



LTE AT commands for Test automation

Device Requirements
Issued: Feb-14

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LTE AT commands for Test automation

Revision History

Description of Changes	Date
Initial Release	12/17/2009
Modified Required Command List	02/15/2010
Modified Required Command List - (Added: +CKPD, +CMER, +CRSM, +CTSA, +CSO, +CSS, +CGEV, +CGEQREQ, +CMGF Removed: +CGSMS, +CSCB, +CSAS, +CRES, +CNMI, +CNMA, +CMSS, +CMGW, +CMGC, +CMMS)	June 2010
Updated section 4	March 2011
Updated sections 3.1.1 & 3.1.2	June 2011
Updated sections 3.1.1 & 3.1.2 (Removed: +CDIS, +CSO)	September 2011
Added AT command enable/disable feature to Section 3.1 Removed: +CSTF, +CPOL, +CPLS, +CPROT, +CGEQREQ, +CGDATA, +CGEQOS	April 2012
Updated section 3.1.4.1.1 Added new commands: +VZWRSRP, +VZWRSRQ	June 2012
Updates to sections: 3.1.4.3, 3.1.4.3.1	June 2013
Updates to sections:	February 2014

3.1.4.2.2, 3.1.4.3.2	
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1 INTRODUCTION

1.1 VZ_REQ_LTEAT_33076

These requirements apply to all devices designed to operate on the Verizon Wireless LTE 3GPP Band 13 network. 3GPP Band 13 is per 3GPP TS 36.101: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception.*

For any questions related to this document, please contact Verizon Wireless through the Verizon Wireless Open Development website.

Applicable to: [Connected Device, Feature Phone, Jet Pack, Modem, Module, Netbook/Laptop, Router, Smart Phone, Tablet, USB Modem] - Last Modified: 1/22/2014 10:53:31 AM

1.2 VZ_REQ_LTEAT_33077

This section defines acronyms and terms used throughout the document.

Acronym/Term	Definition
3GPP	3 rd Generation Partnership Project, manages GSM, EDGE, UMTS, HSPA, and LTE standards
APN	Access Point Name
AT	ATtention; this two a command line to be sent from TE to TA
CDMA	Code Division Multiple Access
DCE	Data Communications Equipment
DUT	Device Under Test
E-UTRA	Evolved ' Universal Terrestrial Radio Access

EDGE	Enhanced Data rates for GSM Evolution
EPS	Evolved Packet System
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
HSPA	High Speed Packet Access
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ITU-T	International Telecommunication Union ' Telecommunication Standardization Sector
LTE	Long Term Evolution
ME	Mobile Equipment
MO	Mobile Originated
PDN	Packet Data Network
PDP	Packet Data Protocol
PLMN	Public Land Mobile Network
SIM	Subscriber Identify Module
SMS	Short Message Service
TA	Terminal Adaptor
TE	Terminal Equipment
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
VZW	Verizon Wireless

Applicable to: [Connected Device, Feature Phone, Jet Pack, Modem, Module, Netbook/Laptop, Router, Smart Phone, Tablet, USB Modem] - Last Modified: 1/22/2014 10:55:06 AM

1.3 VZ_REQ_LTEAT_33078

This document uses the following verbal forms in conjunction with requirements:

- "*Shall*" or "*Shall not*" indicates the requirement is mandatory
- "*Should*" indicates the requirement is recommended but not mandatory
- "*May*" indicates the requirement is optional

Applicable to: [Connected Device, Feature Phone, Jet Pack, Modem, Module, Netbook/Laptop, Router, Smart Phone, Tablet, USB Modem] - Last Modified: 1/22/2014 10:55:58 AM

1.4 VZ_REQ_LTEAT_33079

All new devices submitted to operate on the Verizon Wireless LTE 3GPP Band 13 network are required to conform to the test plans listed in the Verizon Wireless document "LTE 3GPP Band 13 Lab Conformance Test Plan".

Applicable to: [Connected Device, Feature Phone, Jet Pack, Modem, Module, Netbook/Laptop, Router, Smart Phone, Tablet, USB Modem] - Last Modified: 1/22/2014 10:57:45 AM

2 HARDWARE SPECIFICATIONS

Add requirement body here:

2.1 VZ_REQ_LTEAT_21029

The interface described in this document refers to the UE interaction with a Terminal Adaptor and Test Equipment. A single primary port (modem port) shall be made available, that supports all AT commands listed in section 3. In addition, a single secondary port shall be made available for backchannel communications. For additional information regarding the test interface refer to 3GPP TS 36.523-3. For additional hardware specifications refer to the Verizon Wireless document 'Device Requirements ' LTE 3GPP Band 13 Network Access'.

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/26/2014 10:46:25 AM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_528	2.1	REQUEST MANUFACTURER IDENTIFICATION (+CGMI)
LTEAT: VZ_TC_LTEAT_529	2.2	REQUEST MODEL IDENTIFICATION (+CGMM)
LTEAT: VZ_TC_LTEAT_530	2.3	REQUEST REVISION IDENTIFICATION (+CGMR)
LTEAT: VZ_TC_LTEAT_531	2.4	REQUEST PRODUCT SERIAL NUMBER IDENTIFICATION (+CGSN)
LTEAT: VZ_TC_LTEAT_532	2.5	SELECT TE CHARACTER SET (+CSCS)

