



AirCard/AirPrime UMTS

Supported AT Command Reference



SIERRA
WIRELESS

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Consult our website for up-to-date product descriptions, documentation, application notes, firmware upgrades, troubleshooting tips, and press releases:

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Revision History

Revision number	Release date	Changes
2.3	Jul 2007	<ul style="list-style-type: none"> Fixed !TIME syntax Added +ECIO, !GSMINFO, !INVPORTSET, !SMSSTSEN Added detail for !SMSRETRY
2.4	Jan 2008	<ul style="list-style-type: none"> Updated !TIME syntax

Revision number	Release date	Changes
2.5	Mar 2008	<ul style="list-style-type: none"> Added band indexes (0C,0D) and clarified query use for !BAND Clarified !NVBACKUP options Clarified +ECIO and +USET
2.6	Jul 2008	<ul style="list-style-type: none"> Added C885/C888/MC8790/MC8790V to supported modems list Updated minimum firmware revisions Updated 'supported modems' lists for several commands Updated !GRELIMEI Added !SCPROFDEL, !SDNOTINSTALLED, !SIMNOTINSTALLED Changed 'Support' status to 'Yes' for supported AT commands described in Chapter 2: +CMMS, +CPOL, +CPUC, +CTFR, +DS, &F, O, +VTD, +VTS
2.7	Sep 2008	<ul style="list-style-type: none"> Added MC8791V and MC8792V to supported modems list Added WCDMA900 content to !BAND and !GSTATUS
2.8	Apr 2009	<ul style="list-style-type: none"> Added +ETFCI Table 2-3: Indicated support for +CIEV, +CIND, +CMER Moved !AUTH and !GCIPHER into different chapters Added general and AT command indexes
2.9	Jun 2009	<ul style="list-style-type: none"> Corrected !AUTH output argument order Added escape sequence guard time information (page 11)
2.10	Oct 2009	<ul style="list-style-type: none"> Standardized command detail format Replaced device-specific references with chipset-specific references Added !MAPCSD Added additional *CNTI technologies Updated !REL—list of WCDMA RRC Revisions Updated support state for &D, &S, &W, A/ in Table 2-1 Updated support state for +CMUX in Table 2-3
3.0	Feb 2010	<ul style="list-style-type: none"> New corporate branding Added MC8201 Added !SCWINS, !SPN
4	November 2010	<ul style="list-style-type: none"> Updated !TIME execution description Updated AT Q support (supported by MSM6290) Updated +USET, +RSCP, +ECIO, +CQI for dual carrier Added SL808x devices, AC312U, AC319U Added !UTCTIME, !GVERBT

UMTS AirCard/AirPrime Supported AT Command Reference

Revision number	Release date	Changes
5	February 2011	<ul style="list-style-type: none"> • Added MDM6200, MDM8200A, MDM9200, MDM9600 • Removed MSM6246, MSM6280, MSM7200, MSM7201 • Added +DLMOD, !SCNETDNS, +WPOWER, +WTBI • Updated !GSTATUS, !REL • Removed !NVPORTSET
6	July 2011	<ul style="list-style-type: none"> • New commands: <ul style="list-style-type: none"> • +CPINC, +CPIN2, !SCLTEPROF, !SIMRSTC • Updated commands: <ul style="list-style-type: none"> • !GSTATUS—Updated response formats for GSM, WCDMA, LTE • !GVERBT—Added MDM8220, MDM9200, MDM9600 support
7	May 2012	<ul style="list-style-type: none"> • Updated commands: <ul style="list-style-type: none"> • !SELRAT—updated list of available RAT configurations • !UDINFO—added interface type response parameter



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1: About this Guide

Introduction

This document describes standard and proprietary AT commands available for Sierra Wireless™ UMTS AirCard® mobile broadband devices and AirPrime™ intelligent embedded modules.

Standard 3GPP AT commands for UMTS devices are described in the following 3GPP (3rd Generation Partnership Project) specifications:

- *TS 27.007 AT command set for User Equipment (UE)*
- *TS 27.005 Use of Data Terminal Equipment—Data Circuit terminating Equipment (DTE-DCE) interface for Short Message Service (SMS) and Cell Broadcast Service (BSE)*

Some standard 3GPP commands are NOT supported, or are partially supported. These commands are identified in [Supported GSM/WCDMA AT Commands](#) on page 17,

Note: You may also want to consult other documents available on our Internet site at www.sierrawireless.com.

Proprietary AT commands are supplemental to the standard AT commands.

The commands in this document apply to the Sierra Wireless devices listed in [Table 1-1](#).

Table 1-1: Supported devices^a

Chipset	Devices	Firmware revision (minimum) ^b
MDM6200	SL809X	P0.0
MDM6270	SL8081 ^c SL8083 ^c SL8085 ^c	S2.0.0.9
MDM8200	AC503 MC8700 USB 306 USB 307 AirCard USB 308 AirCard USB 309	M2_0_4_0ap
MDM8200A	AC318U AC326U MC8704 MC8705	(MC8704) T2_0_1_4 (Others) T1_0_1_1
MDM8220	AC312U AC319U MC8801	N_0_0_0ap

Table 1-1: Supported devices^a (Continued)

Chipset	Devices	Firmware revision (minimum) ^b
MDM9200	AC313U AC320U MC7700 MC7710	9200X_01.00.00.00
MDM9600	MC7750	9600M_01.00.00.00
MSM6290	AC501 AC504 MC8790/ MC8790V MC8791V MC8792V MC8795V C888 C889 USB 301 USB 302	K1_0_2_8ap
QSC6270	SL8080 SL8081 ^c SL8082 SL8083 ^c SL8084 SL8085 ^c	S1.0

- a. Changes made to this document after a given device reaches end-of-life may not apply to that device. Refer to the [Revision History](#) on page 4 for a summary of changes made in recent releases of this document.
- b. Any exceptions are indicated in the command detail sections.
- c. SL8081, SL8083, and SL8085 may use either MDM6270 or QSC6270 chip-sets.

Note: When designing applications that use these AT commands, use Watcher[®] (and other Sierra Wireless applications) as functionality templates to ensure proper use of command groups. For questions or concerns relating to command implementation, please contact your Sierra Wireless account representative.

Command timing

Interval timing

Some commands require time to process before additional commands are entered.

When building automated test scripts, ensure that sufficient delays are embedded where necessary to avoid these errors.

Escape sequence guard time

The AT escape sequence “+++” requires a guard time of 1.0 seconds before and after it is used.

Result codes

Result codes are not shown in the command tables unless special conditions apply. Generally the result code OK is returned when the command has been executed. ERROR may be returned if parameters are out of range, and is returned if the command is not recognized or is not permitted in the current state or condition of the modem.

Terminology and acronyms

This document makes use of acronyms that are in common use in data communications and cellular technology. Our [Internet site](#) provides a *Glossary of Terms and Acronyms (document number 2130891)* that may be helpful in understanding some acronyms and terminology used in this guide.

Current firmware versions

Versions

To determine your firmware revision:

- Enter the identification command **AT+GMR**
The modem responds with version information for software, firmware, and hardware.
The details following the revision number include Sierra Wireless information on the specific build followed by the date and time of the build.

```
+GMR: ... F/W VER: R1_0_0_...
```

Upgrading

If your modem firmware is an earlier version, you can acquire updated firmware by contacting your account manager.

Document structure

This document includes a chapter covering [Supported 27.007 AT commands](#), as well as the proprietary commands listed in the tables below. Each table corresponds to a specific chapter.

Modem Status, Customization, and Reset Commands—Commands used to determine modem status, adjust customization settings, and reset the modem.

Table 1-2: Modem status commands

Command	Description	Page
!BAND	Select/return frequency band set	30
!BCINF	Return CWE headers, including bootloader version	31
!BOOTHOLD	Reset modem and wait in bootloader for firmware download	31
^CARDMODE	Return SIM card mode (card type)	31
+CLVL	Set/return internal loudspeaker volume	32
+CMUT	Enable/disable uplink voice muting	32
*CNTI	Report current, available, and supported network technologies	33
+CPINC	Return number of unlock attempts remaining	34
+CPIN2	Query SIM card PIN2 status or verify PIN2 code	34
+CQI	Enable/disable/return averaged CQI return (WCDMA only)	35
!CSDONSIO2	Configure secondary SIO port for circuit-switched data	36
+DLMOD	Return DL modulation values	36
+ECIO	Return total Energy per chip per power density value (WCDMA only)	37
+ETFCI	Enable/disable/return E-TFCI average value	38
!GCIPHER	Enable/disable ciphering and integrity settings	39
!GETBAND	Return the current active band	39
!GETRAT	Return the current active radio access technology (RAT)	40
!GRELIMEI	Return the modem's production TAC	40
!GRESET	Reset the modem	40
!GSMINFO	Return 2G network information	41
!GSTATUS	Return operational status	43
!GVER	Return the firmware version	49
!GVERBT	Return the boot loader version	49
^HVER	Return the modem hardware version	49
!MAPCSD	Map CSD service to port	50
!PCTEMP	Return current temperature information	50
!PCVOLT	Return current power supply voltage information	51
!POWERDOWN	Power down system	51
!REL	Return active protocol/revision	52
!RESET	Reset modem	52

Table 1-2: Modem status commands (Continued)

Command	Description	Page
+RSCP	Return Received Signal Code Power (RSCP) (WCDMA only)	53
!SCACT	Activate/deactivate PDP context for FIFO interface	53
!SCDFTPROF	Set/return default profile ID	54
!SCDNS	Set/return profile ID DNS address	54
!SCLTEPROF	Set/return profile ID to attach on LTE network	55
!SCNETDNS	Return DNS addresses for active profiles	55
!SCPADDR	Return IP address for specified PDP context	56
!SCPROF	Set/return SWI-specific profile information	56
!SCPROFDEL	Erase profile information	57
!SCWINS	Set/return profile's WINS addresses	57
!SDNOTINSTALLED	Return SD installation status	57
!SELMODE	Set/return current service domain	58
!SELRAT	Set/return current radio access technology (RAT)	59
!SIMNOTINSTALLED	Return SIM installation status	59
!SIMRSTC	Enable/disable SIM refresh reset notification	60
!SMSRETRY	Set/return SMS retry period and interval	61
!SMSSTSEN	Enable/disable SMS status reports	62
!SWICALLPROG	Enable/disable Call Progress Notification	63
^SYSCONFIG	Set/return system configuration information	65
^SYSINFO	Return service status information	66
!TIME	Set/return current time of day	67
!UDINFO	Return information from active USB descriptor	68
+UPSC	Return Primary Scrambling Code (WCDMA only)	68
+USET	Return WCDMA set information	69
!UTCTIME	Set/return UTC time of day	71
&V	Enable/disable/return averaged CQI return (WCDMA only)	72
+WPOWER	Return average WCDMA power level over time period	73
+WTBI	Enable/disable GSM/GPRS Tx Burst indication	74

Diagnostic Commands—Commands used to select frequency bands and diagnose problems.

Command	Description	Page
!MXSTATS	Display/clear 27.010 statistics	76

Test commands—Commands required to place the modem in particular modes of operation, test host connectivity, and configure the transmitters and receivers for test measurements.

Command	Description	Page
!ERR	Display diagnostic information	78
!GCCLR	Clear crash dump data	78
!GCDUMP	Display crash dump data	78

Memory Management Commands—Commands that control the data stored in non-volatile memory of the modem.

Command	Description	Page
!INVBKUP	Back up items stored in non-volatile memory	80

SIM Commands—Commands that communicate with an installed (U)SIM.

Command	Description	Page
!AUTH	Run GSM algorithm on SIM	82
!ICCID	Return (U)SIM card's ICCID	82
!SPN	Return (U)SIM card's SPN	83

Conventions

The following format conventions are used in this reference:

Character codes or keystrokes that are described with words or standard abbreviations are shown within angle brackets using a different font, such as <CR> for Carriage Return and <space> for a blank space character.

Numeric values are decimal unless prefixed as noted below.

Hexadecimal values are shown with a prefix of 0x, i.e. in the form 0x3D.

Binary values are shown with a prefix of 0b, i.e. in the form 0b00111101.

Command and register syntax is noted using an alternate font: **!CHAN=<c>[.b]**. The “AT” characters are not shown but must be included before all commands except as noted in the reference tables.

Characters that are required are shown in uppercase; parameters are noted in lowercase. Required parameters are enclosed in angle brackets (<n>) while optional parameters are enclosed within square brackets ([x]). The brackets are not to be included in the command string.

Commands are presented in table format. Each chapter covers the commands related to that subject and presents a summary table to help you locate a needed command. Commands are in ASCII alphabetical order in the body of each chapter.

Any default settings are noted in the command tables. Note that these are the factory default settings and *not* the default parameter value assumed if no parameter is specified.

Result Code This is a numeric or text code that is returned after all commands (except resets)—text codes are returned if verbose responses are enabled. Only one result code is returned for a command line regardless of the number of individual commands contained on the line.

Response This term indicates a response from the modem that is issued prior to a result code. Reading registers or issuing commands that report information will provide a response followed by a result code unless the command generates an error.

