Requirement Plan

Plan Name: LTE_Data_Retry
Plan Id: LTEDATARETRY
Version Number: 38
Release Date: October 2024
Latest Release Date: October 2024 : Open Access

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Revision History

Author	Description of Changes	Date
Verizon Wireless	Version 1.00: Initial version	8/17/2009
Verizon Wireless	Version 1.01: Minor corrections.	11/12/2009
Verizon Wireless	Version 2.00: Requirements changes to sections 4.2.2, 4.3.1.3, and 4.5.1.	2/11/2010
Verizon Wireless	Version 3.00: Requirements changes to sections 4.3.3.1 and 4.5.2.1. Added section 4.6.	6/25/2010
Verizon Wireless	Version 4.00: Requirements changes to sections 4.2.1.1, 4.3.1.1, 4.3.3.1, and 4.4.1.1.	9/30/2010
Verizon Wireless	Version 5.00: minor correction to section 4.5.2.1. Updates to Release 9 throughout the document.	12/17/2010
Verizon Wireless	Version 6.00: update to sections 1, 4.5.2.1.2, 7, and 8	3/31/2011
Verizon Wireless	Version 7.00: Update to sections 3.4, 4.1.2, 4.3.1.1, 4.3.1.3, 4.3.3.1, 4.3.4, 4.3.4.1, 4.4.1.1	6/30/2011
Verizon Wireless	Version 8.00: Update to sections 3.3.2, 3.4, 3.5, 4.1, 4.3.1, 4.3.3.1, 4.3.4, 4.4.1, 4.5.2.1.2, 4.5.3.1	7/31/2011
Verizon Wireless	Version 9.00: Update to sections 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.3.2.2, 4.3.4.1, 4.4.1.2, 4.4.1.4, 8	9/30/2011
Verizon Wireless	Version 10.00: Update to sections 3.3, 3.5, 4.1, 4.3.1.1, 4.3.3.1,	12/15/2011

	4.3.4.1, 4.4.1	
Verizon Wireless	Version 11.00: Update to sections 3.3.1, 3.3.3, 3.6, 4.3.1.1, 4.3.4.1, 4.5.2.1.1, 4.5.2.1.2, 4.5.2.2, 4.5.4, 4.6.1, 4.6.2, 4.6.3, 4.6.4, 4.7	2/29/2012
Verizon Wireless	Version 12.00: Update to sections	April 2012
Verizon Wireless	Version 13.00: Update to section 4.3.1.1	July 2012
Verizon Wireless	Version 14.00: Update to sections: 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.3.1.1, 4.3.1.3, 4.3.4.1, 4.3.4.2, 4.4.1.2, 4.5.2.4	Oct. 2012
Verizon Wireless	Version 15.00: Update to sections: 3.4, 4.1.4, 4.3.1.1, 4.3.1.2, 4.3.1.3, 4.3.1.4, 4.3.3.1, 4.3.4.1, 4.3.4.2, 4.3.4.3, 4.4.1.1, 4.4.1.2, 4.5.1, 4.5.2.1.2, 4.5.2.4	Feb. 2013
Verizon Wireless	Version 16.00: Update to sections: 3.4, 3.6, 3.7, 3.8, 3.9, 4.1.4, 4.3.1.1, 4.3.3.1, 4.3.4.1, 4.4.1.1, 4.4.1.2, 4.5.2.1.2, 4.5.2.2	June 2013
Verizon Wireless	Version 17.00: Update to sections: 3.4, 3.6, 3.7, 3.8, 3.9, 3.10, 4.3.1.1, 4.5.2.1.2, 4.5.2.4, 4.5.4, 4.8	Oct. 2013
Verizon Wireless	Version 18.00: Update to section: 4.5.2.1.2	Feb. 2014
Verizon Wireless	Version 19.00 Update to section 3.10.1	June 2014

Verizon Wireless	Version 20.00 Update to requirements 7792, 7799	October 2014
Verizon Wireless	Version 21.00 Update to requirements 7751	February 2015
Verizon Wireless	Version 22.00 Update to requirements 7791, 7792, 7799	June 2015
Verizon Wireless	Version 23.00 Update to requirements 7764, 7767, 7772, 7780, 7792, 7794, 7798 New requirements 40037, 40039, 40042, 40043, 40044, 40045	October 2015
Verizon Wireless	Version 24.00 Update to requirements: 7752, 7765, 7767, 7780, 7782, 7783, 7785, 7800, 39861, 40042, 40043, 40044, 40045 New requirement 41002, 41012, 410013	February 2016
Verizon Wireless	Version 25.00 Update to requirement: 40045	June 2016
Verizon Wireless	Version 26.00 Updates/Additions/Clarifications to requirements related to: System level throttling	October 2016
Verizon Wireless	Version 27.00 Update to requirements: 7761, 7764	February 2017
Verizon Wireless	Version 28.00 Updates to service request failure requirements. Updates to T3402 requirements. Added clarification on attach failure due to PDN connection failure.	June 2017

