASCII characters</i>	+CME ERROR: 24 <i>Note: Text string exceed maximum character length</i>

11.4.3 Defined values:

- <index> Integer value for currently selected phonebook.
 <phone number> Phone number is in ASCII format. Valid characters are 0-9 and *, #, -.
 <TON/NPI> Type of address in integer form. The MSB of this will always be set high.
 <text string> Any text string.

11.5 Phondebook read +CPBR

11.5.1 Description:

This commands returns phonebook entries from a range of locations from the currently selected phonebook.

Note: There are only 9 entries total in the Emergency Numbers phonebook (101-109).

11.5.2 Syntax :

Command syntax : AT+CPBR=<first>[,last]

Command	Possible responses
AT+CPBR=1	+CPBR:1,"6185551212",145,"test"
AT+CPBR=1,3 <i>Note:Read location 1 to 3 and return and data they may contain. Only 10 entries starting at the first entry are displayed. User can enter command multiple times with different indices.</i>	+CPBR:1,"6185551212",145,"test1" +CPBR:2,"6185551212",129,"test2" +CPBR:3,"6185551212",115,"test3" <i>Note: The MSB of the TON/NPI is ALWAYS set high</i>

AT+CPBR=12,1 <i>Note: <x,y> where x<y</i>	ERROR <i>Note:Invalid range x>y</i>
AT+CPBR=300	+CMEE:21 <i>Note: Invalid index</i>

Note:

When the range is more than 10, only the first 10 hit entries will be displayed.

e.g.

AT+CPBR=1,100

11.6 Phonebook search +CPBP

11.6.1 Description:

This searches the currently selected phonebook for a phone number match and returns it if found.

11.6.2 Syntax :

Command syntax : AT+CPBP= "<phone number>"

Command	Possible responses
AT+CPBP= "8585551212" <i>Note: Find "8585551212" in current phonebook if it exists.</i>	+CPBP=1,"8585551212",145,"FullBook" OK <i>Note : ME phone book previously selected. Display the entry that matches.</i>
AT+CPBP="123"	+CME ERROR: 22 <i>Note: Entry not found</i>

Note:

The phone number to search should be match that stored in phone book. Partial number searching will return an error.

11.7 Avoid phonebook init +WAIP

11.7.1 Description:

This command allows the initialization off all available phonebooks to be avoided during subsequent boots.

11.7.2 Syntax :

Command syntax : AT+WAIP=<mode>

Command	Possible responses
AT+WAIP?	+WAIP: 1 <i>Note: No phonebook commands are allowed after boot. If a command is</i>

	<i>entered it returns "+CME ERROR: 3"</i>
AT+WAIP=?	+WAIP:(0-1) OK
AT+WAIP=1	OK
AT&W <i>Note save value to NV</i>	

<mode>

0: Normal operating mode. Enable.

1: No phonebook initialization. Disable.

11.8 Delete calls from phonebook +WDCP

11.8.1 Description:

This command will delete call history from a selected phonebook if it supports this feature.

11.8.2 Syntax :

Command syntax : AT+WDCP="<call phonebook>"

Command	Possible responses
AT+WDCP?	+WDCP: "LD" <i>Note: Returns phonebook(s) that support deleting calls.</i>
AT+WDCP=?	+WDCP: ("LD","MC","RC") <i>Note: Possible supported phonebooks</i>
AT+WDCP="LD"	OK <i>Note: Erase call history for last dialed phone book</i>

11.8.3 Defined values:

<call phonebook>:

LD

MC

RC

12 Position Determination (GPS) AT commands

These AT commands are supported on GPSOne equipped CDMA modules. GPSOne is a wireless-assisted hybrid solution that utilizes both GPS and base-station trilateration to determine the mobile positions in more covered situations than GPS alone.

The following includes several set-up commands (+WPDST, +WPDOM, +WPDDD, +WPDFR, +WPDPL), the start-session command (+WPDSS), the end-session command (+WPDES), and responses. Setup commands are not required in most cases (as defaults will be provided) before the start-session commands.

Note that these commands are preliminary. Changes may be made when carrier plans for location services are more readily available.

12.1 Position Determination Session Type +WPDST

12.1.1 Description :

This command sets and returns the PD session type.

12.1.2 Syntax :

Command syntax : AT+WPDST=<type>

Command	Possible responses
AT+WPDST? <i>Note : Request current setting type</i>	+WPDST: 0 OK
AT+WPDST=0 <i>Note : select the last position info available</i>	OK +CME ERROR: tbd (PD session already active)
AT+WPDST=9	+CME ERROR: tbd (invalid PD parameter)

Note that these 2 errors can happen on all +WPD requests below, and may not be listed.

12.1.3 Defined values :

<type>

- 0 session to provide the last position info available
- 1 session to provide single-shot fix
- 2 tracking mode independent fixes – session to provide continuous independent position fixes
- 3 tracking mode – session to provide continuous position fixes

- 4 data download – session to download ephemeris/almanac data only to minimize delays to obtain future fixes

12.2 Position Determination Operating Mode +WPDST

12.2.1 Description :

This command sets and returns the PD session operating mode.

12.2.2 Syntax :

Command syntax : AT+WPDOM=<mode>

Command	Possible responses
AT+WPDOM? <i>Note : Request current setting mode</i>	+WPDOM: 5 OK
AT+WPDOM=1	OK
AT+WPDOM=0	+CME ERROR: tbd (PD parameter not supported)

12.2.3 Defined values :

<Mode>

- 0 Standalone only (currently not available on Q24)
- 1 Network only
- 2 Speed optimal (minimize time-to-fix, MS-based first, PDE-based later if failed)
- 3 Accuracy optimal (PDE preferred, MS in case of failure)
- 4 Data optimal– minimize data exchanged
- 5 MS-based only

12.3 Position Determination Data Download +WPDDD

12.3.1 Description :

This command specifies and returns the PD data download setting.

12.3.2 Syntax :

Command syntax : AT+WPDDD=<type>,<duration>

Command	Possible responses
AT+WPDDD? <i>Note : Request current setting type</i>	+WPDDD: 0,10 OK +CME ERROR: tbd (not set yet)
AT+WPDDD=0,10 <i>Note : single-shot data valid for 10 minutes</i>	OK

12.3.3 Defined values :

<type>

- 0 single-shot download of data valid for the specified duration
- 1 periodically download data for the specified duration

<duration>

minutes

12.4 Position Determination Fix Rate +WPDFR

12.4.1 Description :

This command specifies and returns the PD fix rate setting. This is used in Tracking sessions only.

12.4.2 Syntax :

Command syntax : AT+WPDFR=<num>,<time>

Command	Possible responses
AT+WPDFR? <i>Note : Request current setting type</i>	+WPDFR: 10,100 OK +CME ERROR: tbd (not set yet)
AT+WPDFR=10,100 <i>Note : maximum 10 fixes with 100 seconds in between fixes</i>	OK

12.4.3 Defined values :

<num>

maximum number of fixes

<time>

maximum time between fixes in seconds, limited to 1800 seconds.

12.5 Position Determination Privacy Level +WPDPL

12.5.1 Description :

This command specifies and returns the PD data download setting.

12.5.2 Syntax :

Command syntax : AT+WPDPL=<level>

Command	Possible responses
AT+WPDPL? <i>Note : Request current setting type</i>	+WPDPL: 0 OK
AT+WPDPL=2 <i>Note : Select highest level of security</i>	OK

12.5.3 Defined values :

<level>

- 0 least privacy (no restriction)
- 1 medium
- 2 highest

12.6 Position Determination Start Session +WPDSS

12.6.1 Description :

This command starts the PD session to get position. Resulting data will come in as unsolicited responses.

12.6.2 Syntax :

Command syntax : AT+WPDSS=<service>,<performance>,<accuracy>

Command	Possible responses
AT+WPDSS="PH" <i>Note : Start session for position and height with no limit on GSP search time</i>	OK +CME: ERROR: tbd (PD session already active) +CME: ERROR: tbd (module offline)
AT+WPDSS="PVH",20,50 <i>Note : Start session for position, velocity, and height – requiring GSP search time limited within 20 seconds, and aim for accuracy within 50 meters</i>	OK +CMD: ERROR: tbd (tracking mode only) +CMD: ERROR: tbd (tracking mode requires +WPDFR setup) +CME: ERROR: tbd (MS-based session only)
AT+WPDSS?	+WPDSS="PV" ("PV" session in progress) OK +WPDSS="PH",20,50 (said session in progress) OK OK (no active PD session)

12.6.3 Defined values :

<service>

- "P" Position only
- "PV" Position and Velocity
- "PH" Position and Height
- "PVH" Position, Velocity, and Height

<performance>

- 0 no time allowed for GPS search, use AFLT only.
- 1-255 upper bound of GPS search time in seconds, with 255 seconds the maximum

<accuracy>

Accuracy threshold in meters, used by MS-based only. If position uncertainty higher than the threshold, PDE-calculated fixes will be try. The input can be between 1 to 255. But, the reasonable range may be much smaller.

12.7 Position Determination End Session +WPDES

12.7.1 Description :

This command ends the PD session to get position.

12.7.2 Syntax :

Command syntax : AT+WPDES

Command	Possible responses
AT+WPDES <i>Note : End session</i>	OK +CME: ERROR: tbd (no active session)

12.8 Position Determination Start Session Result +WPDSS

12.8.1 Description :

This unsolicited command returns the PD data.

12.8.2 Syntax :

Response syntax :

+WPDSS:

<lat>,<lon>,<time>,<uncertainty>,<fix>,<mask>,<alt>,<alt_u>,<heading>,<ang_u>,<vh>,<vw>,<v_u>

AT+WPDSS="P" <i>Note : Ask for position only</i>	OK +WPDSS:#,#,#,#,2 <i>Note: Unsolicited result with position only</i>
AT+WPDSS="PV" <i>Note : Ask for position and velocity</i>	OK +WPDSS:#,#,#,#,2,6,#,#,#,# <i>Note: Unsolicited result with heading and velocity too</i>
AT+WPDSS="PH" <i>Note : Ask for position and height</i>	OK +WPDSS:#,#,#,#,3,3,#,#,#,# <i>Note: Unsolicited result with altitude and heading too</i>

12.8.3 Defined values :

<lat> & <lon>
32-bit integer

<time>

64-bit integer

<fix>

2: 2D fix

3: 3D fix

<mask>

bit 0: altitude valid

bit 1: heading valid

bit 2: velocity valid (e.g. 6 means heading and velocity valid)

<altitude>

16 bit integer

<altitude uncertainty>

byte

<heading>

16 bit unsigned integer

<heading uncertainty>

byte

<velocity horizontal>

16 bit unsigned integer

<velocity vertical>

8 bit signed integer

<velocity uncertainty>

byte

13 Specific AT commands

13.1 Manufacturer identification +WGMI

13.1.1 Description :

This command gives the manufacturer identification.

13.1.2 Syntax :

Command syntax : AT+WGMI

Command	Possible responses
AT+WGMI <i>Note : Get manufacturer identification</i>	+WGMI: WAVECOM MODEM OK <i>Note : Command valid, Wavecom modem</i>

13.2 Request model identification +WGMM

13.2.1 Description :

This command is used to get the supported frequency bands. With multi-band products the response may be a combination of different bands.

13.2.2 Syntax :

Command syntax : AT+WGMM

Command	Possible responses
AT+WGMM <i>Note : Get supported bands</i>	+WGMM: 800 1900 OK <i>Note : CDMA 800 MHz band and 1900 (PCS)</i>

13.3 Cell environment description +CCED

13.3.1 Description :

This command can be used by the application to retrieve the parameters of the main cell and up to six neighboring cells.

There are two possible methods for the external application to ascertain these cell parameters: on request by the application or automatically by the product every 5 seconds.

Automatic mode is not supported during communication or registration.

13.3.2 Syntax :

Command syntax: AT+CCED=<mode>[, <requested dump>]

13.3.3 Defined values :

<mode>

- 0: One shot requested
- 1: Automatic shots requested
- 2: Stop automatic shots

Automatic shots will not return a terminating "OK".

<requested dump>

- 1: Main Cell : band class, Channel #, SID, NID, Base Station P Rev, Pilot PN offset, Base Station ID, Slot cycle index, Raw Ec/Io, Rx power, Tx power, Tx Adj
- 2: Neighbor1 to Neighbor20 (max) : First parameter is the number of neighbors. Following parameters: Neighbor1 band class, Neighbor1 Pilot PN, Neighbor1 frequency assignment, Neighbor2 Pilot PN, Neighbor2 band class, Neighbor2 frequency assignment, ...
- 4: Timing Advance: Always zero for CDMA

Combination (addition of the values) of the requested dump is supported.

Where <value> is the ASCII string of the values (in decimal form except the LAC and CI values which are in hexadecimal form) of the parameters. If a field cannot be measured – or has no sense – the parameter is not filled in (two consecutive commas are then found).

If the <requested dump> parameter is absent, that of the last +CCED command (or 15 by default) will be used.

13.4 Automatic RxLev indication +CCED**13.4.1 Description :**

The CCED command has been extended to indicate the *received signal strength indication* (rssi) of the main cell. The command principle has not changed.

13.4.2 Syntax :

Command Syntax: AT+CCED=<mode>[, <requested dump>]

13.4.3 Defined values :

<mode>

- 0: One shot requested
- 1: Automatic shots requested
- 2: Stop automatic shots

<requested dump>

8: Main cell RSSI indications (RxLev) from 0 to 31

The response will be a +CSQ response and not a +CCED response. The 07.07 format for +CSQ is respected. The <ber> is not evaluated by this command, so the <ber> value will always be 99.

+CSQ :<rss>, 99

OK

This +CSQ response, when automatic shots are selected, is sent every time the <rss> measured by the product changes. Automatic shots are supported in idle mode and during communication.

Combination (addition of the values) of the requested dump (1,2,4,8) is supported but the activation or deactivation of this flow (8) does not affect the other flows. Both +CCED and +CSQ responses may then be generated.

If the <requested dump> parameter is absent, the last +CCED command parameter (or 15 by default) will be used.

Command	Possible responses
AT+CCED=0,15 <i>Note: one shot, dump all</i>	+CSQ:29, 99 +CCED:0,2,0,300,384,0,160,384,0,384,4,8, 6,296, 6033,1,16,-69,-67,-63 OK <i>Note: +CCED has the format: +CCED: <timing advance>,<neighbor parameters>,<main cell parameters>.</i>

13.5 General Indications +WIND

13.5.1 Description :

Wavecom has introduced a general mechanism to send unsolicited non-standardized indications to the application. The identified unsolicited non-standardized indications are:

- indication during mobile originated call setup that the calling party is ringing.
- Indication of the availability of the product to receive AT commands after boot.

For each of these indications, a "bit flow" has to be indicated.

13.5.2 Syntax :

Command syntax: AT+WIND= <IndLevel >

13.5.3 Defined values :

<IndLevel>

- 1 (bit-0): R-UIM Presence
- 2 (bit-1): Reserved

- 4 (bit-2) : Reserved
- 8 (bit-3): Indication that the product is ready to process all AT commands
- 16 (bit-4): Reserved
- 32 (bit-5): Reserved
- 64 (bit-6): Network service available indication
- 128 (bit-7): Network lost indication
- 256 (bit-8): Reserved
- 512 (bit-9): Reserved

Note: If <IndLevel> is equal to 0, no unsolicited "+WIND: <IndNb>" will occur.

Combination (addition of the values) is used to allow more than one indication flow.

$$0 \geq \text{IndLevel} \leq 1023$$

The response is OK if the values are in the previous range.

The unsolicited response will then be:

+WIND : <event> [,<idx>]

<idx>: Call identifier, defined in +CLCC command.

The supported events are:

<event>

- 0: R-UIM not present
- 1: R-UIM present
- 2: Reserved
- 4: Reserved
- 8: Product is ready to process all AT commands
- 16: Reserved
- 32: Reserved
- 64 : The network service is available for an emergency call.
- 128: The network is lost.
- 256: Reserved
- 512: Reserved

The AT+WIND=? Command is supported and indicates the <allowed bit flows>.

Default value is 8: AT command processing ready indication.

AT+WIND=? Gives the possible value range (0-1023)

Command	Possible responses
AT+WIND=128 <i>Note: Turn on Network lost indication only</i>	OK

13.6 Analog digital converters measurements +ADC

13.6.1 Description :

This command gets the raw value of the ADC conversion. Six ADC read values are specified: VBATT, THERM, HDET, ADC_0, ADC_1, ADC_CHG_MON.

13.6.2 Syntax :

Command syntax: AT+ADC=<item>

Command	Possible responses
AT+ADC=0 <i>Note : Select VBATT</i>	+ADC: 185 OK <i>Note : raw value for VBATT</i>
AT+ADC=1 <i>Note : Select THERM</i>	+ADC: 238 OK
AT+ADC=? <i>Note : Ask for the list of possible values</i>	+ADC: (0-5) <i>Note : possible values 0 -5</i>
AT+ADC? <i>Note : Ask for the current item selected</i>	+ADC: 1 OK <i>Note : THERM selected</i>

13.6.3 Defined values :

The supported items are:

<item>

- 0: VBATT
- 1: THERM
- 2: HDET
- 3: ADC_0
- 4: ADC_1
- 5: ADC_CHG_MON

13.7 Mobile Equipment event reporting +CMER

13.7.1 Description :

This command enables or disables sending of unsolicited result codes in the case of a key press.

13.7.2 Syntax :

Command Syntax: AT+CMER=<keyp>

13.7.3 Defined values :

<keyp> (keypad) :

0: No keypad event reporting.

1: Keypad event reporting are routed using unsolicited code : +CKEV : <key>, <press>

<press>

1: key press

0: key release

<key> : Keyboard map according to Qualcomm HS definitions

13.8 Read GPIO value +WIOR

13.8.1 Description

Set the I/O port as an input and read the I/O pin value.

13.8.2 Syntax

Command syntax: AT+WIOR=<index>

Response syntax: +WIOR: <value>

Command	Possible responses
AT+WIOR=32 <i>Read GPIO 32 value</i>	+WIOR: 0 OK <i>GPIO 32 value is 0</i>

13.8.3 Defined values

<index>

The GPIO to read. (0-47)

<value>

Value of the GPIO pin.

13.9 Write GPIO value +WIOW

13.9.1 Description

Set the I/O port as an output and set the requested I/O pin value. Valid writable GPIOs are: 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 16, 20, 21, 22, 23, 30, 36, 40, 42, 43, 44, 45, 46, 47.

13.9.2 Syntax

Command syntax: AT+WIOW=<index>,<value>

Command	Possible responses
AT+WIOW=47,1 <i>Set GPIO 47 to 1</i>	OK <i>GPIO value is written</i>

13.9.3 Defined values

<index>

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The GPIO to write.

<value>

0: I/O bit is set to 0.

1: I/O bit is set to 1.

13.10 Play tone +WTONE

13.10.1 Description :

This **specific** command allows a tone to be played on the current speaker or on the buzzer. Frequency, volume and duration can be set.

13.10.2 Syntax :

Command syntax :

AT+WTONE=<mode>[,<dest>,<freq>,<volume>,<duration>]

Response syntax: OK or ERROR

Command	Possible responses
AT+WTONE=1,1,300,2,50 <i>Note : Play a tone</i>	OK <i>Note : Done</i>
AT+WTONE? <i>Note : Current value</i>	+WTONE: 1,1,300,2,50 OK
AT+WTONE=0 <i>Note : Stop playing</i>	OK <i>Note : Done</i>
AT+WTONE=? <i>Note : Test command</i>	+WTONE: (0-1),(1-2),(1-4000),(0-3),(0-50) OK <i>Note : Done</i>

13.10.3 Defined values :

<mode>

0: Stop playing.

1: Play a tone

<dest>: This parameter sets the destination (mandatory if <mode>=1)

<dest>

1: Speaker

2: Buzzer

<freq>:

This parameter sets tone frequency (in Hz) (mandatory if <mode>=1). The range is between 1 and 4000Hz.

However, for handset and a person to hear, the effective range may be 150-4000Hz.

<volume> (0-3): This parameter sets the tone volume. The default value is 1. Values are the same as +CRSL.

<duration> (0-50): This parameter sets tone duration (unit of 100 ms). When this parameter is equal to 0 (default value), the duration is infinite, and the tone can be stopped by AT+WDTONE=0.

13.11 Play DTMF tone +WDTMF

13.11.1 Description :

This **specific** command allows a DTMF tone to be played on the current speaker. DTMF, volume and duration can be set. This command is only used to play a DTMF tone. To send a DTMF over the CDMA network, use the +VTS command.