Responses and result codes from the modem, or host system software prompts, are shown in this font:

CONNECT 14400

2: Supported GSM/WCDMA AT Commands

This chapter identifies standard AT commands that are supported by Sierra Wireless UMTS AirCard and AirPrime devices. These commands:

- Control serial communications over an asynchronous interface (*ITU-T Serial Asynchronous Dialling and Control (Recommendation V.250)*), available on the International Telecommunication Union web site, www.itu.int. See [Table 2-1](#) below.
- Control SMS functions for devices on GSM/WCDMA networks (*3GPP TS 27.005*, available on the 3GPP web site, www.3gpp.org) See [Table 2-2](#) on page 19.
- Control devices operating on GSM/WCDMA networks (*3GPP TS 27.007*, available on the 3GPP web site, www.3gpp.org) See [Table 2-3](#) on page 20.

The tables below identify whether each command is supported on Sierra Wireless UMTS devices. An “N/A” in the Supported column of the table indicates that the command is related to a feature (such as voice) that is not available on the modems.

Commands that are partially supported include descriptions identifying any limitations on command usage. Also, some commands are described in more detail in later chapters—the descriptions for these commands link to those detailed entries (for example, [&V](#) in [Table 2-1](#) on page 17).

Table 2-1: Supported ITU-T Recommendation V.250 AT commands

Command	Description	Supported ✓=Yes; ✗=No
&C	Set Data Carrier Detected (Received line signal detector) function mode	✗
&D	Set Data Terminal Ready function mode	✓
&F	Set all current parameters to manufacturer's defaults	✓
&S	Set DSR signal	✓
&T	Auto tests	✗
&V	Return operating mode AT configuration parameters	✓
&W	Store current parameter to user-defined profile	✓
+DR	V42bis data compression report	✓
+DS	V42bis data compression	✓
+GCAP	Request complete TA capabilities list	✓
+GMI	Request manufacturer identification	✓

Table 2-1: Supported ITU-T Recommendation V.250 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+GMM	Request TA model identification	✓
+GMR	Request TA revision identification	✓
+GOI	Request global object identification	✗
+GSN	Request TA serial number identification	✓
+ICF	Set TE-TA control character framing	✓
+IFC	Set TE-TA local data flow control	✓
+ILRR	Set TE-TA local rate reporting mode	✗
+IPR	Set fixed local rate	✓
A	Answer incoming call	✓
A/	Re-issues last AT command given	✓
D	Dial	✓
D><MEM><N>	Originate call to phone number in memory <MEM>	✗
D><N>	Originate call to phone number in current memory	✓
D><STR>	Originate call to phone number in memory which corresponds to alphanumeric field <STR>	✗
DL	Redial last telephone number used	✗
E	Set command echo mode	✓
H	Disconnect existing connections	✓
I	Display product identification information	✓
L	Set monitor speaker loudness	✗
M	Set monitor speaker mode	✗
O	Switch from command mode to data mode	✓
P	Select pulse dialing	✗
Q	Set Result code presentation mode	✓ (MSM6290 only)
S0	Set number of rings before automatically answering the call	✓
S10	Set disconnect delay after indicating the absence of data carrier	✓
S3	Set command line termination character	✓
S4	Set response formatting character	✓
S5	Set command line editing character	✓
S6	Set pause before blind dialing	✓

Table 2-1: Supported ITU-T Recommendation V.250 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
S7	Set number of seconds to wait for connection completion	✓
S8	Set number of seconds to wait when comma dial modifier used	✓
T	Select tone dialing	✓
V	Set result code format mode	✓
X	Set connect result code format and call monitoring	✓
Z	Set all current parameters to user-defined profile	✓

Table 2-2: Supported 27.005 AT commands

Command	Description	Supported ✓=Yes; ✗=No
+CBM	Cell broadcast message directly displayed	✓
+CBMI	Cell broadcast message stored in memory at specified <index> location	✗
+CDS	SMS status report after sending a SMS	✓
+CDSI	Incoming SMS status report	✓
+CMGC	Send command	✓
+CMGD	Delete message	✓
+CMGF	Message format	✓
+CMGL	List messages	✓
+CMGR	Read message	✓
+CMGS	Send message	✓
+CMGW	Write message to memory	✓
+CMMS	More messages to send	✓
+CMNA	New message acknowledgement to ME/TA	✓
+CMS ERROR: <err>	SMS error (mobile or network error)	✓
+CMSS	Send message from storage	✓
+CMT	Incoming message directly displayed	✓
+CMTI	Incoming message stored in <mem> ("SM" - (U)SIM message storage) at location <index>	✓
+CNMA	New message acknowledgement to mobile equipment	✓
+CNMI	New message indications to TE	✓
+CPMS	Preferred message storage	✓

Table 2-2: Supported 27.005 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CRES	Restore settings	✗
+CSAS	Save settings	✗
+CSCA	Service center address	✓
+CSCB	Select cell broadcast message types	✓
+CSDH	Show text mode parameters	✓
+CSMP	Set text mode parameters	✓
+CSMS	Select message service	✓

Table 2-3: Supported 27.007 AT commands

Command	Description	Supported ✓=Yes; ✗=No
C	ITU T V.24 circuit 109 carrier detect signal behavior command Format <ul style="list-style-type: none"> • C<value> Limitations <ul style="list-style-type: none"> • Default <value> = 2 • <value> = 2 causes the AT/Data carrier detect pin to 'wink' (briefly switch off and on) when data calls end. • <value> = 0 or 1 performs as defined in the standard 	Partial
+CACM	Accumulated call meter	✗
+CACSP	Voice Group or Voice Broadcast Call State Attribute Presentation	N/A
+CAEMLPP	eMLPP Priority Registration and Interrogation	✗
+CAHLD	Leave an ongoing Voice Group or Voice Broadcast Call	N/A
+CAJOIN	Accept an incoming Voice Group or Voice Broadcast Call	N/A
+CALA	Alarm	N/A
+CALCC	List current Voice Group and Voice Broadcast Calls	N/A
+CALD	Delete alarm	N/A
+CALM	Alert sound mode	✗
+CAMM	Accumulated call meter maximum	✗
+CANCHEV	NCH Support Indication	✗
+CAOC	Advice of Charge	✗
+CAPD	Postpone or dismiss an alarm	N/A
+CAPTT	Talker Access for Voice Group Call	N/A
+CAREJ	Reject an incoming Voice Group or Voice Broadcast Call	N/A

Table 2-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CAULEV	Voice Group Call Uplink Status Presentation	N/A
+CBC	Battery charge	✓
+CBST	Select bearer service type	✓
+CCCM	Current call meter value	✗
+CCFC	Call forwarding number and conditions	✓
+CCLK	Clock	N/A
+CCUG	Closed user group	✓
+CCWA	Call waiting	✓
+CCWE	Call Meter maximum event	✗
+CDIP	Called line identification presentation	✗
+CDIS	Display control	✗
+CEER	Extended error report	✗
+CFUN	Set phone functionality Format <ul style="list-style-type: none"> • +CFUN = [<fun> [, <rst>]] Limitations <ul style="list-style-type: none"> • Valid <fun> values: <ul style="list-style-type: none"> • 0 (minimum functionality, low power draw) • 1 (full functionality, high power draw) 	Partial
+CGACT	PDP context activate or deactivate	✓
+CGANS	Manual response to a network request for PDP context activation	✗
+CGATT	PS attach or detach	✓
+CGAUTO	Automatic response to a network request for PDP context activation	✗
+CGCLASS	GPRS mobile station class	✓
+CGCLOSP	Configure local octet stream PAD parameters	✗
+CGCMOD	PDP Context Modify	✗
+CGDATA	Enter data state	✓
+CGDCONT	Define PDP Context	✓
+CGDSCONT	Define Secondary PDP Context	✓
+CGEQMIN	3G Quality of Service Profile (Minimum acceptable)	✓
+CGEQNEG	3G Quality of Service Profile (Negotiated)	✓
+CGEQREQ	3G Quality of Service Profile (Requested)	✓

Table 2-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CGEREP	Packet Domain event reporting	✓
+CGEV	GPRS network event indication	✓
+CGMI	Request manufacturer identification	✓
+CGMM	Request model identification	✓
+CGMR	Request revision identification	✓
+CGPADDR	Show PDP address	✓
+CGQMIN	Quality of Service Profile (Minimum acceptable)	✓
+CGQREQ	Quality of Service Profile (Requested)	✓
+CGREG	GPRS network registration status	✓
+CGSMS	Select service for MO SMS messages	✓
+CGSN	Request product serial number identification	✓
+CGTFT	Traffic Flow Template	✓
+CHLD	Call related supplementary services	✓
+CHSA	HSCSD non-transparent asymmetry configuration	N/A
+CHSC	HSCSD current call parameters	N/A
+CHSD	HSCSD device parameters	N/A
+CHSR	HSCSD parameters report	N/A
+CHST	HSCSD transparent call configuration	N/A
+CHSU	HSCSD automatic user initiated upgrading	N/A
+CHUP	Hangup call	✓
+CIEV	Indicator event	✓
+CIMI	Request international mobile subscriber identity	✓
+CIND	Indicator control	✓
+CKEV	Key press or release event	✗
+CKPD	Keypad control	✗
+CLAC	List all available AT commands	✗
+CLAE	Language Event	✗
+CLAN	Set Language	✗
+CLCC	List current calls	✓ (MSM6290 voice-enabled devices only)

Table 2-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CLCK	Facility lock	✓
+CLIP	Calling line identification presentation	✓
+CLIR	Calling line identification restriction	✓
+CLVL	Set/return internal loudspeaker volume	✓
+CMAR	Master Reset	✗
+CME ERROR: <err>	Mobile Termination error result code	✓
+CMEC	Mobile Termination control mode	✗
+CMEE	Report Mobile Termination error	✓
+CMER	Mobile Termination event reporting	✓
+CMOD	Call mode	✓
+CMUT	Enable/disable uplink voice muting	✓
+CMUX	Multiplexing mode	✓ (When MUX mode configured on USB interface.)
+CNUM	Subscriber number	✓
+COLP	Connected line identification presentation	✓
+COPN	Read operator names	✓
+COPS	Operator selection	✓
+CPAS	Phone activity status	✓
+CPBF	Find phonebook entries	✓
+CPBR	Read phonebook entries	✓
+CPBS	Select phonebook memory storage	✓
+CPBW	Write phonebook entry	✓
+CPIN	Enter PIN	✓
+CPOL	Preferred operator list	✓
+CPROT	Enter protocol mode	✗
+CPUC	Price per unit and currency table	✓
+CPWC	Power class	✗
+CPWD	Change password	✓
+CR	Service reporting control	✓

Table 2-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; X=No
+CRC	Cellular result codes	✓
+CREG	Network registration	✓
+CRING	Incoming call type	✓
+CRLP	Radio link protocol	✓
+CRMP	Ring Melody Playback	N/A
+CRSL	Ringer sound level	N/A
+CRSM	Restricted SIM access	✓
+CSCC	Secure control command	X
+CSCS	Select TE character set	✓
+CSDF	Settings date format	N/A
+CSGT	Set Greeting Text	N/A
+CSIL	Silence Command	N/A
+CSIM	Generic SIM access	✓
+CSNS	Single numbering scheme	X
+CSQ	Signal quality	✓
+CSSN	Supplementary service notifications	✓
+CSTA	Select type of address	✓
+CSTF	Settings time format	✓
+CSVM	Set Voice Mail Number	X
+CTFR	Call deflection	✓
+CTZR	Time Zone Reporting	N/A
+CTZU	Automatic Time Zone Update	X
+CUSD	Unstructured supplementary service data	✓
+CV120	V.120 rate adaptation protocol	X
+CVHU	Voice Hangup Control	X
+CVIB	Vibrator mode	N/A
D	ITU T V.25ter [14] dial command	✓
D*99#	Sets up a packet data call (PDP context) based on profile ID #1	✓
D*99**<n>#	Sets up a packet data call (PDP context) based on profile ID #<n> (<n> is the <cid> in the +CGDCONT command)	✓
+VTD	Tone duration	✓

Table 2-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+VTS	DTMF and arbitrary tone generation	✓
+WS46	PCCA STD 101 [17] select wireless network	✗

3: Modem Status, Customization, and Reset Commands

- [Introduction](#)
- [Command summary](#)
- [Command reference](#)

Introduction

This chapter describes commands used to reset the modem, adjust customization settings, check SIM PIN details, retrieve the firmware version, and monitor the temperature, voltage, and modem status.

Command summary

Table 3-1 lists the commands described in this chapter.