Verizon Wireless	Version 29.0 Updates to requirements 7775, 7782, and 40042.	October 2017
Verizon Wireless	Removed EMM 14 from Service Reject requirement	February 2018
Verizon Wireless	Added clarification to requirement 7799	February 2019
Verizon Wireless	Update to requirement 7735. Added requirement 4105999311162901.	February 2020
Verizon Wireless	Version 33.0: Update to requirement for service request failue due to lower layer/RRC set up failure.	February 2022
Verizon Wireless	Version 34.0: Update to requirement 7780.	June 2022
Verizon Wireless	Version 35.0: Updates to sections 1.4.3.1.3.1, 1.4.3.4.2.1, and 1.4.4.1.3.1.	October 2022
Verizon Wireless	Version 36.0: Updates to section 1.4.3.1.3.1 & 1.4.5.2.1	February 2023
Verizon Wireless	Version 37.0: Updates to section 1.4.4.1.3.1 , 1.3.11.1	October 2023
Verizon Wireless	Version 38.0: Updates to sections 1.4.3.1.3.1 -VZ_REQ_LTEDATARETRY_7756 and 1.4.3.4.2.1-VZ_REQ_LTEDATARETRY_7762	February 2024

1.1 INTRODUCTION VZ_REQ_LTEDATARETRY_2365

This document describes the required behavior of mobile devices (i.e. User Equipment or UEs) when they encounter certain error conditions as they attempt to access the Verizon Wireless Long Term Evolution (LTE) data network. A major motivation for specifying this retry logic is to prevent devices from overwhelming the network with ineffective access attempts (e.g. denial of service attacks). To prevent behavior that would be overly disruptive to the network, the devices shall sometimes be required to throttle or, in extreme cases, disable access attempts. Devices shall be required to throttle connection attempts only in cases where specific permanent or semi-permanent errors exist and further attempts have an extremely low probability of success.

This publication is part of Verizon Wireless compliance with the FCCs rules for 700 MHz C Block (47 C.F.R. § 27.16), as explained in the FCCs Second Report and Order in WT Docket No. 06-150, "Service Rules for the 698-746, 747-762 and 777-792 MHz Bands" released on August 10, 2007.

In this document, the terms LTE (Long Term Evolution) and E-UTRA (Evolved Universal Terrestrial Radio Access) are considered equivalent.

1.1.1 ~~APPLICABILITY~~ VZ_REQ_LTEDATARETRY_2366

1.1.2 ~~3GPP RELEASE 9 SPECIFICATIONS~~ VZ_REQ_LTEDATARETRY_2367

1.1.3 ACRONYMS/GLOSSARY/DEFINITIONS VZ_REQ_LTEDATARETRY_2368

This section defines acronyms and terms used throughout the document.

Acronym/Term	Definition
3GPP	3rd Generation Partnership Project, manages GSM, EDGE, UMTS, HSPA, and LTE standards
A/Gb Mode	See 3GPP TS 24.008 [4]
APN	Access Point Name
CSFB	Circuit Switched Fallback
CSG	Closed Subscriber Group
EMM	EPS Mobility Management
EPS	Evolved Packet System
ESM	EPS Session Management
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
FCC	Federal Communications Commission
GW	Gateway
HSS	Home Subscriber Service
IE	Information Element
IP	Internet Protocol
IMEI	International Mobile Equipment Identity
IMS	IP Multimedia Subsystem
IMSI	International Mobile Subscriber Identity
Iu Mode	See 3GPP TS 24.008 [4]

LTE	Long Term Evolution
MCC	Mobile Country Code
ME	Mobile Equipment
MME	Mobility Management Entity
NAS	Non-Access Stratum
PCO	Protocol Configuration Options
PDN	Packet Data Network
PGW	PDN Gateway
PLMN	Public Land Mobile Network
RRC	Radio Resource Control
S1 mode	See 3GPP TS 24.008 [4]
S101 mode	See 3GPP TS 24.008 [4]
TAI	Tracking Area Identifier
TAU	Tracking Area Update
TS	Technical Specification
UE	User Equipment
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module
VZW	Verizon Wireless