LTEAT: VZ_TC_LTEAT_533	2.6	REQUEST INTERNATIONAL MOBILE SUBSCRIBER IDENTITY (+CIMI)
LTEAT: VZ_TC_LTEAT_534	2.7	EXTENDED ERROR REPORT (+CEER)
LTEAT: VZ_TC_LTEAT_535	2.8	PHONE ACTIVITY STATUS (+CPAS)
LTEAT: VZ_TC_LTEAT_536	2.9	SET PHONE FUNCTIONALITY (+CFUN)
LTEAT: VZ_TC_LTEAT_537	2.10	ENTER PIN (+CPIN)
LTEAT: VZ_TC_LTEAT_538	2.11	LIST ALL AVAILABLE AT COMMANDS (+CLAC)
LTEAT: VZ_TC_LTEAT_539	2.12	DEFINE PDP CONTEXT (+CGDCONT)
LTEAT: VZ_TC_LTEAT_540	2.13	PS ATTACH OR DETACH (+CGATT)
LTEAT: VZ_TC_LTEAT_541	2.14	PDP CONTEXT ACTIVATE OR DEACTIVATE (+CGACT)
LTEAT: VZ_TC_LTEAT_542	2.15	SHOW PDP ADDRESS (+CGPADDR)
LTEAT: VZ_TC_LTEAT_543	2.16	EPS NETWORK REGISTRATION STATUS (+CEREG)
LTEAT: VZ_TC_LTEAT_544	2.17	MESSAGE FORMAT (+CMGF)
LTEAT: VZ_TC_LTEAT_545	2.18	LIST MESSAGES (+CMGL)
LTEAT: VZ_TC_LTEAT_546	2.19	READ MESSAGE (+CMGR)
LTEAT: VZ_TC_LTEAT_547	2.20	DELETE MESSAGE (+CMGD)
LTEAT: VZ_TC_LTEAT_548	2.22	PCCA STD 101 [17] SELECT WIRELESS NETWORK (+WS46)
LTEAT: VZ_TC_LTEAT_549	2.23	SUBSCRIBER NUMBER (+CNUM)
LTEAT: VZ_TC_LTEAT_550	2.24	PLMN SELECTION (+COPS)
LTEAT: VZ_TC_LTEAT_551	2.25	FACILITY LOCK (+CLCK)
LTEAT: VZ_TC_LTEAT_552	2.26	CHANGE PASSWORD (+CPWD)
LTEAT: VZ_TC_LTEAT_553	2.27	READ OPERATOR NAMES (+COPN)
LTEAT: VZ_TC_LTEAT_554	2.28	SIGNAL QUALITY (+CSQ)
LTEAT: VZ_TC_LTEAT_555	2.29	INDICATOR CONTROL (+CIND)
LTEAT: VZ_TC_LTEAT_556	2.30	CLOCK (+CCLK)
LTEAT: VZ_TC_LTEAT_557	2.31	GENERIC SIM ACCESS (+CSIM)
LTEAT: VZ_TC_LTEAT_558	2.32	RESTRICTED SIM ACCESS (+CRSM)
LTEAT: VZ_TC_LTEAT_559	2.33	PRINTING IP ADDRESS FORMAT (+CGPIAF)
LTEAT: VZ_TC_LTEAT_560	2.34	EXTENDED SIGNAL QUALITY (+CESQ)
LTEAT: VZ_TC_LTEAT_561	2.35	REPORT MOBILE TERMINATION ERROR (+CMEE)
LTEAT: VZ_TC_LTEAT_562	2.36	DEFINE SECONDARY PDP CONTEXT (+CGDSCONT)
LTEAT: VZ_TC_LTEAT_563	2.37	TRAFFIC FLOW TEMPLATE (+CGTFT)
LTEAT: VZ_TC_LTEAT_564	2.38	PDP CONTEXT MODIFY (+CGCMOD)
LTEAT: VZ_TC_LTEAT_565	2.39	PACKET DOMAIN EVENT REPORTING (+CGEREP)
LTEAT: VZ_TC_LTEAT_566	2.40	SELECT SERVICE FOR MO SMS MESSAGES (+CGSMS)
LTEAT: VZ_TC_LTEAT_567	2.41	PDP CONTEXT READ DYNAMIC PARAMETERS (+CGCONTRDP)
LTEAT: VZ_TC_LTEAT_568	2.42	SECONDARY PDP CONTEXT READ DYNAMIC PARAMETERS (+CGSCONTRDP)
LTEAT: VZ_TC_LTEAT_569	2.43	TRAFFIC FLOW TEMPLATE READ DYNAMIC PARAMETERS (+CGTFTRDP)
LTEAT: VZ_TC_LTEAT_570	2.44	EPS QUALITY OF SERVICE READ DYNAMIC PARAMETERS (+CGEQSRDP)
LTEAT: VZ_TC_LTEAT_571	2.46	SELECT MESSAGE SERVICE (+CSMS)
LTEAT: VZ_TC_LTEAT_572	2.47	PREFERRED MESSAGE STORAGE (+CPMS)
LTEAT: VZ_TC_LTEAT_573	2.48	SERVICE CENTRE ADDRESS (+CSCA)
LTEAT: VZ_TC_LTEAT_574	2.49	SET TEXT MODE PARAMETERS (+CSMP)
LTEAT: VZ_TC_LTEAT_575	2.50	SEND MESSAGE (+CMGS)
LTEAT: VZ_TC_LTEAT_576	2.51	SEND MESSAGE FROM STORAGE (+CMSS)
LTEAT: VZ_TC_LTEAT_577	2.52	WRITE MESSAGE TO MEMORY (+CMGW)
LTEAT: VZ_TC_LTEAT_578	3.1	MOBILE TERMINATION EVENT REPORTING (+CMER)
LTEAT: VZ_TC_LTEAT_579	3.2	COMMAND TOUCH SCREEN ACTION (+CTSA)
LTEAT: VZ_TC_LTEAT_580	3.6	KEYPAD CONTROL (+CKPD)
LTEAT: VZ_TC_LTEAT_581	4.1	EDIT APN TABLE (+VZWPNE)

3 SOFTWARE SPECIFICATIONS

Add requirement body here:

3.1 VZ_REQ_LTEAT_21030

LTE devices shall support an interface capable of interpreting AT commands. The commands required for implementation are described in the following sections.