Table 3-1: Modem status commands

Command	Description	Page
!BAND	Select/return frequency band set	30
!BCINF	Return CWE headers, including bootloader version	31
!BOOTHOLD	Reset modem and wait in bootloader for firmware download	31
^CARDMODE	Return SIM card mode (card type)	31
+CLVL	Set/return internal loudspeaker volume	32
+CMUT	Enable/disable uplink voice muting	32
*CNTI	Report current, available, and supported network technologies	33
+CPINC	Return number of unlock attempts remaining	34
+CPIN2	Query SIM card PIN2 status or verify PIN2 code	34
+CQI	Enable/disable/return averaged CQI return (WCDMA only)	35
!CSDONSIO2	Configure secondary SIO port for circuit-switched data	36
+DLMOD	Return DL modulation values	36
+ECIO	Return total Energy per chip per power density value (WCDMA only)	37
+ETFCI	Enable/disable/return E-TFCI average value	38
!GCIPHER	Return operational status	43
!GETBAND	Return the current active band	39
!GETRAT	Return the current active radio access technology (RAT)	40
!GRELIMEI	Return the modem's production TAC	40
!GRESET	Reset the modem	40
!GSMINFO	Return 2G network information	41
!GSTATUS	Return operational status	43

Table 3-1: Modem status commands (Continued)

Command	Description	Page
!GVER	Return the firmware version	49
!GVERBT	Return the boot loader version	49
^HVER	Return the modem hardware version	49
!MAPCSD	Map CSD service to port	50
!PCTEMP	Return current temperature information	50
!PCVOLT	Return current power supply voltage information	51
!POWERDOWN	Power down system	51
!REL	Return active protocol/revision	52
!RESET	Reset modem	52
+RSCP	Return Received Signal Code Power (RSCP) (WCDMA only)	53
!SCACT	Activate/deactivate PDP context for FIFO interface	53
!SCDFTPROF	Set/return default profile ID	54
!SCDNS	Set/return profile ID DNS address	54
!SCLTEPROF	Set/return profile ID to attach on LTE network	55
!SCNETDNS	Return DNS addresses for active profiles	55
!SCPADDR	Return IP address for specified PDP context	56
!SCPROF	Set/return SWI-specific profile information	56
!SCPROFDEL	Erase profile information	57
!SCWINS	Set/return profile's WINS addresses	57
!SDNOTINSTALLED	Return SD installation status	57
!SELMODE	Set/return current service domain	58
!SELRAT	Set/return current radio access technology (RAT)	59
!SIMNOTINSTALLED	Return SIM installation status	59
!SIMRSTC	Enable/disable SIM refresh reset notification	60
!SMSRETRY	Set/return SMS retry period and interval	61
!SMSSTSEN	Enable/disable SMS status reports	62
!SWICALLPROG	Enable/disable Call Progress Notification	63
^SYSCONFIG	Set/return system configuration information	65
^SYSINFO	Return service status information	66
!TIME	Set/return current time of day	67
!UDINFO	Return information from active USB descriptor	68
+UPSC	Return Primary Scrambling Code (WCDMA only)	68
+USET	Return WCDMA set information	69

Table 3-1: Modem status commands (Continued)

Command	Description	Page
!UTCIME	Set/return UTC time of day	71
&V	Return operating mode AT configuration parameters	72
+WTBI	Enable/disable GSM/GPRS Tx Burst indication	74

Command reference

Table 3-2: Modem status, customization, and reset commands

Command	Description
<p>!BAND</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All <hr/> <p><i>Note: Some chipsets provide extended functionality as described in the AirPrime UMTS Embedded Modules Extended AT Command Reference.</i></p> <hr/> <p><i>Note: These band sets are preconfigured by your device's manufacturer. The bands displayed by the query command (AT!BAND=?) depend on this configuration, as shown in this example.</i></p> <hr/>	<p>Select/return frequency band set</p> <p>Configure the modem to operate on a set of frequency bands, look up available sets, or return the current selection.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!BAND=<bandsetInd> Response: OK Purpose: Select a set of bands. Query: AT!BAND? Response: <bandsetInd>, Band set description OK or Unknown band mask. Use AT!BAND to set band. <bandmask> OK <i>(See !BAND in the AirPrime UMTS Embedded Modules Extended AT Command Reference.)</i> Purpose: Report the current band selection. Query List: AT!BAND=? Purpose: Display allowed values for <bandsetInd> and the corresponding frequency bands. <p>Parameters:</p> <p><bandsetInd> (Band index corresponding to a specific band or bands):</p> <ul style="list-style-type: none"> Band examples (may vary by device): <ul style="list-style-type: none"> 00=All bands 01=WCDMA 2100 02=WCDMA 850/1900 03=GSM 900/1800 04=GSM 850/1900 05=GSM ALL 06=WCDMA 2100 GSM 900/1800 etc.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!BCINF Supporting chipsets: <ul style="list-style-type: none"> All 	Return CWE headers, including bootloader version Return the module's CWE headers, including the bootloader version and application headers. Usage: <ul style="list-style-type: none"> Execution: AT!BCINF Response: BOOT Address: <address> Version: <version> Date: <date> Size: <size> APPL Address: <address> Version: <version> Date: <date> Size: <size> Purpose: List the CWE headers in the devices flash memory. The bootloader version is in the BOOT section. Parameters: <version> (Bootloader version): <ul style="list-style-type: none"> ASCII string Maximum length: 84 characters Example: M2_0_11_14BT G:/WS/FW/M2_0_11_14BT/MDM8200/SRC 2009/10/17 15:33:00
!BOOTHOLD Supporting chipsets: <ul style="list-style-type: none"> All 	Reset modem and wait in bootloader for firmware download Prepare for a firmware download by resetting the modem and waiting in 'boot and hold' mode. Usage: <ul style="list-style-type: none"> Execution: AT!BOOTHOLD Response: OK Purpose: Force the modem to backup user NV options, reset, and then wait in boot and hold mode for a firmware download.
^CARDMODE Supporting chipsets: <ul style="list-style-type: none"> MDM6200 MDM8200 (min f/w rev: M2.0 Release 1) MSM6290 	Return SIM card mode (card type) Identify the type of SIM card being used. Usage: <ul style="list-style-type: none"> Execution: AT^CARDMODE Response: ^CARDMODE: <sim_type> OK Purpose: Identify the SIM card type in the device. Parameters: <sim_type> (SIM card type): <ul style="list-style-type: none"> 0=Unknown 1=SIM 2=USIM

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+CLVL Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM6270 (min f/w rev: S2.0) • MSM6290 • QSC6270 (min f/w rev: S2.0) 	<p>Set/return internal loudspeaker volume Set or display the modem's internal loudspeaker volume.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT+CLVL=<level> Response: +CLVL: OK <i>or</i> +CLVL: ERROR • Purpose: Set the volume within a specified range. • Query: AT+CLVL? Response: +CLVL: <level> OK • Purpose: Display the current volume. • Query List: AT+CLVL=? Purpose: Report allowed values for <level>. <p>Parameters: <level> (Sound level):</p> <ul style="list-style-type: none"> • Manufacturer-specific volume levels • Valid range: 0(lowest)–7(highest)
<p>+CMUT Supporting chipsets (Voice-enabled devices only):</p> <ul style="list-style-type: none"> • MDM6200 • MDM6270 (min f/w rev: S2.0) • MSM6290 • QSC6270 (min f/w rev: S2.0) 	<p>Enable/disable uplink voice muting Enable or disable uplink voice muting during a voice call.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT+CMUT=<enableFlag> Response: +CMUT: OK • Purpose: Turn muting on or off. • Query List: AT+CMUT=? Purpose: Return valid <enableFlag> values. <p>Parameters: <enableFlag> (Enable/disable muting):</p> <ul style="list-style-type: none"> • 0=Mute off • 1=Mute on

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>*CNTI</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Report current, available, and supported network technologies</p> <p>Display the network technology currently being used, the technologies available for use, or the technologies supported by the modem.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT*CNTI=<n> Response: *CNTI: <n>,<tech>[,<tech>[...]] OK <i>or</i> +CME ERROR: <err> <p>Purpose: Display current, available, and supported network technologies.</p> <p>Parameters:</p> <p><n> (Reporting option):</p> <ul style="list-style-type: none"> 0=Network technology currently in use 1=Available technologies on current network 2=All technologies supported by the modem <p><tech> (Technology type):</p> <ul style="list-style-type: none"> ASCII string Valid values: <ul style="list-style-type: none"> "GSM" "GPRS" "EDGE" "UMTS" "HSDPA" "HSUPA" "HSDPA/HSUPA" "HSPA+" "LTE" "Unknown"

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+CPINC</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All, with these exceptions: <ul style="list-style-type: none"> MDM6290 (min f/w rev: K2_2_0_5ap) 	<p>Return number of unlock attempts remaining</p> <p>Return the number of valid attempts remaining for PIN1/CHV1, PIN2/CHV2, PUK1, and PUK2.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT+CPINC? or AT+CPINC Response: +CPINC: <n1>, <n2>, <k1>, <k2> OK Purpose: Show number of remaining attempts for each identifier. <p>Parameters:</p> <p><n1> (Remaining attempts for PIN1/CHV1):</p> <ul style="list-style-type: none"> 0=Blocked 1–3=Remaining attempts <p><n2> (Remaining attempts for PIN2/CHV2):</p> <ul style="list-style-type: none"> 0=Blocked 1–3=Remaining attempts <p><k1> (Remaining attempts for PUK1):</p> <ul style="list-style-type: none"> 0=Blocked 1–10=Remaining attempts <p><k2> (Remaining attempts for PUK2):</p> <ul style="list-style-type: none"> 0=Blocked 1–10=Remaining attempts
<p>+CPIN2</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> MDM6290 (min f/w rev: K2_0_7_50ap) 	<p>Query SIM card PIN2 status or verify PIN2 code</p> <p>Query the SIM card's PIN2 status, or verify the PIN2 code. (Note: The PIN2 cannot be changed.)</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT+CPIN2=<PIN2> Response: OK (<i>appears if <PIN2> is correct</i>) or ERROR (<i>appears if <PIN2> is incorrect</i>) or +CME ERROR: <err> (<i>appears if an equipment error occurs</i>) Purpose: Verify the PIN2. Query: AT+CPIN2? Response: +CPIN2: SIM PIN2 (<i>appears if PIN2 is enabled, but not verified</i>) or +CPIN2: READY (<i>appears if PIN2 is disabled, or if it is enabled and verified</i>) Purpose: Show the status of PIN2. <p>Parameters:</p> <p><PIN2> (The SIM card's PIN2 code):</p> <ul style="list-style-type: none"> Decimal ASCII

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+CQI Supporting chipsets:</p> <ul style="list-style-type: none"> • All, with these exceptions: <ul style="list-style-type: none"> • MDM8200 (min f/w rev: M2.0 Release 1) 	<p>Enable/disable/return averaged CQI return (WCDMA only) Enable or disable ability to return averaged CQI (Channel Quality Indicator) from the modem, or return the value (if enabled).</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: ATICQI=<enableFlag> Response: +CQI: ENABLED! OK or +CQI: DISABLED! OK Purpose: Enable or disable the query command (+CQI?). • Query: ATICQI? Response (Single carrier cells): +CQI: Status: <enableFlag> total valid samples <n>, average cqi <m> OK Response (Dual carrier cells): +CQI: Status: <enableFlag> total valid samples <n>, average Car0 CQI <m> total valid samples <n>, average Car1 CQI <m> OK Purpose: Return the average CQI (<m>) and the number of samples (<n>) used to determine the average. <p>Parameters: <enableFlag> (Enable/disable CQI value retrieval):</p> <ul style="list-style-type: none"> • 0=Disable retrieval • 1=Enable retrieval

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!CSDONSIO2</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM6270 • MDM8200 (min f/w rev: M2.0 Release 1) • MDM8200A • MDM8220 • MDM9200 • MDM9600 • QSC6270 	<p>Configure secondary SIO port for circuit-switched data</p> <p>Configure the secondary serial I/O (SIO) port for circuit-switched data over the main AT port or MUX1/MUX2/MUX3.</p> <hr/> <p><i>Note: The modem must be reset before any change takes effect.</i></p> <hr/> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!CSDONSIO2=<port#> Response: OK Purpose: Set the port number to use for the SIO port. • Query: AT!CSDONSIO2? Response: <port#> OK Purpose: Return the port number currently used for the SIO port. <p>Parameters:</p> <p><port#> (Port used for circuit-switched data):</p> <ul style="list-style-type: none"> • 0=CSD on main AT port (Default) • 1=CSD on MUX1 • 2=CSD on MUX2 • 3=CSD on MUX3
<p>+DLMOD</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM8200 (min f/w rev: M3.0 Release 6) • MDM8220 (min f/w rev: N2.0 Release 1) • MDM9200 • MDM9600 	<p>Return DL modulation values</p> <p>Return average DL modulation values within a 12.8 second sliding window. The statistics are accumulated during WCDMA calls, and collection of statistics may be enabled/disabled while in 2G or 4G service.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT+DLMOD=<status> Response: +DLMOD: Status: <status> OK Purpose: Enable/disable DLMOD retrieval. • Query: AT+DLMOD? Response: +DLMOD: Status: <status> QPSK: <value>% <value> TBS <value> codes 16QAM: <value>% <value> TBS <value> codes None: <value>% <value> TBS <value> codes c0 Total <value>% <value> TBS <value> codes <p><repeat for second carrier if present></p> <p>OK</p> <p>Purpose: Return download statistics for single/dual carriers.</p> <p>Parameters:</p> <p><status> (DLMOD retrieval state):</p> <ul style="list-style-type: none"> • 0=Enabled • 1=Disabled

