



AirCard 77xS / 34xU

AT Command Reference

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Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the NETGEAR modem are used in a normal manner with a well-constructed network, the NETGEAR modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. NETGEAR accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the NETGEAR modem, or for failure of the NETGEAR modem to transmit or receive such data.

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Contents

About This Guide	7
Introduction.	7
Command access.	7
Command timing	7
Interval timing	7
Escape sequence guard time	7
Result codes.	8
References.	8
Terminology and acronyms	8
Current firmware versions	8
Version	8
Upgrading	8
Document structure	8
Conventions	10
AT Password Commands	13
Introduction.	13
Command summary.	13
Command reference.	14
Modem Status, Customization, and Reset Commands	15
Introduction.	15
Command summary.	15
Command reference.	16
Mobile IP Commands	23
Introduction.	23
Command summary.	23
Command reference.	24

SIM Commands	33
Introduction	33
Command summary	33
Command reference	34
OMA-DM Commands	35
Introduction	35
Command summary	35
Command reference	36
Supported GSM/WCDMA AT Commands	37
HSDPA/ HSUPA Categories	47
Band Definitions	49
ASCII Table	51
Index (AT commands)	53
Index	57

1: About This Guide

Introduction

This document describes supported standard and proprietary AT commands available for NETGEAR AirCard™ devices, and provides details where commands vary from the standards. These commands are intended for use by OEMs, and are supplemental to the standard AT commands for GSM devices defined by the 3GPP (3rd Generation Partnership Project) in *TS 27.007 AT command set for User Equipment (UE)* and *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)*.

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

Command access

Most commands in this reference are password-protected. To use these commands, you must enter the correct password using `AT!ENTERCND` on page 14. Once the password is entered, all commands are available and remain available until the modem is reset or powered off and on.

Command timing

Interval timing

Some commands require time to process before additional commands are entered. For example, the modem returns OK when it receives `AT!DAFTMACT`. If `AT!DASBAND` is received too soon after this, the modem returns an error.

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.

References

This guide covers the command sets used by OEMs, designers and testers of NETGEAR AirCard devices, plus general operational use commands.

You may also want to consult the other documents available on our website at www.netgear.com.

Terminology and acronyms

This document makes wide use of acronyms that are in common use in data communications and cellular technology.

Current firmware versions

Version

To determine your firmware revision, enter the identification command **AT+GMR**.

Upgrading

If your modem firmware is an earlier version, you can acquire updated firmware by visiting support.netgear.com and searching by your product model number.

Document structure

This document describes the proprietary commands listed in the tables below—each table corresponds to a specific chapter.

AT Password Commands—Commands used to enable access to password-protected AT commands and to set the AT command password.

Table 1-1: AT password commands

Command	Description	Page
!ENTERCND	Enable access to password-protected commands	14
!SETCND	Set AT command password	14

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	16
!BOOTHOLD	Reset modem and wait in bootloader for firmware download	17
\$ERI	Return current Enhanced Roaming Indicator (ERI)	18
!GETBAND	Return the current active band	18
!GETRAT	Return the current active radio access technology (RAT)	18
!GSTATUS	Return operational status	19
\$MDN	Set/report Mobile Directory Number (MDN)	19
\$MSID	Set/report Mobile Station ID (MSID)	20
!PACKAGE	Return package version string	20
!PCTEMP	Return current temperature information	21
\$PRL	Return device's CDMA PRL version	21
\$QCRM_CALL	Make/disconnect data connection	21
\$RESET !RESET	Reset (power cycle) modem	22
\$ROAM	Set/report network roaming mode	22
\$RTN	Reset device to factory default settings	22

Mobile IP Commands—Commands used to configure and display Mobile IP options.

Table 1-3: Mobile IP configuration commands

Command	Description	Page
\$MIPERR	Return last MIP error code	24
\$QCMIP	Set/return Mobile IP state	24
\$QCMIPPEP	Enable/disable active profile	24
\$QCMIPGETP	Identify active profile, or display specific profile's configuration information	25
\$QCMIPHA	Set/return active profile's Home Agent address	25
\$QCMIPMASPI	Set/return active profile's AAA SPI	26
\$QCMIPMASS	Set/return active profile's AAA 'shared secret' (ASCII)	26
\$QCMIPMASSX	Set/return active profile's AAA 'shared secret' (Hexadecimal)	27
\$QCMIPMHSPI	Set/return active profile's Home Agent SPI	27

Table 1-3: Mobile IP configuration commands (Continued)

Command	Description	Page
\$QCMIPMHSS	Set/return active profile's Home Agent 'shared secret' (ASCII)	28
\$QCMIPMHSSX	Set/return active profile's Home Agent 'shared secret' (Hexadecimal)	28
\$QCMIPNAI	Set/return active profile's NAI	29
\$QCMIPP	Set/return the active profile	29
\$QCMIPPHA	Set/return active profile's primary Home Agent address	30
\$QCMIPSHA	Set/return active profile's secondary Home Agent address	30
\$QCMIPRT	Enable/disable reverse tunneling	31
\$QCMIPT	Display RFC 2002bis authentication state	31

SIM Commands—Commands used to communicate with an installed (U)SIM.

Table 1-4: SIM commands

Command	Description	Page
!ICCID	Return (U)SIM card's ICCID	34

OMA-DM Commands—Commands used to configure DM (Device Management) accounts, sessions, and host–device–server interactions.

Table 1-5: OMA-DM commands

Command	Description	Page
!IDSTEST	Start DM session (Sprint OMA activation)	36

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 leading "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: AT Password Commands

Introduction

AT commands described in this document are password-protected. This chapter describes how to enter and change the password.

Command summary

[Table 2-1](#) on page 13 lists the commands described in this chapter.

Table 2-1: AT password commands

Command	Description	Page
!ENTERCND	Enable access to password-protected commands	14
!SETCND	Set AT command password	14

Command reference

Table 2-2: AT command password details

Command	Description
!ENTERCND	<p>Enable access to password-protected commands</p> <p>Before you can use any password-protected AT commands, you must enter the password correctly using this command. The initial password (“A710”) is configured onto the modem during manufacture. You can change the password using !SETCND.</p> <p>Once the password has been entered correctly, the password-protected AT commands are available until the modem is reset or powered off and on.</p> <p>Password required: Yes—Query format only.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!ENTERCND=<“key”> Response: OK Purpose: Unlock password-protected commands. • Query: AT!ENTERCND? Response: <key> (if unlocked) Purpose: This command is password-protected. After entering the password correctly using the execution operation (“=”), you can use this command to display the password as a reminder. <p>Parameters:</p> <p><“key”> (Password stored in NV memory)</p> <ul style="list-style-type: none"> • Password must be entered with quotation marks. (For example, AT!ENTERCND=“ExamplePW”.) • Password length: 4–10 characters (0–9, A–Z, upper or lower case) • Characters may be entered in ASCII format, or in Hex format. (For example: “myPass3” or “ABCDEF01234”.)
!SETCND	<p>Set AT command password</p> <p>Change the password used for the !ENTERCND command. (Before you can change the password using !SETCND, you must enable access to this command using !ENTERCND.)</p> <p>Password required: Yes</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT!SETCND=<“key”> Response: OK Purpose: Sets <“Key”> as the new password for accessing protected commands. <p>Parameters:</p> <p><“key”> (New password)</p> <ul style="list-style-type: none"> • Password must be entered with quotation marks (for example, AT!SETCND=“NewPW”). • Password length: 4–10 characters (0–9, A–Z, upper or lower case) • Characters may be entered in ASCII format, or in Hex format. (For example: “myPass3” or “ABCDEF01234”.) <hr/> <p>Warning: Do NOT enter a null password (that is, the <“Key”> cannot be “”) — you will NOT be able to use password-protected commands, and will have to contact NETGEAR for help to reset the password.</p> <hr/>