1.1.4 REQUIREMENTS LANGUAGE VZ_REQ_LTEDATARETRY_2369

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

1.2 ~~HARDWARE SPECIFICATIONS~~ VZ_REQ_LTEDATARETRY_2370

1.2.1 ~~MECHANICAL~~ VZ_REQ_LTEDATARETRY_2371

1.2.2 ~~ELECTRICAL~~ VZ_REQ_LTEDATARETRY_2372

1.3 SOFTWARE SPECIFICATIONS VZ_REQ_LTEDATARETRY_2373

1.3.1 ~~ASSUMPTIONS~~ VZ_REQ_LTEDATARETRY_2374

1.3.1.1 ~~DEVICE MODES~~ VZ_REQ_LTEDATARETRY_23754

1.3.1.2 ~~CSFB~~ VZ_REQ_LTEDATARETRY_23756

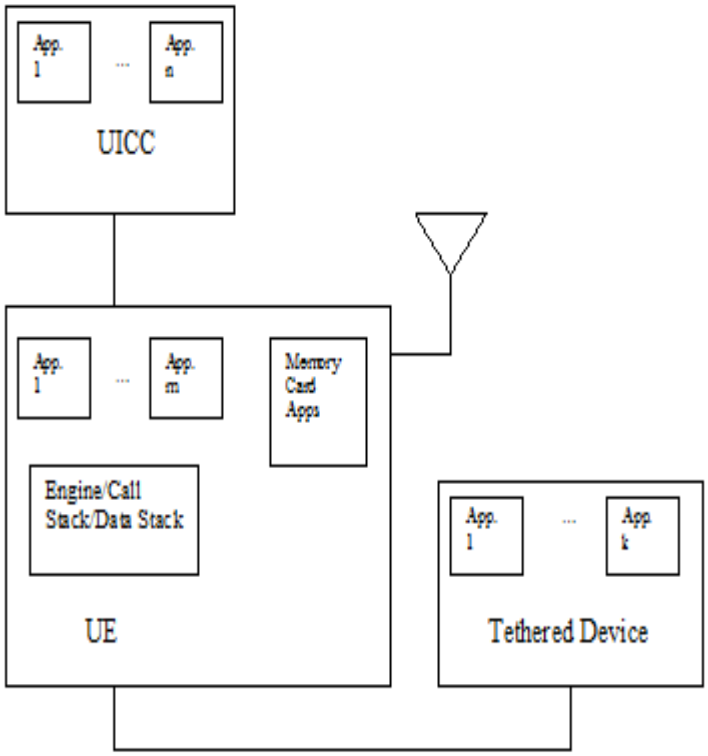
1.3.1.3 ~~CSG~~ VZ_REQ_LTEDATARETRY_23755

1.3.2 SOFTWARE ARCHITECTURE WITHIN THE UE VZ_REQ_LTEDATARETRY_2375

1.3.2.1 This document assumes a software architecture in which code running on the modem VZ_REQ_LTEDATARETRY_7731

This document assumes a software architecture in which code running on the modem portion of the UE (this code is typically referred to as "engine code", "data stack", "callstack", etc) initiates communication with the LTE network on behalf of applications that need to send and/or receive data. Applications will typically reside either on the UE itself, on the UICC, on a removable memory card, or on a device that communicates with the UE via a tethered connection (see below figure). The requirements in this document shall be implemented in the modem portion of the UE software which may need to throttle communications to the network in some extreme error situations. If a throttle timer is running at the UE and an application requests it to open a communications channel to the network, the UE will send an error indication to the application without attempting to contact the

network. The applications may then send additional requests to the modem portion of the UE to try again.



1.3.3 GENERIC THROTTLING ALGORITHM VZ_REQ_LTEDATARETRY_2376

1.3.3.1 Generic Throttling Algorithm VZ_REQ_LTEDATARETRY_7732

For any given system, the throttling algorithm shall be implemented as follows.

In this algorithm, the term "system" refers to:

- The combination of a PLMN ID+RAT for EMM procedures that trigger this throttling procedure (e.g. service request failure).

- The PLMN ID for EPS procedures that trigger this throttling procedure (e.g. PDN connection request failure). **NOTE:** For release 12 and later devices, PDN connection request throttling may not apply on RAT transitions within the same PLMN as detailed in this document and 3GPP TS 24.301. For release 11 and earlier devices, PDN connection request throttling does not apply to a non-LTE RAT after performing RAT transitions within the same PLMN.