13.11.2 Syntax :

Command syntax : AT+WDTMF=<mode>[,<dtmf>,<volume>,<duration>]

Response syntax: OK or ERROR

Command	Possible responses
AT+WDTMF=1,"*",2,10 <i>Note : Play a DTMF tone</i>	OK <i>Note : Done</i>
AT+WDTMF? <i>Note : Current value</i>	+WDTMF: 1,"*",2,10 <i>Note :</i>
AT+WDTMF=0 <i>Note : Stop playing</i>	OK <i>Note : Done</i>
AT+WDTMF=? <i>Note : Test command</i>	ERROR <i>Note : Done</i>

13.11.3 Defined values :

<mode>

0: Stop playing.

1: Play a DTMF tone

<dtmf>: This parameter sets the DTMF to play in {0-9,*,#,A,B,C,D} (mandatory if <mode>=1)

<volume> (0-3): This parameter sets tone gain. The values are identical to those of the +WTONE (speaker) command (mandatory if <mode>=1).

<duration> (0-50): This parameter sets the tone duration (unit of 100 ms). When this parameter is 0 (default value), the duration is infinite, and the DTMF tone can be stopped by AT+WDTMF=0.

13.12 Hardware Version +WHWV

13.12.1 Description :

This **specific** command gets the hardware version.

13.12.2 Syntax :

Command syntax : AT+WHWV

Command	Possible responses
AT+WHWV <i>Note : Request Hardware Version</i>	Hardware Version 4.14 OK <i>Note : Hardware version is 4.14</i>
AT+WHWV <i>Note : Request Hardware Version</i>	Hardware Version -.— OK <i>Note : No hardware version available</i>

13.13 Wavecom Select Voice Gain +WSVG

13.13.1 Description :

The product has 2 voice gain paths, this **specific** command allows the path to be selected.

13.13.2 Syntax :

Command syntax : AT+WSVG = <n>

Command	Possible responses
AT+WSVG=<n>	
AT+WSVG=0 <i>Note : Select Path 1 (Default)</i>	OK <i>Note : Path 1 selected</i>
AT+WSVG=1 <i>Note : Select Path 2</i>	OK <i>Note : Path 2 selected</i>
AT+WSVG=? <i>Note : Get the list of possible values</i>	+WSVG: (0-1) <i>Note : possible values 0 or 1</i>
AT+WSVG? <i>Note : Get the current value</i>	+WSVG: 1 <i>Note : Path 1 is selected</i>

13.13.3 Defined values

<n> Path

0: HANDSET (Default)

1: HEADSET

13.14 Wavecom Status Request +WSTR

13.14.1 Description :

This **specific** command returns some operation status. It can be used for ex. To check the state of the initialization sequence; the different values returned are Not started, Ongoing, Finished.

13.14.2 Syntax :

Command syntax: AT+WSTR=<status>

Response syntax: +WSTR: <status>,<value>

Command	Possible responses
AT+WSTR=<status>	+WSTR :<status>,<value>
AT+WSTR=1 <i>Note : Select the status 1 (INIT SEQUENCE)</i>	+WSTR: 1,2 OK <i>Note : Init finished</i>
AT+WSTR=2 <i>Note : Select the status 2 (NETWORK STATUS)</i>	+WSTR: 2,1 OK <i>Note : The network is available</i>
AT+WSTR=? <i>Note : Ask the list of possible values</i>	+WSTR: (1-2) <i>Note : possible values : 1, 2</i>

13.14.3 Defined values

<status> 1 Initialization sequence

<value>

0: Not started

1: On going

2: Finished

<status> 2 Network status

<value>

0: No network

1: Network available

13.15 Wavecom Ring Indicator Mode +WRIM

13.15.1 Description :

This **specific** command sets or returns the state of the Ring Indicator Mode. In pulse RI mode, an electrical pulse lasting approximately 10µs is sent on the Ring Indicator signal just before sending any unsolicited AT response in order not to lose AT responses when client tasks are in sleep state. Still in RI mode, when receiving incoming calls, electrical pulses are sent on the RI signal.

In up-down RI mode, no pulses are sent before unsolicited AT response, and up-down signals are sent when receiving an incoming call.

13.15.2 Syntax :

Command syntax: AT+WRIM=<n>

Command	Possible responses
AT+WRIM=<n>	
AT+WRIM=0 <i>Note : Select up-down RI mode</i>	OK <i>Note : up-down RI mode selected</i>
AT+WRIM=1 <i>Note : Select pulse RI mode</i>	OK <i>Note : pulse RI mode selected</i>
AT+WRIM=? <i>Note : Ask the list of possible values</i>	+WRIM: (0-1) OK <i>Note : possible values 0 or 1</i>
AT+WRIM? <i>Note : Ask the current value</i>	+WRIM: 1 OK <i>Note : current RI mode is pulse RI.</i>

13.15.3 Defined values

<n>

0: up-down RI mode

1: pulse RI mode

13.16 Wavecom 32kHz Sleep Mode +W32K

13.16.1 Description :

This **specific** command allows the 32kHz sleep mode to be enabled or disabled. When sleep mode is entered, the product uses a 32kHz internal clock during inactivity stages.

When enabled, sleep mode is active after 1 to 15 minutes.

13.16.2 Syntax :

Command syntax : AT+W32K=<mode>

Command	Possible responses
AT+W32K=1 <i>Note : Enable 32kHz sleep mode</i>	OK <i>Note : 32kHz sleep mode is enabled</i>
AT+W32K=0 <i>Note : Disable 32kHz sleep mode</i>	OK <i>Note : 32kHz sleep mode is disabled</i>

13.16.3 Defined values

<mode>

0: Disable 32kHz powerdown mode

1: Enable 32kHz powerdown mode

13.17 Wavecom Change Default Melody +WCDM

13.17.1 Description :

This **specific** command allows a manufacturer specific melody to be selected. This default melody will be played for any new incoming voice call, either on the buzzer or on the speaker. If melody 0 is selected, no melody will be played.

Note :

Selection of the player will have effect on the setting of the WCDP command.

13.17.2 Syntax :

Command syntax : AT+WCDM=<melody>,<player>

Command	Possible responses
AT+WCDM=0 <i>Note : Select no melody</i>	OK
AT+WCDM=5 <i>Note : Select melody n°5</i>	OK
AT+WCDM? <i>Note : Indicate the current melody</i>	+WCDM: 5,0 OK <i>Note : Melody n°5 is currently selected, and the buzzer is selected to play it.</i>
	RING <i>Note : An incoming call occurs, and the melody n°5 is played on the buzzer.</i>
AT+WCDM=,1 <i>Note : Select the speaker to play the melody on.</i>	OK
AT+WCDM?	+WCDM: 5,1 OK <i>Note : Now the speaker is selected to play the melody if an incoming call occurs.</i>

13.17.3 Defined values

<melody>

0: No melody (**default**)

1...10: Melody 1 to 10

<player>

0: Melody n°<melody> will be played on the buzzer for any new incoming voice call. (**default**)

- 1: Melody n°<melody> will be played on the speaker for any new incoming voice call.

13.18 Wavecom Software version +WSSW

13.18.1 Description :

This **specific** command displays some internal software reference.

13.18.2 Syntax :

Command syntax : AT+WSSW

Command	Possible responses
AT+WSSW <i>Note : Get Software version</i>	+WSSW: WQ1.6 OK <i>Note : internal software information</i>

13.19 Wavecom Custom Character Set +WCCS

13.19.1 Description :

This **specific** command allows to edit and display the custom character set tables. The "CUSTOM" mode of +CSCS command use this character set. In this mode, when the user enters a string, this string is converted into CDMA alphabet using the Custom To CDMA table. In a similar way, when the user requests a string display, the string is converted from CDMA alphabet using the CDMA To Custom table.

In edition mode, the edition session is terminated by <ctrl-Z>, or aborted by <ESC>. Only hexadecimal characters ('0'...'9', 'A'...'F') can be used. The number of characters entered must equal the edition range requested, otherwise the command will terminate with a "+CME ERROR: 3" result.

13.19.2 Syntax :

Command syntax : AT+WCCS=<mode>,<table>,<char 1>[,<char 2>]

Command	Possible responses
AT+WCCS=0,0,20,30 <i>Note : Display from character 120 to character 130 of the Custom To CDMA conversion table</i>	+WCCS: 11, 78797A2020202020097E05 OK <i>Note : 11 characters displayed</i>
AT+WCCS=1,0,115<CR> 20<ctrl-Z> <i>Note : Edit character 115 of the Custom To CDMA conversion table</i>	OK <i>Note : Edition successful</i>
AT+WCCS=1,1,0,4<CR> 40A324A5E8<ctrl-Z> <i>Note : Edit the 5 first characters of the CDMA To Custom conversion table</i>	OK <i>Note : Edition successful</i>
AT+WCCS=1,1,200	+CME ERROR: 3

<i>Note : Edit character 200 of CDMA To Custom conversion table</i>	<i>Note : Index out of range</i>
---	----------------------------------

13.19.3 Defined values

<mode>

- 0: Display the table
- 1: Edit the table

<table>

- 0: Custom To CDMA conversion table
- 1: CDMA To Custom conversion table

<char 1>, <char 2> Character range to display/edit. If only <char 1> is present, only this char is displayed/edited.

- 0...127: for CDMA To Custom conversion table
- 0...255: for Custom To CDMA conversion table

13.20 CPHS command +CPHS

13.20.1 Description :

This **specific** command is used to activate, deactivate or interrogate a CPHS feature (e.g. Voice Mail Indicator). Upon performing interrogation (mode = 2), the selected FctId CPHS feature is automatically enabled (status = 1).

Note :

This command may answer +CME ERROR: 3 if the CPHS feature is disabled.

13.20.2 Syntax

Command syntax : AT+CPHS=<Mode>,<FctId>

Command	Possible responses
AT+CPHS=<Mode>,<FctId>	OK
AT+CPHS?	+CPHS: <Status>,<FctId1><CR<LF> OK
AT+CPHS=? <i>Note: display the range of values</i>	+CPHS: (0-2),(1-1) OK

13.20.3 Defined values:

<Mode>

- 0: Deactivate a CPHS feature
- 1: Activate a CPHS feature
- 2: Interrogate a CPHS status

<FctId>

1: Voice Mail Indicator

<Status>

- 0: CPHS feature disabled
- 1: CPHS feature enabled

13.21 Unsolicited result : Wavecom Voice Mail Indicator +WVMI

13.21.1 Description :

This unsolicited indication gives the status of the Voicemail Inbox.

Syntax : +WVMI: <Lineld>,<Num>

Option :

<Lineld>

1: Line 1

<Num>

The number of messages waiting in the inbox.

- 0: No message waiting.
- 1: One message is waiting
- 3: Three messages are waiting

Command	Possible responses
	+WVMI: 1,2 OK Note: 2 messages are in your voicemail box.

13.21.2 Example

```

AT+CPHS?                               Interrogate the status of CPHS functionality
+CPHS: 1,0                               The voice mail indicator functionality is deactivated
OK

AT+CPHS=3,1                               Syntax error
+CME ERROR: 3

AT+CPHS=1,1                               Activate the voice mail indicator functionality
OK

AT+CPHS?                               Interrogate the status of CPHS functionality
+CPHS: 1,1                               The voice mail indicator functionality is activated
OK

**** the message box contains 1 message ****
+WVMI: 1,1                               A message is waiting on Line 1

AT+CPHS=2,1                               Interrogate the status of voice mail indicator
                                           functionality
OK
    
```

+WVMI: 1,1

a message is waiting on LINE 1

AT+CPHS?
+CPHS: 1,1
OK

*Interrogate the status of CPHS functionality
The voice mail indicator functionality is activated*

13.22 Wavecom Change Default Player +WCDP

13.22.1 Description

This **specific** command allows the default melody player to be selected.

Note :

Selection of the player will have effect on the setting of the WCDM command.

13.22.2 Syntax

Command syntax AT+WCDP = <player>

Command	Possible responses
AT+WCDP=?	+WCDP : (0-1) OK
AT+WCDP=0 <i>Select the speaker.</i>	OK
AT+WCDP?	+WCDP: 0 OK

13.22.3 Defined values :

<player>

0: Speaker

1: Buzzer

13.23 Wavecom Reset +WRST

13.23.1 Description

This **specific** command allows to reset the module after the time specified by the second parameter.

13.23.2 Syntax

Command syntax : AT+WRST =<Mode>,<Delay>

Response syntax : +WRST: <Mode>,<Delay>,<RemainTime>

Command	Possible responses
---------	--------------------

AT+WRST=?	ERROR
AT+WRST=0 <i>Disable timer</i>	OK
AT+WRST=1,"001:03" <i>Enable timer and put delay at 1 hour 3 minutes</i>	OK
AT+WRST?	+WRST: 1,"001:03","001:01" OK <i>Note: Timer activated to reset after 1 hour and 3 minutes. Actually 1 hour and 1 minute remaining before next reset.</i>

13.23.3 Defined values :

<val1>	0: timer reset is disabled 1: timer reset is enabled
<Delay>	specify the time for reset "000:00"- "199:59"
<RemainTime>	time before next reset "000:00"- "199:59"

13.24 Set Standard Tone +WSST

13.24.1 Description :

This command allows to set/get the sound level of the Standard Tones.

13.24.2 Syntax :

Command syntax : AT+WSST=<sound level>

Command	Possible responses
AT+WSST=0 <i>Note : Set volume to Max.</i>	OK
AT+WSST=4 <i>Note : Set the volume to Min (muted)</i>	OK <i>Note : Standard Tones are muted</i>
AT+WSST? <i>Note : get current standard tones sound level</i>	+WSST: 4 OK <i>Note : Current level is 4</i>
AT+WSST=?	+WSST: (0-4)

13.24.3 Defined values :

<sound level>

- 0 Max volume (default)
- 4 Min volume (muted)

13.25 Set voice privacy level +WPRV

13.25.1 Description :

This command requests the CDMA voice privacy level. CDMA voice privacy is an optional feature of CDMA networks. Therefore, voice privacy will only become enabled during a voice call if the base station supports voice privacy; otherwise this feature is unavailable on your CDMA carrier. Thus, this command enables a request from the module to the base station for voice privacy. If voice privacy is activated by the base station, the unsolicited command +WPRV:1 will appear indicating the long code PN mask for the traffic channel has been scrambled by the base station (also see section 19.23). This command may be called before or during a voice call.

13.25.2 Syntax :

Command syntax : AT+WPRV=<voice privacy level>

Command	Possible responses
AT+WPRV=0 <i>Note : Set to normal voice call</i>	OK
AT+WPRV=1 <i>Note : Request a secure voice call</i>	OK
ATD18005551212;	OK +WORG:18005551212 +WCNT:3 +WPRV:1 <i>Note: Voice Privacy is now ON</i>

<voice privacy level>

- 0 Normal (default)
- 1 Private

13.26 Security PIN +WPIN

13.26.1 Description :

This command sets, enables, or disables the security PIN. When this PIN is enabled, only ATD (emergency numbers only), ATH, and +WPIN commands will be accepted.

13.26.2 Syntax :

Command syntax : AT+WPIN=<mode>,<current val>,<new val>

Command	Possible responses
AT+WPIN=0,1111 <i>Note : Disable the security PIN</i> AT+WPIN? <i>Note : Query the current state</i>	OK +WPIN: 0 OK <i>Note: PIN disabled</i>
AT+WPIN=1,2222 <i>Note : Enable the security PIN</i>	+CME ERROR: 44 <i>Note: Invalid PIN</i>
AT+WPIN=1,1111 <i>Note : Enable the security PIN</i>	OK
AT+WPIN? <i>Note : Query the current state</i>	+WPIN: 1 OK <i>Note: PIN enabled</i>
AT+WPIN=2,1111,5555 <i>Note : Change the security PIN code from 1111 to 5555</i>	OK
AT+CSQ?	+CME ERROR: 44 <i>Note: Module is locked, only ATD & +WPIN commands will be accepted</i>
ATD8585551212;	+CME ERROR: 44 <i>Note: Module is locked, only emergency numbers accepted using ATD.</i>
AT+WPIN=0,5555 <i>Note : Disable the security PIN</i>	OK

13.26.3 Defined values :

<mode>

- 0 Disable PIN
- 1 Enable PIN
- 2 Change PIN

<current val> & <new val>

0000 - 9999

13.27 Request PRL Version information +WPRL

13.27.1 Description :

This command requests PRL Version information for the currently selected NAM. Note that this command only works for software which includes PRL information in NV. For other builds, this command will return +CME ERROR:4

13.27.2 Syntax :

Command syntax : AT+WPRL?

Command	Possible responses
AT+WPRL? <i>Note : Request current NAM's PRL version</i>	+WPRL: 1024 OK
AT+WPRL? <i>Note : Request current NAM's PRL version</i>	+CME ERROR: 41 <i>Note: PRL request invalid</i>

14 SIM TOOLKIT

14.1 Overview of SIM Application Toolkit

14.1.1 Summary

SIM Toolkit, also known as .SIM Application Toolkit, introduces new functionalities, which open the way to a broad range of value added services. The principle is to allow service providers to develop new applications (e.g., for banking, travel, ticket booking, etc.) for subscribers and to download them into the SIM.

This solution allows new services to be accessible to the user by adding new SIM-based applications without modifying the handset.

14.1.2 Functionality

SIM Toolkit refers to the functionalities described in the GSM Technical specification 11.14.

It introduces about twenty-five new commands for the SIM. Three classes of Toolkit functionalities have been defined, with class 1 offering a subset of commands and class 3 offering the full range of commands (See *table 1 in APPENDIX B*).

The SIM Application Toolkit supports:

- ☞ profile download,
- ☞ proactive SIM,
- ☞ data download into SIM.
- ☞ menu selection,
- ☞ call control by SIM.

14.1.3 Profile download

The Profile Download instruction is sent by the customer application to the SIM as part of the initialization. It is used to indicate which SIM Application Toolkit features the customer application supports.

The AT command used for this operation is **+STSF** (*SIM Toolkit Set Facilities*).

14.1.4 Proactive SIM

A proactive SIM provides a mechanism whereby the SIM can ask the customer application to perform certain actions.

These actions include:

- display menu,
- display given text,
- get user input,
- send a short message,
- play the requested tone,
- set up a call,
- provide location information.

This mechanism allows SIM applications to generate powerful menu-driven sequences on the customer application and to use services available in the network.

The commands used for this operation are:

- +STIN** (*SIM Toolkit Indication*),
- +STGI** (*SIM Toolkit Get Information*),
- +STGR** (*SIM Toolkit Give Response*).

14.1.5 Data Download to SIM

Data downloading to the SIM allows (*SMS, phonebook.*) data or programs (*Java applets*) received by SMS or by Cell Broadcast to be transferred directly to the SIM Application.

This feature does not need any AT command. It is transparent to the customer application.

14.1.6 Menu Selection

A set of menu items is supplied by the SIM Application ToolKit. The menu selection command can then be used to inform the SIM Application which menu item is selected.

The commands used for this operation are **+STIN**, **+STGI** and **+STGR** .

14.1.7 Call control by SIM

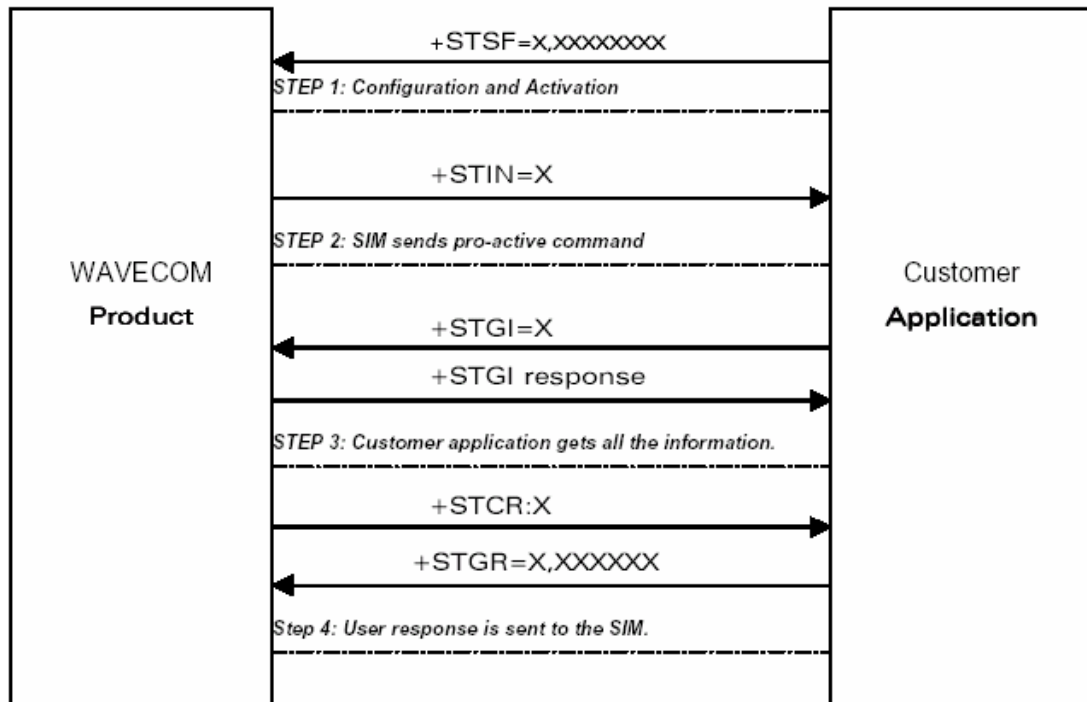
The call control mechanism allows the SIM to check all dialed numbers, supplementary service control strings and USSD strings before connecting to the network. This gives the SIM the ability to allow, bar or modify the string before the operation starts.