3: Modem Status, Customization, and Reset Commands

Introduction

This chapter describes commands used to reset the modem, adjust customization settings, retrieve the hardware 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	16
!BOOTHOLD	Reset modem and wait in bootloader for firmware download	17
\$ERI	Return current Enhanced Roaming Indicator (ERI)	18
!GETBAND	Return the current active band	18
!GETRAT	Return the current active radio access technology (RAT)	18
!GSTATUS	Return operational status	19
\$MDN	Set/report Mobile Directory Number (MDN)	19
\$MSID	Set/report Mobile Station ID (MSID)	20
!PACKAGE	Return package version string	20
!PCTEMP	Return current temperature information	21
\$PRL	Return device's CDMA PRL version	21
\$QCRMCALL	Make/disconnect data connection	21
\$RESET !RESET	Reset (power cycle) modem	22
\$ROAM	Set/report network roaming mode	22
\$RTN	Reset device to factory default settings	22

Command reference

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

Command	Description
!BAND <hr/> <i>Note: The 'Basic' command and response versions are used if you haven't entered the required password. (See Command access on page 7.)</i> <hr/>	<p>Select/return frequency band set</p> <p>Configure the modem to operate on a set of frequency bands, look up available sets, create new sets, or return the current selection.</p> <p>Password required: Yes—Execution (Extended) format</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution (Basic): <ul style="list-style-type: none"> Command: AT!BAND=<Index> Response: OK Purpose: Select an existing set of bands. Execution (Extended): <ul style="list-style-type: none"> Command: AT!BAND=<Index>,"<Name>",<GWmask>[,<Lmask>,<Lmask2>] Response: OK Purpose: Create a new set of bands. Query: <ul style="list-style-type: none"> Command: AT!BAND? Response: Index, Name[, GW Band Mask [, L Band Mask]] <Index>, <Name>[, <GWmask> [, <Lmask>]] OK or (If the current band mask doesn't match a band set) Unknown band mask. Use AT!BAND to set band. <Index> OK Purpose: Report the current band selection. (<GWmask> and <Lmask> may only appear in Extended responses.) Query List: <ul style="list-style-type: none"> Command: AT!BAND=? Response: Index, Name[, GW Band Mask [L Band Mask]] <Index1>, <Name1>[, <GWmask1> [, <Lmask1>]] ... <IndexN>, <NameN>[, <GWmaskN> [, <LmaskN>]] OK Purpose: Display allowed <Index> values and descriptions of the associated band sets. <p>(Continued on next page)</p>

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

Command	Description
!BAND (continued)	<p>Select/return frequency band set (continued)</p> <p>Parameters:</p> <p><Index> (Index of a band set. Use the Query List command to display all supported sets)</p> <ul style="list-style-type: none"> Valid range: 0–13 (Hexadecimal. There are 20 possible values.) <p><Name> (Name of the band set)</p> <ul style="list-style-type: none"> ASCII string—Up to 30 characters <p><GWmask> (GSM/WCDMA bands included in the set)</p> <ul style="list-style-type: none"> Format: 32-bit bitmask Valid values: <ul style="list-style-type: none"> 0000000000000001—BC0-A 0000000000000002—BC0-B 0000000000000003—BC0 (BC0-A and BC0-B) 0000000000000004—BC1 0000000000000080—G1800 0000000000000300—G900 (EGSM/GSM) 0000000000000400—BC6 0000000000004000—BC10 (800) 0000000000080000—G850 0000000000200000—G1900 0000000000400000—W2100 0000000000800000—W1900 0000000002000000—W1700 0000000004000000—W850 0000000008000000—W800 0000000080000000—BC15 0002000000000000—W900 1000000000000000—B19 (850) <p><Lmask> (LTE bands included in the set)</p> <ul style="list-style-type: none"> Format: 32-bit bitmask Valid values: <ul style="list-style-type: none"> 0000000000000001—Band 1 0000000000000002—Band 2 ... 0000080000000000—Band 40 0000010000000000—Band 41
!BOOTHOLD	<p>Reset modem and wait in bootloader for firmware download</p> <p>Prepare for a firmware download by resetting the modem and waiting in 'boot and hold' mode.</p> <p>Password required: No</p> <p>Usage:</p> <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.

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

Command	Description
\$ERI	<p>Return current Enhanced Roaming Indicator (ERI)</p> <p>(For Sprint devices only) Return the current ERI. Password required: No.</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT\$ERI? Response: Returns <ERI> Purpose: Display the modem's current mode. <p>Parameters:</p> <p><ERI> (Enhanced Roaming Indicator)</p> <ul style="list-style-type: none"> Decimal value as defined in Section 5.3.3 of <i>Sprint Core Features User Interaction Requirements (version 1.0)</i>.
!GETBAND	<p>Return the current active band</p> <p>Return the active band currently being used by the modem. Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: !GETBAND? Response: !GETBAND: <active band description> OK or Unknown OK or No Service 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/>
!GETRAT	<p>Return the current active radio access technology (RAT)</p> <p>Return the RAT currently being used by the modem. Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: !GETRAT? Response: !GETRAT: <active RAT description> OK or Unknown OK or No Service OK Purpose: Return a description of the current RAT, or return an error message.

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

Command	Description
!GSTATUS	<p>Return operational status</p> <p>Return specific details about the current operational status of the modem. The response details vary depending on the current RAT. Contact NETGEAR for further details if required.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> Query: AT!GSTATUS? Response (Example shown is for LTE, actual fields may vary) !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> <p>RSSI (dBm): <rssi> SINR (dB): <sinr> RSRP (dBm): <rsrp> TAC: <tac> RSRQ (dB): <rsrq> Cell ID: <Cell ID> OK</p>
\$MDN	<p>Set/report Mobile Directory Number (MDN)</p> <p>(For Sprint devices only)</p> <p>Set or return the modem's Mobile Directory Number.</p> <p>Password required: No.</p> <p>Usage:</p> <ul style="list-style-type: none"> Execution: AT\$MDN=<MSL>,<MDN> Purpose: Set the specified modem's mobile directory number to <MDN>. Note: This command returns "ERROR" if the <MSL> is incorrect. Query: AT\$MDN? Response: Returns <MDN> Purpose: Display the modem's mobile directory number. <p>Parameters:</p> <p><MSL> (Master Subsidy Lock, a.k.a "Service Programming Code" (SPC))</p> <ul style="list-style-type: none"> Available from Sprint <p><MDN> (Mobile Directory Number)</p> <ul style="list-style-type: none"> 10-digit mobile directory phone number

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

Command	Description
\$MSID	<p>Set/report Mobile Station ID (MSID) (For Sprint devices only) Set or return the modem's Mobile Station ID. Password required: No. Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$MSID=<MSL>,<MSID> Purpose: Set the specified modem's mobile station ID to <MSID>. Note: This command returns "ERROR" if the <MSL> is incorrect or if the <MSID> is invalid. • Query: AT\$MSID? Response: Returns <MSID> Purpose: Display the modem's mobile station ID. <p>Parameters:</p> <p><MSL> (Master Subsidy Lock, a.k.a "Service Programming Code" (SPC))</p> <ul style="list-style-type: none"> • Available from Sprint <p><MSID> (Mobile Station ID)</p> <ul style="list-style-type: none"> • 10-digit mobile directory number
!PACKAGE	<p>Return package version string This command returns the FOTA package name loaded in the modem. Password required: No Usage:</p> <ul style="list-style-type: none"> • Query: AT!PACKAGE? Response: !PACKAGE:<PackageName> OK or Unset OK Purpose: Return the package name string. <p>Parameters:</p> <p><PackageName></p> <ul style="list-style-type: none"> • Character string, maximum 126 characters • Example: MC7750_01.00.02.03_00_VZW_011.006_000