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+ECIO Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return total Energy per chip per power density value (WCDMA only)</p> <p>Return the total energy per chip per power density (Ec/Io) value of the active set's three strongest cells.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT+ECIO? Response (Single carrier cells): +ECIO: Ec/Io: <value1> dB [<value2> dB [<value3> dB]] Response (Dual carrier cells): +ECIO: Car0 Ec/Io: <value1> dB [<value2> dB [<value3> dB]] Car1 Ec/Io: <value4> dB [<value5> dB [<value6> dB]] <p>Purpose: Return the signed dB values of the three strongest cells in the active set. The values are listed from strongest to weakest, based on RSCP, and separated by tabs. If there are less than three cells, only those values appear. For example: +ECIO: Ec/Io: -3.5 dB -14.0 dB -24.5 dB —or— +ECIO: Ec/Io: -7.5 dB</p> <p>Parameters: <value n> (Ec/Io of cell in the active set):</p> <ul style="list-style-type: none"> Valid range: -31.5 dB to 0 dB <hr/> <p><i>Note: The command +USET also displays Tot Ec/Io as one of its outputs.</i></p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+ETFCI</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • All, with these exceptions: <ul style="list-style-type: none"> • MDM8200 (min f/w rev: M2.0 Release 1) • MSM6290 (min f/w rev: K1_1_1_1ap) 	<p>Enable/disable/return E-TFCI average value</p> <p>Enable/disable checking of average E-TFCI values during an HSUPA call, or return the value.</p> <p>The average value is based on 64 sets of log values extracted from the E-DPCCH packet:</p> <ul style="list-style-type: none"> • Every 200 ms (for 10 ms TTI)—Each set includes 20 samples. A total of 1280 samples are taken (200 ms/set, 20 samples per set, 64 sets over 12.8 second period). • Every 80 ms (for 2 ms TTI)—Each set includes 40 samples. A total of 2560 samples are taken (80 ms/set, 40 samples per set, 64 sets over 5.12 second period). <hr/> <p><i>Note: An HSUPA call must be in progress to obtain the E-TFCI.</i></p> <hr/> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT+ETFCI=<status> Response: +ETFCI: ENABLED! OK or +ETFCI: DISABLED! OK Purpose: Enable or disable the ability to check the average E-TFCI value. • Query: AT+ETFCI? Response: +ETFCI: Status: <status> total samples 1280, average etfci <etfci> OK Purpose: Indicate if E-TFCI checking is enabled, and report the total number of samples and average E-TFCI value. <p>Parameters:</p> <p><status> (E-TFCI reporting status):</p> <ul style="list-style-type: none"> • 0=Disabled • 1=Enabled <p><etfci> (Average E-TFCI value over sampling period):</p> <ul style="list-style-type: none"> • Valid range: 0–127

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GCIPHER</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Enable/disable ciphering and integrity settings</p> <p>To register onto a network with WCDMA service, the modem's ciphering and integrity settings must be enabled or disabled to match the network settings. Most carriers enable both ciphering and integrity.</p> <p>When testing the modem, you may be using a SIM that has different codes for ciphering and integrity than those used by the test system. In this case, you may need to disable ciphering and integrity checking to use the test system.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!GCIPHER=<setting> Response: !GCIPHER Ciphering: <ciphering> Integrity: <integrity> OK Purpose: Set the ciphering and integrity settings. Query: AT!GCIPHER? Response: !GCIPHER: Ciphering: <ciphering> Integrity: <integrity> OK Purpose: Report the current ciphering and integrity settings (0=Disabled, 1=Enabled). <p>Parameters:</p> <p><setting> (Enable/disable ciphering and integrity):</p> <ul style="list-style-type: none"> 0=Ciphering disabled; integrity disabled 1=Ciphering enabled; integrity disabled 2=Ciphering enabled; integrity enabled 3=Ciphering disabled; integrity enabled
<p>!GETBAND</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return the current active band</p> <p>Return the active band currently being used by the modem.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GETBAND? Response: !GETBAND: <active band description> OK or Unknown OK Purpose: Return a description of the current active band, or return an error message. <hr/> <p><i>Note: Due to stack implementation requirements, !GETBAND reports W800 for both W800 and W850.</i></p> <hr/>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GETRAT</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return the current active radio access technology (RAT)</p> <p>Return the RAT currently being used by the modem.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GETRAT? Response: !GETRAT: <active RAT description> OK or Unknown OK <p>Purpose: Return a description of the current RAT, or return an error message.</p>
<p>!GRELIMEI</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> MDM6200 MDM6270 MDM8200 MDM8200A MSM6290 QSC6270 	<p>Return the modem's production TAC</p> <p>Return the modem's production TAC (Type Allocation Code). (TAC is first 8 characters, then padded with zeroes).</p> <p>For example, if IMEI is 289258158732085, the TAC is 289258150000000.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GRELIMEI? Response: <TAC> OK <p>Purpose: Return the <TAC> assigned to the modem.</p> <p>Parameters:</p> <p><TAC></p> <ul style="list-style-type: none"> 15-character string. (TAC is the first 8 characters, and remainder of string is zero-padded.) <p>Example:</p> <p>If the modem's IMEI is 289258158732085, !GRELIMEI returns 289258150000000.</p>
<p>!GRESET</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Reset the modem</p> <p>Perform a modem reset.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GRESET Response: OK <p>Purpose: Instruct system to perform a reset.</p> <hr/> <p><i>Note: This command is identical in function to !RESET.</i></p> <hr/>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GSMINFO Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return 2G network information Return 2G network information for the 'serving' cell and up to 6 'neighbor' cells.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GSMINFO? Response: !gsminfo: Serving Cell: PLMN: <mccmnc> LAC: <lac> Cell ID: <cellid> BSIC: <bsic> NCC: <ncc> BSCC: <bssc> RAC: <rac> Min Rx Lvl Rqd: <minrx> Max Rach: <maxrach> Band: <band> ARFCN: <arfcn> RX level (dBm): <rxlvl> C1: <c1> C2: <c2> C31: <c31> C32: <c32> <p>Neighbor Cells: Band: <band> <band> <band> ARFCN: <arfcn> <arfcn> <arfcn> RAC: <rac> <rac> <rac> RX level (dBm): <rxlvl> <rxlvl> <rxlvl> C1: <c1> <c1> <c1> C2: <c2> <c2> <c2> C31: <c31> <c31> <c31> C32: <c32> <c32> <c32> OK</p> <p>Purpose: Display serving cell and neighbor cell information.</p> <p>Parameters:</p> <p><mccmnc> (Mobile Country Code and Mobile Network Code (combine to form the PLMN)):</p> <ul style="list-style-type: none"> 16-bit decimal <p><lac> (Location Area Code):</p> <ul style="list-style-type: none"> 16-bit decimal <p><cellid> (Cell ID):</p> <ul style="list-style-type: none"> 16-bit decimal <p><bsic> (Base Station Identity Code):</p> <ul style="list-style-type: none"> 8-bit decimal <p><ncc> (Network Color Code):</p> <ul style="list-style-type: none"> 8-bit decimal <p><bssc> (Base Station Color Code):</p> <ul style="list-style-type: none"> 8-bit decimal <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GSMINFO (Continued)</p>	<p>Return 2G network information (continued)</p> <p><rac> (Routing Area Code):</p> <ul style="list-style-type: none"> • 8-bit decimal <p><minrx> (Minimum Rx level (dBm) needed to register):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><maxrach> (Reserved for future use):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><band> (2G network band):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "E900" • "P900" • "1900" • "1800" • "850" • "Unknown" <p><arfcn> (Absolute Radio Frequency Channel Number):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><rxlvl> (Received BCCH frequency level (dBm)):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><c1> (C1 cell selection criteria):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><c2> (C2 cell selection criteria):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><c31> (C31 cell selection criteria):</p> <ul style="list-style-type: none"> • 16-bit decimal <p><c32> (C32 cell selection criteria):</p> <ul style="list-style-type: none"> • 16-bit decimal

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GSTATUS</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return operational status</p> <p>Return specific details about the current operational status of the modem.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: ATIGSTATUS? <p>Response (GSM):</p> <pre>!GSTATUS: Current Time: <ctime> Temperature: <temp> Bootup Time: <btime> Mode: <mode> System mode: <smode> PS state: <PSstate> GSM band: <gband> GSM channel: <gchan> GMM (PS) state: <gmmstate> <gmmsubstate> MM (CS) state: <mmstate> <mmsubstate> Serving Cell: <gchan> (<gband>) RX level (dBm): <rxlev> LAC: <LAC> GPRS State: <gstate> Cell ID: <Cell ID> OK</pre> <p>Response (WCDMA):</p> <pre>!GSTATUS: Current Time: <ctime> Temperature: <temp> Bootup Time: <btime> Mode: <mode> System mode: <smode> PS state: <PSstate> WCDMA band: <wband> WCDMA channel: <wchan> GMM (PS) state: <gmmstate> <gmmsubstate> MM (CS) state: <mmstate> <mmsubstate> WCDMA L1 State: <wstate> RRC State: <wrstate> RX level C0 (dBm): <wrxlev> LAC: <LAC> RX level C1 (dBm): <wrxlev> Cell ID: <Cell ID> OK</pre> <p>Response (LTE):</p> <pre>!GSTATUS: Current Time: <ctime> Temperature: <temp> Bootup Time: <btime> Mode: <mode> System mode: <smode> PS state: <PSstate> LTE band: <lband> LTE bw: <lbw> LTE Rx chan: <lrchan> LTE Tx chan: <ltchan> GMM (PS) state: <gmmstate> <gmmsubstate> MM (CS) state: <mmstate> <mmsubstate> RSSI (dBm): <rsi> SINR (dB): <sinr> RSRP (dBm): <rsrp> TAC: <tac> RSRQ (dB): <rsrq> Cell ID: <Cell ID> OK</pre> <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!GSTATUS (continued)</p>	<p>Return operational status (continued)</p> <p>Response (CDMA):</p> <pre>!GSTATUS: Current Time: <ctime> Temperature: <temp> Bootup Time: <btime> Mode: <mode> System mode: <smode> PS state: <PSstate> CDMA band: <cband> CDMA channel: <cchan> GMM (PS) state: <gmmstate> <gmmsubstate> MM (CS) state: <mmstate> <mmsubstate> OK</pre> <p>Purpose: Display modem operational status information.</p> <p>Parameters:</p> <p><ctime> (Current time (Seconds from bootup))</p> <p><temperature> (Approximate temperature ($\pm 5^{\circ}\text{C}$))</p> <p><btime> (Bootup Time (Seconds from reset))</p> <p><mode> (Current modem mode):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "POWERING OFF" • "FACTORY TEST" • "OFFLINE" • "ONLINE" • "LOW POWER MODE" • "RESETTING" • "NETWORK TEST" • "OFFLINE REQUEST" • "PSEUDO ONLINE" • "Unknown" <p><smode> (System mode acquired by modem):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "No service" • "AMPS" • "CDMA" • "GSM" • "HDR" • "WCDMA" • "GPS" • "WCDMA+GSM" • "Unknown" <p><PSstate> (Current PS state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "Attached" • "Not attached" <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!GSTATUS (continued)	<p>Return operational status (continued)</p> <p><wband> (Current WCDMA band being accessed):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "CDMA cell" • "CDMA PCS" • "IMT2000" • "WCDMA1900" • "WCDMA1800" • "WCDMA800" • "GSM EGSM900" • "GSM DCS1800" • "GSM 850" • "GSM1900" • "GPS" • "No band" • "WCDMA900" <p><gband> (Current GSM band, either BCCH (broadcast channel) or TCH (traffic channel)):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "GSM850" • "GSM900" • "DCS1800" • "PCS1900" • "Unknown" <p><wchan> (WCDMA channel number)</p> <p><gchan> (GSM channel number)</p> <ul style="list-style-type: none"> • May be BCCH (broadcast channel) or TCH (traffic channel) <p><gmmstate> (Current GMM state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "IDLE" • "DEREGISTERED" • "Registering" • "REGISTERED" • "Deregistering" • "RA updating" • "Requesting srvc" <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!GSTATUS (continued)	<p>Return operational status (continued)</p> <p><gmmsubstate> (Current GMM sub-state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "NORMAL SERVICE" • "LIMITED SERVICE" • "ATT NEEDED" • "ATTEMPTING ATT" • "NO IMSI" • "NO SERVICE" • "PLMN SEARCH" • "SUSPENDED" • "UPDATE NEEDED" • "UPDATING" • "DEATCHING" • "---" (Indicates 'undefined sub-state') <p><mmstate> (Current MM state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "NULL" • "IDLE" • "LA Rejected" • "LA Start" • "CONNECTED" • "Network Command" • "---" (Indicates 'undefined state') <p><mmsubstate> (Current MM sub-state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "NORMAL SERVICE" • "LIMITED SERVICE" • "NO IMSI" • "NO SERVICE" • "PLMN SEARCH" • "UPDATE NEEDED" • "UPDATING" • "---" (Indicates 'undefined sub-state') <p><rxlev> (): (GSM Receive power in dBm)</p> <ul style="list-style-type: none"> • Signed int16 (2 bytes) <p><gstate> (GSM <-> LLC interface state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "GPRS IDLE" • "GPRS READY" • "GPRS STANDBY" <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!GSTATUS (continued)	<p>Return operational status (continued)</p> <p><wstate> (WCDMA L1 state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "L1M_IDLE" • "L1M_FS" • "L1M_ACQ" • "L1M_BCH" • "L1M_PCH" • "L1M_FACH" • "L1M_DCH" • "L1M_DEACTIVE" • "L1M_PCH_SLEEP" • "L1M_DEEP_SLEEP" • "L1M_STOPPED" • "L1M_SUSPENDED" • "L1M_PCH_BPLMN" • "L1M_WAIT_TRM_STOP" • "___" <p><wrstate> (WCDMA RRC state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "DISCONNECTED" • "CONNECTING" • "CELL_FACH" • "CELL_DCH" • "CELL_PCH" • "URA_PCH" • "State N/A" • "___" <p><wrxlev> (WCDMA receive power in dBm):</p> <ul style="list-style-type: none"> • Signed int16 (2 bytes) <p><lband> (LTE band):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "B1"–"B40" • "No band" <p><lbw> (LTE bandwidth):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "1.4 MHz" • "3 MHz" • "5 MHz" • "10 MHz" • "15 MHz" • "20 MHz" • "Unknown" <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!GSTATUS (continued)	<p>Return operational status (continued)</p> <p><lrchan> (LTE Rx channel):</p> <ul style="list-style-type: none"> • Decimal <p><ltchan> (LTE Tx channel):</p> <ul style="list-style-type: none"> • Decimal <p><cband> (CDMA band):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • "US Cellular" • "US PCS" • "JTACS" • "JCDMA" • "Korean PCS" • "NMT" • "IMT" • "No band" <p><rssr> (Total received power in dBm):</p> <ul style="list-style-type: none"> • -120..0 <p><rsrp> (Reference Signal Receive Power in dBm):</p> <ul style="list-style-type: none"> • -140..-44 <p><rsrq> (Reference Signal Receive Quality in dB):</p> <ul style="list-style-type: none"> • -20..-3 <p><sinr> (Signal to Interference plus Noise in dB):</p> <ul style="list-style-type: none"> • -20..+30 <p><LAC> (Location Area Code)</p> <ul style="list-style-type: none"> • Shown in Hexadecimal and decimal. • Example: "LAC FDF2 (65010)" <p><tac> (Tracking Area Code):</p> <ul style="list-style-type: none"> • Shown in Hexadecimal and decimal. • Example: "TAC ABCD (43981)" <p><Cell ID> (Cell ID):</p> <ul style="list-style-type: none"> • Shown in Hexadecimal and decimal. • Example: "Cell ID: 000DE0D4 (909524)" <p><cchan> (CDMA Rx channel):</p> <ul style="list-style-type: none"> • Decimal