The commands used for this operation are :

- +STCR** (*SIM Toolkit Control Response*),
- +STGR** (*SIM Toolkit Give Response*).

14.2 Messages exchanged during a SIM ToolKit operation.

The following scheme shows the SIM Toolkit commands and unsolicited results that are exchanged.



On the first step the customer application informs the **WAVECOM** product which facilities are supported. This operation is performed with the **+STSF** (*SIM Toolkit Set Facilities*) command, which also allows to activate or deactivate the SIM Toolkit functionality.

On the second step an unsolicited result **+STIN** (*SIM Toolkit indication*) is sent by the product, in order to indicate the customer application which command type the SIM Application Toolkit is running on the SIM card. The last SIM Toolkit indication can be requested by the **+STIN?** command.

On the third step the customer application uses the **+STGI** (*SIM Toolkit Get Information*) command to get all the information about the SIM Toolkit command, given by **+STIN**.

On the fourth step the customer application uses the **+STGR** (*SIM Toolkit Give Response*) to send its response (*if any*) to the SIM Toolkit Application. The **+STCR** (*SIM Toolkit Control response*) indication is an unsolicited result sent by the SIM when Call control functionality is activated and before the customer application has performed any outgoing call, SMS, SS, or USSD.

14.3 SIM TOOLKIT COMMANDS

14.3.1 SIM ToolKit Set Facilities (+STSF)

14.3.1.1 Description

This command allows SIM ToolKit facilities to be activated, deactivated or configured.

14.3.1.2 Syntax

Command syntax :

+STSF=<mode>[,<config>][,<Timeout>][,<AutoResponse>]

Command	Possible responses
+STSF=<Mode>[,<Config>][,<Timeout>][,<AutoResponse>]	OK +CME ERROR: <err>
+STSF?	+STSF: <Mode>,<Config>,<Timeout>,<Autoresponse>

14.3.1.3 Defined values

<mode>

- 0: Deactivates the SIM Toolkit functionalities.
- 1: Activates the SIM Toolkit functionalities.
- 2: Configures the SIM Toolkit functionalities.

<Config>

(160060C01F . 5FFFFFFF7F) (hex format)

<Timeout>

1-255: Timeout for user responses (multiple of 10 seconds).

<Autoresponse>

- 0: Automatic response is not activated
- 1: Automatic response is activated

The activation or deactivation of the SIM Toolkit functionalities requires the use of the +CFUN (Set phone functionality) command to reset the product (this operation is not necessary if PIN is not entered yet).

The <Config> parameter gives the coding of the TERMINAL PROFILE, precisely the list of SIM Application Toolkit facilities that are supported by the customer application.

The <Timeout> parameter (multiple of 10 seconds) sets the maximum time the user has for reacting (to select an item, to input a text, etc).

When the <Autoresponse> is activated, the +STIN indication for Play Tone (5), Refresh (7), Send SS (8), Send SMS (9) or Send USSD (10) is automatically followed by the corresponding +STGI response.

Note:

Some bits are related to the product only and not to the customer application. The product automatically sets these bits to either 0 or 1 whatever the user enters with the +STSF command. Those values are given in Appendix C.

Each facility is coded on 1 bit:

- bit = 1: facility is supported by the customer application.
- bit = 0: facility is not supported by the customer application.

Only the first five bytes of the TERMINAL PROFILE (Class 2) can be configured, the other are set to 0. (See *structure of TERMINAL PROFILE in APPENDIX C*)

14.3.1.4 Error codes

+CME ERROR: 3 Operation not allowed . This error is returned when a wrong parameter is entered.

14.3.1.5 Example

AT+CMEE=1	Enable the reporting of mobile equipment errors
OK	
AT+WIND=15	Set Wavecom indications
OK	
AT+CPAS	Query ME Status
+CPAS: 0	ME is ready.
OK	
AT+STSF=?	Test command SIM ToolKit Set Facilities
+STSF: (0-2), (160060C01F . 5FFFFFFF7F),(1-255)	
OK	
AT+STSF?	
+STSF: 0,"160060C000",3	No activation of SIM ToolKit functionality
OK	
AT+STSF=2,"5FFFFFFF7F"	Set all SIM ToolKit facilities (class 3).
OK	
AT+STSF=3 Syntax Error	
+CME ERROR: 3	
AT+STSF=1	Activation of SIM ToolKit functionality
OK	
AT+CFUN=1	Reboot Software.
OK	
AT+CPIN?	Is the ME requiring a password?
+CPIN: SIM PIN	Yes, SIM PIN required
AT+CPIN=0000	
OK PIN Ok	
+WIND: 4	Init phase is complete
AT+STSF?	
+STSF: 1,"5FFFFFFF7F",3	SIM ToolKit functionality activated with all facilities
OK	

14.3.2 SIM ToolKit Indication (+STIN)

14.3.2.1 Unsolicited result

In order to allow the customer application to identify the pro-active command sent via SIM ToolKit, a mechanism of unsolicited SIM ToolKit indications (+STIN) is implemented.

Syntax : +STIN: <CmdType>

Option : <CmdType>

- 0: Indicates that a .Setup Menu. pro-active command has been sent from the SIM.
- 1: Indicates that a .Display Text. pro-active command has been sent from the SIM.
- 2: Indicates that a .Get Inkey. pro-active command has been sent from the SIM.
- 3: Indicates that a .Get Input. pro-active command has been sent from the SIM.
- 4: Indicates that a .Setup Call. pro-active command has been sent from the SIM.
- 5: Indicates that a .Play Tone. pro-active command has been sent from the SIM. (*)
- 6: Indicates that a .Sel Item. pro-active command has been sent from the SIM.
- 7: Indicates that a .Refresh. pro-active command has been sent from the SIM. (*)
- 9: Indicates that a .Send SMS. pro-active command has been sent from the SIM. (*)
- 11 : Indicates that a SETUP EVENT LIST. pro-active command has been sent from the SIM.
- 98 : Indicates the timeout when no response from user.
- 99: Indicates that a .End Session. has been sent from the SIM.

(*) if the automatic response parameter is activated, this indication is followed by the corresponding +STGI response.

14.3.2.2 Last SIM toolkit indication

The last SIM toolkit indication sent by the SIM can be requested by the **AT+STIN?** command. This command is only usable between the sending of the STIN indication by the SIM (step 2 : see section 16.2) and the response of the user with the +STGI command (step 3).

Command syntax : **+STIN?**

Command	Possible responses
+STIN? Note : Ask for the last SIM toolkit indication sent by the SIM	+STIN: 0 OK Note : the last SIM toolkit indication was a Setup Menu
+STGI=0	Note : Display the SIM toolkit application menu
+STIN? Note : Ask for the last SIM toolkit indication sent by the SIM	+CME ERROR: 4 Note : operation not supported, the +STGI command has been already used

14.3.3 SIM ToolKit Get Information (+STGI)

14.3.3.1 Description

This command allows to get the information (text to display, Menu information, priorities.) of a pro-active command sent from the SIM. The information is returned only after receiving a SIM Toolkit indication (+STIN).

14.3.3.2 16.3.3.2 Syntax

Command syntax : +STGI=<CmdType>

Command	Possible responses
+STGI=<CmdType>	See Table 1 +CME ERROR: <err>
+STGI=?	+STGI: (0-11) OK

Cmd Type	Description	Possible responses
0	Get information about 'Setup Menu' pro-active command.	+STGI: <Alpha Identifier menu> +STGI: <Id1>,<NblItems>,<Alpha Id1 Label>,<Help Info>[,<NextActionId>]<CR><LF> +STGI: <Id2>,<NblItems>,<Alpha Id2 Label>,<Help Info>[,<NextActionId>]<CR><LF>[.] No action expected from SIM.
1	Get information about 'Display text' pro-active command.	+STGI: <Prior>,<Text>,<ClearMode> No action expected from SIM.
2	Get information about 'Get Inkey' pro-active command.	+STGI: <Format>,<HelpInfo>[,<TextInfo>] SIM expects key pressed (+STGR).
3	Get information about 'Get Input' pro-active command.	+STGI: <Format>,<EchoMode>,<SizeMin>,<SizeMax>,<HelpInfo>[,<TextInfo>] SIM expects key input (+STGR).
4	Get information about 'Setup call' pro-active command.	+STGI: <Type>,<CalledNb>,<SubAddress>,<Class> SIM expects user authorization (+STGR).
5	Get information about 'Play Tone' pro-active command.	+STGI: <ToneType>[,<TimeUnit>,<TimeInterval>,<TextInfo>] No action.
6	Get information about 'Sel Item' pro-active command.	+STGI: <DefaultItem>,<Alpha Identifier menu><CR><LF> +STGI: <Id1>,<NblItems>,<Alpha Id1 Label>,<Help Info>[,<NextActionId>]<CR><LF> +STGI: <Id2>,<NblItems>,<Alpha Id2 Label>,<Help Info>[,<NextActionId>]<CR><LF>[.] SIM expects an item choice (+STGR).
7	Get information about 'Refresh' pro-active command.	+STGI: <RefreshType> No action (Refresh done automatically by product).

8	Get information about 'Send SS' pro-active command.	Currently not supported
9	Get information about 'Send SMS' pro-active command.	+STGI: <TextInfo> No action (Send SMS done automatically by product).
10	Get information about 'Send USSD' pro-active command.	Currently not supported
11	Get information about 'SETUP EVENT LIST' pro-active command.	+STGI: <Evt>

14.3.3.3 Defined values

14.3.3.3.1 Values when CmdType=0 (Setup menu)

<Alpha Identifier menu>	Alpha identifier of the main menu.
<Idx> (1 -255)	Menu item Identifier.
<NbItems> (1 -255)	Number of items in the main menu.
<Alpha Idx Label>	Alpha identifier label of items in ASCII format.
<HelpInfo>	
0:	No help information available.
1:	Help information available.
<NextActionId>	Contains a pro-active command identifier. (see the table in APPENDIX D)

Compared to other commands the customer application can always get information about setup menu after having received the +STIN:0 indication.

14.3.3.3.2 Values when CmdType=1 (Display text)

<Prior>	
0:	Normal priority of display.
1:	High priority of display.
<Text>	Text to display in ASCII format.
<ClearMode>	
0:	Clear message after a delay (3 seconds)
1:	Wait for user to clear message.

14.3.3.3.3 Values when CmdType=2 (Get Inkey)

<Format>	
0:	Digit (0-9, *, #, and +)
1:	SMS alphabet defaults.
2:	UCS2
3	Yes/No
<HelpInfo>	
0:	No help information available.
1:	Help information available.
<TextInfo>	Text information in ASCII format.

14.3.3.3.4 Values when CmdType=3 (Get Input)

<Format>

- 0: Digit (0-9, *, #, and +)
- 1: SMS alphabet defaults.
- 2: UCS2
- 3: Unpacked format.
- 4: Packed format.

<EchoMode>

- 0: Echo off.
- 1: Echo on.

<SizeMin> (1 -255) Minimum length of input.

<SizeMax> (1 -255) Maximum length of input.

<HelpInfo>

- 0: No help information available.
- 1: Help information available.

<TextInfo> Text information in ASCII format.

14.3.3.3.5 Values when CmdType=4 (Setup Call)

<Type>

- 0: Set up call but only if not currently busy on another call.
- 1: Set up call, putting all other calls (if any) on hold.
- 2: Set up call, disconnecting all other calls (if any).

<CalledNb> Called party number in ASCII format.

<SubAddress> Called party sub-address in ASCII format.

<Class>

- 0: Voice call.
- 1: Data call.
- 2: Fax call

14.3.3.3.6 Values when CmdType=5 (Play tone)

<ToneType>

- 0: Tone Dial.
- 1: Tone Busy.
- 2: Tone Congestion.
- 3: Tone Radio ack
- 4: Tone Dropped.
- 5: Tone Error.
- 6: Tone Call waiting.
- 7: Tone Ringing.
- 8: Tone General beep.
- 9: Tone Positive beep.
- 10: Tone Negative beep.

<TimeUnit>

- 0: Time unit used is minutes.
- 1: Time unit used is seconds.
- 2: Time unit used is tenths of seconds.

<TimeInterval> (1 -255) Time required expressed in units.

<TextInfo> Text information in ASCII format.

14.3.3.3.7 Values when CmdType=6 (Sel Item)

<DefaultItem> (1 -255)	Default Item Identifier.
<Alpha Identifier menu>	Alpha identifier of the main menu.
<Idx> (1 -255)	Identifier items.
<NbItems> (1 -255)	Number of items in the menu.
<Alpha Idx Label>	Alpha identifier label of items in ASCII format.
<HelpInfo>	
0:	No help information available.
1:	Help information available.
<NextActionId>	Contains a pro-active command identifier. (see the table in APPENDIX D)

14.3.3.3.8 Values when CmdType=7 (Refresh)

<RefreshType>	
0:	SIM initialization and full file change notification.
1	File change notification.
2	SIM initialization and file change notification.
3	SIM initialization.
4	SIM reset.

14.3.3.3.9 Values when CmdType=8 (Send SS)

<TextInfo>	Text information in ASCII format.
------------	-----------------------------------

14.3.3.3.10 Values when CmdType=9 (Send SMS)

<TextInfo>	Text information in ASCII format.
------------	-----------------------------------

14.3.3.3.11 Values when CmdType=10 (Send USSD)

<TextInfo>	Text information in ASCII format.
------------	-----------------------------------

14.3.3.3.12 Values when CmdType=11 (Setup Event List)

<Evt>	
1:	Reporting asked for an .Idle Screen. event.
2:	Reporting asked for an .User Activity. event.
3:	Reporting asked for .Idle Screen. and .User Activity. events.
4:	Cancellation of reporting event.

Rem : For the UCS2 format texts are displayed in Hexa Ascii format. Example :
When the SIM sends a Text String containing 0x00 0x41 the text displayed is .0041..

14.3.3.4 Error codes

+ CME ERROR: 3	Operation not allowed . This error is returned when a wrong parameter is detected.
----------------	--

- +CME ERROR: 4 Operation not supported . This error is returned when the user wants to get information about a SIM ToolKit pro-active command (with SIM ToolKit functionality not activated.)
- +CME ERROR: 518 SIM ToolKit indication not received . This error is returned when the SIM Toolkit indication (+STIN) has not been received.

14.3.3.5 Example

Initially, all facilities are activated, the PIN is not required and SIM toolkit functionality is activated.

```

AT+CMEE=1                    Enable the reporting of mobile equipment errors
OK
AT+WIND=15                   Set Wavecom indications
OK
AT+STSF?
+STSF: 1,"5FFFFFFF7F",3        SIM ToolKit functionality activated with all facilities.
OK
+STIN: 0                      The main menu has been sent from the SIM.
AT+STIN?
+STIN: 0
OK
AT+STGI=0                    Get information about the main menu
+STGI: "SIM TOOLKIT MAIN MENU" Main menu contains 3 items.
+STGI: 1,3,"BANK",0
+STGI: 2,3,"QUIZ",0
+STGI: 3,3,"WEATHER",0
OK
AT+STIN?
+CME ERROR: 4
    
```

14.3.4 Unsolicited Result : SIM ToolKit Control Response (+STCR)

When the customer application makes an outgoing call or an outgoing SMS and if the call control facility is activated, CALL CONTROL and SMS CONTROL responses can be identified. This is also applicable to SS calls.

Syntax : +STCR: <Result>[,<Number>,<MODestAddr>,<TextInfo>]

Option :

<Result>

- 0: Control response not allowed.
- 1: Control response with modification.
- <Number> Called number, Service Center Address or SS String in ASCII format.
- <MODestAddr> MO destination address in ASCII format.
- <TextInfo> Text information in ASCII format.

14.3.5 SIM ToolKit Give Response (+STGR)

14.3.5.1 Description

This command allows the application/user to select an item in the main menu, or to answer the following proactive commands :

- GET INKEY Key pressed by the user.
- GET INPUT Message entered by the user.
- SELECT ITEM Selected item.
- SETUP CALL User confirmation.
- DISPLAY TEXT User confirmation to clear the message.

It is also possible to terminate the current proactive command session by sending a Terminal Response to the SIM, with the following parameters :

- BACKWARD MOVE Process a backward move
- BEYOND CAPABILITIES Command beyond ME capabilities
- UNABLE TO PROCESS ME is currently unable to process command
- NO RESPONSE No response from the user
- END SESSION User abort.

14.3.5.2 Syntax

Command syntax : +STGR=<CmdType>[,<Result>,<Data>]

Command	Possible responses
+STGR=<CmdType>[,<Result>,<Data>]	OK +CME ERROR: <err>
For Get Input with <Result>=1: +STGR=3,1<CR> <Data><Ctrl Z>	OK +CME ERROR: <err>
For GetInkey with <Result>=1 +STGR=2,1<CR> <Data><Ctrl Z>	OK +CME ERROR: <err>
+STGR=?	OK

14.3.5.3 Defined values

<CmdType>

- 0: Item selection in the main menu.
- 1: User confirmation to clear a .Disp Text. .
- 2: Response for a 'Get Inkey' .
- 3: Response for a 'Get Input' .
- 4: Response for a 'Setup call' .
- 6: Response for a 'Sel Item' .
- 95 Backward move
- 96 Command beyond ME capabilities
- 97 ME currently unable to process command
- 98 No response from the user.
- 99 User abort.

Values when CmdType=0 (Select an item from the main menu)

<Result>

- 1: Item selected by the user.
 - 2: Help information required by user.
- <Data> Contains the item identifier of the item selected by the user.

Values when CmdType=1 (Confirm the display text clearing)

No values.

Values when CmdType=2 (Get Inkey)

<Result>

- 0: Session ended by user.
 - 1: Response given by the user.
 - 2: Help information required by user.
- <Data> Contains the key pressed by the user.

Values when CmdType=3 (Get Input)

<Result>

- 0: Session ended by user.
 - 1: Response given by the user.
 - 2: Help information required by user.
- <Data> Contains the string of characters entered by the user.

Note:

For Inputs in UCS2 format, the data are entered in ASCII format. Example : For .8000410042FFFF. entered, the SIM receives 0x00 0x41 0x00 0x42 with UCS2 DCS. (See the Appendix E about the different UCS2 syntaxes).

Values when CmdType=4 (Setup call)

<Result>

- 0: User refuses the call.
- 1: User accepts call.

Values when CmdType=6 (Select Item)

<Result>

- 0: Session terminated by the user
 - 1: Item selected by the user
 - 2: Help information required by the user
 - 3: Return to the back item
- <Data> Contains the item identifier selected by the user

Sending a Terminal Response to the SIM :

Values when CmdType=95 (Backward Move)

Values when CmdType=96 (Command beyond ME capabilities)

Values when CmdType=97 (ME currently unable to process command)

Values when CmdType=98 (No response from the user)

Values when CmdType=99 (SIM Toolkit Session aborting by the user)

No values.

It is possible to send a Terminal Response after the +STIN indication, or after the +STGI command

Note :

For the SETUP MENU Proactive Command, it is only possible to send a Terminal Response after the +STIN: 0 indication, not after a +STGI=0 request. All of the Terminal Responses are not possible with all of the Proactive Commands. Compatibility between available Terminal Responses and Proactive Commands is given in Appendix B, Table 2. If a Terminal Response is attempted during a incompatible Proactive Command session, a **+CME ERROR: 3** will be returned.

14.3.5.4 Possible error codes

- + CME ERROR: 3 Operation not allowed . This error is returned when a wrong parameter is detected.
- +CME ERROR: 4 Operation not supported . This error is returned when the user gives a response with SIM ToolKit functionality not activated. Or if the SIM Toolkit indication (+STIN) has not been received.