1.3.3.2 GENERAL RULES VZ_REQ_LTEDATARETRY_23757

1.3.3.2.1 General Rules VZ_REQ_LTEDATARETRY_7733

1. The data throttling behavior shall be implemented in the modem portion of the UE software and shall, therefore, be independent of the type of application requesting the data session.
2. If the error that leads the UE to implement the throttling behavior is specific to a PDN Connection (e.g. an ESM error code is embedded in a "PDN CONNECTIVITY REJECT" message), the throttling algorithm shall apply only to attempts to connect to that PDN while on that system; attempts to connect to a different PDN on the same PLMN ID will not be throttled. If the error that leads the UE to implement the throttling behavior is not specific to a PDN (e.g. an EMM error code is embedded in an "SERVICE REJECT" message), then the throttling algorithm shall apply to any attempt to connect to that system regardless of the PDN. In this context, "system" is defined as per requirement VZ_REQ_LTEDATARETRY_7732. That is, the device shall maintain separate throttling counters and timers for each system and for each PDN within a given PLMN.
3. If an attempt to attach or connect to a system or PDN fails, the UE software shall return an error to the application without attempting any retries on its own.

The throttling algorithm shall never discriminate between applications i.e. if the algorithm is throttling access attempts to a system or a PDN within a PLMN, all applications shall be affected equally

1.3.3.3 ALGORITHM DETAILS VZ_REQ_LTEDATARETRY_23758

1.3.3.3.1 Algorithm Details - Notes VZ_REQ_LTEDATARETRY_7734

Note 1: For the case where the network does not respond to the given NAS message, the algorithm shall not start the throttling timer and return an error to the application until the appropriate NAS procedure timer expires (e.g. timer T3482 for a PDN CONNECTIVITY REQUEST message).

Note 2: Timer T3402 shall always take precedent over the throttling timer described here. If the throttling timer expires but timer T3402 is running for LTE on the given PLMN, the UE shall not attempt to access LTE on the given PLMN until timer T3402 has expired.

1.3.3.3.2 Algorithm Details VZ_REQ_LTEDATARETRY_7735

1. The first time an attempt to attach or connect to a system or PDN fails, the UE increments a "throttling counter" to 1, returns an error to the application, and starts a "throttling timer". In this step, the length of the "throttling timer" is 0.
2. The next time any application requests that the UE attempt to attach or connect to the system or PDN, the UE shall attempt to connect it without delay. If the data connection is successful, the throttling counter shall be cleared. If the data connection fails, the UE shall return an error to the application, increment the throttling counter to 2, and start a "throttling timer". In this step, the length of the "throttling timer" is 0.
3. The next time an application requests that the UE attempt to attach or connect to the system or PDN, the UE shall attempt to connect it without delay. If the data connection is successful, the throttling counter shall be cleared. If the data connection fails, the UE shall return an error to the application, increment the throttling counter to 3, and start a "throttling timer". The length of the timer shall be one minute plus a random value; the random value shall have an upper bound of 15 seconds. If any application requests a data session on that system or PDN while the throttling timer is running, the UE shall return an error to the application without attempting to connect the data session on that system or PDN.
4. Upon the expiration of the throttling timer, the UE shall attempt to connect a data session the next time an application requests one on that system or PDN. If the data connection is successful, the throttling counter shall be cleared. If the data connection fails, the UE shall return an error to the application, increment the throttling counter to 4, and start the throttling timer. This time, the length of the timer shall be two minutes. If any application requests a data

session on that system or PDN while the throttling timer is running, the UE shall return an error to the application without attempting to connect the data session on that system or PDN.

5. Upon the expiration of the throttling timer, the UE shall attempt to connect a data session the next time an application requests one on that system or PDN. If the data session is successful, the throttling counter shall be cleared. If the data session fails, the UE shall return an error to the application, increment the throttling counter to a value of 5, and start the throttling timer. This time, the length of the throttling timer shall be eight minutes. If any application requests a data session on that system or PDN while the throttling timer is running, the UE shall return an error to the application without attempting to connect the data session on that system.
6. Upon the expiration of the throttling timer, the UE shall attempt to connect a data session the next time an application requests one on that system or PDN. If the data session is successful, the throttling counter shall be cleared. If the data session fails, the UE shall return an error to the application, increment the throttling counter to a value of 6, and start the throttling timer. This time, the length of the throttling timer shall be fifteen minutes. If any application requests a data session on that system or PDN while the timer is running, the UE shall return an error to the application without attempting to connect the data session on that system. All subsequent failures on this system or PDN that occur while the throttling counter is set to a value of 6 or greater shall result in a fifteen minute throttling timer. I.e. from this point on, there shall not be more than one attempt at a data session on this system or PDN per fifteen minutes.