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!GVER Supporting chipsets: <ul style="list-style-type: none"> All 	Return the firmware version Return the firmware version. Usage: <ul style="list-style-type: none"> Query: AT!GVER? Response: !GVER: <versionString> OK Purpose: Return the firmware version number. Parameters: <versionString> (Firmware's version string): <ul style="list-style-type: none"> Format: yyyy/mm/dd hh:mm:ss
!GVERBT Supporting chipsets: <ul style="list-style-type: none"> MDM8200 (min f/w rev: M3_0_10_8ap) MDM8220 (min f/w rev: N2.0 Release 2) MDM9200 MDM9600 MSM6290 (min f/w rev: K2.2.0.10ap/K2_0_7_43ap) 	Return the boot loader version Return the boot loader version. Usage: <ul style="list-style-type: none"> Query: AT!GVERBT? Response: !GVERBT: <versionString> OK Purpose: Return the boot loader version number. Parameters: <versionString> (Boot loader's version string): <ul style="list-style-type: none"> Format: yyyy/mm/dd hh:mm:ss
^HVER Supporting chipsets: <ul style="list-style-type: none"> MDM8200 (min f/w rev: M2.0 Release 1) MSM6290 	Return the modem hardware version Return the modem's hardware version number based on the FSN. The version number is returned as a short string representing the actual version. Usage: <ul style="list-style-type: none"> Query: AT^HVER? Response: <versionString> OK Purpose: Return the hardware version number. Parameters: <versionString> (Hardware version number): <ul style="list-style-type: none"> Examples: <ul style="list-style-type: none"> "E2" – Eng2 device "1.0" – Production v1.0 "1.1" – Production v1.1

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!MAPCSD</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • All, with these exceptions: <ul style="list-style-type: none"> • MSM6290 (min f/w rev: K2.0 Release 2) • MDM8200 (min f/w rev: M2.0 Release 1) 	<p>Map CSD service to port</p> <p>Map the CSD (Circuit Switched Data) service to a specific port.</p> <hr style="border: 1px solid red;"/> <p><i>Note: The modem must be reset before the service is mapped to the specified port.</i></p> <hr style="border: 1px solid red;"/> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!MAPCSD=<service> Response: OK or ERROR (<i>unsupported service</i>) Purpose: Map CSD to the specified <service>. • Query: AT!MAPCSD? Response: !MAPCSD: <service> OK Purpose: Display the current CSD port mapping. • Query List: AT!MAPCSD=? Purpose: Display valid <service> values. <p>Parameters:</p> <p><service> (Service port to use for CSD):</p> <ul style="list-style-type: none"> • 1=AT Command • 2–4=Reserved • 5=PDP1 • 6=PDP2 • 7=PDP3
<p>!PCTEMP</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • All 	<p>Return current temperature information</p> <p>Return the module’s temperature state and actual temperature.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT!PCTEMP? Response: Temp state: <state> Temperature: <temperature> degC OK Purpose: Return the module’s temperature information. <p>Parameters:</p> <p><state> (Temperature state):</p> <ul style="list-style-type: none"> • Valid values: <ul style="list-style-type: none"> • “Normal” • “High Warning” • “High Critical” • “Low Critical” <p><temperature> (Current temperature):</p> <ul style="list-style-type: none"> • Current temperature in degrees Celsius. This is the highest temperature reported by the two thermistors (one measures the PA (Power Amplifier) used by the WCDMA transceiver, the other measures the temperature of the PA used by the GSM transceiver).

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!PCVOLT Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return current power supply voltage information Return the module's power supply state and actual voltage.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!PCVOLT? Response: Volt state: Normal Power supply voltage: <voltage> mV (<raw> cnt) OK Purpose: Return the module's voltage information. <p>Parameters:</p> <p><state> (Power supply state):</p> <ul style="list-style-type: none"> Valid values: <ul style="list-style-type: none"> "Normal" "High Critical" "Low Warning" "Low Critical" <p><voltage>:</p> <ul style="list-style-type: none"> Current voltage reading in mV. <p><raw>:</p> <ul style="list-style-type: none"> Analog/digital convertor reading
<p>!POWERDOWN Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Power down system Power down the system. After using this command, the modem will not communicate with the host until it has been power cycled.</p> <hr/> <p><i>Note: MDM6200 devices—An IMSI_DETACH is initiated before the power down.</i></p> <hr/> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!POWERDOWN Response: OK Purpose: Power the system down. <hr/> <p><i>Note: This command should only be used when testing using an appropriate testing jig—do not use it when the modem is installed in a computer.</i></p> <hr/>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!IREL</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return active protocol/revision</p> <p>This command is used to indicate the modem's current protocol, SGSN, and MSC revision settings.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!IREL? Response: !IREL: Protocol: Release 5 (from <wcdmarrc>) SGSN Revision: Dynamic (from <sgsnr>) MSC Revision: Dynamic (from <mscr>) OK Purpose: Report the current operating protocol, SGSN revision, and MSC revision. Query List: AT!IREL=? Purpose: Display a list of valid parameter values. <p>Parameters:</p> <hr/> <p><i>Note: Some parameter values may differ (or not appear) based on device or firmware revision.</i></p> <hr/> <p><wcdmarrc> (Protocol):</p> <ul style="list-style-type: none"> Default value is the highest release supported by the device. Two-digit number corresponding to 3GPP release (!IREL=? shows valid values) Example: 00=Release 99 <p><sgsnr> (SGSN revision):</p> <ul style="list-style-type: none"> Two-digit number corresponding to SGSN revision (!IREL=? shows valid values) Example: 00=Release 97 nn=Dynamic—Uses the revision broadcast by the network <p><mscr> (MSC revision):</p> <ul style="list-style-type: none"> Two-digit number corresponding to MSC revision (!IREL=? shows valid values) Example: 00=Release 97 nn=Dynamic—Uses the revision broadcast by the network
<p>!RESET</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Reset modem</p> <p>Perform a modem reset.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!RESET Response: OK Purpose: Reset the modem. <hr/> <p><i>Note: This command is identical in function to !GRESET.</i></p> <hr/>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
+RSCP Supporting chipsets: <ul style="list-style-type: none"> All 	Return Received Signal Code Power (RSCP) (WCDMA only) Return the RSCP of the active set's three strongest cells. Usage: <ul style="list-style-type: none"> Query: ATIRSCP? Response (Single carrier cells): +RSCP: RSCP: <value1> dBm [<value2> dBm [<value3> dBm]] Response (Dual carrier cells): +RSCP: Car0 RSCP: <value1> dBm [<value2> dBm [<value3> dBm]] Car1 RSCP: <value4> dBm [<value5> dBm [<value6> dBm]] Purpose: Return the RSCP values (signed dBm) of up to three cells, from the strongest to weakest cell. Parameters: <value n> (RSCP of cell in the active set): <ul style="list-style-type: none"> Valid range: -120 dB to -20 dB
!SCACT Supporting chipsets: <ul style="list-style-type: none"> All 	Activate/deactivate PDP context for FIFO interface Activate or deactivate the specified PDP context for FIFO interface. Usage: <ul style="list-style-type: none"> Execution: AT!SCACT=<state>[,<pid>] Response: OK Purpose: Set the state of the identified profile (<pid>). If no <pid> is specified, profile 1 is updated. Query: AT!SCACT?[<pid>] Response: !SCACT: <pid>, <state> [!SCACT: <pid>, <state> [...]] Purpose: Report the status of the identified profile (<pid>). If no <pid> is specified, the status of all profiles is returned. Parameters: <state> (PDP context activation state): <ul style="list-style-type: none"> 0=Deactivated 1=Activated During assignment, any <state> other than 1 or 2 returns an ERROR response. <pid> (PDP context definition): <ul style="list-style-type: none"> Valid range: 1–16

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SCDFTP Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Set/return default profile ID Set or return the default profile ID.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!SCDFTP=<pid> Response: OK Purpose: Set the default profile ID to <pid>. Query: AT!SCDFTP? Response: !SCDFTP: <pid> OK Purpose: Return the default profile ID (<pid>). <p>Parameters: <pid> (Profile ID):</p> <ul style="list-style-type: none"> Valid range: 1–16 — A valid profile ID that will be used as the default
<p>!SCDNS Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Set/return profile ID DNS address Set or return the primary and secondary DNS addresses of a profile.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!SCDNS=<pid>,<pri_dns>,<sec_dns> Response: OK Purpose: Set the default primary and secondary IP addresses for domain name services. Query: AT!SCDNS?<pid> Response: !SCDNS: <pid>, <pri_dns>, <sec_dns> Purpose: Return the primary (<pri_dns>) and secondary (<sec_dns>) DNS addresses for the specified profile (<pid>). <p>Parameters: <pid> (PDP context definition):</p> <ul style="list-style-type: none"> Valid range: 1–16 — A valid profile ID that will be used as the default <p><pri_dns> (Default primary IP address for DNS lookup):</p> <ul style="list-style-type: none"> 'Dot format' IP address. For example, 10.10.10.1 Overrides the DNS server address received over the air during PDP context activation <p><sec_dns> (Default secondary IP address for DNS lookup):</p> <ul style="list-style-type: none"> 'Dot format' IP address. For example, 10.10.10.1 Overrides the DNS server address received over the air during PDP context activation