14.3.5.5 Example

Initially, all facilities are activated, the PIN is not required and the SIM toolkit

functionality is activated.

```

+STIN: 0           The main menu has been sent from the SIM.
AT+STGI=0         Get information about the main menu
+STGI: 1,3,"BANK",0   The main menu contains 3 items.
+STGI: 2,3,"QUIZ",0
+STGI: 3,3,"WEATHER",0
OK
AT+STGR=0,1,1     The item 2 of the main menu has been selected.
OK
+STIN: 6           The Sel item menu has been sent from the SIM.
AT+STGI=6         Get information about the BANK menu
+STGI: 1,"BANK".   The BANK menu contains two items.
+STGI: 1,2,"PERSONAL ACCOUNT ENQUIRY",1
+STGI: 2,2,"NEWS",0
OK
AT+STGR=6,1,1     Select Item 1.
OK
+STIN: 3           User request to enter Password sent.
AT+STGI=3         Get information about this request.
+STGI: 0,0,4,4,0,"Enter Account Password:"
OK
AT+STGR=3,1<CR>   The user enters the Password.
>0000<Ctrl Z>
OK
+STIN:1           A text info has been sent from the SIM.
AT+STGI=1         Get information about this text.
+STGI: 0,"Password correct, please wait for response",0
OK
+STIN: 9           SIM requests a bank account update from bank server via the network (SEND SMS)
AT+STGI=9         Get all information about the SEND SMS
+STGI: "Send account balance of user, authorization ok"
OK

***** After a short period of time. *****
+STIN: 5           Transaction is complete: BEEP
+STGI=5           Get information about the Tone
+STGI: 9,1,1
+STIN: 1           Display text indication
AT+STGI=1
+STGI: 0,"Your account balance is 1000 $",0
OK

```

15 Provisioning AT commands

15.1 Service Programming Code +WSPC

15.1.1 Description :

This command allows for entry of the service programming code (either MSL or OTKSL). Upon successful entry of this code, all other service provisioning AT commands may be used. If this code is not properly entered prior to attempting other provisioning AT commands, all provisioning commands will return **ERROR**. If the OTKSL is used to enter provisioning mode, only +WIMI, +WSID, +WAOC, and +WCMT commands will be allowed; other commands will return **ERROR**.

15.1.2 Syntax :

Command syntax : AT+WSPC=<code>

Command	Possible responses
AT+WSPC?	ERROR
<i>Note : Service programming code request</i>	<i>Note : Invalid request</i>
AT+WSPC=?	ERROR
	<i>Note : Invalid request</i>
AT+WSPC=111111	ERROR
<i>Note : Enter service programming code 111111</i>	<i>Note : Code invalid</i>
AT+WSPC=000000	OK
<i>Note : Enter service programming code 000000</i>	<i>Note : Code valid</i>

15.2 Mobile Directory Number +WMDN

15.2.1 Description :

This command is used to enter a new mobile directory number. Valid numbers are between 10 and 15 digits in length. For support of Wireless Number Portability, changes to the MDN will **ALWAYS** update the IMSI_M. Changes to the MDN will automatically update the Access Overload Class values unless specifically modified using +WAOC command.

15.2.2 Syntax :

Command syntax : AT+WMDN=<number>

Command	Possible responses
AT+WMDN? <i>Note : Get current mobile directory number</i>	+WMDN: 8581111111 OK
AT+WMDN=8585551212 <i>Note : Set mobile directory number to 8585551212</i>	OK

15.3 Set IMSI_M +WIMI

15.3.1 Description :

This command is used to set the IMSI_M. Valid IMSI_M is 15 digits in length. For support of Wireless Number Portability, changes to the IMSI_M will **NOT** update the MDN. Changes to the IMSI_M will automatically update the Access Overload Class values unless specifically modified using +WAOC command.

15.3.2 Syntax :

Command syntax : AT+WIMI=<number>

Command	Possible responses
AT+WIMI? <i>Note : Get current IMSI</i>	+WIMI: 310008581111111 OK
AT+WIMI=310008585551212 <i>Note : Set IMSI_M to 310008585551212</i>	OK

15.4 SID and NID +WSID

15.4.1 Description :

This command is used to set the home SID and NID for 800Mhz CDMA operation only.

15.4.2 Syntax :

Command syntax : AT+ WSID=<SID number>,<NID number>

Command	Possible responses
AT+WSID? <i>Note : Get current SID and NID</i>	+WSID: 45, 84 OK <i>Note: Current Home SID is 45 and NID is 84</i>
AT+WSID=4145, 2102 <i>Note : Set SID to 4145 and NID to 2102</i>	OK

15.5 Access Overload Class +WAOC

15.5.1 Description :

This command is used to set the Access Overload Class.

15.5.2 Syntax :

Command syntax : AT+WAOC=<number>

Command	Possible responses
AT+WAOC? <i>Note: Get current Access Overload Class</i>	+WAOC: 5 OK
AT+WAOC=7 <i>Note: Set Access Overload Class to 7</i>	OK

15.6 Slot Cycle Index +WSCI

15.6.1 Description :

This command is used to set the slot cycle index.

15.6.2 Syntax :

Command syntax : AT+WSCI=<number>

Command	Possible responses
AT+WSCI? <i>Note : Read the current slot cycle index</i>	+WSCI: 2 OK
AT+WSCI=1 <i>Note : Set the slot cycle index</i>	OK

15.7 Primary Browser Gateway +WBGP

15.7.1 Description :

This command is used to set the primary browser gateway IP address (IPv4). If a browser is not natively supported by the module, this command will return ERROR.

15.7.2 Syntax :

Command syntax : AT+WBGP=<num>,<num>,<num>,<num>

Command	Possible responses
AT+WBGP? <i>Note : Get current gateway</i>	+WBGP: 127,0,0,1 OK
AT+WBGP=255,255,255,0 <i>Note : Set primary gateway to 255.255.255.0</i>	OK

15.7.3 Defined values :

<num>

0-255

15.8 Secondary Browser Gateway +WBGS

15.8.1 Description :

This command is used to set the secondary browser gateway IP address (IPv4). If a browser is not natively supported by the module, this command will return ERROR.

15.8.2 Syntax :

Command syntax : AT+WBGS=< num >,< num >,< num >,< num >

Command	Possible responses
AT+WBGS? <i>Note : Get current primary gateway</i>	+WBGS: 127,0,0,1 OK
AT+WBGS=255,21,255,0 <i>Note : Set secondary gateway to 255.21.255.0</i>	OK

15.8.3 Defined values :

<num>

0-255

15.9 Packet Dial String +WPDS

15.9.1 Description :

This command is used to set the packet dial string.

15.9.2 Syntax :

Command syntax : AT+WPDS=<number>

Command	Possible responses
AT+WPDS? <i>Note : Get current Packet Dial String</i>	+WPDS: "#777" OK <i>Note: Current Packet Dial String is #777</i>
AT+WPDS="#999" <i>Note : Set the Packet Dial String to #999</i>	OK

15.10 Primary CDMA Channels +WPCC

15.10.1 Description :

This command is used to set the primary CDMA channels for 800Mhz CDMA operation only. Values entered must be valid CDMA 800Mhz Channel numbers.

15.10.2 Syntax :

Command syntax : AT+WPCC=<channel a number>,<channel b number>

Command	Possible responses
AT+WPCC? <i>Note : Get current primary CDMA channels</i>	+WPCC: 283,384 OK
AT+WPCC=211,432 <i>Note : Set the primary CDMA channels</i>	OK

15.11 Secondary CDMA Channels +WSCC

15.11.1 Description :

This command is used to set the secondary CDMA channels for 800Mhz CDMA operation only. Values entered must be valid CDMA 800Mhz Channel numbers.

15.11.2 Syntax :

Command syntax : AT+WSCC=<channel a number>,<channel b number>

Command	Possible responses
AT+WSCC? <i>Note : Get current secondary CDMA channels</i>	+WPCC: 691,777 OK
AT+WSCC=511,632 <i>Note : Set the secondary CDMA channels</i>	OK

15.12 Service Option Management +WSOM

15.12.1 Description :

This command is used to manage Service Options for EVRC. It will allow the user to enable EVRC, set home page, home origination, and roam origination voice service options for the current NAM. It is only available for software builds, which include EVRC Service Option Management feature.

15.12.2 Syntax :

Command syntax : AT+WSOM=<enable>,<home page SO>,<home orig SO>,<roam orig SO>

Command	Possible responses
AT+WSOM? <i>Note : Get the Service Options of the current NAM</i>	+WSOM: 0, 1, 2, 0 OK <i>Note : EVRC disabled, home page is set to EVRC, home orig is set to 13k, roam orig is set to IS96A</i>
AT+WSOM=1,4,2,2 <i>Note : Set current NAM Service Options</i>	OK <i>Note : EVRC enabled, set home page to WILDCARD, set home orig to 13k, set roam orig to 13k</i>

15.12.3 Defined values :

<enable>

0: disable EVRC

1: enable EVRC

<home page SO>

0: IS96A

1: EVRC

2: 13k

3: IS96

4: WILDCARD

<home orig SO> & <roam orig SO>

0: IS96A

1: EVRC

2: 13k

3: IS96

15.13 Commit Changes +WCMT

15.13.1 Description :

This command is used to commit or to undo/revert any changes done during the service programming session. Changes performed during this session will not take place until a commit command has been sent (AT+WCMT=1). Commission of these changes will force a software reset of the module. Sending this command indicates this service provisioning session is complete. In order to perform any subsequent provisioning, the service programming code must be entered using the +WSPC command.

15.13.2 Syntax :

Command syntax : AT+WCMT=<val>

Command	Possible responses
AT+WCMT=0 <i>Note : Undo any changes performed during this provisioning AT session</i>	OK
AT+WCMT=1 <i>Note : Commit all changes performed during this provisioning AT session to non-volatile memory.</i>	OK <i>Note: software reset is performed</i>

15.13.3 Defined values :

<val>

0: undo changes

1: commit changes

15.14 Service Programming example

Command	Response
AT+WBGP=255,255,255,255 <i>Note : Attempt to set the primary browser gateway</i>	ERROR <i>Note: Service Programming code not yet entered</i>
AT+WPDS? <i>Note : Get current Packet Dial String</i>	ERROR <i>Note: Service Programming code not yet entered</i>
AT+WSPC=000000 <i>Note : Enter service programming code</i>	OK <i>Note: Service Programming code entered properly</i>
AT+WPDS?	+WPDS: "#777"

<i>Note : Get current Packet Dial String</i> AT+WPDS="#999"	OK <i>Note: Current Packet Dial String is #777</i>
<i>Note : Set the Packet Dial String to #999</i> AT+WCMT=1	OK <i>Note: software reset is performed</i>
AT+WSPC=000111 <i>Note : Enter service programming code</i>	ERROR <i>Note: Service Programming code incorrect</i>
AT+WSPC=000000 <i>Note : Enter service programming code</i>	OK <i>Note: Service Programming code entered properly</i>
AT+WPDS? <i>Note : Get current Packet Dial String</i>	+WPDS: "#999" OK <i>Note: Current Packet Dial String is #999</i>
AT+WPDS="#555" <i>Note : Set the Packet Dial String to #555</i>	OK
AT+WSCI? <i>Note : Read the current slot cycle index</i>	+WSCI: 2 OK
AT+WSCI=1 <i>Note : Set the slot cycle index</i>	OK
AT+WCMT=0 <i>Note : Undo any changes performed during this provisioning AT session.</i>	OK <i>Note: No software reset since this is an undo command.</i>
AT+WSPC=000000 <i>Note : Enter service programming code</i>	OK <i>Note: Service Programming code entered properly</i>
AT+WPDS? <i>Note : Get current Packet Dial String</i>	+WPDS="#999" OK <i>Note: Current Packet Dial String is #999 (changes not committed from last write)</i>
AT+WSCI? <i>Note : Read the current slot cycle index</i>	+WSCI: 2 OK <i>Note: Slot cycle index is 2 (changes not committed from last write)</i>
AT+WMDN=8585551212 <i>Note : Set mobile directory number to 8585551212</i>	OK
AT+WCMT=1 <i>Note : Commit all changes performed</i>	OK <i>Note: software reset is performed</i>

<i>during this provisioning AT session to non-volatile memory.</i>	
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16 Extended AT commands in IS707.3

WISMOQ CDMA module also implements the CDMA AT commands as specified in the TIA/EIA/IS-707.3.

Note:

Some of the AT commands in this section may not be fully implemented.

16.1 Remote Async/Fax command X

16.1.1 Description :

This command sends a CONNECT message when a connection is established by blind dialing and enable additional result codes.

16.1.2 Syntax :

Command syntax : ATX<n>

Command	Possible responses
ATX0 <i>Note : Ignores dial tone and busy signal.</i>	OK <i>Note : Command is valid</i>
ATX1 <i>Note : disable dial tone and busy detection.</i>	OK <i>Note : Command is valid</i>
ATX2 <i>Note : disable busy detection & enable dial tone detection.</i>	OK <i>Note : Command is valid</i>
ATX3 <i>Note : Enable busy detection & disable dial tone detection.</i>	OK <i>Note : Command is valid</i>
ATX4 <i>Note : Enable busy and dial tone detection.</i>	OK <i>Note : Command is valid</i>

16.2 Reset to default configuration Z0

16.2.1 Description :

This command is to reset to default configuration.

16.2.2 Syntax :

Command syntax : ATZ0

Command	Possible responses
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ATZ0 <i>Note : reset to default configuration.</i>	OK <i>Note : Command is valid</i>
---	--------------------------------------

16.3 Select tone dialing T

16.3.1 Description :

This command is to select tone dialing. Not relevant to CDMA data services; "T" is not sent in dial string.

16.3.2 Syntax :

Command syntax : ATT

Command	Possible responses
ATT <i>Note : select tone dialing.</i>	OK <i>Note : Command is valid</i>

16.4 Select pulse dialing P

16.4.1 Description :

This command is to select pulse dialing. Not relevant to CDMA data services; "P" is not sent in dial string.

16.4.2 Syntax :

Command syntax : ATP

Command	Possible responses
ATP <i>Note : select pulse dialing.</i>	OK <i>Note : Command is valid</i>

16.5 Basic S-Registers ATS<X>

16.5.1 Description :

This S parameters determine the behaviors in the dialing and responses to the establish of a call.

16.5.2 Syntax :

Command syntax : `ATS<X>=<value>`

Command	Possible responses
<code>ATS<X>=<value></code> <i>Note : set S-registers value</i>	OK
<code>ATS0?</code> <i>Note : disable or enable automatic answering (value: 0-255)</i> <i>0: disable;</i> <i>1-255: enable after [(value-1)x6 sec.]</i>	002 OK <i>Note : always 3 characters padded with zeros</i>
<code>ATS3?</code> <i>Note : Carriage return character</i>	013 OK
<code>ATS4?</code> <i>Note : Line fees character</i>	010 OK
<code>ATS5?</code> <i>Note : Backspace character</i>	008 OK
<code>ATS6?</code> <i>Note : Pause before blind dialing (value: 2-10)</i>	002 OK
<code>ATS7?</code> <i>Note : Number of seconds to establish end-to-end data connection (value: 1-255)</i>	050 OK
<code>ATS8?</code> <i>Note : Number of seconds to pulse when ", " is encountered in dial string (value: 0-255)</i>	002 OK
<code>ATS9?</code> <i>Note : Carrier detect threshold in increments of 0.1 seconds (value: 0-255)</i>	006 OK
<code>ATS10?</code> <i>Note : Number of tenths of a second from carrier loss to disconnect (value: 1-254)</i> <i>Value 255: disable carrier detect</i>	014 OK
<code>ATS11?</code> <i>Note : DTMF tone duration and spacing in milliseconds (value: 50-255)</i>	095 OK

16.6 Error control operation +EB
16.6.1 Description :

This command is for break handling in error control operation. The extended-format compound parameter is used to control the manner of V.42 operation on the PSTN line (if present in IWF). The command is not relevant for packet service.

16.6.2 Syntax :

Command syntax : AT+EB=[<Break_selection>[,<timed>[,<default_length>]]]

Command	Possible responses
AT+EB? <i>Note : display the current setting.</i>	+EB: 1,0,30 OK <i>Note : This is the default setting</i>
AT+EB=2 <i>Note : set value to 2.</i>	OK <i>Note : Command is valid</i>

16.6.3 Defined values :

<Break_selection>

- 0: Ignore break (do not signal to remote DCE)
- 1: Non-expedited, non-destructive
- 2: Expedited, non-destructive
- 3: Expedited and destructive

<timed>

- 0: Any transmitted V.42 L-SIGNAL shall not indicate break signal length
- 1: Any transmitted V.42 L-SIGNAL shall indicate break signal length

<default_length>

- 0 : Do not deliver break to DTE
- 1-254:Default break length of .01 to 2.54 seconds
- other :Higher values may be supported

16.7 Numeric parameter control +EFCS

16.7.1 Description :

The extended-format numeric parameter is used to control the use of 32-bit frame check sequence option in V.42 on the PSTN link (if present in IWF). The command is not relevant for packet service.

16.7.2 Syntax :

Command syntax : AT+EFCS=[<Val>]

Command	Possible responses
AT+EFCS? <i>Note : display the current setting.</i>	+EFCS: 0 OK <i>Note : Command is valid</i>
AT+EFCS=2 <i>Note : set value to 2.</i>	OK <i>Note : Command is valid</i>

16.7.3 Defined values:

<Val>

- 0: Use 16-bit FCS
- 1: Use 32-bit FCS if available in remote DCE; otherwise use 16-bit FCS
- 2: Use 32-bit FCS if available in remote DCE; otherwise disconnect

16.8 Error control report +ER

16.8.1 Description :

The extended-format numeric parameter is used to control whether the extended-format +ER intermediate result code is transmitted from the IWF over the Um interface.

16.8.2 Syntax :

Command syntax : AT+ER=[<Val>]

Command	Possible responses
AT+ER? <i>Note : display the current setting.</i>	+ER: 0 OK <i>Note : Command is valid</i>
AT+ER=1 <i>Note : set value to 1.</i>	OK <i>Note : Command is valid</i>

16.8.3 Defined values :

<Val>

- 0: Error control reporting disabled
- 1: Error control reporting enabled

16.9 Error control selection +ES

16.9.1 Description :

The extended-format compound parameter is used to control the manner of operation of the V.42 protocol on the PSTN link (if present in IWF). The command is not relevant for packet service.

16.9.2 Syntax :

Command syntax : AT+ES=[<orig_rqst>[,<orig_fbk>[,<ans_fbk>]]]

Command	Possible responses
AT+ES? <i>Note : display the current setting.</i>	+ES: 3, 0, 2 OK <i>Note : Command is valid</i>

AT+ES=1 <i>Note : set value to 1.</i>	OK <i>Note : Command is valid</i>
AT+ES? <i>Note : display the setting after change.</i>	+ES: 1, 0, 2 OK <i>Note : Command is valid</i>

16.9.3 Defined values :

<orig_rqst>

- 0: Direct mode
- 1: Initiate call with Buffered mode only
- 2: Initiate V.42 Detection Phase
- 3: Initiate Alternative Protocol

<orig_fbk>

- 0: Error control optional; If error control not established maintain DTE-DCE data rate
- 1: Error control optional; If error control not established change DTE-DCE data rate to match line rate
- 2: Error control required; If error control not established, disconnect
- 3: Error control required (only LAPM acceptable); If error control not established, disconnect
- 4: Error control required (only alternative protocol acceptable); If error control not established, disconnect

<ans_fbk>

- 0: Direct mode
- 1: Error control disabled, use Buffered mode
- 2: Error control optional; If error control not established maintain DTE-DCE data rate
- 3: Error control optional; If error control not established change DTE-DCE data rate to match line rate
- 4: Error control required; If error control not established, disconnect
- 5: Error control required (only LAPM acceptable); If error control not established, disconnect
- 6: Error control required (only alternative protocol acceptable); If error control not established, disconnect

16.10 Error control selection +ESR

16.10.1 Description :

The extended-format numeric parameter is used to control the use of selective repeat (SREJ) option in V.42 on the PSTN link (if present in IWF). The command is not relevant for packet service.