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/26/2014 10:46:15 AM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_528	2.1	REQUEST MANUFACTURER IDENTIFICATION (+CGMI)
LTEAT: VZ_TC_LTEAT_529	2.2	REQUEST MODEL IDENTIFICATION (+CGMM)
LTEAT: VZ_TC_LTEAT_530	2.3	REQUEST REVISION IDENTIFICATION (+CGMR)
LTEAT: VZ_TC_LTEAT_531	2.4	REQUEST PRODUCT SERIAL NUMBER IDENTIFICATION (+CGSN)
LTEAT: VZ_TC_LTEAT_532	2.5	SELECT TE CHARACTER SET (+CSCS)
LTEAT: VZ_TC_LTEAT_533	2.6	REQUEST INTERNATIONAL MOBILE SUBSCRIBER IDENTITY (+CIMI)
LTEAT: VZ_TC_LTEAT_534	2.7	EXTENDED ERROR REPORT (+CEER)
LTEAT: VZ_TC_LTEAT_535	2.8	PHONE ACTIVITY STATUS (+CPAS)
LTEAT: VZ_TC_LTEAT_536	2.9	SET PHONE FUNCTIONALITY (+CFUN)
LTEAT: VZ_TC_LTEAT_537	2.10	ENTER PIN (+CPIN)
LTEAT: VZ_TC_LTEAT_538	2.11	LIST ALL AVAILABLE AT COMMANDS (+CLAC)
LTEAT: VZ_TC_LTEAT_539	2.12	DEFINE PDP CONTEXT (+CGDCONT)
LTEAT: VZ_TC_LTEAT_540	2.13	PS ATTACH OR DETACH (+CGATT)
LTEAT: VZ_TC_LTEAT_541	2.14	PDP CONTEXT ACTIVATE OR DEACTIVATE (+CGACT)
LTEAT: VZ_TC_LTEAT_542	2.15	SHOW PDP ADDRESS (+CGPADDR)
LTEAT: VZ_TC_LTEAT_543	2.16	EPS NETWORK REGISTRATION STATUS (+CEREG)
LTEAT: VZ_TC_LTEAT_544	2.17	MESSAGE FORMAT (+CMGF)
LTEAT: VZ_TC_LTEAT_545	2.18	LIST MESSAGES (+CMGL)
LTEAT: VZ_TC_LTEAT_546	2.19	READ MESSAGE (+CMGR)
LTEAT: VZ_TC_LTEAT_547	2.20	DELETE MESSAGE (+CMGD)
LTEAT: VZ_TC_LTEAT_548	2.22	PCCA STD 101 [17] SELECT WIRELESS NETWORK (+WS46)
LTEAT: VZ_TC_LTEAT_549	2.23	SUBSCRIBER NUMBER (+CNUM)
LTEAT: VZ_TC_LTEAT_550	2.24	PLMN SELECTION (+COPS)
LTEAT: VZ_TC_LTEAT_551	2.25	FACILITY LOCK (+CLCK)
LTEAT: VZ_TC_LTEAT_552	2.26	CHANGE PASSWORD (+CPWD)
LTEAT: VZ_TC_LTEAT_553	2.27	READ OPERATOR NAMES (+COPN)
LTEAT: VZ_TC_LTEAT_554	2.28	SIGNAL QUALITY (+CSQ)
LTEAT: VZ_TC_LTEAT_555	2.29	INDICATOR CONTROL (+CIND)
LTEAT: VZ_TC_LTEAT_556	2.30	CLOCK (+CCLK)
LTEAT: VZ_TC_LTEAT_557	2.31	GENERIC SIM ACCESS (+CSIM)
LTEAT: VZ_TC_LTEAT_558	2.32	RESTRICTED SIM ACCESS (+CRSM)
LTEAT: VZ_TC_LTEAT_559	2.33	PRINTING IP ADDRESS FORMAT (+CGPIAF)
LTEAT: VZ_TC_LTEAT_560	2.34	EXTENDED SIGNAL QUALITY (+CESQ)
LTEAT: VZ_TC_LTEAT_561	2.35	REPORT MOBILE TERMINATION ERROR (+CMEE)
LTEAT: VZ_TC_LTEAT_562	2.36	DEFINE SECONDARY PDP CONTEXT (+CGDSCONT)
LTEAT: VZ_TC_LTEAT_563	2.37	TRAFFIC FLOW TEMPLATE (+CGTFT)
LTEAT: VZ_TC_LTEAT_564	2.38	PDP CONTEXT MODIFY (+CGCMOD)
LTEAT: VZ_TC_LTEAT_565	2.39	PACKET DOMAIN EVENT REPORTING (+CGEREP)
LTEAT: VZ_TC_LTEAT_566	2.40	SELECT SERVICE FOR MO SMS MESSAGES (+CGSMS)
LTEAT: VZ_TC_LTEAT_567	2.41	PDP CONTEXT READ DYNAMIC PARAMETERS (+CGCONTRDP)
LTEAT: VZ_TC_LTEAT_568	2.42	SECONDARY PDP CONTEXT READ DYNAMIC PARAMETERS (+CGSCONTRDP)
LTEAT: VZ_TC_LTEAT_569	2.43	TRAFFIC FLOW TEMPLATE READ DYNAMIC PARAMETERS (+CGTFTRDP)
LTEAT: VZ_TC_LTEAT_570	2.44	EPS QUALITY OF SERVICE READ DYNAMIC PARAMETERS (+CGEQOSRDP)
LTEAT: VZ_TC_LTEAT_571	2.46	SELECT MESSAGE SERVICE (+CSMS)
LTEAT: VZ_TC_LTEAT_572	2.47	PREFERRED MESSAGE STORAGE (+CPMS)
LTEAT: VZ_TC_LTEAT_573	2.48	SERVICE CENTRE ADDRESS (+CSCA)