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SCLTEPROF Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM9200 • MDM9600 	<p>Set/return profile ID to attach on LTE network Set/return the profile ID on which user equipment will attach when camped on an LTE network.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!SCLTEPROF=<pid> Response: OK Purpose: Set the profile ID to use in the LTE attach process. • Query: AT!SCLTEPROF? Response: <pid> OK or ERROR (if an attached profile is not set) Purpose: Return the profile ID currently set for use in the LTE attach process. <p>Parameters: <pid> (Profile ID):</p> <ul style="list-style-type: none"> • Valid range: 1–16
<p>!SCNETDNS Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM6270 • MDM8200A • MDM8220 (min f/w rev: N2.0 Release 1) • MDM9200 • MDM9600 • MSM6290 (min f/w rev: K2_2_0_11, K2_0_7_46) • QSC6270 	<p>Return DNS addresses for active profiles Return the network-provided DNS addresses associated with all active profiles.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT!SCNETDNS? Response: !SCNETDNS: <pid 1>, <dns 1> !SCNETDNS: <pid 1>, <dns 2> ... !SCNETDNS: <pid n>, <dns m> OK Purpose: Return all DNS address for each active profile. <p>Parameters: <pid> (PDP context definition):</p> <ul style="list-style-type: none"> • Valid range: 1–16 — Active profile ID <p><dns> (Network-provided DNS address):</p> <ul style="list-style-type: none"> • IPv4 or IPv6 address. For example, 10.10.10.1 or FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:0001 • Address provided OTA during PDP context activation, or through user-provided override.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SCPADDR</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return IP address for specified PDP context</p> <p>Return the IP address of the specified PDP context (profile), or for all profiles.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!SCPADDR=[<pid>] Response: !SCPADDR: <pid><addr> [!SCPADDR: <pid>, <addr> [...]] OK Purpose: Return the IP address for the specified <pid>. If <pid> is blank, return IP addresses for all defined profiles. <p>Parameters:</p> <p><pid> (Profile ID (PDP context)):</p> <ul style="list-style-type: none"> Valid range: 1–16 <p><addr> (IP address of <pid>):</p> <ul style="list-style-type: none"> 'Dot' format IP address (for example, 255.255.255.0)
<p>!SCPROF</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Set/return SWI-specific profile information</p> <p>Set or return the SWI specific information for a profile.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: !SCPROF=<pid>, Label, <autoconnect>, <promptforpassword>, <autolaunchapp>, <rffu> Response: OK Purpose: Set the SWI-specific information for the specified profile (<pid>). Query: !SCPROF?<pid> Response: !SCPROF: <pid>, <label> <autoconnect>, <promptforpassword>, <autolaunchapp>, <rffu> Purpose: Report current SWI-specific information for the specified profile (<pid>). <p>Parameters:</p> <p><pid> (PDP context definition):</p> <ul style="list-style-type: none"> Valid range: 1–16 — a valid profile ID that will be used as the default <p><label> (Configuration buffer label):</p> <ul style="list-style-type: none"> 30-character string surrounded by quotation marks <p><autoconnect> (Automatic context activation mode):</p> <ul style="list-style-type: none"> 0=manual activation 1=auto activation <p><promptforpassword> (Flag value (prompt for password)):</p> <ul style="list-style-type: none"> 0=do not prompt for password 1=prompt for password <p><autolaunchapp> (Flag value (auto launch application)):</p> <ul style="list-style-type: none"> 0=do not auto launch the application 1=auto launch the application <p><rffu> (Reserved for future use):</p> <ul style="list-style-type: none"> 0–32767=Reserved

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!SCPROFDEL Supporting chipsets: <ul style="list-style-type: none"> All 	Erase profile information Erase the information for one or all profiles. Usage: <ul style="list-style-type: none"> Execution: !SCPROFDEL=<pid> Response: OK Purpose: Delete the identified profile. If <pid> is blank, delete all profiles. Query List: !SCPROFDEL=?<pid> Purpose: Return usage instructions. Parameters: <pid>: PDP context definition <ul style="list-style-type: none"> Valid range: 1–16
!SCWINS Supporting chipsets: <ul style="list-style-type: none"> All, with these exceptions: <ul style="list-style-type: none"> MSM6290 (min f/w rev: K2.0 Release 9 (K2_0_7_19ap / K2_0_7_18bt)) MDM8200 (min f/w rev: M3.0 Alpha 3) 	Set/return profile's WINS addresses Set or return a profile's primary and secondary WINS (Windows Internet Name Services) addresses. Usage: <ul style="list-style-type: none"> Execution: !SCWINS=<pid>,<pri_wins>,<sec_wins> Response: OK Purpose: Set the primary and secondary WINS addresses for the specified profile. Query: !SCWINS?<pid> Response: <pid>, <pri_wins>, <sec_wins> OK Purpose: Return the primary and secondary WINS addresses for the specified profile. Parameters: <pid>: PDP context definition <ul style="list-style-type: none"> Valid range: 1–16 <pri_wins>: Primary IP address used for WINS <ul style="list-style-type: none"> Overrides WINS address received over the air during PDP context activation. Dot format IP address (for example, 10.10.10.1) <sec_wins>: Secondary IP address used for WINS <ul style="list-style-type: none"> Overrides WINS address received over the air during PDP context activation. Dot format IP address (for example, 10.10.10.2)
!SDNOTINSTALLED Supporting chipsets (SD-supporting modems only): <ul style="list-style-type: none"> MDM8200 MDM8200A MDM8220 MDM9200 MDM9600 MSM6290 	Return SD installation status Indicate if an SD card is in the modem. Usage: <ul style="list-style-type: none"> Query: AT!SDNOTINSTALLED? Response: OK (<i>An SD card is not installed</i>) or ERROR (<i>An SD card is installed</i>) Purpose: Indicate if SD card is installed.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SELMODE</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • All 	<p>Set/return current service domain</p> <p>Configure the modem to use a specific service domain.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!SELMODE=<sdInd> Response: OK Purpose: Set the desired service domain. • Query: AT!SELMODE? Response: <sdInd>, Service Domain description OK or Unknown service domain mask. Use AT!SELMODE to set service domain. <sdInd> OK • Query List: AT!SELMODE=? Purpose: Return a list of supported service domain indexes. <p>Parameters:</p> <p><sdInd> (Service domain index):</p> <ul style="list-style-type: none"> • 00=CS only • 01=PS only • 02=CS and PS

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!SELRAT Supporting chipsets: <ul style="list-style-type: none"> All 	Set/return current radio access technology (RAT) Configure the modem to use a specific (or preferred) RAT. Usage: <ul style="list-style-type: none"> Execution: AT!SELRAT=<ratInd> Response: OK Purpose: Set the desired RAT configuration. Query: AT!SELRAT? Response: <ratInd>, RAT configuration description OK or Unknown RAT mode. Use AT!SELRAT to set mode. <ratInd> OK Purpose: Return the current RAT configuration index (<ratInd>) and description. If the <ratInd> is undefined, an error message is returned. Query List: AT!SELRAT=? Purpose: Return a list of supported RAT configurations. Parameters: <ratInd> (RAT configuration index): <ul style="list-style-type: none"> 00=Automatic 01=UMTS 3G only 02=GSM 2G only 03=UMTS 3G preferred 04=GSM 2G preferred 05=GSM and UMTS only 06=LTE only 07=GSM, UMTS, LTE 08=CDMA, HRPD, GSM, UMTS, LTE 09=CDMA only 0A=HRPD only 0B=hybrid CDMA/HRPD 0C=CDMA, LTE 0D=HRPD, LTE 0E=CDMA, HRPD, LTE 0F=CDMA, GSM, UMTS 10=CDMA, HRPD, GSM, UMTS
!SIMNOTINSTALLED Supporting chipsets: <ul style="list-style-type: none"> All 	Return SIM installation status Indicate if a SIM is installed in the modem. Usage: <ul style="list-style-type: none"> Query: AT!SIMNOTINSTALLED? Response: OK (<i>SIM is not installed</i>) or ERROR (<i>SIM is installed</i>) Purpose: Indicate if SIM is installed.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SIMRSTC</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MSM6290 (min f/w rev: K2_0_7_42) • MDM8220 (min f/w rev: N2_0_8_3) • MDM9200 (min f/w rev: SWI9200X_00.07.04.01) • MDM9600 (min f/w rev: SWI9600M_01.00.07.01) 	<p>Enable/disable SIM refresh reset notification</p> <p>Enable/disable the unsolicited SIM refresh reset notification (!SIMRSTN).</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!SIMRSTC=<n> Response: OK Purpose: Enable/disable the notification. • Query: AT!SIMRSTC? Response: !SIMRSTC: <n> OK Purpose: Show current state of the notification. • Query List: AT!SIMRSTC=? Purpose: Display the execution command format. <p>Parameters:</p> <p><n> (!SIMRSTN notification state):</p> <ul style="list-style-type: none"> • 0=Disable • 1=Enable

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SMSRETRY</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Set/return SMS retry period and interval</p> <p>Configure the SMS retry period and interval for MO-SMS.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!SMSRETRY=<period>, <interval> Response: OK Purpose: Set the retry period and retry interval Query: AT!SMSRETRY? Response: !SMSRETRY: <period>,<interval> OK Purpose: Return the current <period> and <interval> settings. Query List: AT!SMSRETRY=? Purpose: Display the execution command format. <p>Parameters:</p> <p><period> (Number of seconds allowed for MO-SMS retry attempts):</p> <ul style="list-style-type: none"> Valid range: 0–255 <p><interval> (Number of seconds to wait between MO-SMS retry attempts):</p> <ul style="list-style-type: none"> Valid range: 0–255 <hr/> <p><i>Note: If <interval> is greater than <period>, a single retry attempt is made.</i></p> <hr/> <p><i>Note: <interval> ignores the time spent actually performing a retry attempt. If <interval> = 5, attempts are made at elapsedTime = 0, 5, 10, etc. until an attempt is successful or <period> - elapsedTime < <interval>.</i></p> <hr/> <p>Example 1: Assume a retry attempt takes 2 seconds. If <period> = 1 and <interval> = 8, and no attempts are successful:</p> <ul style="list-style-type: none"> Time=0: Retry attempt fails at time = 2. No more attempts are made because <period> has expired. <p>Example 2: Assume a retry attempt takes 2 seconds. If <period> = 3 and <interval> = 5, and no attempts are successful:</p> <ul style="list-style-type: none"> Time=0: Retry attempt fails at time = 2. No more attempts are made because <period> will expire before the <interval> passes. <p>Example 3: Assume a retry attempt takes 2 seconds. If <period> = 14 and <interval> = 5, and no attempts are successful:</p> <ul style="list-style-type: none"> Time=0: Retry attempt fails at time = 2; next attempt will begin at time=5 (the <interval> counts from the beginning of the previous attempt) Time=5: Retry attempt fails at time = 7; next attempt will begin at time=10 Time=10: retry attempt fails at time = 12; No more attempts will be made because the <period> will expire before another <interval> of 5 seconds can pass.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SMSSTSEN</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Enable/disable SMS status reports</p> <p>Enable/disable SMS status reports for MO-SMS messages, or indicate if the user should be able to enable/disable the reports.</p> <p>The status report indicates when a message is delivered to its intended recipient (in addition to the report that is sent when the network first receives the message).</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!SMSSTSEN=<enable>, <mode> Response: OK Purpose: Enable/disable status reports, and indicate if the user can enable/disable the feature. Query: AT!SMSSTSEN? Response: !SMSSTSEN: <enable>, <mode> OK Purpose: Return the current <enable> and <mode> settings. Query list: AT!SMSSTSEN=? Purpose: Display the execution command format. <p>Parameters:</p> <p><enable> (Enable/disable SMS status reports):</p> <ul style="list-style-type: none"> 0=Disable 1=Enable <p><mode> (User access to reporting feature):</p> <ul style="list-style-type: none"> 0=Read/Write (User can enable/disable the feature) 1=Read only (User cannot enable/disable the feature—the feature status is preset by the device provider)

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!SWICALLPROG</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6270 • MSM6290 • QSC6270 	<p>Enable/disable Call Progress Notification</p> <p>Enable or disable call progress notification. This allows the host to receive call status updates such as type of call, answered, on hold, etc.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!SWICALLPROG=<cpnStatus> Response: !SWICALLPROG:<idx1>, <dir>, <state>, <mode>, <mpty>, <number>, <type>, <alpha> !SWICALLPROG:<idx2>, <dir>, <state>, <mode>, <mpty>, <number>, <type>, <alpha> ... Purpose: Display information on current calls, when the call status changes. • Query: AT!SWICALLPROG? Response: <cpnStatus> OK Purpose: Return the current call progress notification status. <hr/> <p><i>Note: When call progress notification is enabled, the standard AT command +CLCC (List Current Calls) is disabled.</i></p> <hr/> <p>Parameters:</p> <p><cpnStatus> (Call progress notification status):</p> <ul style="list-style-type: none"> • 0=Disabled • 1=Output on AT channel if AT is not blocked • 2=Output on AT channel even if AT is blocked • Any other value will return an ERROR response <p><idx> (Call identification number):</p> <ul style="list-style-type: none"> • Integer value as described in GSM 02.30 Section 4.5.5.1 • Can be used in +CHLD command <p><dir> (Call direction):</p> <ul style="list-style-type: none"> • 0=Mobile-originated (MO) • 1=Mobile-terminated (MT) <p><state> (Call state):</p> <ul style="list-style-type: none"> • 0=Active • 1=Held • 2=Dialing (MO calls) • 3=Alerting (MO calls) • 4=Incoming (MT calls) • 5=Waiting (MT calls) • 6=Disconnected <p><mode> (Bearer/teleservice):</p> <ul style="list-style-type: none"> • 0=Voice • 1=Data • 2=Fax <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
!SWICALLPROG (Continued)	<p>Enable/disable Call Progress Notification (Continued)</p> <p><empty> (Multiparty status):</p> <ul style="list-style-type: none"> • 0=Not part of a multiparty (conference) call • 1=Part of a multiparty (conference) call <p><number> (Telephone number of other end of connection):</p> <ul style="list-style-type: none"> • Format specified by next parameter (<type>) <p><type> (Address octet type):</p> <ul style="list-style-type: none"> • Two bitfields identifying the type of telephone number and numbering plan type (national/international). • Format specified in <i>3GPP TS 24.008 Section 10.5.4.7</i> <p><alpha> (Tag associated with <number> in the phonebook):</p> <ul style="list-style-type: none"> • Example: "John Doe"