16.10.2 Syntax :

Command syntax : AT+ESR=[<Val>]

Command	Possible responses
AT+ESR? <i>Note : display the current setting.</i>	+ESR: 0 OK <i>Note : Command is valid</i>
AT+ESR=1 <i>Note : set value to 1.</i>	OK <i>Note : Command is valid</i>

16.10.3 Defined values :

<Val>

- 0: Do not use SREJ
- 1: Use SREJ if available in remote DCE; continue without it if not
- 2: Use SREJ if available in remote DCE; disconnect if SREJ is not available

16.11 Error control selection +ETBM

16.11.1 Description :

The extended-format compound parameter is used to control the handling of data remaining in IWF buffers upon service termination. The command is not relevant for packet service.

16.11.2 Syntax :

Command syntax : AT+ETBM=[<pending_TD>[,<pending_RD>[,<timer>]]]

Command	Possible responses
AT+ETBM? <i>Note : display the current setting.</i>	+ETBM: 0, 1, 20 OK <i>Note : Command is valid</i>
AT+ETBM=1 <i>Note : set value to 1.</i>	OK <i>Note : Command is valid</i>
AT+ETBM? <i>Note : display the current setting.</i>	+ETBM: 1, 1, 20 OK <i>Note : Command is valid</i>

16.11.3 Defined values :

<pending_TD>

- 0: Discard all buffered data immediately and disconnect
- 1: Attempt until all data is delivered and acknowledged (ignore timer)
- 2: Attempt until all data is delivered and acknowledged; If timer expires, discard remainder

<pending_RD>

- 0: Discard all buffered data immediately and disconnect

- 1: Attempt until all data is delivered (ignore timer)
- 2: Attempt until all data is delivered; If timer expires, discard remainder

<timer>

0-30: Deliver timer value in seconds

other: Higher values may be supported at manufacture's option

16.12 Request manufacture identification +GMI

16.12.1 Description :

The command is used to cause the DCE to retransmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the DCE to identify the manufacturer.

16.12.2 Syntax :

Command syntax : AT+GMI

Command	Possible responses
AT+GMI? <i>Note : display the current setting.</i>	ERROR <i>Note : Command is not valid</i>
AT+GMI <i>Note : display the manufacturer</i>	+GMI: WAVECOM MODEM OK <i>Note : Command is valid</i>

16.13 Request manufacture identification +GMM

16.13.1 Description :

The command is used to cause the DCE to retransmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the DCE to identify the specific model of device.

16.13.2 Syntax :

Command syntax : AT+GMM

Command	Possible responses
AT+GMM? <i>Note : display the current setting.</i>	ERROR <i>Note : Command is not valid</i>
AT+GMM <i>Note : display the model</i>	+GMM: Model 72 OK

	<i>Note : Command is valid</i>
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16.14 Request revision identification +GMR

16.14.1 Description :

The command is used to cause the DCE to retransmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the DCE to identify the version, revision level or date, or other pertinent information of the device.

16.14.2 Syntax :

Command syntax : AT+GMR

Command	Possible responses
AT+GMR? <i>Note : display the current setting.</i>	ERROR <i>Note : Command is not valid</i>
AT+GMR <i>Note : display the revision</i>	+GMR: S/W VER: WISMOQ WQ1.8, 10015 OK <i>Note : Command is valid</i>

16.15 Request product serial number identification +GSN

16.15.1 Description :

The command is used to cause the DCE to retransmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the DCE to identify the individual alphanumeric string.

16.15.2 Syntax :

Command syntax : AT+GSN

Command	Possible responses
AT+GSN? <i>Note : display the current setting.</i>	ERROR <i>Note : Command is not valid</i>
AT+GSN <i>Note : display the serial number</i>	+GSN: F607A117 OK <i>Note : Command is valid</i>

16.16 Request global object identification +GOI

16.16.1 Description :

The command is used to cause the DCE to retransmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the DCE to identify the device, based on the ISO system for registering unique object identifiers.

16.16.2 Syntax :

Command syntax : AT+GOI

Command	Possible responses
AT+GOI? <i>Note</i> : <i>display the current setting.</i>	ERROR <i>Note</i> : <i>Command is not valid</i>
AT+GOI <i>Note</i> : <i>display the responses to the command</i>	+GOI: OK <i>Note</i> : <i>Command is valid</i>

Note:
Currently, no information text is provided.

16.17 Modulation selection +MS

16.17.1 Description :

The extended-format compound parameter is used to control the manner of operation of the modulation capabilities in the DCE.

16.17.2 Syntax :

Command Syntax :
AT+MS=[<carrier>[,<automode>[,<min_rate>[,<max_rate>[,<min_rx_rate>[,<max_rx_rate>]]]]]]

Command	Possible responses
AT+MS? <i>Note</i> : <i>display the parameter information.</i>	+MS: V32B,1,1200,14400 <i>Note</i> : <i>Command is valid</i>
AT+MS=? <i>Note</i> : <i>display the range of parameters</i>	+MS: (V21,V22),(0,1,),(0,300-14400),(0,300-14400) <i>Note</i> : <i>Command is valid</i>

16.17.3 Defined values :

<carrier>

manufacturer specific

<automode>

0: Disabled

1: enabled with V.8 or V.32bis Annex where applicable

<min_rate> and <min_rx_rate>

set to 0 if unspecified

<max_rate> and <max_rx_rate>

set to 0 if unspecified

16.18 Modulation automode control +MA

16.18.1 Description :

The extended-format compound parameter is a list of modulations that the DCE may use to connect with the remote DCE in automode operation, for answering or originating data calls.

16.18.2 Syntax :

Command syntax : AT+MA=[<carrier>[,<carrier>[,<carrier>[,...]]]]

Command	Possible responses
AT+MA? <i>Note : display the parameter information.</i>	+MA: V32, V32B <i>Note : Command is valid</i>
AT+MA=? <i>Note : display the range of parameters</i>	+MA: (V32B,V32,V26B,V22B,V22,V21) <i>Note : Command is valid</i>
AT+MA=V32 <i>Note : set to V32</i>	OK <i>Note : Command is valid</i>

16.19 Modulation reporting control +MR

16.19.1 Description :

The extended-format numeric parameter controls whether the extended-format +MCR:<carrier> and +MRR:<rate> intermediate result codes are transmitted from the IWF to the mobile station.

16.19.2 Syntax :

Command syntax : AT+MR=[<Val>]

Command	Possible responses
AT+MR? <i>Note : display the current setting</i>	+MR: 0 <i>Note : Command is valid</i>
AT+MR=? <i>Note : display the range of setting</i>	+MR: (0,1) <i>Note : Command is valid</i>
AT+MR=1 <i>Note : display the range of setting</i>	OK <i>Note : Command is valid</i>

16.19.3 Defined values :

<Val>

0: Disables reporting of modulation connection

1: Enables reporting of modulation connection (+MCR and +MRR are transmitted)

16.20 V.18 reporting control +MV18R

16.20.1 Description :

The extended-format numeric parameter controls whether the extended-format +MV18R: result code is transmitted from the IWF to the mobile station.

16.20.2 Syntax :

Command syntax : AT+MV18R=[<Val>]

Command	Possible responses
AT+MV18R? <i>Note : display the current setting.</i>	+MV18R: 0 OK <i>Note : Command is valid</i>
AT+MV18R=1 <i>Note : set value to 1.</i>	OK <i>Note : Command is valid</i>

16.20.3 Defined values :

<Val>

0: Disables reporting of V.18 connection

1: Enables reporting of V.18 connection

16.21 V.18 selection +MV18S

16.21.1 Description :

The extended-format numeric parameter is used to control the manner of operation of the V.18 capabilities (if present) in the DCE.

16.21.2 Syntax :

Command syntax : AT+MV18S=[<mode>[,<dflt_ans>[,<fbk_time_enable>]]]

Command	Possible responses
AT+MV18S? <i>Note : display the current setting.</i>	+MV18S: 0, 0, 0 OK <i>Note : Command is valid</i>
AT+MV18S=1,1,1 <i>Note : set mode value to 1.</i>	OK <i>Note : Command is valid</i>
AT+MV18S? <i>Note : display the current setting.</i>	+MV18S: 1, 1, 1 OK <i>Note : Command is valid</i>

16.21.3 Defined values :

<mode>

- 0: Disables V.18 connection
- 1: V.18 operation, auto detect mode
- 2: V.18 operation, connection in 5-bit mode
- 3: V.18 operation, connect in DTMF mode
- 4: V.18 operation, connect in EDT mode
- 5: V.18 operation, connect in V.21 mode
- 6: V.18 operation, connect in V.23 mode
- 7: V.18 operation, connect in Bell 103-type mode

<dflt_ans_mode>

- 0: disables V.18 answer operation
- 1: no default specified (auto detect)
- 2: V.18 operation, connect in 5-bit mode
- 3: V.18 operation, connect in DTMF mode
- 4: V.18 operation, connect in EDT mode

<fbk_time_enable>

- 0: disable
- 1: enable

16.22 Cellular extension +CXT

16.22.1 Description :

The numeric parameter is used for cellular extension.

16.22.2 Syntax :

Command syntax : AT+CXT=<Val>

Command	Possible responses
AT+CXT? <i>Note : display the current setting</i>	+CXT: 0 OK <i>Note : Command is valid</i>
AT+CXT=? <i>Note : display the range of setting</i>	+CXT: (0-1) OK <i>Note : Command is valid</i>
AT+CXT=1 <i>Note : display the range of setting</i>	OK <i>Note : Command is valid</i>

16.22.3 Defined values :

<Val>

0: Do not pass unrecognized commands to the IWF

1: When detecting an unrecognized AT command, open transport layer connection and pass unrecognized command to the IWF.

16.23 Configuration string +CFG
16.23.1 Description :

The string command is used to set configuration string. The string will be stored by the MT2 and sent to the base station prior to dialing. Each transmission of an AT+CFG command from TE2 replaces the contents of the previous string. The string may be up to 248 characters.

16.23.2 Syntax :

Command syntax : AT+CFG= <string >

Command	Possible responses
AT+CFG? <i>Note : display the current setting</i>	+CFG: "" OK
AT+CFG="" <i>Note : set a configuration string</i>	OK <i>Note : Command is valid</i>
AT+CFG="data" <i>Note : set a configuration string</i>	OK <i>Note : Command is valid</i>

16.24 Query service +CAD ?

16.24.1 Description :

The numeric parameter is used to query analog or digital service.

16.24.2 Syntax :

Command syntax : AT+CAD ?

Command	Possible responses
AT+CAD? <i>Note : display the current service</i>	+CAD: 1 OK <i>Note : Command is valid</i>

16.24.3 Defined values :

The command should return one of the following codes:

- 0: If no service is available
- 1: If CDMA digital service is available
- 2: If TDMA digital service is available
- 3: If analog service is available (values 4 to 255 reserved)

16.25 Um interface data compression reporting +CDR

16.25.1 Description :

The extended-format numeric parameter is used to control whether the extended-format +CDR: intermediate result code is transmitted by the MT2. The result code is the same as +DR.

16.25.2 Syntax :

Command syntax : AT+CDR

Command	Possible responses
AT+CDR? <i>Note : display the current code</i>	+CDR: 0 OK <i>Note : Command is valid</i>
AT+CDR=1 <i>Note : Reporting enabled</i>	OK <i>Note : Command valid</i>
AT+CDR=? <i>Note : display the range of code</i>	+CDR: (0-1) OK <i>Note : Command is valid</i>

16.26 Um interface data compression +CDS

16.26.1 Description :

The extended-format numeric parameter is used to control the V.42bis data compression function on the Um interface. The command format is the same as for the +DS command.

16.26.2 Syntax :

Command syntax : AT+CDS=<Val>

Command	Possible responses
AT+CDS? <i>Note : display the current setting</i>	+CDS: 0, 1, 2048, 6 OK <i>Note : Command is valid</i>
AT+CDS=? <i>Note : display the range of setting</i>	+CDS: (0-0),(1-1),(512-65535),(6-250) OK <i>Note : Command is valid</i>

Note: Currently, mobile only accept 0 as a valid setting.

16.27 Set Rm interface protocol +CRM

16.27.1 Description :

The numeric parameter is used for set the Rm interface protocol.

16.27.2 Syntax :

Command syntax : AT+CRM=<Val>

Command	Possible responses
AT+CRM? <i>Note : display the current setting</i>	+CRM: 0 OK <i>Note : Command is valid</i>
AT+CRM=? <i>Note : display the range of setting</i>	+CRM: (0-2) OK <i>Note : Command is valid</i>
AT+CRM=1 <i>Note : set to 1</i>	OK <i>Note : Command is valid</i>

Note: This default value for the +CRM parameter shall be 0 if this value is supported by the MT2.

16.27.3 Defined values :

<Val>

- 0: Asynchronous Data or Fax
- 1: Packet data service, Relay Layer R_m interface
- 2: Packet data service, Network Layer R_m interface, PPP

Note: The values 3 and 4 are not supported currently.

- 3: Packet data service, Network Layer R_m interface, SLIP
- 4: STU-III Service

16.28 Battery Charge +CBC ?

16.28.1 Description :

The numeric parameter is used to query the battery charge.

16.28.2 Syntax :

Command syntax : AT+CBC ? Read-only. Returns <BCS>,<BCL>

Command	Possible responses
AT+CBC? <i>Note : display the current status</i>	+CBC: 1, 77 OK <i>Note : Command is valid</i>
AT+CBC	ERROR <i>Note : Command is not valid</i>

16.28.3 Defined values :

<BCS>:

- 0 MT2 powered by battery, BCL = status
- 1 MT2 connected to external power
- 2 Battery status not available
- 3 Recognized power fault. Calls inhibited.

<BCL>:

0-100 Remaining battery capacity is 0-100%.

16.29 Command State Inactivity Timer +CQD

16.29.1 Description :

The numeric parameter is used to query and set the Command State Inactivity Timer.

16.29.2 Syntax :

Command syntax : AT+CQD=<Val>

Command	Possible responses
AT+CQD? <i>Note : display the current setting</i>	+CQD: 10 OK <i>Note : Command is valid</i>
AT+CQD=0 <i>Note : Set the value to 0</i>	OK <i>Note : Command is valid</i>

16.29.3 Defined values :

<Val>

0: Ignored

1-255:Release call after 5x<value> seconds have elapsed without activity.

Note:

The default <value> shall be 10, corresponding to 50 seconds.

16.30 Mobile Station IP Address +CMIP?

16.30.1 Description :

The numeric parameter is used to query mobile station IP address.

16.30.2 Syntax :

Command syntax : AT+CMIP?

Command	Possible responses
AT+CMIP?	OK

<i>Note : display the current setting</i>	<i>Note : Command is valid</i>
AT+CMIP	ERROR <i>Note : Command is not valid</i>

Note:

Command is read-only. Returns the mobile station's temporary IP address.

16.31 Base Station IP Address +CBIP ?

16.31.1 Description :

The numeric parameter is used to query base station IP address.

16.31.2 Syntax :

Command syntax : AT+CBIP?

Command	Possible responses
AT+CBIP? <i>Note : display the current setting</i>	OK <i>Note : Command is valid</i>
AT+CBIP	ERROR <i>Note : Command is not valid</i>

Note:

Command is read-only. Returns the base station's IP address.

16.32 Serving System +CSS ?

16.32.1 Description :

The numeric parameter is used to query the serving system .

16.32.2 Syntax :

Command syntax : AT+CSS ? Read-only. Returns <AB>,<SID>

Command	Possible responses
AT+CSS? <i>Note : display the current setting</i>	+CSS: 2, A, 4145 OK <i>Note : Command is valid</i>
AT+CSS=? <i>Note : display the range of setting</i>	+CSS: OK <i>Note : Command is valid</i>

16.32.3 Defined values :

<AB>

- A The mobile station is registered with an A-band system.
- B The mobile station is registered with a B-band system.
- Z The mobile station is not registered.

<SID>:

- 0-16383 The mobile station is registered with the system indicated.
- 99999 The mobile station is not registered.

16.33 Select Multiplex Option +CMUX

16.33.1 Description :

The numeric parameter is used to select multiplex option.

16.33.2 Syntax :

Command syntax : AT+CMUX=<n>

Command	Possible responses
AT+CMUX? <i>Note : display the current setting</i>	+CMUX: C, 2 OK <i>Note : Command is valid</i>
AT+CMUX=? <i>Note : display the range of setting</i>	+CMUX: (1-9,A-F), (1,2) OK <i>Note : Command is valid</i>
AT+CMUX=1 <i>Note : Set the value to 0</i>	OK <i>Note : Command is valid</i>

16.33.3 Defined values :

<n>

- 1: Multiplex Option 1
- 2: Multiplex Option 2

16.34 U_m Interface Fax Compression +CFC

16.34.1 Description :

The numeric parameter is used to set the U_m Interface Fax Compression.

16.34.2 Syntax :

Command syntax : AT+CFC=<Val>

Command	Possible responses
AT+CFC? <i>Note : display the current setting</i>	+CFC: 0 OK <i>Note : Command is valid</i>
AT+CFC=? <i>Note : display the range of the setting</i>	+CFC: (0-2) OK <i>Note : Command is valid</i>
AT+CFC=1 <i>Note : Set the value to 1</i>	OK <i>Note : Command is valid</i>

16.34.3 Defined values :

<Val>

- 0: No compression
- 1: V.42bis compression with parameters as set by the +CDS command
- 2: Modified Read compression

Note: currently, the value 1 and 2 are not supported.

16.35 Hang-up Voice +CHV

16.35.1 Description :

The numeric parameter is used to Hang-up Voice call. The command can be used after the call is set up by +CDV.

16.35.2 Syntax :

Command syntax : AT+CHV<n>

Command	Possible responses
AT+CHV <i>Note : display the current setting</i>	OK <i>Note : Command is valid</i>
AT+CHV0 <i>Note : hang up the call</i>	OK <i>Note : Command is valid</i>

16.35.3 Defined values :

<n>

- 0: Hang-up voice call
- 1-255: Reserved.

16.36 Dial command for voice calls +CDV

16.36.1 Description :

The numeric parameter is used to dial command for voice calls.. The format of <dial_string> is identical to that for the ATD command. This command does not cause the MT2 to change to the online state.

16.36.2 Syntax :

Command syntax : AT+CDV=<dial_string>

Command	Possible responses
AT+CDV? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT+CDV=8583693450 <i>Note : dial for voice call</i>	OK +WORG: 8583693450 +WCNT: 3 <i>Note : Command is valid</i>

16.37 IWF content list +CGCAP

16.37.1 Description :

This extended-format command causes the IWF to transmit one or more lines of information text in a specific format. The content is a list of additional capabilities command +<name>s, which is intended to permit the user of the IWF to identify the minimum capabilities of the IWF.

16.37.2 Syntax :

Command syntax : AT+CGCAP

Command	Possible responses
AT+ CGCAP	+CGCAP:

<i>Note : display the current setting</i>	OK <i>Note : Command is valid</i>
AT+ CGCAP=0 <i>Note : Set the value to 0</i>	ERROR <i>Note : Command is not valid</i>

Note:

IWFs conforming to this standard shall include the following items, as a minimum, in the result code for the +CGCAP command:
+CIS707, +MS, +ES, +DS, +FCLASS

16.38 IWF device identification +CGOI

16.38.1 Description :

This command causes the IWF to transmit one or more lines of information text, determined by the manufacturer, which is intended to permit the user of the IWF to identify the device, based on the ISO system for registering unique object identifiers. Typically, the text will consist of a single line containing numeric strings delimited by period characters.

16.38.2 Syntax :

Command syntax : AT+CGOI

Command	Possible responses
AT+ CGOI <i>Note : display the current setting</i>	OK <i>Note : Command is valid</i>
AT+ CGOI=0 <i>Note : Set the value to 0</i>	ERROR <i>Note : Command is not valid</i>

16.39 U_m packet data inactivity timer +CTA

16.39.1 Description :

This command is used to Set, Read and Test U_m packet data inactivity timer.

16.39.2 Syntax :

Command syntax : AT+CTA=<Val>

Command	Possible responses
AT+CTA ? <i>Note : display the current setting</i>	+CTA: 0 OK

	<i>Note : Command is valid</i>
AT+CTA=? <i>Note : display the range of values</i>	+CTA: (0-255) OK <i>Note : Command is valid</i>
AT+CTA=1 <i>Note : Set the value to 1</i>	OK <i>Note : Command is valid</i>

16.39.3 Defined values :

<Val>

0: Traffic Channel not released during inactivity periods.

20-255: Release the Traffic Channel after <value> 1-second intervals have elapsed since last sending or receiving RLP data frames on the U_m interface.

17 Fax parameters

This chapter list the tables of the IS-707.3 fax parameters for users' reference.