1.3.3.4 PER SYSTEM NATURE OF THROTTLING VZ_REQ_LTEDATARETRY_23759

1.3.3.4.1 Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7736

Throttling parameters (e.g. timers and counters) shall be maintained for a particular system (where system is as per VZ_REQ_LTEDATARETRY_7732) or for a given PDN within a PLMN even if the device moves to a different system. When the device is throttling for an entire system, the throttling parameters (e.g. timers and counters) may be reset to their initial values if the device returns to the system for which throttling was invoked and successfully performs a new tracking area update or attach. At a minimum, the device shall reset the throttling parameters (e.g. timers and counters) to their initial values upon successful data radio bearer setup. If the device moves to a different system and successfully performs a tracking area update or attach to that system, the device shall not attempt a

tracking area update or attach to the original system (for which throttling was invoked) until the throttling timer has expired.

1.3.3.4.1.1 Example1 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7737

Example 1:

- Current system is system "A" and the throttling counter for system "A" (for the entire system) is set to a value of 6 and a fifteen minute throttling timer is running.
- The device transitions to system "B" and attempts to perform a tracking area update with system "B" (if system "B" is another LTE system) or an attach to system "B" (if system "B" is not an LTE system). The tracking area update/attach to system "B" fails, and then the device comes back to system "A". The throttling timer for system "A" will continue running while the device is monitoring system "B" and will still be running when the device returns to system "A". The throttling counter will, similarly, still be 6 when the device returns to system "A" from system "B".
- The device is still attached to system "A" (since the tracking area update /attach attempt to system "B" was unsuccessful), but does not attempt to access system "A" until the throttling timer expires. The throttling parameters (e.g. timers and counters) are NOT reset to their initial values.

1.3.3.4.1.2 Example2 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7738

Example 2:

- Current system is system "A" and the throttling counter for system "A" (for the entire system) is set to a value of 6 and a fifteen minute throttling timer is running.
- The device transitions to system "B" and successfully performs a tracking area update with system "B" (if system "B" is another LTE system) or an attach to system "B" (if system "B" is not an LTE system). As a result the device is no longer attached to system "A".
- After 20 seconds the device reselects back to system "A". The throttling timer for system "A" will continue running while the device is monitoring system "B" and will still be running when the device returns to system "A". The throttling counter will, similarly, still be 6 when the device returns to system "A" from system "B". The device does not attempt a tracking area update to system "A" (if system "B" is another LTE

system) or an attach to system "A" (if system "B" is not an LTE system) until the throttling timer expires.

- Upon expiration of the throttling timer, the device successfully performs a tracking area update with system "A" (if system "B" is another LTE system) or an attach to system "A" (if system "B" is not an LTE system). The throttling parameters (e.g. timers and counters) may be reset to their initial values. At a minimum, the throttling parameters (e.g. timers and counters) shall be reset to their initial values upon successful data radio bearer establishment.

1.3.3.4.1.3Example3 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7739

Example 3:

- Current system is system "A" and the throttling counter for system "A" (for the entire system) is set to a value of 6 and a fifteen minute throttling timer is running.
- The device transitions to system "B" and successfully performs a tracking area update with system "B" (if system "B" is another LTE system) or an attach to system "B" (if system "B" is not an LTE system). As a result the device is no longer attached to system "A".
- After 20 seconds the device reselects back to system "A". The throttling timer for system "A" will continue running while the device is monitoring system "B" and will still be running when the device returns to system "A". The throttling counter will, similarly, still be 6 when the device returns to system "A" from system "B". The device does not attempt a tracking area update to system "A" (if system "B" is another LTE system) or an attach to system "A" (if system "B" is not an LTE system) until the throttling timer expires.
- Upon expiration of the throttling timer, the device attempts a tracking area update to system "A" (if system "B" is another LTE system) or an attach to system "A" (if system "B" is not an LTE system), but the tracking area update /attach is not successful. The retry behavior of the tracking area update or attach attempt is governed by ***section 23885*** or ***Section 23802***, respectively, of this document. The throttling parameters (e.g. timers and counters) for the algorithm in section ***Algorithm Details*** are NOT reset to their initial values until a successful tracking area update/attach and, optionally, data radio bearer establishment.

See requirements traceability.