LTEAT: VZ_TC_LTEAT_574	2.49	SET TEXT MODE PARAMETERS (+CSMP)
LTEAT: VZ_TC_LTEAT_575	2.50	SEND MESSAGE (+CMGS)
LTEAT: VZ_TC_LTEAT_576	2.51	SEND MESSAGE FROM STORAGE (+CMSS)
LTEAT: VZ_TC_LTEAT_577	2.52	WRITE MESSAGE TO MEMORY (+CMGW)
LTEAT: VZ_TC_LTEAT_578	3.1	MOBILE TERMINATION EVENT REPORTING (+CMER)
LTEAT: VZ_TC_LTEAT_579	3.2	COMMAND TOUCH SCREEN ACTION (+CTSA)
LTEAT: VZ_TC_LTEAT_580	3.6	KEYPAD CONTROL (+CKPD)
LTEAT: VZ_TC_LTEAT_581	4.1	EDIT APN TABLE (+VZWAPNE)

3.2 VZ_REQ_LTEAT_21031

The AT command interface shall be disabled on the device by default. The OEM shall provide a method (via PST tool or similar) to enable/disable the AT command interface for certain instances such as test plan automation.

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/26/2014 10:53:25 AM

3.3 VZ_REQ_LTEAT_21032

LTE devices shall support all AT commands listed in sections 3.1.2 and 3.1.3.

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/26/2014 10:54:21 AM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_528	2.1	REQUEST MANUFACTURER IDENTIFICATION (+CGMI)
LTEAT: VZ_TC_LTEAT_529	2.2	REQUEST MODEL IDENTIFICATION (+CGMM)
LTEAT: VZ_TC_LTEAT_530	2.3	REQUEST REVISION IDENTIFICATION (+CGMR)
LTEAT: VZ_TC_LTEAT_531	2.4	REQUEST PRODUCT SERIAL NUMBER IDENTIFICATION (+CGSN)
LTEAT: VZ_TC_LTEAT_532	2.5	SELECT TE CHARACTER SET (+CSCS)
LTEAT: VZ_TC_LTEAT_533	2.6	REQUEST INTERNATIONAL MOBILE SUBSCRIBER IDENTITY (+CIMI)
LTEAT: VZ_TC_LTEAT_534	2.7	EXTENDED ERROR REPORT (+CEER)
LTEAT: VZ_TC_LTEAT_535	2.8	PHONE ACTIVITY STATUS (+CPAS)
LTEAT: VZ_TC_LTEAT_536	2.9	SET PHONE FUNCTIONALITY (+CFUN)
LTEAT: VZ_TC_LTEAT_537	2.10	ENTER PIN (+CPIN)
LTEAT: VZ_TC_LTEAT_538	2.11	LIST ALL AVAILABLE AT COMMANDS (+CLAC)
LTEAT: VZ_TC_LTEAT_539	2.12	DEFINE PDP CONTEXT (+CGDCONT)
LTEAT: VZ_TC_LTEAT_540	2.13	PS ATTACH OR DETACH (+CGATT)
LTEAT: VZ_TC_LTEAT_541	2.14	PDP CONTEXT ACTIVATE OR DEACTIVATE (+CGACT)
LTEAT: VZ_TC_LTEAT_542	2.15	SHOW PDP ADDRESS (+CGPADDR)
LTEAT: VZ_TC_LTEAT_543	2.16	EPS NETWORK REGISTRATION STATUS (+CEREG)
LTEAT: VZ_TC_LTEAT_544	2.17	MESSAGE FORMAT (+CMGF)
LTEAT: VZ_TC_LTEAT_545	2.18	LIST MESSAGES (+CMGL)
LTEAT: VZ_TC_LTEAT_546	2.19	READ MESSAGE (+CMGR)
LTEAT: VZ_TC_LTEAT_547	2.20	DELETE MESSAGE (+CMGD)
LTEAT: VZ_TC_LTEAT_548	2.22	PCCA STD 101 [17] SELECT WIRELESS NETWORK (+WS46)
LTEAT: VZ_TC_LTEAT_549	2.23	SUBSCRIBER NUMBER (+CNUM)
LTEAT: VZ_TC_LTEAT_550	2.24	PLMN SELECTION (+COPS)
LTEAT: VZ_TC_LTEAT_551	2.25	FACILITY LOCK (+CLCK)
LTEAT: VZ_TC_LTEAT_552	2.26	CHANGE PASSWORD (+CPWD)
LTEAT: VZ_TC_LTEAT_553	2.27	READ OPERATOR NAMES (+COPN)
LTEAT: VZ_TC_LTEAT_554	2.28	SIGNAL QUALITY (+CSQ)
LTEAT: VZ_TC_LTEAT_555	2.29	INDICATOR CONTROL (+CIND)