IS-707.3 Table 7.3.1-1. Fax Parameters (Part 1 of 2)

Parameter	Value (per)	Description	Type
+FAA	EIA/TIA-592	Adaptive-answer parameter (see +FCLASS)	Remote
+FAP	TIA/EIA/IS-134	Addressing and polling capabilities parameter	Remote
+FBO	EIA/TIA-592	Phase-C data-bit-order parameter	Remote
+FBS	EIA/TIA-592	Buffer size parameter (read-only)	Local
+FBU	EIA/TIA-592	HDLC-frame-reporting parameter	Remote
+FCC		DCE-capabilities parameters	Remote
VR	EIA/TIA-592	Vertical-resolution subparameter	
[BR]		Bit-rate subparameter	
	0	• 2400 bits/s	
	1	• 4800 bits/s	
	2	• 7200 bits/s	
	3 ¹	• 9600 bits/s	
WD	EIA/TIA-592	Page-width subparameter	
[LN]	EIA/TIA-592 ²	Page-length subparameter	
[DF]	EIA/TIA-592 ²	Data-compression-format subparameter	
[EC]	EIA/TIA-592 ²	Error-correction subparameter	
BF	EIA/TIA-592	Binary-file-transfer subparameter	
ST	EIA/TIA-592	Scan-time-per-line subparameter	
[+FCLASS]	0 1 2.0 ³	Service-class selection parameter • Class-0 • [Class-1 support unavailable] • Class-2.0 fax service (EIA/TIA-592)	Remote
+FCQ	EIA/TIA-592	Copy-quality-checking parameter	Remote
[+FCR]	EIA/TIA-592 ²	Capability-to-receive parameter	Remote
+FCS	EIA/TIA-592	Current-session results parameters	Remote
+FCT	EIA/TIA-592	DTE Phase-C timeout parameter	Remote
+FEA	EIA/TIA-592	Phase-C received EOL-alignment parameter	Remote

IS-707.3 Table 7.3.1-1. Fax Parameters (Part 2 of 2)

Parameter	Value (per)	Description	Type
+FFC	EIA/TIA-592	Format-conversion parameter	Remote
+FHS	EIA/TIA-592	Call-termination-status parameter	Remote
+FIE	EIA/TIA-592	Procedure-interrupt-enable parameter	Remote
+FIS	EIA/TIA-592	Current-session negotiation parameters	Remote
[+FLI]	EIA/TIA-592 ²	Local-ID-string parameter (TSI or CSI)	Remote
+FLO	EIA/TIA-592 ²	Flow-control-select parameter	Local
+FLP	EIA/TIA-592	Indicate-document-to-poll parameter	Remote
+FMI	EIA/TIA-592	Request DCE manufacturer identification	See 4.3.1.2.5
+FMM	EIA/TIA-592	Request DCE model	See 4.3.1.2.5
+FMR	EIA/TIA-592	Request DCE revision	See 4.3.1.2.5
[+FMS]	EIA/TIA-592 ²	Minimum-Phase-C-speed parameter	Remote
+FNR	EIA/TIA-592	Negotiation-message-reporting control parameters	Remote
+FNS	EIA/TIA-592	Nonstandard-frame FIF parameter	Remote
+FPA	TIA/EIA/IS-134	Selective Polling Address Parameter	Remote
[+FPI]	EIA/TIA-592 ²	Local-polling-ID-string parameter	Remote
[+FPP]	EIA/TIA-592 ⁴	Packet-protocol-control parameter	Local
+FPR	EIA/TIA-592	Serial-port-rate-control parameter	Local
[+FPS]	EIA/TIA-592 ⁵	Page-status parameter	Remote
+FPW	TIA/EIA/IS-134	Password parameter (Sending or Polling)	Remote
[+FRQ]	EIA/TIA-592 ²	Receive-quality-threshold parameters	Remote
+FRY	EIA/TIA-592	ECM-retry-value parameter	Remote
+FSA	TIA/EIA/IS-134	Subaddress Parameter	Remote
[+FSP]	EIA/TIA-592 ²	Request-to-poll parameter	Remote

Notes

1. Use of option 3 may cause degradations in the quality of certain faxes.
2. Some values for this parameter are optional in EIA/TIA-592. In this standard, all parameters of this command shall be supported.
3. Class 2.0 represents EIA/TIA-592.
4. Support of packet protocol is optional.
5. Values 4 and 5 of this parameter are optional.

IS-707.3 Table 7.3.2-1. Fax Action Commands

Command	Description	Type
+FDR	Receive Phase-C data.	Remote
+FDT	Transmit Phase-C data.	Remote
+FIP	Initialize facsimile parameters.	Remote
+FKS	Terminate session.	Remote

18 Qualcomm Defined AT commands for CDMA operation

This section contains AT commands that specified and developed by Qualcomm.

Note 1:

Mobile IP related AT commands work only on the modules that supported the MIP features.

18.1 Transition to Diagnostics Monitor \$QCDMG

18.1.1 Description :

This command is used to returns "OK" and then transition the phone serial port to DM mode. DM mode runs at 38.4 Kbps and uses a proprietary half-duplex protocol.

18.1.2 Syntax :

Command syntax : AT\$QCDMG

Command	Possible responses
AT\$QCDMG <i>Note : transition to DM port</i>	OK <i>Note : Command is valid</i>

18.2 Quick Net Connect \$QCQNC

18.2.1 Description :

This command is used to enable or disable the Quick Net Connect (QNC).

18.2.2 Syntax :

Command syntax : AT\$QCQNC =<Val>

Command	Possible responses
AT\$QCQNC? <i>Note : display the current setting</i>	\$QCQNC: 0 OK <i>Note : Command is valid</i>
AT\$QCQNC =?	\$QCQNC: (0-1)

<i>Note</i> : display the range of values	OK <i>Note : Command is valid</i>
AT\$QCNQNC=1 <i>Note</i> : Set the value to 1	OK <i>Note : Command is valid</i>

18.2.3 Defined values :

<Val>

0: Disable QNC capability. This means that packet Originations will use the Packet Data Service Option number.

1: Enable QNC capability. This means that Packet Originations will use the Async Data Service Option number..

18.3 Protocol revision in use \$QCPREV

18.3.1 Description :

This command is used to query the protocol revision in use.

18.3.2 Syntax :

Command syntax : AT\$QCPREV

Command	Possible responses
AT\$QCPREV? <i>Note</i> : display the current setting	ERROR <i>Note : Command is not valid</i>
AT\$QCPREV <i>Note</i> : display the of value	\$QCPREV: 6 OK <i>Note : Command is valid</i>

18.3.3 Defined values :

The command should return one of the following codes:

- 1: JST008
- 3: IS-95A
- 4: IS-95B
- 6: IS-2000

18.4 Originate M-to-M Packet Data call \$QCMTOM

18.4.1 Description :

This command is used to originate Mobile-to-Mobile Packet Data call using QUALCOMM proprietary Service Option number.

18.4.2 Syntax :

Command syntax : AT\$QCMTOM = "<number>"

Command	Possible responses
AT\$QCMTOM? <i>Note : display the current setting</i>	\$QCMTOM: "" OK <i>Note : Command is valid</i>
AT\$QCMTOM =? <i>Note : display the range of values</i>	\$QCMTOM: (20,21,23-7E) OK <i>Note : Command is valid</i>
AT\$QCMTOM ="#777" <i>Note : packet data call to the number</i>	OK <i>Note : Command is valid</i>

18.4.3 Defined values :

<number>

where <number> is the phone number to dial. This command will originate a Mobile-to-Mobile Packet data call using the QUALCOMM-proprietary Service Option number 0x8003. This is a Rate Set 1 call.

18.5 Dump RLP protocol statistics \$QCRLPD

18.5.1 Description :

This command is used to dump the RLP statistics in ASCII format to the TE2. This does not apply to RLP 3 statistics (see \$QCRL3D).

18.5.2 Syntax :

Command syntax : AT\$QCRLPD

Command	Possible responses
AT\$QCRLPD? <i>Note : display the current setting</i>	<i>ERROR</i> <i>Note : Command is not valid</i>
AT\$QCRLPD <i>Note : Dump RLP statistics data</i>	\$QCRLPD: Rx Data Cnt :0000 Tx Data

	Cnt :0000 OK <i>Note : Command is valid</i>
--	---

18.6 Reset RLP protocol statistics \$QCRLPR

18.6.1 Description :

This command is used to zero all the RLP statistics counters. This does not apply to RLP 3 statistics (see \$QCRL3R).

18.6.2 Syntax :

Command syntax : AT\$QCRLPR

Command	Possible responses
AT\$QCRLPR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCRLPR <i>Note : Rest RLP statistics counter</i>	\$QCRLPR: OK <i>Note : Command is valid</i>

18.7 Dump PPP protocol statistics \$QCPPPD

18.7.1 Description :

This command is used to dump the PPP statistics in ASCII format to the TE2.

18.7.2 Syntax :

Command syntax : AT\$QCPPPD

Command	Possible responses
AT\$QCPPPD? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCPPPD <i>Note : Dump PPP statistics information</i>	\$QCPPPD: In LCP :0000 Out LCP :0000 OK <i>Note : Command is valid</i>

18.8 Reset PPP protocol statistics \$QCPPR

18.8.1 Description :

This command is used to zero all of the PPP statistics counters.

18.8.2 Syntax :

Command syntax : AT\$QCPPR

Command	Possible responses
AT\$QCPPR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCPPR <i>Note : Rest PPP statistics counter</i>	\$QCPPR: OK <i>Note : Command is valid</i>

18.9 Dump IP protocol statistics \$QCIPD

18.9.1 Description :

This command is used to dump the IP statistics in ASCII format to the TE2.

18.9.2 Syntax :

Command syntax : AT\$QCIPD

Command	Possible responses
AT\$QCIPD? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCIPD <i>Note : Dump IP statistics information</i>	\$QCIPD: IP: InReceives :0000 InHdrErrors :0000 OK <i>Note : Command is valid</i>

18.10 Reset IP protocol statistics \$QCIPR

18.10.1 Description :

This command is used to zero all of the IP statistics counters.

18.10.2 Syntax :

Command syntax : AT\$QCIPR

Command	Possible responses
AT\$QCIPR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCIPR <i>Note : Rest IP statistics counter</i>	\$QCIPR: OK <i>Note : Command is valid</i>

18.11 Dump UDP protocol statistics \$QCUDPD

18.11.1 Description :

This command is used to dump the UDP statistics in ASCII format to the TE2.

18.11.2 Syntax :

Command syntax : AT\$QCUDPD

Command	Possible responses
AT\$QCUDPD? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCUDPD <i>Note : Dump UDP statistics information</i>	\$QCUDPD: InDatagrams :0000 OutDatagrams :0000 OK <i>Note : Command is valid</i>

18.12 Reset UDP protocol statistics \$QCUDPR

18.12.1 Description :

This command is used to zero all of the UDP statistics counters.

18.12.2 Syntax :

Command syntax : AT\$QCUDPR

Command	Possible responses
AT\$QCUDPR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCUDPR <i>Note : Rest UDP statistics counter</i>	\$QCUDPR: OK <i>Note : Command is valid</i>

18.13 Dump TCP protocol statistics \$QCTCPD

18.13.1 Description :

This command is used to dump the TCP statistics in ASCII format to the TE2.

18.13.2 Syntax :

Command syntax : AT\$QCTCPD

Command	Possible responses
AT\$QCTCPD? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCTCPD <i>Note : Dump TCP statistics information</i>	\$QCTCPD: ActiveOpens :0000 PassiveOpens :0000 OK <i>Note : Command is valid</i>

18.14 Reset TCP protocol statistics \$QCTCPR

18.14.1 Description :

This command is used to zero all of the TCP statistics counters.

18.14.2 Syntax :

Command syntax : AT\$QCTCPR

Command	Possible responses
AT\$QCTCPR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCTCPR <i>Note : Rest TCP statistics counter</i>	\$QCTCPR: OK <i>Note : Command is valid</i>

18.15 Set data service option \$QCSO

18.15.1 Description :

This command is used to Set Data Service Option number set; saves to non-volatile memory.

18.15.2 Syntax :

Command syntax : AT\$QCSO = <Val>

Command	Possible responses
AT\$QCSO? <i>Note : display the current setting</i>	\$QCSO: 2 OK <i>Note : Command is valid</i>
AT\$QCSO =? <i>Note : display the range of values</i>	\$QCSO: (0-2) OK <i>Note : Command is valid</i>
AT\$QCSO = 1 <i>Note : set value to 1</i>	OK <i>Note : Command is valid</i>

18.15.3 Defined values :

<Val>

0 : pre-707 SO numbers (RS 1: Async 4, G3 Fax 5, packet 7; RS 2: Async 12, G3 Fax 13, packet 15)

- 1 : proprietary SO numbers (RS 1: Async 4, G3 Fax 5, packet 7; RS 2: Async 0x8021, G3 Fax 0x8022, packet 0x8020)
- 2 : IS-707 SO numbers (RS 1: Async 0x1004, G3 Fax 0x1005, packet 0x1007; RS 2: Async 12, G3 Fax 13, packet 15)

18.16 Clear mobile error log \$QCCLR

18.16.1 Description :

This command is used to clear the mobile error log.

18.16.2 Syntax :

Command syntax : AT\$QCCLR

Command	Possible responses
AT\$QCCLR? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCCLR <i>Note : clear the mobile error log</i>	\$QCCLR: OK <i>Note : Command is valid</i>

18.17 Answer incoming voice call \$QCCAV

18.17.1 Description :

This command is used to provide a means to answer an incoming voice call via an AT command.

18.17.2 Syntax :

Command syntax : AT\$QCCAV

Command	Possible responses
AT\$QCCAV? <i>Note : display the current setting</i>	OK <i>Note : Command is valid</i>
AT\$QCCAV <i>Note : Answer incoming voice call</i>	OK +WCNT: 3 <i>Note : Command is valid</i>

18.18 Automatic packet detection \$QCPKND

18.18.1 Description :

This command is used to enable or disable Automatic Packet Detection after a dial command.

18.18.2 Syntax :

Command syntax : AT\$QCPKND = <Val>

Command	Possible responses
AT\$QCPKND? <i>Note</i> : display the current setting	\$QCPKND: 0 OK <i>Note</i> : Command is valid
AT\$QCPKND=? <i>Note</i> : display the range of values	\$QCPKND: (0-1) OK <i>Note</i> : Command is valid
AT\$QCPKND=1 <i>Note</i> : set value to 1	OK <i>Note</i> : Command is valid

18.18.3 Defined values :

<Val>

- 0 : Disable Packet No Dial. If a PPP packet is received by the mobile without a just prior dial command (that is, AtdX #), then the mobile will originate a Packet (or QNC) data call.
- 1 : Enable Packet No Dial. Reception of a PPP packet without a just prior dial command will NOT Originate a PPP packet (or QNC) call.

18.19 Prearrangement setting \$QCVAD

18.19.1 Description :

This command is used to respond to page message that has a voice service option with a page response that has a data service option.

18.19.2 Syntax :

Command syntax : AT\$QCVAD= <Val>

Command	Possible responses
---------	--------------------

AT\$QCVAD? <i>Note : display the current setting</i>	\$QCVAD: 0 OK <i>Note : Command is valid</i>
AT\$QCVAD=? <i>Note : display the range of values</i>	\$QCVAD: (0-4) OK <i>Note : Command is valid</i>
AT\$QCVAD=1 <i>Note : set value to 1</i>	OK <i>Note : Command is valid</i>

18.19.3 Defined values :

<Val>

- 0 : Off
- 1 : Fax for next call
- 2 : Fax for all calls
- 3 : Async for next call
- 4 : Async for all calls

18.20 Set DM baud rate \$QCDMR

18.20.1 Description :

This command is used to set the DM baud rate.

18.20.2 Syntax :

Command syntax : AT\$QCDMR= <Val>

Command	Possible responses
AT\$QCDMR? <i>Note : display the current setting</i>	\$QCDMR: 19200 OK <i>Note : Command is valid</i>
AT\$QCDMR=? <i>Note : display the range of values</i>	\$QCDMR: (19200, 38400, 57600, 115200, 230400, 460800) OK <i>Note : Command is valid</i>
AT\$QCDMR=115200 <i>Note : set value to 1</i>	OK <i>Note : Command is valid</i>

18.20.3 Defined values :

<Val>

value should be on of the following:
19200, 38400, 57600, 115200

18.21 Set medium data rate \$QCMDR

18.21.1 Description :

This command is used to Set Medium Data Rate (MDR) (also known as HSPD) setting.

18.21.2 Syntax :

Command syntax : AT\$QCMDR= <Val>

Command	Possible responses
AT\$QCMDR? <i>Note : display the current setting</i>	\$QCMDR: 3 OK <i>Note : Command is valid</i>
AT\$QCMDR=? <i>Note : display the range of values</i>	\$QCMDR: (0-3) OK <i>Note : Command is valid</i>
AT\$QCMDR=1 <i>Note : set value to 1</i>	OK <i>Note : Command is valid</i>

18.21.3 Defined values :

<Val>

- 0 : MDR Service Only. The mobile will originate with SOS 22 or SO 25. The mobile will not negotiate to any other service option if SO 22 and SO 25 are unavailable.
- 1: MDR Service, if available. The mobile will originate with SO 22 or SO 25, but will negotiate to a Low-Speed Packet service option if MDR is not available. The mobile will not negotiate to SO 33.
- 2 : LSPD only. The mobile will originate a Low-Speed Packet call only. The mobile will not negotiate to SO 22, SO 25, or SO 33.
- 3: SO 33, if available. The mobile will negotiate to MDR or Low-Speed Packet service options if SO 33 is not available.

18.22 Dump RLP 3 protocol statistics \$QCRL3D

18.22.1 Description :

This command is used to dump the RLP 3 statistics in ASCII format to the TE2. This does not apply to other versions of RLP (see \$QCRLPD).

18.22.2 Syntax :

Command syntax : AT\$QCRL3D

Command	Possible responses
AT\$QCRL3D? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCRL3D <i>Note : Dump RLP 3 statistics information</i>	\$QCRL3D: Rx Data Cnt :00000000 Tx Data Cnt :00000000 OK <i>Note : Command is valid</i>

18.23 Reset RLP 3 protocol statistics \$QCRL3R

18.23.1 Description :

This command is used to reset the RLP 3 protocol statistics.

18.23.2 Syntax :

Command syntax : AT\$QCRL3R

Command	Possible responses
AT\$QCRL3R? <i>Note : display the current setting</i>	ERROR <i>Note : Command is not valid</i>
AT\$QCRL3R <i>Note : Rest TCP statistics counter</i>	\$QCRL3R: OK <i>Note : Command is valid</i>

18.24 SCRM'ing selection \$QCSCRM

18.24.1 Description :

This command is used to enable or disable mobile from SCRM'ing.

18.24.2 Syntax :

Command syntax : AT\$QCSCRM= <Val>

Command	Possible responses
AT\$QCSCRM? <i>Note : display the current setting</i>	\$QCSCRM: 1 OK <i>Note : Command is valid</i>
AT\$QCSCRM =? <i>Note : display the range of values</i>	\$QCSCRM: (0-1) OK

	<i>Note : Command is valid</i>
AT\$QCSCRM =0 <i>Note : set value to 0</i>	OK <i>Note : Command is valid</i>

18.24.3 Defined values :

<Val>

- 0 : Mobile never SCRM.
- 1 : Mobile can SCRM as needed.

Note:

Command only applies to SO 33 calls. This value is stored in NV. The default is 1.

18.25 R-SCH selection \$QCTRL

18.25.1 Description :

This command is used to enable or disable mobile R-SCH throttling.

18.25.2 Syntax :

Command syntax : AT\$QCTRL = <Val>

Command	Possible responses
AT\$QCTRL? <i>Note : display the current setting</i>	\$QCTRL: 1 OK <i>Note : Command is valid</i>
AT\$QCTRL =? <i>Note : display the range of values</i>	\$QCTRL: (0-1) OK <i>Note : Command is valid</i>
AT\$QCTRL =0 <i>Note : set value to 0</i>	OK <i>Note : Command is valid</i>

18.25.3 Defined values :

<Val>

- 0 : Mobile never throttles R-SCH
- 1 : Mobile can throttle R-SCH as needed.

Note:

Command only applies to SO 33 calls. This value is stored in NV. The default is 1.

For MSM500, MSM5105, and MSM5100 ASICs only.

18.26 R-SCH selection \$QCMIP

18.26.1 Description :

This command is used to enable or disable mobile IP.