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

Command	Description
!PCTEMP	<p>Return current temperature information</p> <p>Return the module's temperature state and actual temperature.</p> <p>Password required: No</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 temperature reported by a thermistor positioned near the power amplifiers.
\$PRL	<p>Return device's CDMA PRL version</p> <p>(For Sprint devices only)</p> <p>Return the device's CDMA PRL version number. If the device supports multiple radio technologies, only the CDMA PRL version is returned.</p> <p>Password required: No.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT\$PRL? Response: Returns <PRL> Purpose: Display the modem's CDMA PRL version.
\$QCRMCall	<p>Make/disconnect data connection</p> <p>(For Sprint devices only)</p> <hr/> <p><i>Note: This command applies only to AC341U devices. The device must be in IP Pass Through (IPT) mode.</i></p> <hr/> <p>Make (or disconnect) a data connection using the best available network type.</p> <p>Password required: No.</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCRMCall=<action>,1 Response: OK Purpose: Make or disconnects a data connection. <p>Parameters:</p> <p><action></p> <ul style="list-style-type: none"> • 0=Disconnect the data connection • 1=Make a data connection

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

Command	Description
\$RESET or !RESET	Reset (power cycle) modem Immediately power cycle the device. (Note: \$RESET is for Sprint devices only.) Password required: No. Usage: <ul style="list-style-type: none"> • Execution: AT!RESET Response: OK Purpose: Power cycles the device. • Execution: AT\$RESET Purpose: Power cycles the device.
\$ROAM	Set/report network roaming mode (For Sprint devices only) Set or return the device's current roaming mode. Password required: No. Usage: <ul style="list-style-type: none"> • Execution: AT\$ROAM=<roamMode> Purpose: Set the device's roaming mode. • Query: AT\$ROAM=? Response: Returns <roamMode> Purpose: Display the device's current roaming mode. Parameters: <roamMode> (Roaming mode) <ul style="list-style-type: none"> • 0=HOME_ONLY • 1=DOMESTIC • 2=ALL
\$RTN	Reset device to factory default settings (For Sprint devices only) Reset the device to its factory default settings and immediately power cycle the device. <hr/> <i>Note: Because the device is returned to factory default settings, it will need to be reactivated after it resets.</i> <hr/> Password required: No. Usage: <ul style="list-style-type: none"> • Execution: AT\$RTN=<MSL> Purpose: Reset the specified device. The command will return "ERROR" if the <MSL> is invalid. Parameters: <MSL> (Master Subsidy Lock, a.k.a "Service Programming Code" (SPC)) <ul style="list-style-type: none"> • Available from Sprint

4: Mobile IP Commands

Introduction

This chapter describes commands used to configure and display Mobile IP options.

Command summary

Table 4-1 lists the commands described in this chapter.

Table 4-1: Mobile IP commands

Command	Description	Page
\$MIPERR	Return last MIP error code	24
\$QCMIP	Set/return Mobile IP state	24
\$QCMIPEP	Enable/disable active profile	24
\$QCMIPGETP	Identify active profile, or display specific profile's configuration information	25
\$QCMIPHA	Set/return active profile's Home Agent address	25
\$QCMIPMASPI	Set/return active profile's AAA SPI	26
\$QCMIPMASS	Set/return active profile's AAA 'shared secret' (ASCII)	26
\$QCMIPMASSX	Set/return active profile's AAA 'shared secret' (Hexadecimal)	27
\$QCMIPMHSPI	Set/return active profile's Home Agent SPI	27
\$QCMIPMHSS	Set/return active profile's Home Agent 'shared secret' (ASCII)	28
\$QCMIPMHSSX	Set/return active profile's Home Agent 'shared secret' (Hexadecimal)	28
\$QCMIPNAI	Set/return active profile's NAI	29
\$QCMIPP	Set/return the active profile	29
\$QCMIPPHA	Set/return active profile's primary Home Agent address	30
\$QCMIPSHA	Set/return active profile's secondary Home Agent address	30
\$QCMIPRT	Enable/disable reverse tunneling	31
\$QCMIPT	Display RFC 2002bis authentication state	31

Command reference

Table 4-2: Mobile IP commands

Command	Description
\$MIPERR	<p>Return last MIP error code (Sprint devices only) Return the last MIP error code that was received by the device. Password required: No Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$MIPERR? Purpose: Return the last MIP error code.
\$QCMIP	<p>Set/return Mobile IP state Enable or disable Mobile IP (MIP) network authentication, or report the current state of MIP. Password required: No Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIP=<mipValue> Purpose: Set network authentication method to MIP or SIP. • Query: AT\$QCMIP? Response: Returns <mipValue> Purpose: Display the current network authentication method. <p>Parameters: <mipValue> (Current mobile network authentication method)</p> <ul style="list-style-type: none"> • 0=IP disabled, Simple IP (SIP) only • 1=MIP preferred, with SIP fallback • 2=MIP only
\$QCMPEP	<p>Enable/disable active profile Enable or disable the active profile.</p> <hr/> <p><i>Note: A profile can be used only if it is active and enabled.</i></p> <hr/> <p>Password required: No Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMPEP=<profileState> Purpose: Enable or disable the currently active profile. • Query: AT\$QCMPEP? Response: Returns <profileState> Purpose: Display the state of the currently active profile. <p>Parameters: <profileState> (State of the currently active profile)</p> <ul style="list-style-type: none"> • 0=Disable • 1=Enable