1.3.3.4.1.4Example 4 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7740

Example 4:

- Current system is system "A" and the throttling counter for system "A" (for the entire system) is set to a value of 6 and a fifteen minute throttling timer is running.
- Devices moves to a new tracking area within system "A" or the devices periodic tracking area update timer expires.
- The device does not make a tracking area update request until the throttling timer expires.
- Upon expiration of the throttling timer, the device makes a tracking area update request.
- If the tracking area update procedure is unsuccessful, the retry behavior of the tracking area update is governed by ***section 23885*** of this document. The throttling parameters (e.g. timers and counters) for the algorithm in section ***Algorithm Details*** are NOT reset to their initial values until a successful tracking area update and, optionally, data radio bearer establishment.
- If the tracking area update procedure is successful and the device has user data pending (triggering data radio bearer establishment), the throttling parameters (e.g. timers and counters) are reset to their initial values.
- If the tracking area update procedure is successful but the device does not have user data pending, the throttling parameters (e.g. timers and counters) may be reset to their initial values. If the device does not have user data pending and as a result does not reset the throttling parameters (e.g. timers and counters) to their initial values (since data radio bearer establishment was not triggered), then the device shall reset the throttling parameters (e.g. timers and counters) to their initial values at either a) or b) below, whichever occurs first:
    1. the next successful service request (triggering data radio bearer establishment)
    2. the next successful tracking area update procedure with user data pending (triggering data radio bearer establishment)

If the device needs to throttle on a service request failure before a) or b) occur, the throttling counter will still be 6.

See requirements traceability.

1.3.3.4.1.5Example 5 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7741

Example 5:

- Current system is system "A" and the throttling counter for a PDN "D" within system "A" (due a PDN connection failure) is set to a value of 6 and a fifteen minute throttling timer is running for the PDN "D". The device has an application aggressively requesting a PDN connection to PDN "D".
- The device transitions to system "B" and attempts to perform a tracking area update with system "B" (if system "B" is another LTE system) or an attach to system "B" (if system "B" is not an LTE system) without waiting for the throttling timer to expire.
- The device successfully performs a tracking area update with system "B" (if system "B" is another LTE system) or an attach to system "B" (if system "B" is not an LTE system). As a result the device is no longer attached to system "A".
- The device makes a PDN connection request for PDN "D" without waiting for the throttling timer to expire.
- After 60 seconds the device reselects back to system "A".
- The device successfully performs a tracking area update* with system "A" (if system "B" is another LTE system) or an attach to system "A" (if system "B" is not an LTE system) without waiting for the throttling timer to expire. The throttling timer for PDN "D" within system "A" will continue running while the device is monitoring system "B" and will still be running when the device returns to system "A". The throttling counter will, similarly, still be 6 when the device returns to system "A" from system "B".
- Upon expiration of the throttling timer, the device makes a PDN connection request for PDN "D".
- The PDN connection request for PDN "D" is successful and data radio bearer(s) for PDN "D" are established. The throttling parameters (e.g. timers and counters) are reset to their initial values.

* In this example, it is assumed that during a tracking area update with system "A" (i.e. for the case where system "B" is another LTE system), the network indicates to the device that there is no active EPS bearer context for PDN "D". If during the tracking area update with system "A" (i.e. system "B" is another LTE system) the network indicates to the device that the EPS bearer context for PDN "D" is still active, then a connection to PDN "D" has been successfully established on system "A" and the throttling parameters (e.g. timers and counters) for PDN "D" within system "A" are reset to their initial values.

1.3.3.4.1.6Example 6 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7742

Example 6:

- Current system is system "A" and the throttling counter for system "A" (for the entire system) is set to a value of 6 and a fifteen minute throttling timer is running.
- Higher layers indicate that the device should perform a detach procedure from system "A".
- Since the throttling timer is running, the device locally detaches from system "A" without sending a detach request to the network.

1.3.4 TIMER T3402 VZ_REQ_LTEDATARETRY_2377

1.3.4.1 The UE shall implement T3402 on a PLMN basis. Once timer T3402 is started for a p VZ_REQ_LTEDATARETRY_7743

For UE's that support both LTE and other RAT's:

The UE shall implement T3402 on a PLMN basis for the LTE RAT within that PLMN.Once timer T3402 is started for LTE on a particular PLMN, the UE shall allow the timer to run in its entirety. The UE shall not reset T3402 for LTE on any PLMN for any reason. If the UE cannot attach to or access an LTE network associated with a given PLMN because T3402 is running, the UE shall attach to another LTE network associated with a different PLMN (for which T3402 is not running) if indicated to do so by system selection.