18.26.2 Syntax :

Command syntax : AT\$QCMIP=<Val>

Command	Possible responses
AT\$QCMIP? <i>Note : display the current setting</i>	\$QCMIP: 1 OK <i>Note : Command is valid</i>
AT\$QCMIP=? <i>Note : display the range of values</i>	\$QCMIP: (0-1) OK <i>Note : Command is valid</i>
AT\$QCMIP=0 <i>Note : set value to 0</i>	OK <i>Note : Command is valid</i>

18.26.3 Defined values :

<Val>

0 : Mobile IP disabled, Simple IP only.

1 : Mobile IP preferred. In the initial MIP registration, if the network does not support Mobile IP, then the mobile automatically reverts to Simple IP (force a PPP renegotiation by sending a LCP C-Req).

However, if a Mobile IP session is registered, and then the mobile enters a network that does not support Mobile IP, the mobile will drop the session and inform the upper layers of the failure (for example, by dropping DCD to a laptop).

2 : Mobile IP only. The mobile will make data calls only when Mobile IP is supported in the network. During a MIP session, if the mobile hands off to a network that does not support MIP, then the mobile will drop the session and inform the upper layers of the failure (for example, by dropping DCD to a laptop). This value is stored in NV. The default value is 0.

Note1: When the AT\$QCMIP value is changed to 1 or 2, this modifies the value of AT+CRM to 2. AT+CRM with a value of 2 enables network model operation. Changing the value to 0 will reset the AT+CRM to its original value.

Note2: This change is *not* supported by DMSS 5105 Release 1.0 Commercial.

Note3: When the AT\$QCMIP value is changed to 1 or 2, this modifies the value of AT\$QCMDR to 3. AT\$QCMDR=3 means that the mobile tries Service Option 33 when it is in a cdma2000 network that advertises P_REV 6 or higher. When AT\$QCMIP >0 and an attempt is made to set AT\$QCMDR to less than 3, the mobile will return ERROR.

Note4: When the AT\$QCMIP value is set to 1 or 2, this changes the value of AT\$QCPKND to 0. This means that the mobile must see a dial string (such as ATDT#777) on the serial interface before it will originate packet data calls.

When AT\$QCMIP >0 and an attempt is made to set AT\$QCPKND to 1, the mobile returns ERROR.

Note5: This AT command is for test purposes only and should not be changed by the mobile phone user.

18.27 MIP selection \$QCMIPP

18.27.1 Description :

This command is used to select the MIP user profile to be active.

18.27.2 Syntax :

Command syntax : AT\$QCMIPP

Command	Possible responses
AT\$QCMIPP? <i>Note : display the current setting</i>	\$QCMIPP: 0 <i>Note : User profile 1 is currently used</i>
AT\$QCMIPP=1 <i>Note : set to user profile 2</i>	OK <i>Note : Command is valid</i>

Note:

Takes a profile number between 0 and 5. This value is stored in NV. This AT command is expected to be used by users to configure Dial-Up Networking

18.28 RFC2002bis selection \$QCMIPT

18.28.1 Description :

This command is used to enable or disable the use of rfc2002bis authentication.

18.28.2 Syntax :

Command syntax : AT\$QCMIPT=<Val>

Command	Possible responses
AT\$QCMIPT? <i>Note : display the current setting</i>	\$QCMIPT: 1 OK <i>Note : Command is valid</i>
AT\$QCMIPT =? <i>Note : display the range of values</i>	\$QCMIPT: (0-1) OK <i>Note : Command is valid</i>
AT\$QCMIPT =0	OK

<i>Note</i> : set value to 0	<i>Note</i> : Command is valid
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18.28.3 Defined values :

<Val>

0: Use of rfc2002bis authentication is disabled. Rfc2002 style authentication is used instead.

1: Use of rfc2002bis authentication is enabled.

Note: This AT command is for test purposes only and should not be changed by the mobile phone user.

18.29 Current active profile \$QCMIEP

18.29.1 Description :

This command is used to enable or disable the currently active profile.

18.29.2 Syntax :

Command syntax : AT\$QCMIEP=<Val>

Command	Possible responses
AT\$QCMIEP? <i>Note</i> : display the current setting	\$QCMIEP: 1 OK <i>Note</i> : Command is valid
AT\$QCMIEP=? <i>Note</i> : display the range of values	\$QCMIEP: (0-1) OK <i>Note</i> : Command is valid
AT\$QCMIEP=0 <i>Note</i> : set value to 0	OK <i>Note</i> : Command is valid

18.29.3 Defined values :

<Val>

0: Disable the currently active profile (profile is unavailable until it is re-enabled).

1: Enable the currently active profile.

18.30 Return profile Information \$QCMIPGETP

18.30.1 Description :

This command is used to return all information corresponding to the specified profile number.

18.30.2 Syntax :

Command syntax : AT\$QCMIPGETP=<Val>

Command	Possible responses
AT\$QCMIPGETP? <i>Note</i> : display the current setting	ERROR <i>Note</i> : Command is not valid
AT\$QCMIPGETP=? <i>Note</i> : display the range of values	\$QCMIPGETP: (0-5) OK <i>Note</i> : Command is valid
AT\$ CMIPGETP=0 <i>Note</i> : set value to 0	Profile:0 Enabled OK <i>Note</i> : Command is valid

18.30.3 Defined values :

<Val>

(0-5): Profile #

Note: If no profile number is entered, all information corresponding to the currently active profile is returned. If there is no profile associated with the specified number, an error is returned.

18.31 Set NAI for active profile \$QCMIPNAI

18.31.1 Description :

This command is used to set the NAI for the currently active profile. There are two arguments : string corresponding to NAI to be stored and one of the 0 or 1.

18.31.2 Syntax :

Command syntax : AT\$QCMIPNAI=<string>,<Val>

Command	Possible responses
AT\$QCMIPNAI? <i>Note</i> : display the current setting	wavecommfctest11@sprintpcs.com,1 OK <i>Note</i> : Command is valid
AT\$QCMIPNAI=? <i>Note</i> : display the range of values	\$QCMIPNAI: (20,21,23-7E),(0-1) OK <i>Note</i> : Command is valid
AT\$QCMIPNAI=20,0 <i>Note</i> : set value to 20, 0	OK <i>Note</i> : Command is valid

18.31.3 Defined values :

<Val>

- 0: Do not commit to NV
- ✚ Commit to NV

Note: Double quotes are only required if the string contains a comma.

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.32 Set reverse tunneling \$QCMIPRT

18.32.1 Description :

This command is used to set the reverse tunneling currently active profile.

18.32.2 Syntax :

Command syntax : AT\$QCMIPRT=<Val1>, <Val2>

Command	Possible responses
AT\$QCMIPRT? <i>Note : display the current setting</i>	\$QCMIPRT: 1,1 OK <i>Note : Command is valid</i>
AT\$QCMIPRT=? <i>Note : display the range of values</i>	\$QCMIPRT: (0-1), (0-1) OK <i>Note : Command is valid</i>
AT\$QCMIPRT=1,1 <i>Note : set value to 1 and commit</i>	OK <i>Note : Command is valid</i>

18.32.3 Defined values :

<Val1>

- 0: Do not request reverse tunneling
- 1: Request reverse tunneling

<Val2>

- 0: Do not commit to NV
- 1: Commit to NV

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.33 Set MN-AAA shared secrets \$QCMIPMASS

18.33.1 Description :

This command is used to set MN-AAA shared secrets for the currently active profile. Two arguments – string corresponding to the shared secret to be stored and one of the values: 0 and 1.

18.33.2 Syntax :

Command syntax : AT\$QCMIPMASS =<string>,<Val>

Command	Possible responses
AT\$QCMIPMASS? <i>Note : display the current setting</i>	\$QCMIPMASS: Set OK <i>Note : Command is valid</i>
AT\$QCMIPMASS=? <i>Note : display the range of values</i>	\$QCMIPMASS: (20,21,23-7E),(0-1) OK <i>Note : Command is valid</i>
AT\$QCMIPMASS=20,0 <i>Note : set value to 20, 0</i>	OK <i>Note : Command is valid</i>

18.33.3 Defined values :

<Val>

- 0: Do not commit to NV
- 1+ Commit to NV

Note: Double quotes are only required if the string contains a comma.

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.34 Set MN-HA shared secrets \$QCMIPMHSS

18.34.1 Description :

This command is used to set MN-HA shared secrets for the currently active profile. Two arguments – string corresponding to the shared secret to be stored and one of the values: 0 and 1.

18.34.2 Syntax :

Command syntax : AT\$QCMIPMHSS =<string>,<Val>

Command	Possible responses
AT\$QCMIPMHSS? <i>Note : display the current setting</i>	\$QCMIPMHSS: Set OK <i>Note : Command is valid</i>
AT\$QCMIPMHSS=? <i>Note : display the range of values</i>	\$QCMIPMHSS: (20,21,23-7E),(0-1) OK <i>Note : Command is valid</i>

AT\$QCMIPMHSS=20,0 <i>Note</i> : set value to 20, 0	OK <i>Note</i> : Command is valid
--	--------------------------------------

18.34.3 Defined values :

<Val>

- 0: Do not commit to NV
- !+ Commit to NV

Note: Double quotes are only required if the string contains a comma.

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.35 Set MN-AAA shared secrets \$QCMIPMASSX

18.35.1 Description :

This command is used to set MN-AAA shared secret for the currently active profile in HEX. Two arguments – hexadecimal number and one of the values: 0 and 1.

18.35.2 Syntax :

Command syntax : AT\$QCMIPMASSX =<HEX>,<Val>

Command	Possible responses
AT\$QCMIPMASSX? <i>Note</i> : display the current setting	\$QCMIPMASSX: Set OK <i>Note</i> : Command is valid
AT\$QCMIPMASSX=? <i>Note</i> : display the range of values	\$QCMIPMASSX: (0-FFFFFFFF),(0-1) OK <i>Note</i> : Command is valid
AT\$QCMIPMASSX=FF,0 <i>Note</i> : set value to 0xFF, but not commit	OK <i>Note</i> : Command is valid

18.35.3 Defined values :

<HEX>

Hex value from 0 to FFFFFFFF

<Val>

- 0: Do not commit to NV
- !+ Commit to NV

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.36 Set MN-HA shared secrets \$QCMIPMHSSX

18.36.1 Description :

This command is used to set MN-HA shared secret for the currently active profile in HEX. Two arguments – hexadecimal number and one of the values: 0 and 1.

18.36.2 Syntax :

Command syntax : AT\$QCMIPMHSSX =<HEX>,<Val>

Command	Possible responses
AT\$QCMIPMHSSX? <i>Note : display the current setting</i>	\$QCMIPMHSSX: Set OK <i>Note : Command is valid</i>
AT\$QCMIPMHSSX=? <i>Note : display the range of values</i>	\$QCMIPMHSSX: (0-FFFFFFFF),(0-1) OK <i>Note : Command is valid</i>
AT\$QCMIPMHSSX=FF,0 <i>Note : set value to 0xFF, but not commit</i>	OK <i>Note : Command is valid</i>

18.36.3 Defined values :

<HEX>

Hex value from 0 to FFFFFFFF

<Val>

0: Do not commit to NV

/+ Commit to NV

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.37 Set MN-AAA shared secrets \$QCMIPMASPI

18.37.1 Description :

This command is used to set MN-AAA SPIs for the currently active profile. Two arguments – SPI value and one of the values: 0 and 1.

18.37.2 Syntax :

Command syntax : AT\$QCMIPMASPI =<SPI>,<Val>

Command	Possible responses
AT\$QCMIPMASPI? <i>Note : display the current setting</i>	\$QCMIPMASPI: 1234,1 OK <i>Note : Command is valid</i>
AT\$QCMIPMASPI=?	\$QCMIPMASPI: (0-4294967295),(0-1)

<i>Note</i> : display the range of values	OK <i>Note : Command is valid</i>
AT\$QCMIPMASPI=2300,0 <i>Note</i> : set value to 2300, but not commit	OK <i>Note : Command is valid</i>

18.37.3 Defined values :

<SPI>

SPI value from 0 to 4294967295

<Val>

0: Do not commit to NV

/+ Commit to NV

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

18.38 Set MN-HA shared secrets \$QCMIPMHSPi

18.38.1 Description :

This command is used to set MN-HA SPIs for the currently active profile. Two arguments – SPI value and one of the values: 0 and 1.

18.38.2 Syntax :

Command syntax : AT\$QCMIPMHSPi = <SPI>,<Val>

Command	Possible responses
AT\$QCMIPMHSPi? <i>Note</i> : display the current setting	\$QCMIPMHSPi: 1234,1 OK <i>Note : Command is valid</i>
AT\$QCMIPMHSPi=? <i>Note</i> : display the range of values	\$QCMIPMHSPi: (0-4294967295),(0-1) OK <i>Note : Command is valid</i>
AT\$QCMIPMHSPi=5500,0 <i>Note</i> : set value to 5500, but not commit	OK <i>Note : Command is valid</i>

18.38.3 Defined values :

<SPI>

SPI value from 0 to 4294967295

<Val>

0: Do not commit to NV

/+ Commit to NV

Note: If the value provisioned is not committed to NV, the temporary values will be deleted at the end of the following call or if \$QCMIPP is called.

19 Unsolicited AT Result Codes

19.1 Cell Broadcast Message Directly Displayed +CBM

19.1.1 Description :

This command indicates a Cell Broadcast message has been received and, according to message storage preferences (+CNMI), is to be directly displayed.

19.1.2 Syntax :

Response syntax :

+CBM: <oa>,[<alpha>] <scts>,
[<tooa>,<lang>,<encod>[,<length>] <CR><LF><data> (text mode)

Example Result

```
+CBM: "123456","98/10/01,12 :3000+00",129,1,2,5<CR><LF>  
Hello
```

Note : Cell broadcast message received

19.2 Cell Broadcast Message Stored in Memory +CBMI

19.2.1 Description :

This command indicates a Cell Broadcast message has been received and, according to message storage preferences (+CNMI), is to be stored in memory.

19.2.2 Syntax :

Response syntax : +CBMI: "BC",<index>

Example Result

```
+CBMI: "BC",5
```

Note : Cell broadcast message received and stored in "BC" memory at index 5

19.3 Cell Environment Description Indication +CCED

19.3.1 Description :

This command indicates cell environment description. It is returned when the +CCED AT command is set to return automatic shots of the cell environment. For more information, see the +CCED AT command.

19.3.2 Syntax :

Response syntax : +CCED: <dump>

Example Result
+CCED:0,2,0,300,384,0,160,384,0,384,4,8, 6,296, 6033,1,16,-69,-67,-63 <i>Note : Cell environment description indication in response to AT+CCED=1,7</i>

19.4 Call Waiting Indication +CCWA

19.4.1 Description :

This unsolicited command indicates another incoming call is occurring during an existing call. See +WFSH, section 8.5 for information about handling call-waiting situations.

19.4.2 Syntax :

Response syntax : +CCWA: <caller_id>, <type>

Example Result
+CCWA: 18005551212,129 <i>Note : Incoming call from 1-800-555-1212, type always equals 129.</i>

19.5 SMS Status Report Indication Directly Displayed +CDS

19.5.1 Description :

This command indicates an SMS status report has been received and, according to message storage preferences (+CNMI), is to be directly displayed.

19.5.2 Syntax :

Response syntax :

+CDS : <fo>,<mr>, [<ra>] , [<tora>], <scts>,<dt>,<st>

(Text mode)

Example Result
+CDS : 2, 116, "3146290800", 129, "98/10/01,12 :30 :07+04", "98/10/01 12 :30 :08+04", 0 <i>Note : SMS status report received</i>

19.6 SMS Status Report Indication Stored in Memory +CDSI

19.6.1 Description :

This command indicates an SMS status report has been received and, according to message storage preferences (+CNMI), is to be stored in memory.

19.6.2 Syntax :

Response syntax : +CDSI: "SR",<index>

Example Result
+CDSI: "SR",5 <i>Note : SMS status report received and stored in "SR" memory at index 5</i>

19.7 Key Press or Release +CKEV

19.7.1 Description :

This command a key has been pressed or released.

19.7.2 Syntax :

Response syntax : +CKEV: <key>,<press>

Example Result
+CKEV: 9,0 <i>Note : Indicates key 9 has been released</i>

19.7.3 Defined values :

<key> Keyboard map according to Qualcomm HS definitions
 <press>
 1: key press
 0: key release

19.8 Caller ID Presentation +CLIP

19.8.1 Description :

This unsolicited command indicates caller ID information is available for the current incoming call. See +CLIP, section 8.4, for enable and disabling this result.

Syntax :

Response syntax : +CLIP: <caller_id>, <type>

Example Result
+CLIP: 18005551212,129 <i>Note : Incoming call from 1-800-555-1212, type always equals 129.</i>

19.9 Incoming Message Directly Displayed +CMT

19.9.1 Description :

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

19.9.2 Syntax :

Response syntax :

+CMT:

<oa>,<scts>,<toa>,<lang>,<encod>,<priority>[,<cbn>],<length><CR><LF>

<data> (text mode)

Example Result
+CMT: "123456","98/10/01,12 :3000+00",129,1,2,5,0,"5550000",5<CR><LF> Hello <i>Note : Incoming message received</i>

19.10 Incoming Message Stored in Memory +CMTI

19.10.1 Description :

This command indicates an incoming message has been received and, according to message storage preferences (+CNMI), is to be stored in memory.

19.10.2 Syntax :

Response syntax : +CMTI: "MT",<index>

Example Result
+CMTI: "MT",5 <i>Note : Incoming message received and stored in "MT" memory at index 5</i>

19.11 Mode Preference +COPS

19.11.1 Description :

This unsolicited command indicates a change in mode preference has taken place. See +COPS, section 5.2 for information about Changing Mode Preference.

19.11.2 Syntax :

Response syntax : +COPS: <mode>

AT+COPS=0 <i>Note : Ask for Automatic mode</i>	OK +COPS:0 <i>Note: Unsolicited +COPS result confirms Automatic mode is requested</i>
AT+COPS=1 <i>Note : Ask for PCS mode</i>	OK +COPS:1 <i>Note: Unsolicited +COPS result confirms PCS mode is requested</i>
AT+COPS=2 <i>Note : Ask for Cellular mode</i>	OK +COPS:2 <i>Note : Unsolicited +COPS result confirms Cellular mode is requested</i>
	+COPS:5 <i>Note : Unsolicited +COPS:5 indicates the module is now in E911 emergency mode (seeking service anywhere it can).</i>

19.12 Registration & Roaming +CREG

19.12.1 Description :

This unsolicited command indicates the current state of roaming . See +COPS, section 5.2 for information about Changing Mode Preference.

19.12.2 Syntax :

Response syntax : +CREG: <stat>

Example Result
+CREG: 1 <i>Note : Module has found the home network and is registered.</i>

19.12.3 Defined values :

<stat>

- 0: not registered, MS is not currently searching for a new operator.
- 1: registered, home network.
- 2: not registered, MS currently searching for a base station.
- 4: unknown.
- 5: registered, roaming

19.13 Incoming Call +CRING

19.13.1 Description :

This unsolicited command indicates an incoming call. See +CRC, section 9.3 for information about enabling this result.

19.13.2 Syntax :

Response syntax : +CRING: <Type>

+CRING:VOICE	for normal voice calls
+CRING:DATA	for all types of data calls
+CRING:FAX	for all types of fax calls
+CRING:OTAPA	for OTAPA calls
+CRING:TEST	for markov, loopback, and test calls
+CRING:UNKNOWN	for unknown/undefined calls types

19.14 Automatic RxLev Indication +CSQ

19.14.1 Description :

This command indicates RSSI automatic shots when AT+CCED=1,8 is processed.

19.14.2 Syntax :

Response syntax : +CSQ: <rssi>,99

Example Result

+CSQ:29, 99

Note : RSSI notification

19.15 Incoming Call +RING

19.15.1 Description :

This unsolicited command indicates an incoming call.

19.15.2 Syntax :

Response syntax : +RING

Example Result
+RING +RING <i>Note : Incoming Call</i>

19.16 Call Answered +WANS

19.16.1 Description :

This unsolicited command indicates that a voice call has been answered.

19.16.2 Syntax :

Response syntax : +WANS:<call type>

Command	Possible responses
ATA	+RING OK +WANS:0 <i>Note: Incoming call answered</i> +WCNT:3

19.16.3 Defined values :

<call type>

0: incoming call

1: outgoing call answered by other party (only available on networks supporting answering supervision for payphone applications)

19.17 Call Connected +WCNT

19.17.1 Description :

This unsolicited command indicates that an incoming or outgoing voice call has been connected into a traffic channel state.

19.17.2 Syntax :

Response syntax : +WCNT: <so>

Command	Possible responses
ATD18005551212;	OK +WORG:18005551212 +WCNT:3 <i>Note: Call Connected with service option 3</i>

19.18 Call Ended +WEND

19.18.1 Description :

This unsolicited command indicates that a voice call or attempt to establish a voice call has ended.