LTEAT: VZ_TC_LTEAT_556	2.30	CLOCK (+CCLK)
LTEAT: VZ_TC_LTEAT_557	2.31	GENERIC SIM ACCESS (+CSIM)
LTEAT: VZ_TC_LTEAT_558	2.32	RESTRICTED SIM ACCESS (+CRSM)
LTEAT: VZ_TC_LTEAT_559	2.33	PRINTING IP ADDRESS FORMAT (+CGPIAF)
LTEAT: VZ_TC_LTEAT_560	2.34	EXTENDED SIGNAL QUALITY (+CESQ)
LTEAT: VZ_TC_LTEAT_561	2.35	REPORT MOBILE TERMINATION ERROR (+CMEE)
LTEAT: VZ_TC_LTEAT_562	2.36	DEFINE SECONDARY PDP CONTEXT (+CGDSCONT)
LTEAT: VZ_TC_LTEAT_563	2.37	TRAFFIC FLOW TEMPLATE (+CGTFT)
LTEAT: VZ_TC_LTEAT_564	2.38	PDP CONTEXT MODIFY (+CGCMOD)
LTEAT: VZ_TC_LTEAT_565	2.39	PACKET DOMAIN EVENT REPORTING (+CGEREP)
LTEAT: VZ_TC_LTEAT_566	2.40	SELECT SERVICE FOR MO SMS MESSAGES (+CGSMS)
LTEAT: VZ_TC_LTEAT_567	2.41	PDP CONTEXT READ DYNAMIC PARAMETERS (+CGCONTRDP)
LTEAT: VZ_TC_LTEAT_568	2.42	SECONDARY PDP CONTEXT READ DYNAMIC PARAMETERS (+CGSCONTRDP)
LTEAT: VZ_TC_LTEAT_569	2.43	TRAFFIC FLOW TEMPLATE READ DYNAMIC PARAMETERS (+CGTFTRDP)
LTEAT: VZ_TC_LTEAT_570	2.44	EPS QUALITY OF SERVICE READ DYNAMIC PARAMETERS (+CGEQOSRDP)
LTEAT: VZ_TC_LTEAT_571	2.46	SELECT MESSAGE SERVICE (+CSMS)
LTEAT: VZ_TC_LTEAT_572	2.47	PREFERRED MESSAGE STORAGE (+CPMS)
LTEAT: VZ_TC_LTEAT_573	2.48	SERVICE CENTRE ADDRESS (+CSCA)
LTEAT: VZ_TC_LTEAT_574	2.49	SET TEXT MODE PARAMETERS (+CSMP)
LTEAT: VZ_TC_LTEAT_575	2.50	SEND MESSAGE (+CMGS)
LTEAT: VZ_TC_LTEAT_576	2.51	SEND MESSAGE FROM STORAGE (+CMSS)
LTEAT: VZ_TC_LTEAT_577	2.52	WRITE MESSAGE TO MEMORY (+CMGW)
LTEAT: VZ_TC_LTEAT_578	3.1	MOBILE TERMINATION EVENT REPORTING (+CMER)
LTEAT: VZ_TC_LTEAT_579	3.2	COMMAND TOUCH SCREEN ACTION (+CTSA)
LTEAT: VZ_TC_LTEAT_580	3.6	KEYPAD CONTROL (+CKPD)

3.4 VZ_REQ_LTEAT_21033

In addition, LTE devices should support all mandatory and optional AT commands pertaining to the device's end use as described in 3GPP TS 27.007, 3GPP TS 27.005, and ITU-T V.250.

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/26/2014 10:58:48 AM

3.5 VZ_REQ_LTEAT_21034

Additional AT Commands Required ' All Device Types

Standards Reference

Description

AT Command

3GPP TS 27.007 (Sec. 5.1)

Request Manufacturer Identification

+CGMI

3GPP TS 27.007 (Sec. 5.2)

Request Model Identification

+CGMM

3GPP TS 27.007 (Sec. 5.3)

Request Revision Identification

+CGMR

3GPP TS 27.007 (Sec. 5.4)
Request Product Serial Number Identification
+CGSN

3GPP TS 27.007 (Sec. 5.5)
Select TE Character Set
+CSCS

3GPP TS 27.007 (Sec. 5.6)
Request International Mobile Subscriber Identity
+CIMI

3GPP TS 27.007 (Sec. 5.9)
PCCA STD 101 [17] select wireless network
+WS46

3GPP TS 27.007 (Sec. 6.10)
Extended Error Report
+CEER

3GPP TS 27.007 (Sec. 7.1)
Subscriber Number
+CNUM

3GPP TS 27.007 (Sec. 7.3)
PLMN Selection
+COPS

3GPP TS 27.007 (Sec. 7.4)
Facility Lock
+CLCK

3GPP TS 27.007 (Sec. 7.5)
Change Password
+CPWD

3GPP TS 27.007 (Sec. 7.21)
Read Operator Names
+COPN

3GPP TS 27.007 (Sec. 8.1)
Phone Activity Status
+CPAS

3GPP TS 27.007 (Sec. 8.2)
Set Phone Functionality
+CFUN

3GPP TS 27.007 (Sec. 8.3)

Enter PIN
+CPIN

3GPP TS 27.007 (Sec. 8.5)

Signal Quality
+CSQ

3GPP TS 27.007 (Sec. 8.9)

Indicator Control
+CIND

3GPP TS 27.007 (Sec. 8.15)

Clock
+CCLK

3GPP TS 27.007 (Sec. 8.17)

Generic SIM Access
+CSIM

3GPP TS 27.007 (Sec. 8.18)

Restricted SIM access
+CRSM

3GPP TS 27.007 (Sec. 8.37)

List All Available AT Commands
+CLAC

3GPP TS 27.007 (Sec. 8.62)

Printing IP Address Format
+CGPIAF

3GPP TS 27.007 (Sec. 8.69)

Extended Signal Quality
+CESQ

3GPP TS 27.007 (Sec. 9.1)

Report Mobile Termination Error
+CMEE

3GPP TS 27.007 (Sec. 10.1.1)

Define PDP Context
+CGDCONT

3GPP TS 27.007 (Sec. 10.1.2)

Define Secondary PDP Context
+CGDSCONT

3GPP TS 27.007 (Sec. 10.1.3)