For UE's that only support LTE:

UE's that only support LTE shall implement T3402 in one of the following ways:

1. In the same manner as UE's that support both LTE and other RAT's as described in the paragraph above.

   OR

2. The UE shall implement T3402 per 3GPP TS 24.301 (reference [5]). If the UE cannot attach to or access an LTE network associated with a given PLMN because T3402 is running, the UE shall attach to another LTE network associated with a different PLMN (for which T3402 is not running) if indicated to do so by system selection. The UE shall follow 3GPP TS 24.301 (reference [5]) with respect to T3402 handling on PLMN changes.

For ALL UE's:

Per 3GPP TS 24.301 (reference [5]), the default value of T3402 shall be 12 minutes. Per 3GPP TS 24.301 (reference [5]), the UE shall update the value of T3402 based on the "T3402 value" IE in the ATTACHACCEPT message if the network includes the "T3402 value" IE in the ATTACH ACCEPT message. Per the Release 10 version of 3GPP TS 24.301 (reference[5]),the UE shall update the value of T3402 based on the "T3402 value" IE in the ATTACH REJECT message if the network includes the "T3402 value" IE in the ATTACH REJECT message.

The vendor shall provide a lab application to modify the default value of T3402 during device acceptance testing. The device vendor shall not allow the user to modify the value ofT3402 through the device user interface or the remote access user interface for tethered devices.

1.3.5 LISTS OF FORBIDDEN TRACKING AREAS VZ_REQ_LTEDATARETRY_2378

1.3.5.1 The UE shall use a period of 12 to 24 hours for the periodical erasing of the lis VZ_REQ_LTEDATARETRY_7781

The UE shall use a period of 12 to 24 hours forthe periodical erasing of the list of "forbidden tracking areas forroaming" and the list of "forbidden tracking areas for regionalprovision of service". Refer to section 5.3.2 of 3GPP TS 24.301 (reference[5]) for additional details.

1.3.6 RESET OF ATTACH APN VZ_REQ_LTEDATARETRY_2379

1.3.6.1 If the device is instructed by any requirement in this document to switch to the

VZ_REQ_LTEDATARETRY_7782

Note: The following requirement does NOT apply to devices that do NOT support IMS.

If the device is instructed by any requirement in this document to switch to the Class 3 APN during an attach request to an LTE network (i.e. the UE uses the Class 3 APN in the ESM INFORMATION RESPONSE message during the network attach procedure), then device shall continue to use the Class 3 APN for all attach requests to that LTE network until the following criteria 1 and 2 are both satisfied:

Criteria #1:

- Device detaches from the LTE network after successfully attaching to the LTE network using the Class 3 APN.

  OR

- 1) Device transitions from one system to another system, or 2) from one system to no service back to the same or different system, e.g.:
  - Device attempts to attach to a different system (the other system could be another LTE PLMN but does not have to be an LTE PLMN/RAT).
  - Device attaches or attempts to attach to a different system and then returns to the original LTE system and performs an attach procedure.
  - Device moves out of LTE coverage to no service back to LTE coverage on the same or a different PLMN

  OR

- The device is power cycled.

  OR

- T3402 expires (if running for the given PLMN).

AND Criteria #2 (if applicable - refer to the note below):

- T3396 expires if T3396 is running for the class 1 APN in the given PLMN (i.e. the IMS PDN).

  OR

- The device is power cycled or the UICC is replaced if the device received an ATTACH REJECT with a cause code "19: ESM Failure" in the "EMM Cause" field and the ATTACH REJECT message is piggybacked with a PDN CONNECTIVITY REJECT message with "26: Insufficient resources" in the "ESM Cause" field and the T3396 IE indicates that T3396 is deactivated.

If the criteria above is satisfied, the device shall revert back to the Class 1 APN (i.e. the IMS PDN) as the APN used in the initial attach request to an LTE network.

NOTE: Criteria #2 is only applied if either a) T3396 is running for the class 1 APN in the given PLMN, or b) the device received an ATTACH REJECT with a cause code "19: ESM Failure" in the "EMM Cause" field and the ATTACH REJECT message is piggybacked with a PDN CONNECTIVITY REJECT message with "26: Insufficient resources" in the "ESM Cause" field and the T3396 IE indicates that T3396 is deactivated.