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPGETP	<p>Identify active profile, or display specific profile's configuration information</p> <p>Return the ID of the active profile, or display configuration information for a specific profile. Displayed information includes profile state (enabled, disabled), Home Address, Primary and Secondary Home Agent, etc.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPGETP=<mipID> Response: List of configuration parameters. Purpose: Display configuration information for the specified Mobile IP profile. • Query list: AT!QCMIPGETP=? Response: Returns active profile's <mipID> Purpose: Identify the active profile. <p>Parameters:</p> <p><mipID> (Mobile IP profile ID)</p> <ul style="list-style-type: none"> • Valid range: 0–5
\$QCMIPHA	<p>Set/return active profile's Home Agent address</p> <p>Set or return the active profile's Home Agent (HA) IP address.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPHA="<mipHA>",<NVCommitState> Purpose: Set the HA address and indicate if it is to be committed to NV. • Query: AT\$QCMIPHA? Response: Returns <mipHA> and <NVCommitState> Purpose: Display the active profile's HA IP address and indicate if it is committed to NV. <p>Parameters:</p> <p><mipHA> (Home Agent IP Address)</p> <ul style="list-style-type: none"> • For execution formation, must be enclosed by double quotes. • IPv4 address format (e.g. "[0..255].[0..255].[0..255].[0..255]") <p><NVCommitState> (Current <mipHA> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipHA> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPMASPI	<p>Set/return active profile's AAA SPI</p> <p>Set or return the active profile's Mobile Node AAA Security Parameter Index (SPI)</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMASPI=<mipSPI>,<NVCommitState> Purpose: Set the active profile's AAA SPI and indicate if it is to be committed to NV. • Query: AT\$QCMIPMASPI? Response: Returns <mipSPI> and <NVCommitState> Purpose: Display the active profile's AAA SPI and indicate if it is committed to NV. <p>Parameters:</p> <p><mipSPI> (Security Parameter Index)</p> <ul style="list-style-type: none"> • Valid range: 0–4294967295 <p><NVCommitState> (Current <mipSPI> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipSPI> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPMASS	<p>Set/return active profile's AAA 'shared secret' (ASCII)</p> <p>Set or return the active profile's Mobile Node AAA shared secret in ASCII format.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMASS="<secretASCII>",<NVCommitState> Purpose: Set the shared secret and indicate if it is to be committed to NV. Note: The command returns ERROR if <secretASCII> is too long. • Query: AT\$QCMIPMASS? Response: Returns shared secret status (set/unset) and <NVCommitState> Purpose: Display shared secret status and indicate if it is committed to NV. <p>Parameters:</p> <p><secretASCII> (Shared secret in ASCII format)</p> <ul style="list-style-type: none"> • For execution formation, must be enclosed by double quotes. <p><NVCommitState> (Current <secretASCII> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <secretASCII> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPMASSX	<p>Set/return active profile's AAA 'shared secret' (Hexadecimal)</p> <p>Set or return the active profile's Mobile Node AAA shared secret in hexadecimal format.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMASSX="<secretHex>",<NVCommitState> Purpose: Set the shared secret and indicate if it is to be committed to NV. Note: The command returns ERROR if <secretHex> is too long or if invalid characters are used. • Query: AT\$QCMIPMASSX? Response: Returns shared secret status (set/unset) and <NVCommitState> Purpose: Display shared secret status and indicate if it is committed to NV. <p>Parameters:</p> <p><secretHex> (Shared secret in hexadecimal format)</p> <ul style="list-style-type: none"> • Value must not include "0x". The command will return ERROR if "0x" is used to start the <secretHex> value. • Value may be up to 4 bytes long. • Allowed characters: '0'-'9', 'A'-'F', 'a'-'f' <p><NVCommitState> (Current <secretHex> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <secretHex> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPMHSPI	<p>Set/return active profile's Home Agent SPI</p> <p>Set or return the active profile's Mobile Node Home Agent Security Parameter Index (SPI)</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMHSPI=<mipSPI>,<NVCommitState> Purpose: Set the active profile's Home Agent SPI and indicate if it is to be committed to NV. • Query: AT\$QCMIPMHSPI? Response: Returns <mipSPI> and <NVCommitState> Purpose: Display the active profile's Home Agent SPI and indicate if it is committed to NV. <p>Parameters:</p> <p><mipSPI> (Security Parameter Index)</p> <ul style="list-style-type: none"> • Valid range: 0–4294967295 <p><NVCommitState> (Current <mipSPI> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipSPI> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPMHSS	<p>Set/return active profile's Home Agent 'shared secret' (ASCII)</p> <p>Set or return the active profile's Mobile Node Home Agent shared secret in ASCII format.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMHSS="<secretASCII>",<NVCommitState> Purpose: Set the shared secret and indicate if it is to be committed to NV. Note: The command returns ERROR if <secretASCII> is too long. • Query: AT\$QCMIPMHSS? Response: Returns shared secret status (set/unset) and <NVCommitState> Purpose: Display shared secret status and indicate if it is committed to NV. <p>Parameters:</p> <p><secretASCII> (Shared secret in ASCII format)</p> <ul style="list-style-type: none"> • For execution formation, must be enclosed by double quotes. <p><NVCommitState> (Current <secretASCII> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <secretASCII> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPMHSSX	<p>Set/return active profile's Home Agent 'shared secret' (Hexadecimal)</p> <p>Set or return the active profile's Mobile Node Home Agent shared secret in hexadecimal format.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPMHSSX="<secretHex>",<NVCommitState> Purpose: Set the shared secret and indicate if it is to be committed to NV. Note: The command returns ERROR if <secretHex> is too long or if invalid characters are used. • Query: AT\$QCMIPMHSSX? Response: Returns shared secret status (set/unset) and <NVCommitState> Purpose: Display shared secret status and indicate if it is committed to NV. <p>Parameters:</p> <p><secretHex> (Shared secret in hexadecimal format)</p> <ul style="list-style-type: none"> • Value must not include "0x". The command will return ERROR if "0x" is used to start the <secretHex> value. • Value may be up to 4 bytes long. • Allowed characters: '0'-'9', 'A'-'F', 'a'-'f' <p><NVCommitState> (Current <secretHex> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <secretHex> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPNAI	<p>Set/return active profile's NAI</p> <p>Set or return the active profile's Network Address Identifier (NAI).</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPNAI="<mipNAI>",<NVCommitState> Purpose: Set the NAI and indicate if it is to be committed to NV. • Query: AT\$QCMIPNAI? Response: Returns <mipNAI> and <NVCommitState> Purpose: Display the NAI and indicate if it is committed to NV. <p>Parameters:</p> <p><mipNAI> (Network Address Identifier)</p> <ul style="list-style-type: none"> • String in the format of user@domain (example: 7605551212@sprint.com) <p><NVCommitState> (Current <mipNAI> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipNAI> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPP	<p>Set/return the active profile</p> <p>Set (activate) a Mobile IP profile to be the active profile and record this in NV.</p> <hr/> <p><i>Note: To use the active profile, you must also enable it using \$QCMIPPEP.</i></p> <hr/> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPP=<mipID> Purpose: Set the specified profile as the active profile. • Query: AT\$QCMIPP? Response: Returns <mipID> Purpose: Display the currently active profile's ID. <p>Parameters:</p> <p><mipID> (Mobile IP profile ID)</p> <ul style="list-style-type: none"> • Valid range: 0–5

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPPHA	<p>Set/return active profile's primary Home Agent address Set or return the active profile's primary Home Agent (HA) IP address. Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPPHA="<mipPHA>",<NVCommitState> Purpose: Set the primary HA address and indicate if it is to be committed to NV. • Query: AT\$QCMIPPHA? Response: Returns <mipPHA> and <NVCommitState> Purpose: Display the active profile's primary HA IP address and indicate if it is committed to NV. <p>Parameters:</p> <p><mipPHA> (Primary Home Agent IP Address)</p> <ul style="list-style-type: none"> • For execution formation, must be enclosed by double quotes. • IPv4 address format (e.g. "[0..255].[0..255].[0..255].[0..255]") <p><NVCommitState> (Current <mipPHA> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipPHA> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPSHA	<p>Set/return active profile's secondary Home Agent address Set or return the active profile's secondary Home Agent (HA) IP address. Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPSHA="<mipSHA>",<NVCommitState> Purpose: Set the secondary HA address and indicate if it is to be committed to NV. • Query: AT\$QCMIPSHA? Response: Returns <mipSHA> and <NVCommitState> Purpose: Display the active profile's secondary HA IP address and indicate if it is committed to NV. <p>Parameters:</p> <p><mipSHA> (Secondary Home Agent IP Address)</p> <ul style="list-style-type: none"> • For execution formation, must be enclosed by double quotes. • IPv4 address format (e.g. "[0..255].[0..255].[0..255].[0..255]") <p><NVCommitState> (Current <mipSHA> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <mipSHA> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.

Table 4-2: Mobile IP commands (Continued)

Command	Description
\$QCMIPRT	<p>Enable/disable reverse tunneling</p> <p>Enable or disable reverse tunneling.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Execution: AT\$QCMIPRT=<RtState>,<NVCommitState> Purpose: Set the reverse tunneling state and indicate if it is to be committed to NV. • Query: AT\$QCMIPRT? Response: Returns <RtState> and <NVCommitState> Purpose: Display the reverse tunneling state and indicate if it is committed to NV. <p>Parameters:</p> <p><RtState> (Reverse Tunneling state)</p> <ul style="list-style-type: none"> • 0=Disabled (Tunneling is off) • 1=Enabled (Tunneling is on) <p><NVCommitState> (Current <RtState> value committed to NV?)</p> <ul style="list-style-type: none"> • 0=Do not commit to NV. Note: If <RtState> is not committed to NV, the value is deleted at the end of the next MIP session or when AT\$QCMIPP is called. • 1=Commit to NV.
\$QCMIPT	<p>Display RFC 2002bis authentication state</p> <p>Display whether RFC 2002bis authentication is enabled or disabled.</p> <p>Password required: No</p> <p>Usage:</p> <ul style="list-style-type: none"> • Query: AT\$QCMIPT? Response: Returns <authState> Purpose: Display whether RFC 2002bis authentication is enabled or disabled. <p>Parameters:</p> <p><authState> (authentication state)</p> <ul style="list-style-type: none"> • 0=Disabled (RFC 2002 authentication is used) • 1=Enabled (RFC 2002bis authentication is used)

5: SIM Commands

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

Introduction

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

Command summary

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

Table 5-1: SIM command passwords

Command	Description	Page
!ICCID	Return (U)SIM card's ICCID	34

Command reference

Table 5-2: SIM command details

Command	Description
!ICCID	<p>Return (U)SIM card's ICCID</p> <p>Return a (U)SIM's ICCID (Integrated Circuit Card ID).</p> <p>Password required: Yes</p> <p>Usage:</p> <ul style="list-style-type: none">• Query: AT!ICCID?Response: !ICCID: <iccid> OKPurpose: 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.