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>^SYSCONFIG</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM8200 (min f/w rev: M2.0 Release 1) • MSM6290 	<p>Set/return system configuration information</p> <p>Set or return the modem's configuration.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT^SYSCONFIG=<mode>, <acqOrder>, <roam>, <srvDomain> Response: OK Purpose: Set the various configuration parameters. You must specify all of the parameters. • Query: AT^SYSCONFIG? Response: <mode>, <acqOrder>, <roam>, <srvDomain> OK Purpose: Return the current modem configuration information. <p>Parameters:</p> <p><mode> (Supported system mode):</p> <ul style="list-style-type: none"> • 2=Auto-select • 13=GSM only • 14=WCDMA only • 16=No change—use this value with ^SYSCONFIG= if you do not want to change the current setting. <p><acqOrder> (Network acquisition order)</p> <ul style="list-style-type: none"> • 0=Automatic • 1=GSM, then WCDMA • 2=WCDMA, then GSM • 3=No change—use this value with ^SYSCONFIG= if you do not want to change the current setting. <p><roam> (Roaming support)</p> <ul style="list-style-type: none"> • 0=Not supported • 1=Supported • 2=No change—use this value with ^SYSCONFIG= if you do not want to change the current setting. <p><srvDomain> (Service domain support)</p> <ul style="list-style-type: none"> • 0=Circuit-switched only • 1=Packet-switched only • 2=Circuit- and packet-switched • 3=Any • 4=No change—use this value with ^SYSCONFIG= if you do not want to change the current setting.

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>^SYSINFO</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM8200 (min f/w rev: M2.0 Release 1) • MSM6290 	<p>Return service status information</p> <p>Return current service type and availability information, and the current status of the module's SIM in the format <srvStatus> <srvDomain> <roamStatus> <sysMode> <simState>.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT^SYSINFO • Response: <srvStatus>, <srvDomain>, <roamStatus>, <sysMode>, <simStatus> OK • Purpose: Set the various configuration parameters. You must specify all of the parameters. <p>Parameters:</p> <p><srvStatus> (Service availability):</p> <ul style="list-style-type: none"> • 0=No service • 1=Limited service • 2=Service • 3=Limited regional service • 4=Power save mode or deep sleep mode <p><srvDomain> (Service domain):</p> <ul style="list-style-type: none"> • 0=No service • 1=Circuit-switched service only • 2=Packet-switched service only • 3=Circuit- and packet-switched service <p><roamStatus> (Roaming status indicator):</p> <ul style="list-style-type: none"> • 0=Not roaming • 1=Roaming <p><sysMode> (System mode):</p> <ul style="list-style-type: none"> • 0=No service • 3=GSM/GPRS mode • 5=WCDMA mode <p><simStatus> (SIM status):</p> <ul style="list-style-type: none"> • 0=SIM is not available • 1=SIM is available • 255=No SIM, or the SIM has been PIN-locked (invalid PIN was entered and must be reset)

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!TIME</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM8200A • MDM8220 (min f/w rev: N2.0 Release 1) • MDM9200 • MDM9600 • MSM6290 • QSC6270 	<p>Set/return current time of day</p> <p>Set or retrieve the current time of day—the time of day can be set using this command, or could be set by the network. If the time has not been set, the command returns ERROR.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!TIME= <YYYY>,<MM>,<DD>,<hh>,<mm>,<ss> [, <TZ>, <DST>] Response: OK Purpose: Set the current time using UTC format. • Query: AT!TIME? Response: !TIME: <YYYY>/<MM>/<DD> <hh>:<mm>:<ss> (local) <YYYY>/<MM>/<DD> <hh>:<mm>:<ss> (UTC) OK Purpose: Display current local and UTC time. • Query List: AT!TIME=? Purpose: Display execution command format. <p>Parameters:</p> <p><YYYY> (Year):</p> <ul style="list-style-type: none"> • 4 digits <p><MM> (Month):</p> <ul style="list-style-type: none"> • Valid range: 01–12 <p><DD> (Day):</p> <ul style="list-style-type: none"> • Valid range: 01–31 <p><hh> (Hour):</p> <ul style="list-style-type: none"> • Valid range: 00-23 <p><mm> (Minute):</p> <ul style="list-style-type: none"> • Valid range: 00–59 <p><ss> (Second):</p> <ul style="list-style-type: none"> • Valid range: 00–59 <p><TZ> (Time zone offset from UTC in 15-minute increments):</p> <ul style="list-style-type: none"> • Valid range: -48 to 48 • <DST> must also be set if <TZ> is used <p><DST> (Daylight Saving Time offset in 1-hour increments):</p> <ul style="list-style-type: none"> • Valid range: 0 to 2 • <TZ> must also be set if <DST> is used

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!UDINFO Supporting chipsets:</p> <ul style="list-style-type: none"> • All 	<p>Return information from active USB descriptor Return information from the active USB descriptor.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT!UDINFO? Response: VID: <vendor_id> PID: <product_id> Interface: <interfaceType> Manufacturer: <manuString> Product: <prodString> Purpose: Display USB descriptor information. <p>Parameters:</p> <p><vid> (Vendor ID):</p> <ul style="list-style-type: none"> • Valid range: 0000–FFFF <p><pid> (Product ID):</p> <ul style="list-style-type: none"> • Valid range: 0000–FFFF <p><interfaceType> (USB interface type):</p> <ul style="list-style-type: none"> • ASCII string: <ul style="list-style-type: none"> • “DIP”—Direct IP interface • “QMI”—QMI interface <p><manuString> (Manufacturer string):</p> <ul style="list-style-type: none"> • ASCII string (29 characters maximum) • Example: “Sierra Wireless, Incorporated” <p><prodString> (Product string):</p> <ul style="list-style-type: none"> • ASCII string (64 characters maximum) • Example: “Mini Card”
<p>+UPSC Supporting chipsets:</p> <ul style="list-style-type: none"> • All 	<p>Return Primary Scrambling Code (WCDMA only) Return the Primary Scrambling Code (PSC) of the reference WCDMA cell.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT+UPSC Response: +UPSC: <psc> OK Purpose: Display reference cell's PSC. <p>Parameters:</p> <p><psc> (Primary Scrambling Code of reference WCDMA cell):</p> <ul style="list-style-type: none"> • Valid range: 0-255 • 255=No valid cell

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+USET Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Return WCDMA set information Return WCDMA set information (Active Set, Candidate Set, etc.).</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT+USET?<set> Response: +USET: <setName> Count: <count> PSC: <psc> <ref> SSC: <ssc> STTD: <sttd> Tot Ec/Io: <totEcIo> Ec/Io: <EcIo> RSCP: <rscp> Window Size: <sinSize> ... (repeat for <count> items) Purpose: Display detailed information about each item in the <set>. Query List: AT+USET=? Purpose: Display valid <set> values <p>Parameters:</p> <p><set> (Set for which details are requested):</p> <ul style="list-style-type: none"> Valid range: 0–11 (see <setName> for descriptions) <p><setName> (Description of <set> value):</p> <ul style="list-style-type: none"> ASCII string Valid values: 0=Active Set 1=Sync Neighbor Set 2=Async Neighbor Set 3=Unlisted Set 4=Add-Candidate Set 5=Drop-Candidate Set 6=After failed W2G Set 7=DCH-Only Set 8=HHO Active Set 9=HHO Active No PN Set 10=Candidate to Unlisted Set 11=Saved Set 12=DC Active Set 13 - DC Sync All Set 14=DC Saved Set <p><count> (Number of items in <set>):</p> <ul style="list-style-type: none"> Valid range: 0-255 <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
+USET (continued)	<p>Return WCDMA set information (Continued)</p> <p><psc> (Primary Scrambling Code):</p> <ul style="list-style-type: none"> Valid range: 0–FFFF <p><ref> (Reference PSC designator string):</p> <ul style="list-style-type: none"> If reference PSC, displays “(REF)” If second carrier PSC, displays “(Car1)” <p><ssc> (Secondary Scrambling Code):</p> <ul style="list-style-type: none"> Valid range: 0–FFFF <p><sttd> (Common Pilot Channel (CPICH) supports Space Time Transit Diversity):</p> <ul style="list-style-type: none"> 0=Not supported 1=Supported <p><totEcIo> (Total Ec/Io):</p> <ul style="list-style-type: none"> Valid range: 00–FF To convert to a dB value, convert to decimal and divide by -2. Example: 0x0B / -2 = 11 / -2 = -5.5 dB Note: The command AT+ECIO? also reports Total Ec/Io as a dB value. <p><EcIo> (Best path Ec/Io):</p> <ul style="list-style-type: none"> Valid range: 00–FF To convert to a dB value, convert to decimal and divide by -2. Example: 0x0B / -2 = 11 / -2 = -5.5 dB <p><rscp> (Received Signal Code Power):</p> <ul style="list-style-type: none"> Valid range: 0-FFFF <p><winSize> (Search window size):</p> <ul style="list-style-type: none"> Valid range: 0000–FFFFFFFF

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>!UTCTIME</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM8200A • MDM8220 (min f/w rev: N2.0 Release 1) • MDM9200 • MDM9600 • MSM6290 • QSC6270 	<p>Set/return UTC time of day</p> <p>Set or retrieve the UTC time of day.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: ATIUTCTIME=<yyyy>, <mm>, <dd>, <hh>, <mm>, <ss>[, <tz>, <dst>] • Response: OK • Purpose: Manually set the UTC time of day. • Query: ATIUTCTIME? • Response: !UTCTIME: <yyyy>/<mm>/<dd> <hh>:<mm>:<ss> TZ:<tz> DST:<dst> OK • Purpose: Display the current UTC time of day (previously set manually or by the network). • Query List: AT+UTCTIME=? • Purpose: Display valid parameter values <p>Parameters:</p> <p><YYYY> (Year):</p> <ul style="list-style-type: none"> • 4 digits <p><MM> (Month):</p> <ul style="list-style-type: none"> • Valid range: 01–12 <p><DD> (Day):</p> <ul style="list-style-type: none"> • Valid range: 01–31 <p><hh> (Hour):</p> <ul style="list-style-type: none"> • Valid range: 00-23 <p><mm> (Minute):</p> <ul style="list-style-type: none"> • Valid range: 00–59 <p><ss> (Second):</p> <ul style="list-style-type: none"> • Valid range: 00–59 <p><tz> (Time zone offset from UTC in 15-minute increments):</p> <ul style="list-style-type: none"> • Valid range: -48 to 48 • <DST> must also be set if <tz> is used <p><dst> (Daylight Saving Time offset in 1-hour increments):</p> <ul style="list-style-type: none"> • Valid range: 0 to 2 • <tz> must also be set if <dst> is used