Traffic Flow Template
+CGTFT

3GPP TS 27.007 (Sec. 10.1.9)
PS Attach Or Detach
+CGATT

3GPP TS 27.007 (Sec. 10.1.10)
PDP Context Activate Or Deactivate
+CGACT

3GPP TS 27.007 (Sec. 10.1.11)
PDP Context Modify
+CGCMOD

3GPP TS 27.007 (Sec. 10.1.14)
Show PDP Address
+CGPADDR

3GPP TS 27.007 (Sec. 10.1.19)
Packet Domain Event Reporting
+CGEREP

3GPP TS 27.007 (Sec. 10.1.21)
Select Service for MO SMS Messages
+CGSMS

3GPP TS 27.007 (Sec. 10.1.22)
EPS Network Registration Status
+CEREG

3GPP TS 27.007 (Sec. 10.1.23)
PDP Context Read Dynamic Parameters
+CGCONTRDP

3GPP TS 27.007 (Sec. 10.1.24)
Secondary PDP Context Read Dynamic Parameters
+CGSCONTRDP

3GPP TS 27.007 (Sec. 10.1.25)
Traffic Flow Template Read Dynamic Parameters
+CGTFTRDP

3GPP TS 27.007 (Sec. 10.1.27)
EPS Quality Of Service Read Dynamic Parameters
+CGEQOSRDP

3GPP TS 27.007 (Sec. 10.1.28)
UE Modes of Operation for EPS

+CEMODE

3GPP TS 27.005 (Sec. 3.2.1)

Select Message Service

+CSMS

3GPP TS 27.005 (Sec. 3.2.2)

Preferred Message Storage

+CPMS

3GPP TS 27.005 (Sec. 3.2.3)

Message Format

+CMGF

3GPP TS 27.005 (Sec. 3.3.1)

Service Centre Address

+CSCA

3GPP TS 27.005 (Sec. 3.3.2)

Set Text Mode Parameters

+CSMP

3GPP TS 27.005 (Sec. 3.4.2)

List Messages

+CMGL

3GPP TS 27.005 (Sec. 3.4.3)

Read Message

+CMGR

3GPP TS 27.005 (Sec. 3.5.1)

Send Message

+CMGS

3GPP TS 27.005 (Sec. 3.5.2)

Send Message From Storage

+CMSS

3GPP TS 27.005 (Sec. 3.5.3)

Write Message to Memory

+CMGW

3GPP TS 27.005 (Sec. 3.5.4)

Delete Message

+CMGD

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 2/18/2014 10:14:25 AM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_528	2.1	REQUEST MANUFACTURER IDENTIFICATION (+CGMI)
LTEAT: VZ_TC_LTEAT_529	2.2	REQUEST MODEL IDENTIFICATION (+CGMM)
LTEAT: VZ_TC_LTEAT_530	2.3	REQUEST REVISION IDENTIFICATION (+CGMR)
LTEAT: VZ_TC_LTEAT_531	2.4	REQUEST PRODUCT SERIAL NUMBER IDENTIFICATION (+CGSN)
LTEAT: VZ_TC_LTEAT_532	2.5	SELECT TE CHARACTER SET (+CSCS)
LTEAT: VZ_TC_LTEAT_533	2.6	REQUEST INTERNATIONAL MOBILE SUBSCRIBER IDENTITY (+CIMI)
LTEAT: VZ_TC_LTEAT_534	2.7	EXTENDED ERROR REPORT (+CEER)
LTEAT: VZ_TC_LTEAT_535	2.8	PHONE ACTIVITY STATUS (+CPAS)
LTEAT: VZ_TC_LTEAT_536	2.9	SET PHONE FUNCTIONALITY (+CFUN)
LTEAT: VZ_TC_LTEAT_537	2.10	ENTER PIN (+CPIN)
LTEAT: VZ_TC_LTEAT_538	2.11	LIST ALL AVAILABLE AT COMMANDS (+CLAC)
LTEAT: VZ_TC_LTEAT_539	2.12	DEFINE PDP CONTEXT (+CGDCONT)
LTEAT: VZ_TC_LTEAT_540	2.13	PS ATTACH OR DETACH (+CGATT)
LTEAT: VZ_TC_LTEAT_541	2.14	PDP CONTEXT ACTIVATE OR DEACTIVATE (+CGACT)
LTEAT: VZ_TC_LTEAT_542	2.15	SHOW PDP ADDRESS (+CGPADDR)
LTEAT: VZ_TC_LTEAT_543	2.16	EPS NETWORK REGISTRATION STATUS (+CEREG)
LTEAT: VZ_TC_LTEAT_544	2.17	MESSAGE FORMAT (+CMGF)
LTEAT: VZ_TC_LTEAT_545	2.18	LIST MESSAGES (+CMGL)
LTEAT: VZ_TC_LTEAT_546	2.19	READ MESSAGE (+CMGR)
LTEAT: VZ_TC_LTEAT_547	2.20	DELETE MESSAGE (+CMGD)
LTEAT: VZ_TC_LTEAT_548	2.22	PCCA STD 101 [17] SELECT WIRELESS NETWORK (+WS46)
LTEAT: VZ_TC_LTEAT_549	2.23	SUBSCRIBER NUMBER (+CNUM)
LTEAT: VZ_TC_LTEAT_550	2.24	PLMN SELECTION (+COPS)
LTEAT: VZ_TC_LTEAT_551	2.25	FACILITY LOCK (+CLCK)
LTEAT: VZ_TC_LTEAT_552	2.26	CHANGE PASSWORD (+CPWD)
LTEAT: VZ_TC_LTEAT_553	2.27	READ OPERATOR NAMES (+COPN)
LTEAT: VZ_TC_LTEAT_554	2.28	SIGNAL QUALITY (+CSQ)
LTEAT: VZ_TC_LTEAT_555	2.29	INDICATOR CONTROL (+CIND)
LTEAT: VZ_TC_LTEAT_556	2.30	CLOCK (+CCLK)
LTEAT: VZ_TC_LTEAT_557	2.31	GENERIC SIM ACCESS (+CSIM)
LTEAT: VZ_TC_LTEAT_558	2.32	RESTRICTED SIM ACCESS (+CRSM)
LTEAT: VZ_TC_LTEAT_559	2.33	PRINTING IP ADDRESS FORMAT (+CGPIAF)
LTEAT: VZ_TC_LTEAT_560	2.34	EXTENDED SIGNAL QUALITY (+CESQ)
LTEAT: VZ_TC_LTEAT_561	2.35	REPORT MOBILE TERMINATION ERROR (+CMEE)
LTEAT: VZ_TC_LTEAT_562	2.36	DEFINE SECONDARY PDP CONTEXT (+CGDSCONT)
LTEAT: VZ_TC_LTEAT_563	2.37	TRAFFIC FLOW TEMPLATE (+CGTFT)
LTEAT: VZ_TC_LTEAT_564	2.38	PDP CONTEXT MODIFY (+CGCMOD)
LTEAT: VZ_TC_LTEAT_565	2.39	PACKET DOMAIN EVENT REPORTING (+CGEREP)
LTEAT: VZ_TC_LTEAT_566	2.40	SELECT SERVICE FOR MO SMS MESSAGES (+CGSMS)
LTEAT: VZ_TC_LTEAT_567	2.41	PDP CONTEXT READ DYNAMIC PARAMETERS (+CGCONTRDP)
LTEAT: VZ_TC_LTEAT_568	2.42	SECONDARY PDP CONTEXT READ DYNAMIC PARAMETERS (+CGSCONTRDP)
LTEAT: VZ_TC_LTEAT_569	2.43	TRAFFIC FLOW TEMPLATE READ DYNAMIC PARAMETERS (+CGTFTRDP)
LTEAT: VZ_TC_LTEAT_570	2.44	EPS QUALITY OF SERVICE READ DYNAMIC PARAMETERS (+CGEQOSRDP)
LTEAT: VZ_TC_LTEAT_571	2.46	SELECT MESSAGE SERVICE (+CSMS)
LTEAT: VZ_TC_LTEAT_572	2.47	PREFERRED MESSAGE STORAGE (+CPMS)
LTEAT: VZ_TC_LTEAT_573	2.48	SERVICE CENTRE ADDRESS (+CSCA)
LTEAT: VZ_TC_LTEAT_574	2.49	SET TEXT MODE PARAMETERS (+CSMP)
LTEAT: VZ_TC_LTEAT_575	2.50	SEND MESSAGE (+CMGS)
LTEAT: VZ_TC_LTEAT_576	2.51	SEND MESSAGE FROM STORAGE (+CMSS)
LTEAT: VZ_TC_LTEAT_577	2.52	WRITE MESSAGE TO MEMORY (+CMGW)