6: OMA-DM Commands

Introduction

This chapter describes commands used to configure DM (Device Management) accounts, sessions, and host–device–server interactions.

Command summary

The table below lists the commands described in this chapter.

Table 6-1: OMA-DM commands

Command	Description	Page
!IDSTEST	Start DM session (Sprint OMA activation)	36

Command reference

Table 6-2: OMA-DM command details

Command	Description
!IDSTEST	<p>Start DM session (Sprint OMA activation) Start a specific type of DM session with a server. Password required: No Usage:</p> <ul style="list-style-type: none"> • Execution: ATIIDSTEST=<AccountIndex>, <sessionType> Response: OK or ERROR • Purpose: Start a session of a specified type for a specific account. • Query List: ATIIDSTEST=? Purpose: Display the execution command format and allowed parameter values. <p>Parameters: <AccountIndex> (DM account number)</p> <ul style="list-style-type: none"> • Valid value: 1 Note: No other values are supported <p><sessionType> (Type of DM session to start)</p> <ul style="list-style-type: none"> • 0=Run a client-initiated OMA-DM session only (for CIDC transaction only) • 1=(Sprint-only command) Run a client-initiated FUMO server status update (for CIFUMO transaction only). (Note: For Sprint, this updates their server with your device status, but it does not upgrade the firmware.) • 4=(Sprint-only command) Run a client-initiated PRL check and download only (for CIPRL transaction only) • 5=Run OMA activation (Note: For Sprint, this is called 'Hands Free Activation (HFA). This performs a CIDC transaction, then a CIPRL transaction, and then a CIFUMO status update.)

7: Supported GSM/WCDMA AT Commands

This chapter identifies standard AT commands that are supported by most NETGEAR AirCard 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 7-1](#) 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 7-2](#) on page 39.
- Control devices operating on GSM/WCDMA networks (*3GPP TS 27.007*, available on the 3GPP web site, www.3gpp.org) See [Table 7-3](#) on page 40.

The tables below identify whether each command is supported on NETGEAR 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 7-1](#) on page 37).

Table 7-1: Supported ITU-T Recommendation V.250 AT commands

Command	Description	Supported ✓=Yes; X=No
&C	Set Data Carrier Detected (Received line signal detector) function mode	X
&D	Set Data Terminal Ready function mode	✓
&F	Set all current parameters to manufacturer’s defaults	✓
&S	Set DSR signal	✓
&T	Auto tests	X
&V	Return operating mode AT configuration parameters	✓
&W	Store current parameter to user-defined profile	✓
+CSS	Serving System Identification Return serving system band and SID in the format “<channel>,<band>,<SID>”.	✓
+CTA	MT-terminated asynchronous data calls Returns packet data inactivity timer.	✓

Table 7-1: Supported ITU-T Recommendation V.250 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+DR	V42bis data compression report	✓
+DS	V42bis data compression	✓
+GCAP	Request complete TA capabilities list	✓
+GMI	Request manufacturer identification	✓
+GMM	Request TA model identification	✓
+GMR	Request TA revision identification	✓
+GOI	Request global object identification	✗
+GSN	Request TA serial number identification Note: Returns 15-digit IMEI. To convert to the 14-digit MEID, drop the last digit.	✓
+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 (Default = E1—Echo on)	✓
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 (Default = Q1—Return codes on)	✓

Table 7-1: Supported ITU-T Recommendation V.250 AT commands (Continued)

Command	Description	Supported ✓=Yes; X=No
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	✓
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 (Default = V1—Use numeric return codes)	✓
X	Set connect result code format and call monitoring	✓
Z	Set all current parameters to user-defined profile (Note: Z0 resets parameters to default)	✓

Table 7-2: Supported 27.005 AT commands

Command	Description	Supported ✓=Yes; X=No
+CBM	Cell broadcast message directly displayed	✓
+CBMI	Cell broadcast message stored in memory at specified <index> location	X
+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	✓

Table 7-2: Supported 27.005 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+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	✓
+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 7-3: 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

Table 7-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CALD	Delete alarm	N/A
+CALM	Alert sound mode	✗
+CAMP	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
+CAULEV	Voice Group Call Uplink Status Presentation	N/A
+CBST	Select bearer service type	✓
+CCCM	Current call meter value	✗
+CCLK	Clock	N/A
+CCUG	Closed user group	✓
+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) • 4 (disable (turn off) both MT transmit and receive RF circuits) • 5 (Factory Test Mode) • 6 (reset) • 7 (offline) 	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	✗

Table 7-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; X=No
+CGCLASS	GPRS mobile station class	✓
+CGCLOSP	Configure local octet stream PAD parameters	X
+CGCMOD	PDP Context Modify	X
+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)	✓
+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	✓

Table 7-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+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	✓
+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	✓
+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 Limitations Command is processed when ME is in 'limited service' state <pas> values supported: <ul style="list-style-type: none"> • 0—Ready • 3—Ringing • 4—Call in Progress 	✓ (Partial)

Table 7-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CPBF	Find phonebook entries	✓
+CPBR	Read phonebook entries	✓
+CPBS	Select phonebook memory storage	✓
+CPBW	Write phonebook entry	✓
+CPIN	Enter PIN	✓
+CPLS	Preferred PLMN list selection	✓
+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	✓
+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	✗
+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	✗
+CSQ	Signal quality	✓
+CSSN	Supplementary service notifications	✓
+CSTA	Select type of address	✓
+CSTF	Settings time format	✓

Table 7-3: Supported 27.007 AT commands (Continued)

Command	Description	Supported ✓=Yes; ✗=No
+CSVM	Set Voice Mail Number	✗
+CTFR	Call deflection	✓
+CTZR	Time Zone Reporting	N/A
+CTZU	Automatic Time Zone Update	✗
+CUSD	Unstructured supplementary service data	✓
+CV120	V.120 rate adaptation protocol	✗
+CVHU	Voice Hangup Control	✗
+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	✓
+VTS	DTMF and arbitrary tone generation	✓
+WS46	PCCA STD 101 [17] select wireless network	✗

8: HSDPA/ HSUPA Categories

The following tables describe standard HSDPA and HSUPA categories.