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>&V Supporting chipsets:</p> <ul style="list-style-type: none"> • All 	<p>Return operating mode AT configuration parameters</p> <p>Return the status of all AT command parameters that apply to the current operating mode.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT&V <p>Response: &C: 2; &D: 2; &F: 0; E: 1; L: 0; M: 0; Q: 0; V: 1; X: 0; Z: 0; S0: 0; S2: 43; S3: 13; S4: 10; S5: 8; S6: 2; S7: 50; S8: 2; S9: 6; S10: 14; S11: 95; +FCLASS: 0; +ICF: 3,3; +IFC: 2,2; +IPR: 115200; +DR: 0; +DS: 0,0,2048,6;+WS46: 12; +CBST: 0,0,1;+CRLP: (61,61,48,6,0),(61,61,48,6,1),(240,240,52,6,2);+CV120: 1,1,1,0,0,0; +CHSN: 0,0,0,0; +CSSN: 0,0; +CREG: 0; +CGREG: 0;+CFUN:; +CSCS: "IRA"; +CSTA: 129; +CR: 0; +CRC: 0; +CMEE: 2; +CGDCONT: (1,"IP","", "",0,0); +CGDSCONT: ; +CGTFT: ; +CGEQREQ: ; +CGEQMIN: ; +CGQREQ: ; +CGQMIN: ;+CGEREP: 0,0; +CGDATA: "PPP"; +CGCLASS: "A"; +CGSMS: 3; +CSMS: 0;+CMGF: 0; +CSCA: ""; +CSMP: ,,0,0; +CSDH: 0; +CSCB: 0,"", ""; +FDD: 0;+FAR: 0; +FCL: 0; +FIT: 0,0; +ES: ,; +ESA: 0,,,,0,0,255; +CMOD: 0;+CVHU: 0; +CPIN: ,; +CMEC: 0,0,0; +CKPD: 1,1; +CGATT: 0; +CGACT: 0;+CPBS: "SM"; +CPMS: "SM","SM","SM"; +CNMI: 0,0,0,0,0; +CMMS: 0; +FTS: 0;+FRS: 0; +FTH: 3; +FRH: 3; +FTM: 96; +FRM: 96; +CCUG: 0,0,0;+COPS: 0,0,""; +CUSD: 0; +CAOC: 1; +CCWA: 0; +CPOL: 0,2,""; +CTZR: 0;+CLIP: 0; +COLP: 0; +CMUX: 0,0,5,31,10,3,30,10,2;+CMUX: 0,0,5,31,10,3,30,10,2 OK</p> <p>Purpose: Display command parameters.</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+WPOWER Supporting chipsets:</p> <ul style="list-style-type: none"> • All, with these exceptions: <ul style="list-style-type: none"> • MDM8200 (min f/w rev: M2.0 Release 1) • MSM6290 (min f/w rev: K2_0_6_5ap) 	<p>Return average WCDMA power level over time period Enable/disable logging of WCDMA power level values.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT+WPOWER=<state> Response: +WPOWER: ENABLED! <i>or</i> +WPOWER: DISABLED! <p>OK</p> <p>Purpose: Enable/disable logging of WCDMA power information.</p> <ul style="list-style-type: none"> • Query: AT+WPOWER? Response: +WPOWER: Status: 1 average RxM Power <rxm>dBm, total samples <numRXM> no valid WCDMA RxM Power value available! no valid WCDMA Tx Power value available! OK <i>or</i> +WPOWER: Status: 1 average RxM Power <rxm>dBm, total samples <numRXM> average RxM Power <rxm>dBm, total samples <numRXM> average RxM Power <rxm>dBm, total samples <numRXM> average RxM Power <rxm>dBm, total samples <numRXM> OK <i>or</i> +WPOWER: Status: 1 average Car0 RxM Power <rxm0>dBm, total samples <numRXM0> average Car0 RxM Power <rxm0>dBm, total samples <numRXM0> average Car0 RxM Power <rxm0>dBm, total samples <numRXM0> average Car0 RxM Power <rxm0>dBm, total samples <numRXM0> average Car0 RxM Power <rxm0>dBm, total samples <numRXM0> OK <i>or</i> +WPOWER: Status: 0 no valid WCDMA Power value available! <p>Purpose: Display the power information.</p> <p>Parameters: <state> (WCDMA logging):</p> <ul style="list-style-type: none"> • 0=Disabled (Default) • 1=Enabled <p>(Continued on next page)</p>

Table 3-2: Modem status, customization, and reset commands (Continued)

Command	Description
<p>+WPOWER (Continued)</p>	<p>Return average WCDMA power level over time period (continued)</p> <p><rxm> (Average Rx main power, single carrier) <rxm0> (Average Rx main power, first carrier for dual carrier device) <rxm1> (Average Rx main power, second carrier for dual carrier device) <rxd> (Average Rx diversity power, single carrier) <rxd0> (Average Rx diversity power, first carrier for dual carrier device) <rxd1> (Average Rx diversity power, second carrier for dual carrier device) <tx> (Average Tx power on main antenna):</p> <ul style="list-style-type: none"> Signed int16 (2 bytes) Typical range -120dBm to -20dBm
<p>+WTBI</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> MDM6200 (min f/w rev: P0_0_7_1) 	<p>Enable/disable GSM/GPRS Tx Burst indication</p> <p>Enable use of DIO channel 1 (GPIO_0) to indicate an upcoming GPRS Tx burst. (GSM/GPRS/EDGE mode only)</p> <p>When enabled, the modem:</p> <ul style="list-style-type: none"> Asserts the GPIO ~200 μs before a Tx burst starts. (Provides time for the host to turn off peripherals before the burst.) Deasserts ~40 μs after the burst completes. (Provides time to ensure RF activity is finished.) <hr/> <p><i>Note: If DIO channel 1 has been programmed as an input or output using AT!DIOCFG, the indication cannot be enabled.</i></p> <hr/> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT+WTBI=<state> Response: OK Purpose: Enable/disable the Tx Burst indication. Query: AT+WTBI? Response: +WTBI: <state> OK Purpose: Display the current indication state (enabled/disabled). Query List: AT+WTBI=? Purpose: Display valid parameter values. <p>Parameters:</p> <p><state> (Indication state, stored in NV memory):</p> <ul style="list-style-type: none"> 0=Disabled (Default) 1=Enabled

4: Diagnostic Commands

- [Introduction](#)
- [Command summary](#)
- [Command reference](#)

Introduction

This chapter describes commands used to diagnose modem problems.

Command summary

[Table 4-1](#) lists the commands described in this chapter.

Table 4-1: Diagnostic commands

Cmnd	Description	Page
!MXSTATS	Display/clear 27.010 statistics	76

Command reference

Table 4-2: Diagnostic command details

Command	Description
<p>!MXSTATS</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> • MDM6200 • MDM6270 • MSM6290 • QSC6270 	<p>Display/clear 27.010 statistics</p> <p>TS 27.010 is a standard that defines a multiplexing protocol between a mobile station and a terminal. This standard is supported on the modem and !MXSTATS is used to display statistics related to that protocol for debugging purposes.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!MXSTATS=0 Response: OK Purpose: Clear the statistics. • Query: AT!MXSTATS? Response: !MXSTATS: Sessions Started: <value> Sessions Ended: <value> SABM (Tx/Rx): <value> / <value> DISC (Tx/Rx): <value> / <value> UA (Tx/Rx): <value> / <value> DM (Tx/Rx): <value> / <value> UIH (Tx/Rx): <value> / <value> T1 expiry: <value> T2 expiry: <value> T3 expiry: <value> N1 count: <value> N2 count: <value> Bad Frame (addr): <value> Bad Frame (ctl): <value> Bad Frame (len): <value> Bad Frame (F9): <value> Bad Frame (fcs): <value> Bad Frame (mem): <value> OK Purpose: Display the statistics. <p>Parameters:</p> <p><value> (Unique values for each statistic):</p> <ul style="list-style-type: none"> • Values accumulate until cleared by issuing the command AT!MXSTATS=0.

5: Test commands

- [Introduction](#)
- [Command summary](#)
- [Command reference](#)

Introduction

This chapter describes commands used to display and clear data that is stored if the modem crashes.

Command summary

[Table 5-1](#) lists the commands described in this chapter.

Table 5-1: Test commands

Cmnd	Description	Page
!ERR	Display diagnostic information	78
!GCCLR	Clear crash dump data	78
!GCDUMP	Display crash dump data	78

Command reference

Table 5-2: Test command details

Command	Description
<p>!ERR</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Display diagnostic information</p> <p>Display diagnostic information that Sierra Wireless uses to assist in resolving technical issues.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!ERR Response: 00 [F] <count> <file> <line> ... n [F] <count> <file> <line> OK Purpose: Display diagnostics. <p>Parameters:</p> <p><count> (Number of occurrences):</p> <ul style="list-style-type: none"> Valid range: 0x00–0xFF <p><file> (Source code file name):</p> <ul style="list-style-type: none"> ASCII string <p><line> (Line number in source file):</p> <ul style="list-style-type: none"> Valid range: 1–99999
<p>!GCCLR</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Clear crash dump data</p> <p>Clear the crash dump and assert data.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!GCCLR Response: Crash data cleared OK Purpose: Clear crash dump and assert data.
<p>!GCDUMP</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Display crash dump data</p> <p>Display crash dump data.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!GCDUMP Response: (crash dump data) OK or No crash data available OK Purpose: Display crash dump data.

6: Memory Management Commands

Introduction

The modem has 2 MB of non-volatile memory that is used to store:

- Factory calibration data
- Settings made in a host application such as Watcher

The commands in this chapter allow you to back up and restore the data in non-volatile memory.

Command summary

[Table 6-1](#) lists the commands described in this chapter:

Table 6-1: Memory management command passwords

Command	Description	Page
!NVBACKUP	Back up items stored in non-volatile memory	80

Command reference

Table 6-2: Memory management command details

Command	Description
<p>!NVBACKUP</p> <p>Supporting chipsets:</p> <ul style="list-style-type: none"> All 	<p>Back up items stored in non-volatile memory</p> <p>Create a backup that is stored in the modem's flash memory.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!NVBACKUP=<category> Response: !NVBACKUP: NV Items Saved: <saved> NV Items Skipped: <skipped> (only appears if > 0) NV Items 0 Length: <zerolen> (only appears if > 0) OK Purpose: Backup NV items. <p>Parameters:</p> <p><category> (Items to back up):</p> <ul style="list-style-type: none"> 0=Factory items (RF calibration data)—Used only at the factory (only needs to be done once for the lifetime of the device) 1=OEM items (PRI customizations)—Used only by the OEM when loading a new PRI configuration (only needs to be done once for the lifetime of the device) 2=User items (customizations, including those made by Watcher or other host applications)—This is the only backup option that should be employed by users. Use this command before doing a firmware update. If the modem's file system is reinitialized for some reason during the update, the customizations would then be automatically restored using from the backed-up information. <p><saved> (Number of NV items saved):</p> <ul style="list-style-type: none"> Valid range: 0–255 <p><skipped> (Number of NV items skipped):</p> <ul style="list-style-type: none"> Valid range: 0–255 <p><zerolen> (Number of items that are 'zero length'):</p> <ul style="list-style-type: none"> Valid range: 0–255

7: SIM Commands

- [Introduction](#)
- [Command summary](#)
- [Command reference](#)

Introduction

This chapter describes commands used to communicate with an installed (U)SIM.

Command summary

[Table 7-1](#) lists the commands described in this chapter:

Table 7-1: SIM command passwords

Command	Description	Page
!AUTH	Run GSM algorithm on SIM	82
!ICCID	Return (U)SIM card's ICCID	82
!SPN	Return (U)SIM card's SPN	83

Command reference

Table 7-2: SIM command details

Command	Description
<p>!AUTH</p> <p>Supporting modems:</p> <ul style="list-style-type: none"> All, with these exceptions: <ul style="list-style-type: none"> MDM8200 (min f/w rev: M2.0 Release 1) 	<p>Run GSM algorithm on SIM</p> <p>Authenticate the SIM using a random number.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT!AUTH=<randNumber> Response: AT!AUTH: <SRES>, <key> OK or ERROR (no SIM or "PCSDISABLE" customization bit 1 is set) Purpose: Return the SIM's response and a 64-bit ciphering key: <hr/> <p><i>Note: This command can only be used when the second bit (Bit 1) of the "PCSDISABLE" customization bitmap is not set. (See !CUSTOM in AirPrime MC8xxx Embedded Modules Extended AT Command Reference.)</i></p> <hr/> <p>Parameters:</p> <p><randNumber>:</p> <ul style="list-style-type: none"> 16 bytes (32 hexadecimal digits) random number), without leading '0x'. Example: 123A567B9012C4567D90123E56789012 <p><SRES> (SIM response):</p> <ul style="list-style-type: none"> 4 bytes (8 hexadecimal digits), without leading '0x'. Example: 500e2879 <p><key> (Ciphering key):</p> <ul style="list-style-type: none"> 8 bytes (16 hexadecimal digits), without leading '0x'. Example: ec793ac5662e7000
<p>!ICCID</p> <p>Supporting modems:</p> <ul style="list-style-type: none"> All 	<p>Return (U)SIM card's ICCID</p> <p>Return a (U)SIM's ICCID (Integrated Circuit Card ID).</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!ICCID? Response: !ICCID: <iccid> OK Purpose: Display the ICCID. <p>Parameters:</p> <p><iccid> (ICCID of the (U)SIM currently being tested):</p> <ul style="list-style-type: none"> 20 digit decimal number—This number is often printed on the (U)SIM card.

Table 7-2: SIM command details (Continued)

Command	Description
<p>!SPN</p> <p>Supporting modems:</p> <ul style="list-style-type: none"> • All, with these exceptions: <ul style="list-style-type: none"> • MDM8200 (min f/w rev: M2.0 Release 5/ M3.0 Release 1) • MSM6290 (min f/w rev: K2.0.7.15ap) 	<p>Return (U)SIM card's SPN</p> <p>Return a (U)SIM's SPN (Service Provider Name) and ME display requirements (as defined in 3GPP 31.1028).</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT!SPN? Response: !SPN: <display>, <spn> OK or ERROR Purpose: Display the SIM's SPN. <p>Parameters:</p> <p><display> (PLMN/SPN name display requirement):</p> <ul style="list-style-type: none"> • 8-bit integer value (0–255) • Bit 0 (Registered PLMN name display requirement): <ul style="list-style-type: none"> • Indicates if ME must display registered PLMN name when the registered PLMN is <i>either</i> HPLMN or a PLMN in the service provider PLMN list. • 0=Not required • 1=Required • Bit 1 (SPN name display requirement): <ul style="list-style-type: none"> • Indicates if ME must display the SPN when the registered PLMN is <i>neither</i> HPLMN nor a PLMN in the service provider PLMN list. • 0=Required • 1=Not required <p><spn> (Service Provider Name):</p> <ul style="list-style-type: none"> • ASCII string contained within quotes. • Example: "randomSPN"

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