3.6 VZ_REQ_LTEAT_21035

Additional AT Commands Required ' Handset Devices Only
Standards Reference
Description

AT Command

3GPP TS 27.007 (Sec. 8.6)
 Mobile Termination Control Mode
 +CMEC

3GPP TS 27.007 (Sec. 8.7)
 Keypad control
 +CKPD

3GPP TS 27.007 (Sec. 8.10)
 Mobile Termination event reporting
 +CMER

3GPP TS 27.007 (Sec. 8.52)
 Command Touch Screen Action
 +CTSA

3GPP TS 27.007 (Sec. 8.54)
 Command Screen Size
 +CSS

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 2/18/2014 10:14:31 AM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_578	3.1	MOBILE TERMINATION EVENT REPORTING (+CMER)
LTEAT: VZ_TC_LTEAT_579	3.2	COMMAND TOUCH SCREEN ACTION (+CTSA)
LTEAT: VZ_TC_LTEAT_580	3.6	KEYPAD CONTROL (+CKPD)

3.7 VZ_REQ_LTEAT_21036

VZW Specific AT Command
 LTE devices shall support the additional Verizon Wireless specific AT command.

Edit APN Table +VZWAPNE
 +VZWAPNE action command syntax
 Command
 Possible response(s)

+VZWAPNE=<wapn>,<apncl>,<apnni>,<apntype>,<apnb>,<apned>,<apntime>
 +CME ERROR: <err>

+VZWAPNE'
 +VZWAPNE: <apncl>1,<apnni>1,<apntype>1,<apnb>1,<apned>1,<apntime>1,
 <apncl>2,<apnni>2,<apntype>2,<apnb>2,<apned>2,<apntime>2,&
 <apncl>n,<apnni>n,<apntype>n,<apnb>n,<apned>n,<apntime>n,

+CME ERROR: <err>

+VZWAPNE=
 +VZWAPNE: (list of supported <wapn>s), (list of supported <apncl>s), (list of supported <apnni>s), (list of supported <apntype>s), (list of supported <apnb>s), (list of supported <apned>s), (list of supported <apntime>s)

+CME ERROR: <err>

Description

Write command causes the APN table on the DUT to be overwritten. One write command must be issued for each APN edit. If command fails, +CME ERROR: <err> is returned. Refer to 3GPP TS 27.007 subclause 9.2 for <err> values.

Read command queries the APN table that is currently on the DUT, starting from the first entry to the last. The numbers following each value (for example the numbers 1, 2, & n in the following cases: <apncl>1, <apncl>2, <apncl>n) indicate from which of the available APNs the entry is from. The maximum number of APNs being n.