Table 8-1: HSDPA-capable terminals

Category	Maximum number of supported HS-DSCH codes	Minimum inter-TTI interval	Number of soft values in terminal's hybrid ARQ buffer	Theoretical download maximum (L1 peak rate [Mbps])	Modulation
Category 1	5	3	19,200	1.2	16QAM, QPSK ^a
Category 2	5	3	28,800	1.2	16QAM, QPSK ^a
Category 3	5	2	28,800	1.8	16QAM, QPSK ^a
Category 4	5	2	38,400	1.8	16QAM, QPSK ^a
Category 5	5	1	57,600	3.6	16QAM, QPSK ^a
Category 6	5	1	67,200	3.6	16QAM, QPSK ^a
Category 7	10	1	115,200	7.2	16QAM, QPSK ^a
Category 8 ^a	10	1	134,400	7.2	16QAM, QPSK ^a
Category 9	15	1	172,800	10.0	16QAM, QPSK ^a
Category 10	15	1	172,800	14.0	16QAM, QPSK ^a
Category 11	5	2	14,400	0.9	QPSK ^a
Category 12	5	1	28,800	1.8	QPSK ^a
Category 14	15	1	259,200	21.1	16QAM, 64QAM, QPSK ^a
Category 24	15	1	518,400	42.2	16QAM, 64QAM, QPSK ^b

- a. Supported modulations without MIMO or dual cell operation.
- b. Supported modulations with dual cell operation.

Table 8-2: HSUPA-capable terminals

E-DCH Category	Maximum number of E-DCH codes transmitted	Minimum spreading factor	Support for 10 ms; 2 ms TTI E-DCH	Maximum data rate with 10 ms TTI	Maximum data rate with 2 ms TTI
Category 1	1	SF4	10 ms only	0.72 Mbps	N/A
Category 2	2	SF4	10 ms and 2 ms	1.45 Mbps	1.45 Mbps
Category 3	2	SF4	10 ms only	1.45 Mbps	N/A
Category 4	2	SF2	10 ms and 2 ms	2.0 Mbps	2.91 Mbps
Category 5	2	SF2	10 ms only	2.0 Mbps	N/A
Category 6	4	SF2	10 ms and 2 ms	2.0 Mbps	5.76 Mbps

9: Band Definitions

Some commands described in this document include input and/or output 'band' parameters, where the band value is one of the following:

- An enumerated value representing a network technology and band ([Table 9-1](#))
- A 3GPP band number ([Table 9-2](#) on page 50)

Note: Band support is product-specific—see the device's Product Specification Document or Product Technical Specification for details.

Table 9-1: Band/technology enumerations^a

<band>	Description	<band>	Description	<band>	Description	<band>	Description
0	CDMA	22	WCDMA 800	42	LTE B4	60	LTE B24
2	Sleep	25	WCDMA BC3	43	LTE B2	61	LTE B25
5	CDMA 800	26	CDMA BC14	44	LTE B3	62	LTE B26
6	CDMA 1900	27	CDMA BC11	45	LTE B5	63	LTE B27
7	HDR	28	WCDMA BC4	46	LTE B6	64	LTE B28
8	CDMA 1800	29	WCDMA BC8	47	LTE B8	65	LTE B29
9	WCDMA IMT	30	MF 700	48	LTE B9	66	LTE B30
10	GSM 900	31	WCDMA BC9	49	LTE B10	67	LTE B31
11	GSM 1800	32	CDMA BC15	50	LTE B12	68	LTE B32
12	GSM 1900	33	CDMA BC10	51	LTE B14	69	LTE B33
14	JCDMA	34	LTE B1	52	LTE B15	70	LTE B34
15	WCDMA 1900A	35	LTE B7	53	LTE B16	71	LTE B35
16	WCDMA 1900B	36	LTE B13	54	LTE B18	72	LTE B36
17	CDMA 450	37	LTE B17	55	LTE B19	73	LTE B37
18	GSM 850	38	LTE B38	56	LTE B20	74	LTE B39
19	IMT	39	LTE B40	57	LTE B21	75	WCDMA BC19
20	HDR 800	40	WCDMA BC11	58	LTE B22	76	LTE B41
21	HDR 1900	41	LTE B11	59	LTE B23		

a. Band values not listed (e.g. 1, 3, 4) are reserved.

Table 9-2: 3GPP bands

Band	Frequency bands (MHz)		Band	Frequency bands (MHz)	
	Rx	Tx		Rx	Tx
1	1920–1980	2110–2170	20	832–862	791–821
2	1850–1910	1930–1990	21	1447.9–1462.9	1495.9–1510.9
3	1710–1785	1805–1880	22	Reserved	Reserved
4	1710–1755	2110–2155	23	2000–2020	2180–2200
5	824–849	869–894	24	1626.5–1660.5	1525–1559
6	830–840	875–885	25	1850–1915	1930–1995
7	2500–2570	2620–2690	26–32	Reserved	Reserved
8	880–915	925–960	33	1900–1920	1900–1920
9	1749.9–1784.9	1844.9–1879.9	34	2010–2025	2010–2025
10	1710–1770	2110–2170	35	1850–1910	1850–1910
11	1427.9–1447.9	1475.9–1495.9	36	1930–1990	1930–1990
12	699–716	729–746	37	1910–1930	1910–1930
13	777–787	746–756	38	2570–2620	2570–2620
14	788–798	758–768	39	1880–1920	1880–1920
15	Reserved	Reserved	40	2300–2400	2300–2400
16	Reserved	Reserved	41	2496–2690	2496–2690
17	704–716	734–746	42	3400–3600	3400–3600
18	815–830	860–875	43	3600–3800	3600–3800
19	830–845	875–890	44–60	Reserved	Reserved

10: ASCII Table

Table 10-1: ASCII values

Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex
NUL	0	00	SP	32	20	@	64	40	'	96	60
SOH	1	01	!	33	21	A	65	41	a	97	61
STX	2	02	"	34	22	B	66	42	b	98	62
ETX	3	03	#	35	23	C	67	43	c	99	63
EOT	4	04	\$	36	24	D	68	44	d	100	64
ENQ	5	05	%	37	25	E	69	45	e	101	65
ACK	6	06	&	38	26	F	70	46	f	102	66
BEL	7	07	'	39	27	G	71	47	g	103	67
BS	8	08	(	40	28	H	72	48	h	104	68
HT	9	09	)	41	29	I	73	49	i	105	69
LF	10	0A	*	42	2A	J	74	4A	j	106	6A
VT	11	0B	+	43	2B	K	75	4B	k	107	6B
FF	12	0C	,	44	2C	L	76	4C	l	108	6C
CR	13	0D	-	45	2D	M	77	4D	m	109	6D
SO	14	0E	.	46	2E	N	78	4E	n	110	6E
SI	15	0F	/	47	2F	O	79	4F	o	111	6F
DLE	16	10	0	48	30	P	80	50	p	112	70
XON	17	11	1	49	31	Q	81	51	q	113	71
DC2	18	12	2	50	32	R	82	52	r	114	72
XOFF	19	13	3	51	33	S	83	53	s	115	73
DC4	20	14	4	52	34	T	84	54	t	116	74
NAK	21	15	5	53	35	U	85	55	u	117	75
SYN	22	16	6	54	36	V	86	56	v	118	76
ETB	23	17	7	55	37	W	87	57	w	119	77
CAN	24	18	8	56	38	X	88	58	x	120	78
EM	25	19	9	57	39	Y	89	59	y	121	79
SUB	26	1A	:	58	3A	Z	90	5A	z	122	7A
ESC	27	1B	;	59	3B	[	91	5B	{	123	7B
FS	28	1C	<	60	3C	\	92	5C	|	124	7C
GS	29	1D	=	61	3D	]	93	5D	}	125	7D
RS	30	1E	>	62	3E	^	94	5E	~	126	7E
US	31	1F	?	63	3F	_	95	5F	DEL	127	7F

Index (AT commands)

A

A, answer incoming call, [38](#)
A/, re-issue last AT command, [38](#)

B

IBAND, set/query frequency bands, [16](#)
IBOOTHOLD, reset modem and wait for f/w download, [17](#)