19.18.2 Syntax :

Response syntax : +WEND: <reason>

Command	Possible responses
ATD18005551212;	OK +WORG:18005551212 +WCNT:3
ATH	OK +WEND:10 <i>Note: Call Ended with a normal release</i>
ATD18005551212;	OK +WORG:18005551212 +WEND:3 <i>Note: Call failed because the signal faded.</i>

19.18.3 Defined values :

<reason>

- 0: Phone is offline
- 1: Phone is CDMA locked
- 2: Phone has no service

- 3: Call Faded/Dropped
- 4: Received Intercept from Base Station
- 5: Received Reorder from Base Station
- 6: Received a Release from Base Station (This is a normal call termination).
- 7: Service Option rejected by Base Station
- 8: Received Incoming Call
- 9: Received an alert stop from Base Station
- 10: Software ended the call (Normal release).
- 11: Received End Activation – OTASP calls only.
- 12: Internal Software aborted the origination/call.
- 13: NDSS failure (Network Directed System Selection, this is an IS-95B service)
- 14: Maximum Access probes exhausted (The module failed to contact the Base Station)
- 16: RUIIM not present
- 17: Origination already in progress
- 18: General Access Failure
- 19: Received retry order (IS-2000 only).

19.19 Feature Notification Message +WFNM

19.19.1 Description :

This unsolicited command displays a broadcast message that the carrier may send to all mobiles in an emergency. This event is required for CDMA specifications.

19.19.2 Syntax :

Response syntax : +WFNM=" <message> "

Command	Possible responses
	+WFNM="Help, I have falling and I can't get up!"

19.20 Flash indication +WFSH

19.20.1 Description :

This unsolicited command confirms that a flash has been sent to the base station. See +WFSH command, section 8.5, for more information on using flash commands.

19.20.2 Syntax :

Response syntax : +WFSH

Command	Possible responses
AT+WFSH	OK +WFSH

19.21 Wavecom General Indicator +WIND

19.21.1 Description :

This unsolicited result gives general status indications.

19.21.2 Syntax :

Response syntax : +WIND: <event>

Example Result
+WIND:8
<i>Note : General indication that AT commands are ready to be accepted</i>

19.21.3 Defined values :

<event>

- 0: R-UIM not present
- 1: R-UIM present
- 2: Reserved
- 4: Reserved
- 8: Product is ready to process all AT commands
- 16: Reserved
- 32: Reserved
- 64 : The network service is available for an emergency call.
- 128: The network is lost.
- 256: Reserved
- 512: Reserved

19.22 Call Originated +WORG

19.22.1 Description :

This unsolicited command indicates that an attempt to establish a voice call has occurred.

19.22.2 Syntax :

Response syntax : +WORG:<number>

Command	Possible responses
ATD18005551212;	OK +WORG:18005551212 +WCNT:3 OK

Note: <number> is the dialing string sent to the base station. You may see extra numbers before the intended dialing string, this is a result of prepended numbers or other call options such as +CLIR.

19.23 Call Privacy indication +WPRV

19.23.1 Description :

This unsolicited command confirms that the call privacy level has changed during a call.

Syntax :

Response syntax : +WPRV: <prv>

Command	Possible responses
AT+WPRV=1	OK +WPRV: 1

<prv>

0: Indicates normal privacy

1: Indicates enhanced privacy

19.24 Roaming indication +WROM

19.24.1 Description :

This unsolicited command indicated roaming status has changed.

Syntax :

Response syntax : +WROM: <roam>

Command	Possible responses
	+WROM:1

<roam>

- 0: Home.
- 1: Roam Icon ON (affiliated network)
- 2: Roam Icon Blink (foreign network)

19.25 Current NAM Change +WNAM

19.25.1 Description :

This unsolicited command indicated the current NAM has changed.

Syntax :

Response syntax : +WNAM: <nam>

Command	Possible responses
	+WNAM:2

<nam>

- 1: NAM 1
- 2: NAM 2
- 3: NAM 3
- 4: NAM 4

19.26 Wavecom Voice Mail Indicator +WVMI

19.26.1 Description :

This unsolicited indication gives the status of the Voicemail Inbox.

19.26.2 Syntax :

Response syntax : +WVMI: <LineId>,<Num>

Example Result
+WVMI:1,1
<i>Note : 1 Message waiting on Line 1</i>

19.26.3 Defined values :

<LineId>

- 1: Line 1

<Num>

The number of messages waiting in the inbox.

- 0: No message waiting.
- 1: One message is waiting
- 3: Three messages are waiting

19.27 SMS Message Storage Full +WMGF

19.27.1 Description :

This command indicates that the SMS Service Center has attempted to send an SMS message but it was rejected because SMS Message Storage is Full. No new SMS will be received until some room is created by deleting old messages from SMS storage. Message deletion can be done using AT+CMGD

19.27.2 Syntax :

Response syntax : +WMGF

Example Result
+WMGF
<i>Note : Incoming message rejected. Message center notified with "out of resources" message. Message center will attempt to resend the message at a later time.</i>

20 Appendices

20.1 MS error result code : +CME ERROR: <error>

<error>	Meaning	Resulting from the following commands
3	Operation not allowed	All GSM 07.07 commands (+CME ERROR: 3)
4	Operation not supported	All GSM 07.07 commands (+CME ERROR: 4)
5	PH-SIM PIN required (SIM lock)	All GSM 07.07 commands (+CME ERROR: 5)
10	UIM not inserted	+CPIN
11	UIM PIN1 required	+CPIN
12	UIM PUK1 required	+CPIN, +CPIN2
13	UIM failure	+CPIN, +CPIN2
14-15	Reserved	
16	UIM wrong password	+CPIN, +CPIN2
17	UIM PIN2 required	+CPIN, +CPIN2
18	UIM PUK2 required	+CPIN, +CPIN2
20	Phone Book full	+CPBF, +CPBW
21	Invalid Index for Phone Book	+CPBF
22	Phone Book entry not found	+CPBF, +CPBP
23,25	Reserved	
24	Text string too long	
26	Dial string too long	
30	No network service	
31-39	Reserved	
40	Network personalization PIN required (Network lock)	All GSM 07.07 commands (+CME ERROR: 40)

41	Software resource not available	+WPRV, +CICB, +WFSH, +CCFC, +WNAM, +COPS, +WRMP
42	Invalid parameter	All commands
43	Non-Volatile Memory failure	All commands
44	Invalid WPIN code or WPIN required	All commands except ATD
45	Invalid WSPC provisioning code	+WSPC, +WMDN, +WIMI, +WSID, +WAOC, +WSCI, +WBGP, +WBGS, +WPDS, +WCMT
46	OTKSL provisioning code access restricted	+WMDN, +WSCI, +WBGP, +WBGS, +WPDS

20.2 Message service failure result code: +CMS ERROR : <er>

<er> is defined as below :

<er>	Meaning	Resulting from the following commands
1 to 127	Reserved	
301	Reserved	
302	Operation not allowed	All SMS commands (+CMSS, +CMGL, +CPMS...
303	Reserved	
304	Invalid mode parameter	+CMGS, +CMGW
305	Invalid text mode parameter	+CMGS, +CMGW, +CMSS
310-318	Reserved	
321	Invalid memory index	+CMGR, +CMSS, +CMGD
322	Reserved	
330	Reserved	
340	No +CNMA acknowledgement expected	+CNMA
341	Non Volatile Memory failure	All SMS commands

20.3 Specific error result codes

<error>	Meaning	Resulting from the following commands
500	unknown error.	All commands
512	Reserved	
513	Lower layer failure (for SMS)	+CMGS, +CMSS (+CMS ERROR: 513)
514-518	Reserved	
519	Reset the product to activate or change a new echo cancellation echo.	+ECHO, +VIP

20.4 Extended Error Report (+CEER) Call Processing codes

Cause value	Diagnostic
0	No error detected in call processing
1	No CDMA service detected
2	Module is in a call, operation not allowed
3	Module is not in a call, operation not allowed
4	Module is in an unknown call state
5	Call Barring is ON
6	Invalid or Not allowed CDMA Service Option
7	Invalid Parameter
8	Operation only allowed during an incoming call
9	Invalid Mode Selection

10	Invalid Roam Selection
11	Invalid Band Selection

20.5 Final result codes

Verbose result code	Numeric (V0 set)	Description
+CME ERROR: <err>	As verbose	Error from GSM 07.05 commands
+CMS ERROR: <err>	As verbose	Error from SMS commands (07.07)
BUSY	7	Busy signal detected
ERROR	4	Command not accepted
NO ANSWER	8	Connection completion timeout
NO CARRIER	3	Connection terminated
OK	0	Acknowledges correct execution of a command line
RING	2	Incoming call signal from network

20.6 Intermediate result codes

Verbose result code	Numeric (V0 set)	Description
+COLP : <number>, <type>	as verbose	Outgoing Call Presentation
+CR : <type>	as verbose	Outgoing Call report control
+ILRR: <rate>	as verbose	Local TA-TE data rate
CONNECT 300	10	Data connection at 300 bauds
CONNECT 1200	11	Data connection at 1200 bauds
CONNECT 1200/75	12	Data connection at 1200/75 bauds
CONNECT 2400	13	Data connection at 2400 bauds
CONNECT 4800	14	Data connection at 4800 bauds
CONNECT 9600	15	Data connection at 9600 bauds
CONNECT 14400	16	Data connection at 14400 bauds
+CSSI: <code1>[, <index>]	As verbose	Supplementary service notification during a call setup

20.7 Parameters Storage

Command	AT&W	E2save	AT&F	Default Values
General commands				
+CSCS	X		X	CDMA
+CMEE	X		X	0
+CRSL			X	1
+WIND		X	X	RUIM: 9; TE:8
Call control commands				
%D			X	0
ATSO	X		X	0 no auto answer
+CICB	X		X	2
+CSNS	X		X	
+VGR	X		X	3
+VGT	X		X	2
+SPEAKER	X		X	1
+ECHO		X	X	5
+SIDET	X		X	
Network commands				
+COPS		X (n,0 mode)	X	0,0
+CREG	X		X	0
SMS commands				
+CSDH	X		X	0
+WUSS			X	0
+WSCL	X		X	RUIM: 6,4
Supplementary service commands				
+CLIP	X		X	1
Data commands				
+CRC	X		X	0
+DS	X		X	
+DR	X		X	0
Fax class 2 commands				

+FCQ	X		X	
+FCR	X		X	
+IPR		X		115200
+ICF	X			3,3
+IFC	X			2,2
<i>V24-V25 commands</i>				
E	X			1
⊕C	X			2
⊕D	X			2
Phonebook				
+WAIP	X			1

20.8 Possible codes for SMS-STATUS-REPORT as reported by +CDS and +CMGR

<st> is defined as below :

<st>	Meaning
Network Problems (IS-41D)	
0	Address vacant
1	Address translation failure
2	Network resource shortage
3	Network failure
4	Invalid Teleservice id
5	Other Network Problem
Terminal Problems (IS-41D)	
32	No page response
33	Destination busy
34	No acknowledgment
35	Destination resource shortage
36	SMS delivery postponed
37	Destination out of resources
38	Destination no longer at this address
39	Other terminal problem
Radio Interface Problems (IS-41D)	
64	Radio IF resource shortage
65	Radio IF incompatible
66	Other Radio IF problem
General problems (IS-41D)	
96	Unexpected parameter size
97	SMS Origination denied
98	SMS Termination denied
99	Supplementary service not supported
100	SMS not supported
101	Reserved
102	Missing expected parameters
103	Missing mandatory parameters
104	Unrecognized parameter value
105	Unexpected parameter value
106	User data size error
107	Other General problems
General codes (Not defined in IS-41D)	
32768	SMS OK. Message successfully delivered to base station
32769	Waiting for transport layer acknowledgment
32770	Out of resources (e.g. out of memory buffer)
32771	Message too large to be sent over access channel
32772	Message too large to be sent over data traffic channel
32773	Network not ready
32774	Phone not ready
32775	Cannot send message in analog mode
32776	Cannot send broadcast message
32777	Invalid transaction id

20.9 AT commands supported when SIM card removed

The following list of the AT commands are supported in a RUIM module (the module needs a SIM card to operate) when the SIM card is not present.

# list	AT command	Note and explanation
1	+IPR	Set module fixed baud rate
2	+CMEE	Display the error code
3	+CCLK	Clock management
4	+CBC?	Query the battery charge
5	+WIND	General status indication
6	ATE	Set modem local echo
7	+CPOF	Module OFFLine mode
8	+CFUN	Reset the module

20.10 AT commands for AMPS operation

In the APMS mode, only the voice call is applicable. Although user can still issue almost all of AT commands, the most of the AT commands are not applicable for AMPS operation, e.g. data commands, SMS, FAX, RUIIM commands, service programming etc.

The following table list the AT commands that are meaningful for AMPS operation. Please note that these listed AT commands are also applicable in CDMA operations.

# list	AT command	Note and explanation
1	+COPS	+COPS=3,n (n=0,1,2)
2	ATD	Making a voice call
3	ATA	Answer a voice call
4	ATDL	Redial last #
5	+VGR	Change the receiving voice volume
6	+VGT	Change the transmitting voice volume
7	+CMUT	Mute the microphone
8	A/	Repeat last command
9	ATSO	Set auto answer
10	ATH	Hang up a voice call
11	ATI	Request for module information
12	+IPR	Set module baud rate
13	+CNUM	Display module directory #
14	+CGSN	Display module ESN #
15	+CMEE	Display the error code
16	+WPRL	Read the PRL version
17	+CPOF	Module OFF mode
18	+CFUN	Reset the module

21 APPENDIX A (informative)

This chapter gives illustrative examples of the general AT commands used for a communication.

21.1 Example 1: When the MS has already been powered on.

AT+CMEE=1	Enable the report mobile equipment errors
OK	
AT+CPAS	Get the MS Status
+CPAS: 0	MS is ready to receive commands
OK	

21.1.1 Examples where a voice call is originated.

Example 3 : When the MS is powered on.

AT+CMEE=1	Enable the reporting of mobile equipment errors
OK	
ATD18001234567;	Make a voice call
OK	ATD Command is being processed
+WORG:18001234567	Indication of call origination sent to the Base Station with dialing
string 18001234567	
+WCNT:3	Call Connected with CDMA Service Option 3, Traffic channel established.
Conversation...	
ATH	Release the call
OK	ATH command is being processed
+WEND:10	Call Ended, end reason 10 (Normal Release).

21.1.2 Example with incoming calls

When the MS is powered on.

AT+CMEE=1	Enable the report mobile equipment errors
OK	
AT+WIND=63	Ask to display the general indications.
OK	
AT+CLIP=1	Enable the calling line identification presentation.
OK	
AT+CNUM	Query own number.
+CNUM: "Phone", "8585551212", 129	
OK	

Call the number from another MS.

+RING	Incoming Call.
+CLIP: "8585551212", 129	Identification of the remote party.
ATA	Answer the call.
OK	ATA command is being processed.
+WANS	Call has been answered.
+WCNT:3	Call Connected with CDMA Service Option 3, Traffic channel established.
...Conversation...	
+WEND:6	Call Ended, end reason 6 (Normal Release), the call has been released by the remote party.

21.1.3 Example of a call waiting situation

When the MS is powered on.

AT+CMEE=1	Enable the report mobile equipment errors
OK	
ATD8585551212;	Make a voice call
OK	ATD Command is being processed
+WORG:8585551212	Indication of call origination sent to the Base Station with dialing
string 18001234567	
+WCNT:3	Call Connected with CDMA Service Option 3, Traffic channel established.
Conversation...	Conversation with first call.
+CCWA:"8582701234",129	Indication of another incoming call. You will also hear a beep sound in the earpiece.
AT+WFSH	Send a flash to the Base Station (toggle to the second call).
OK	AT command is being executed.
+WFSH	Flash sent to the Base Station. Call switches to the second call. However, this is not 100% guaranteed because there is not confirmation from the Base Station.
Conversation...	Conversation with second call.
AT+WFSH	Send a flash to the Base Station (toggle to the second call).
OK	AT command is being executed.
+WFSH	Flash sent to the Base Station. Call switches to the first call. However, this is not 100% guaranteed because there is not confirmation from the Base Station.
Conversation...	Conversation with first call.
.	
.	
repeat as necessary	
.	
.	
ATH	Release the all calls.
OK	ATH command is being executed.
+WEND:10	Calls End

21.2 Examples about short messages

21.2.1 Example 1: Receive a short message

AT+CNMI=2,1,1,1,0	SMS-DELIVERs are stored in NV, SMS-STATUS-REPORTs are routed to TE
OK	
+CMTI:"MT",0	New message received. Message store in "MT" memory at index 0.
AT+CNMI=2,2,1,1,0	SMS-DELIVERs are routed to TE
+CMT:"8585551212","02/05/17,10 :43 :07",129,1,2,0,"5550000",17	Received message.
Test SMS Message	
AT+CNMA	Acknowledge the received message to the network.
OK	

21.2.2 Example 2: Send a short message

AT+CNMI=2,1,1,1,0 SMS-DELIVERs are stored in NV, SMS-STATUS-REPORTs are routed to TE

OK

AT+CMGS="8585551212" Send a SMS-SUBMIT to mobile phone
 Product sends a 4 characters sequence: 0x0D 0x0A 0x3E 0x20
 This is the first text line Edit first line and press carriage return (<CR>, 0x0D)
 This is the last text line Edit last line and send message by pressing <ctrl-Z> (0x1A)

+CMGS: 1 Success: message reference 1 is returned from the SMS Service Center

+CDS:2,1,"8582431439",129,"02/05/17,10 :14 :17","02/05/17,10 :14 :27",32768
 Success: report of successful message delivery received. Time of sending of the message and receiving of the acknowledgment from the SMS Service Center is reported, along with the status code.

21.2.3 Example 2: Send a short message by a selected language and a coding format

AT+CNMI=2,1,1,1,0 SMS-DELIVERs are stored in NV, SMS-STATUS-REPORTs are routed to TE

OK

AT+WSCL=6,4 select SMS in Chinese language and with Unicode format

AT+CMGS="8585551212" Send a SMS-SUBMIT to mobile phone
 Product sends a 4 characters sequence: 0x0D 0x0A 0x3E 0x20
 Chinese characters in Unicode Edit first line and press carriage return (<CR>, 0x0D)
 This is the last message line The SMS will be sent when passer see <ctrl-Z> (0x001A)

+CMGS: 1 Success: message reference 1 is returned from the SMS Service Center

+CDS:2,1,"8585551212",129,"02/05/17,10 :14 :17","02/05/17,10 :14 :27",129,18,6,4
 Success: report of successful message delivery received. Time of sending of the message and receiving of the acknowledgment from the SMS Service Center is reported, along with the status code.

21.2.4 Example 3: Send a short message by a selected priority and with call back number

AT+CNMI=2,1,1,1,0 SMS-DELIVERs are stored in NV, SMS-STATUS-REPORTs are routed to TE

OK

AT+WSCL=6,4 select SMS in Chinese language and with Unicode format

AT+CMGW="8585551212",20,2,"2345678901" write an SMS to store in mobile phone with 20 charaters, priority 2 and the ccall back number "2345678901"

Chinese characters in Unicode The SMS will be stored when 20 characters are entered
 This is the last message line

+CMGW: 0 The SMS is stored in the first location of the SIM card
 AT+CMSS=0 send the SMS from location index 0
 +CMSS:1
 OK

+CDS:2,1,"8582431437",129,"03/04/11,14 :10 :56","03/04/11,14 :11 :02",32768

21.2.5 Example 3: Read short messages

AT+CPMS="MT" Set Mobile Terminated as preferred memory storage
OK
+CPMS:2,10,1,10 Currently there are 2 MT messages and 1 MO messages stored.

AT+CMGL="ALL" List all stored messages
OK
+CMGL:0,"REC READ","8585551111", 1,2
Test message #1

+CMGL:1,"REC UNREAD","8585552222",1,2
Test message #2

+CMGL:0,"STO UNSENT","8585551212",1,2
Test message to be sent.

AT+CMGR=1 Read the first message in currently selected memory
OK storage (previously set by AT+CPMS).

+CMGR:"REC UNREAD","8585552222","02/05/15,15 :54 :04",1,2,0,"5550000"
Test message #2

22 APPENDIX (standard]: TIA/EIA/IS-707.3

This appendix describes the AT commands specified in the TIA/EIA/IS-707.3 and implemented in WISMOQ CDMA module. Please refer to the attached document for the detail.