If command fails, +CME ERROR: <err> is returned. Refer to 3GPP TS 27.007 subclause 9.2 for <err> values.

Test command returns the supported entry values.

If command fails, +CME ERROR: <err> is returned. Refer to 3GPP TS 27.007 subclause 9.2 for <err> values.

See the APNs section of the Verizon Wireless document Device Requirements LTE 3GPP Band 13 Network Access for more information on the APN table.

This AT command shall be enabled and disabled using a non-volatile memory setting. By default, this AT command shall be DISABLED. The vendor shall provide a lab application to modify this memory setting during device acceptance testing. The device vendor shall not allow the user to modify this memory setting through the device user interface or the remote access user interface for tethered devices. This AT command shall be DISABLED in all commercial devices sold to end customers.

Defined Values:

<wapn> : Integer type; Indicates which APN entry to edit.

The maximum number of APNs being n.

Take no action

Edit APN entry #1

Edit APN entry #2

Edit APN entry #3

Edit APN entry #4

n Edit APN entry #n

<apncl> : Integer type; Indicates the APN Class

The maximum number of APNs being n.

APN Class #1

APN Class #2

APN Class #3

APN Class #4

n APN Class #n

<apnni> : String type; Indicates the Network Identifier

VZWIMS Verizon Wireless IMS PDN

VZWADMIN Verizon Wireless Administrative PDN

VZWINTERNET Verizon Wireless Internet PDN

VZWAPP Verizon Wireless Application PDN

<apntype> : String type; APN type

IPv6 IPv6 type

IPv4v6 IPv4 and IPv6 type

<apnb> : String type; APN Bearer

LTE LTE bearer used

<apned> : String type; Enable/Disable the APN

Enabled The APN is enabled

Disabled The APN is disabled

<apntime> : Integer type; APN inactivity timer value

Indicating that the timer is infinity

x Integer indicating the timer value in minutes

Read RSRP Values +VZWRSRP

+VZWRSRP action command syntax

Command

Possible response(s)

+VZWRSRP'

+VZWRSRP:



<cellID>1,<EARFCN>1,<RSRP>1,<cellID>2, <EARFCN>2,<RSRP>2,&,<cellID>n, <EARFCN>n,<RSRP>n

+CME ERROR: <err>

Description

Execution command returns the RSRP values for all cells which the UE is measuring. The device shall be capable of returning the RSRP values of up to 8 cells. This device shall support this command in both RRC_IDLE and RRC_CONNECTED modes.

If command fails, +CME ERROR: <err> is returned. Refer to 3GPP TS 27.007 subclause 9.2 for <err> values.

Defined Values

<cellID> : Integer type; Cell ID where the format is XXX

<EARFCN> : Integer type; EARFCN for given cell where EARFCN is per 3GPP TS 36.101

<RSRP> : String type; RSRP value where the format is -XXX.XX dBm/15kHz

Read RSRQ Values +VZWRSRQ

+VZWRSRQ action command syntax

Command

Possible response(s)

+VZWRSRQ'

+VZWRSRQ:

<cellID>1,<EARFCN>1,<RSRQ>1,<cellID>2, <EARFCN>2,<RSRQ>2,&,<cellID>n, <EARFCN>n,<RSRQ>n

+CME ERROR: <err>

Description

Execution command returns the RSRQ values for all cells which the UE is measuring. The device shall be capable of returning the RSRQ values of up to 8 cells. This device shall support this command in both RRC_IDLE and RRC_CONNECTED modes.

If command fails, +CME ERROR: <err> is returned. Refer to 3GPP TS 27.007 subclause 9.2 for <err> values.

Defined Values

<cellID> : Integer type; Cell ID where the format is XXX

<EARFCN> : Integer type; EARFCN for given cell where EARFCN is per 3GPP TS 36.101

<RSRQ> : String type; RSRQ value where the format is -XX.XX dBm/15kHz

Applicable to: [Connected Device, Feature Phone, Femtocell, Jet Pack, Module, Netbook/Laptop, Router, Set-Top Box (VMS), Smart Phone, Tablet, USB Modem] - Last Modified: 1/31/2014 10:10:30 PM

Requirement to Test Case Coverage

LTEAT: VZ_TC_LTEAT_581	4.1	EDIT APN TABLE (+VZWAPNE)
LTEAT: VZ_TC_LTEAT_582	4.2	READ RSRP VALUES (+VZWRSRP)
LTEAT: VZ_TC_LTEAT_583	4.3	READ RSRQ VALUES (+VZWRSRQ)

4 REFERENCES

Change requests may cause modification to the specifications listed below. Please refer to www.3gpp.org for the latest version of the 3GPP specifications and to www.itu.int for the latest version of the ITU specification. Verizon Wireless LTE 3GPP Band 13 network specifications are available at <http://opennetwork.verizonwireless.com>.

<Industry Standards References>

1. 3GPP TS 27.005: *Use of Data Terminal Equipment - Data Circuit terminating Equipment (DTE - DCE)*

interface for Short Message Service (SMS) and Cell Broadcast Service (CBS)

2. 3GPP TS 27.007: *AT command set for User Equipment (UE)*
3. ITU-T V.250: *Serial Asynchronous Automatic Dialling And Control*
4. 3GPP TS 36.101: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) radio transmission and reception*
5. 3GPP TS 36.523-3: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) conformance specification; Part 3: Test Suites*

<Verizon Specific Documentation References>

6. "Verizon Wireless Device Requirements ' LTE 3GPP Band 13 Network Access"
7. "Verizon Wireless LTE AT Commands For Test Automation Test Plan"
8. "Verizon Wireless LTE 3GPP Band 13 Lab Conformance Test Plan"