C

&C, set data carrier detected, [37](#)
C, ITU T v.24 circuit 109 carrier detect signal behavior command, [40](#)
+CACM, accumulated call meter, [40](#)
+CACSP, voice group or voice broadcast call state attribute presentation, [40](#)
+CAEMLPP, eMLPP priority registration and interrogation, [40](#)
+CAHLD, leave an ongoing voice group or voice broadcast call, [40](#)
+CAJOIN, accept incoming voice group or voice broadcast call, [40](#)
+CALA, alarm, [40](#)
+CALCC, list current voice group and voice broadcast call, [40](#)
+CALD, delete alarm, [41](#)
+CALM, alert sound mode, [41](#)
+CAMP, accumulated call meter maximum, [41](#)
+CANCHEV, NCH support indication, [41](#)
+CAOC, advice of charge, [41](#)
+CAPD, postpone or dismiss an alarm, [41](#)
+CAPTT, talker access for voice group call, [41](#)
+CAREJ, reject incoming voice group or voice broadcast call, [41](#)
+CAULEV, voice group call uplink status presentation, [41](#)
+CBM, cell broadcast message directly displayed, [39](#)
+CBMI, cell broadcast message stored in memory at specified location, [39](#)
+CBST, select bearer service type, [41](#)
+CCCM, current call meter value, [41](#)
+CCLK, clock, [41](#)
+CCUG, closed user group, [41](#)
+CCWE, call meter maximum event, [41](#)
+CDIP, called line identification presentation, [41](#)
+CDIS, display control, [41](#)
+CDS, SMS status report after sending a SMS, [39](#)
+CDSI, incoming SMS status report, [39](#)
+CEER, extended error report, [41](#)
+CFUN, set phone functionality, [41](#)
+CGACT, PDP context activate or deactivate, [41](#)
+CGANS, manual response to network request for PDP context activation, [41](#)

+CGATT, PS attach or detach, [41](#)
+CGAUTO, automatic response to network request for PDP context activation, [41](#)
+CGCLASS, GPRS mobile station class, [42](#)
+CGCLOSP, configure local octet stream PAD parameters, [42](#)
+CGCMOD, PDP context modify, [42](#)
+CGDATA, enter data state, [42](#)
+CGDCONT, define PDP context, [42](#)
+CGDSCONT, define secondary PDP context, [42](#)
+CGEQMIN, 3G QoS profile (minimum acceptable), [42](#)
+CGEQNEG, 3G QoS profile (negotiated), [42](#)
+CGEQREQ, 3G QoS profile (requested), [42](#)
+CGEREP, packet domain event reporting, [42](#)
+CGEV, GPRS network event indication, [42](#)
+CGIEV, indicator event, [42](#)
+CGMI, request manufacturer identification, [42](#)
+CGMM, request model identification, [42](#)
+CGMR, request revision identification, [42](#)
+CGPADDR, show PDP address, [42](#)
+CGQMIN, QoS profile (minimum acceptable), [42](#)
+CGQREQ, QoS profile (requested), [42](#)
+CGREG, GPRS network registration status, [42](#)
+CGSMS, select service for MO SMS messages, [42](#)
+CGSN, request product serial number identification, [42](#)
+CGTFT, traffic flow template, [42](#)
+CHLD, call-related supplementary services, [42](#)
+CHSA, HSCSD non-transparent asymmetry configuration, [42](#)
+CHSC, HSCSD current call parameters, [42](#)
+CHSD, HSCSD device parameters, [42](#)
+CHSR, HSCSD parameters report, [42](#)
+CHST, HSCSD transparent call configuration, [42](#)
+CHSU, HSCSD automatic user initiated upgrading, [42](#)
+CHUP, hangup call, [42](#)
+CIMI, request international mobile subscriber identity, [43](#)
+CIND, indicator control, [43](#)
+CKEV, key press or release event, [43](#)
+CKPD, keypad control, [43](#)
+CLAC, list all available AT commands, [43](#)
+CLAE, language event, [43](#)
+CLAN, set language, [43](#)
+CLCC, list current calls, [43](#)
+CLCK, facility lock, [43](#)
+CLIP, calling line identification presentation, [43](#)
+CLIR, calling line identification restriction, [43](#)
+CLVL, sets/returns internal loudspeaker volume, [43](#)
+CMAR, master reset, [43](#)
+CME ERROR, mobile termination error result code, [43](#)
+CMEC, mobile termination control mode, [43](#)
+CMEE, report mobile termination error, [43](#)
+CMER, mobile termination event reporting, [43](#)
+CMGC, send command, [39](#)
+CMGD, delete message, [39](#)
+CMGF, message format, [39](#)
+CMGL, list messages, [39](#)

+CMGR, read message, 39
 +CMGS, send message, 39
 +CMGW, write message to memory, 39
 +CMMS, more messages to send, 39
 +CMNA, new message acknowledgement to ME/TA, 39
 +CMOD, call mode, 43
 +CMS ERROR, SMS error (mobile or network error), 40
 +CMSS, send message from storage, 40
 +CMT, incoming message directly displayed, 40
 +CMTI, incoming message stored at specific memory location, 40
 +CMUX, multiplexing mode, 43
 +CNMA, new message acknowledgement to ME, 40
 +CNMI, new message indications to TE, 40
 +CNUM, subscriber number, 43
 +COLP, connected line identification presentation, 43
 +COPN, read operator names, 43
 +COPS, operator selection, 43
 +CPAS, phone activity status, 43
 +CPBR, read phonebook entries, 44
 +CPBS, select phonebook memory storage, 44
 +CPBW, write phonebook entry, 44
 +CPFB, find phonebook entries, 44
 +CPIN, enter PIN, 44
 +CPLS, Preferred PLMN list selection, 44
 +CPMS, preferred message storage, 40
 +CPOL, preferred operator list, 44
 +CPROT, enter protocol mode, 44
 +CPUC, price per unit and currency table, 44
 +CPWC, power class, 44
 +CPWD, change password, 44
 +CR, service reporting control, 44
 +CRC, cellular result code, 44
 +CREG, network registration, 44
 +CRES, restore settings, 40
 +CRING, incoming call type, 44
 +CRLP, radio link protocol, 44
 +CRMP, ring melody playback, 44
 +CRSL, ringer sound level, 44
 +CRSM, restricted SIM access, 44
 +CSAS, save settings, 40
 +CSCA, service center address, 40
 +CSCB, select cell broadcast message type, 40
 +CSCC, secure control command, 44
 +CSCS, select TE character set, 44
 +CSDF, settings date format, 44
 +CSDH, show text mode parameters, 40
 +CSGT, set greeting text, 44
 +CSIL, silence command, 44
 +CSIM, generic SIM access, 44
 +CSMP, set text mode parameters, 40
 +CSMS, select message service, 40
 +CSNS, single numbering scheme, 44
 +CSQ, signal quality, 44
 +CSS, Serving System Identification, 37
 +CSSN, supplementary service notifications, 44
 +CSTA, select type of address, 44
 +CSTF, settings time format, 44
 +CSVM, set voice mail number, 45

+CTA, MT-Terminated Async. Data Calls, 37
 +CTFR, call deflection, 45
 +CTZR, time zone reporting, 45
 +CTZU, automatic time zone update, 45
 +CUSD, unstructured supplementary service data, 45
 +CV120, v.120 rate adaption protocol, 45
 +CVHU, voice hangup control, 45
 +CVIB, vibrator mode, 45

D

&D, set DTR function mode, 37
 D, dial, 38
 D, ITU T V.25ter dial command, 45
 D'99'<n>#, set up packet data call based on profile ID #<n>, 45
 D'99#, set up packet call based on profile ID #1, 45
 D><MEM><N>, originate call to phone number in memory, 38
 D><N>, originate call to phone number in current memory, 38
 D><STR>, originate call to phone number corresponding to a/n field, 38
 !DAFTMACT, put modem into FTM mode, 7
 !DASBAND, set frequency band, 7
 DL, redial last phone number used, 38
 +DR, V42bis compression report, 38
 +DS, V42bis data compress, 38

E

E, set command echo mode, 38
 !ENTERCND, enable protected command access, 14
 \$ERI, Return Enhanced Roaming Indicator, 18

F

&F, set current parameters to defaults, 37

G

+GCAP, Request complete TA capabilities list, 38
 !GETBAND, return current active band, 18
 !GETRAT, return current active RAT, 18
 +GMI, request manufacturer identification, 38
 +GMM, request TA model identification, 38
 +GMR, request TA revision identification, 8, 38
 +GOI, request global object identification, 38
 +GSN, request TA serial number identification, 38
 !GSTATUS, return operational status, 19

H

H, disconnect existing connections, 38

I

I, display product identification information, 38
 !ICCID, return SIM card's ICCID, 34

+ICF, set TE-TA control character framing, [38](#)
 !IDSTEST, start DM session, [36](#)
 +IFC, set TE-TA local data flow control, [38](#)
 +ILRR, set TE-TA local rate reporting mode, [38](#)
 +IPR, set fixed local rate, [38](#)

L

L, set monitor speaker loudness, [38](#)

M

M, set monitor speaker mode, [38](#)
 \$MDN, Set/return Mobile Directory Number, [19](#)
 \$MIPERR, Return last MIP error code, [24](#)
 \$MSID, Set/return MSID, [20](#)

O

O, switch from command mode to data mode, [38](#)

P

P, select pulse dialing, [38](#)
 !PACKAGE, return package version string, [20](#)
 !PCTEMP, return current temperature information, [21](#)
 \$PRL, Return CDMA PRL version, [21](#)

Q

Q, set result code presentation mode, [38](#)
 \$QCMIP, Set/return Mobile IP state, [24](#)
 \$QCMIPPEP, Enable/disable active profile, [24](#)
 \$QCMIPGETP, Return information about specified profile, [25](#)
 \$QCMIPHA, Set/return active profile's home IP address, [25](#)
 \$QCMIPMASPI, Set/return active profile's MN-AAA SPI, [26](#)
 \$QCMIPMASS, Set/return active profile's MN-AAA shared secret (ASCII), [26](#)
 \$QCMIPMASSX, Set/return active profile's MN-AAA shared secret (Hex), [27](#)
 \$QCMIPMHSP, Set/return active profile's HA SPI, [27](#)
 \$QCMIPMHSS, Set/return active profile's MN-HA shared secret (ASCII), [28](#)
 \$QCMIPMHSSX, Set/return active profile's MN-HA shared secret (Hex), [28](#)
 \$QCMIPNAI, Set/return active profile's NAI, [29](#)
 \$QCMIPP, Set/return active profile, [29](#)
 \$QCMIPPHA, Set/return active profile's primary home agent IP address, [30](#)
 \$QCMIPRT, Enable/disable reverse tunneling, [31](#)
 \$QCMIPSHA, Set/return active profile's secondary home agent IP address, [30](#)

\$QCMIPT, Return RFC 2002bis authentication state, [31](#)
 \$QRMCALL, make/disconnect data connection, [21](#)

R

!RESET, reset the modem, [22](#)
 \$RESET, Reset (power cycle) the device, [22](#)
 \$ROAM, Set/return roaming mode, [22](#)
 \$RT, Reset device to factory defaults, [22](#)

S

&S, set DSR signal, [37](#)
 S0, set number of rings before auto-answer, [39](#)
 S10, set disconnect delay after indicating absence of data carrier, [39](#)
 S3, set command line termination character, [39](#)
 S4, set response formatting character, [39](#)
 S5, set command line editing character, [39](#)
 S6, set pause before blind dialing, [39](#)
 S7, set number of seconds to wait for connection completion, [39](#)
 S8, set number of seconds to wait when comma dial modifier used, [39](#)
 !SETCND, set AT command password, [14](#)

T

&T, auto tests, [37](#)
 T, select tone dialing, [39](#)

V

&V, return AT configuration parameters, [37](#)
 V, set result code format mode, [39](#)
 +VTD, tone duration, [45](#)
 +VTS, DTMF and arbitrary tone generation, [45](#)

W

&W, Store parameter to user-defined profile, [37](#)
 +WS46, PCCA STD 101 select wireless network, [45](#)

X

X, set connect result code format and call monitoring, [39](#)

Z

Z, set all current parameters to user-defined profile, [39](#)

Index

Symbols

+++ , 7

Numerics

3GPP

27.005 commands, list, 39

27.007 commands, list, 40

A

ASCII table, 51

AT commands

3GPP 27.005 commands, list, 39

3GPP 27.007 commands, list, 40

access, password, 7

guard timing, escape sequence, 7

ITU-T V.250 commands, list, 37

password commands, 13, 15, 23

password protected, access, 14

password, changing, 14

timing, entry, 7

B

band

current active band, return, 18

current GSM, return, 19

current WCDMA, return, 19

bands

available, 16

current, 16

set, 16

boot and hold. See bootloader.

bootloader

wait for firmware update, 17

bootup time, return, 19

C

channel number

current GSM, return, 19

current WCDMA, return, 19

D

DARP, enable/disable for SAIC, 26, 28

data connection, make/disconnect, 21

DM

session types, support for, 36

document

format conventions, 10

Downlink Advanced Receiver Performance, enable/disable for SAIC, 26, 28

E

Enhanced Roaming Indicator. See ERI.

ERI

return current value, 18

escape sequence guard time, 7

F

firmware

update, wait in bootloader mode, 17

firmware, upgrading, 8

format

documentation conventions, 10

frequency bands. See bands.

G

GMM state, return, 19

GPS

command list, 10

guard time, AT escape sequence, 7

H

HSDPA

category details, 47

HSUPA

category details, 47

I

ICCID, display, 34

ITU-T V.250 commands, list, 37

M

MDN

return the number, 19, 20, 22

MIP

active profile

AAA shared secret (hexadecimal), 27

AAA shared secret, ASCII, 26

AAA SPI, 26

activate, 29

enable/disable, 24

Home Agent address, 25

Home Agent shared secret (ASCII), 28

Home Agent shared secret (Hexadecimal), 28

Home Agent SPI, 27

identify, 25

NAI, 29

primary Home Agent address, 30

secondary Home Agent address, 30

authentication state, display, 31

- last error code, return, [24](#)
- profile configuration, display, [25](#)
- reverse tunneling, enable/disable, [31](#)

MM

- state and substate, return, [19](#)

Mobile Directory Number. See MDN.

Mobile IP

- enable/disable, [24](#)

mode acquired by modem, return, [19](#)

modem

- mode, return, [19](#)
- operational status, return, [19](#)
- reset, [22](#), [22](#)
- reset, wait for firmware update, [17](#)

O

OMA-DM

- command list, [35](#)

P

package, return string from modem, [20](#)

PAD

- command list, [10](#)

password

- changing, [14](#)
- commands, list, [13](#), [15](#), [23](#)
- protected commands, access, [14](#)
- requirements, [7](#)

PRL (CDMA) version, return, [21](#), [22](#), [22](#)

PS state, return, [19](#)

R

radio access technology. See RAT.

RAT

- current, display description, [18](#)
- reference documents, location, [8](#)
- reset modem, [17](#), [22](#), [22](#)
- result codes, displaying in document, [8](#)

S

SAIC,enable/disable DARP, [26](#), [28](#)

scripts

- testing, command timing, [7](#)

SIM

- ICCID, display, [34](#)

SIM Toolkit. See STK.

Single Antenna Interference Cancellation

- enable/disable DARP, [26](#), [28](#)

T

temperature

- current, return, [21](#)
- return, [19](#)
- state, return, [21](#)

test

- scripts, command timing, [7](#)

timing

- AT command entry, [7](#)
- AT guard time, [7](#)
- test script commands, [7](#)

U

unlock protected commands, [14](#)

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