1.3.7 TIMER T3346 VZ_REQ_LTEDATARETRY_2380

1.3.7.1 The UE shall support T3346 per the Release 10 version of 3GPP TS 24.301 (referenc VZ_REQ_LTEDATARETRY_7792

The UE shall support T3346 per the Release 10 version of 3GPP TS 24.301 (reference [5]). If the UE enters a new PLMN which is not in the list of equivalent PLMNs, it shall stop timer T3346 when initiating mobility management procedures in the new PLMN. The UE shall maintain T3346 across power cycle as defined in the Release 10 version of 3GPP TS24.301 (reference [5]).

1.3.7.2 EXPIRATION OF T3346 AND SERVICE REQUEST THROTTLING COUNTERS VZ_REQ_LTEDATARETRY_23762

1.3.7.2.1 Upon the expiration of T3346 for a given PLMN, the device shall reset the throttling counter for service request VZ_REQ_LTEDATARETRY_7798

Upon the expiration of T3346, the device shall reset the throttling counter for service request failures (defined in sections ***Generic Throttling Algorithm*** and ***Other Abnormal Cases in the UE*** of this document) for that PLMN to 0.

See requirements traceability.

1.3.8 TIMER T3245 VZ_REQ_LTEDATARETRY_2381

1.3.8.1 The device shall support T3245 per section 5.3.7a of Release 10 version of 3GPP T VZ_REQ_LTEDATARETRY_7793

The device shall support T3245 per section5.3.7a of Release 10 version of 3GPP TS 24.301 (reference [5]) if configured todo so based on the contents of the USIM under $EF_{NASCONFIG}$. The UEshall maintain T3245 across power cycle as defined in the Release 10 version of3GPP TS 24.301 (reference [5]).

1.3.9 TIMER T3396 VZ_REQ_LTEDATARETRY_2382

1.3.9.1 The UE shall support T3396 per the Release 10 version of 3GPP TS 24.301 (referenc VZ_REQ_LTEDATARETRY_7794

The UE shall support T3396 per the Release 10version of 3GPP TS 24.301 (reference [5]). The UE shall implement T3396 ona per APN per PLMN basis. Once timer T3396 is started for an APN in aparticular PLMN, the UE shall allow the timer to run in its entirety. The UEshall not reset T3396 for any APN in a given PLMN for any reason. The UE shallmaintain T3396 (for the given APN in the given PLMN) across power cycle for all ESM cause codes defined in the Release 10 version of 3GPP TS 24.301 (reference[5])that require T3396 persistence across power cycle. Release 12 and later UEs shall use the Back-off Timer IE value when specified as the value for T3396. Release 12 and later UEs shall be prepared to receive the Back-off Timer IE in place of the T3396 IE in PDN CONNECTIVITY REJECT messages with ESM cause code 26 or 27.

1.3.9.2 TIMER T3396 AND THE ATTACH APN VZ_REQ_LTEDATARETRY_23764

1.3.9.2.1 If a device is attempting to attach to a given PLMN (for which T3402 is not runni VZ_REQ_LTEDATARETRY_7797

Note: The following requirement does NOT apply to devices that do NOT support IMS.

If a device is attempting to attach to a given PLMN (for which T3402 is not running) and either T3396 is running for the Class 1 APN in the given PLMN or the Class 1 APN in the given PLMN is barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, then the device shall:

- If the class APN 3 is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 3 APN in the given PLMN, nor 2. is the Class 3 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE

indicates that T3396 is deactivated, nor 3. the Class 3 APN is disabled), then the UE shall attempt to attach using the Class 3 APN. If the UE successfully attaches to the network by connecting to the Class 3 APN, the UE shall attempt to establish the IMS PDN connection after T3396 expires by sending a PDN CONNECTIVITY REQUEST message for the IMS PDN. Retry behavior for IMS PDN connection requests is per section ***IMS PDN*** of this document.

- If the Class APN 3 is not available for a PDN CONNECTIVITY REQUEST message (i.e. either 1. T3396 is running for the Class 3 APN in the given PLMN or 2. the Class 3 APN in the given PLMN is barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, or 3. the Class 3 APN is disabled), then the device shall abort the attach procedure and consider that PLMN barred until one of the following events occurs:
    - T3396 expires for either the class 1 APN or the class 3 APN in that given PLMN
    - The device is power cycled (**NOTE:** Power cycle shall not clear T3396 if it was invoked with an ESM cause code that requires persistence across power cycle per the Release 10 version of 3GPP TS 24.301, reference [5]).
    - The UICC is replaced.

See Requirement Traceability.

1.3.9.2.2 Timer 3396 and devices that do not support IMS VZ_REQ_LTEDATARETRY_41012

Note: The following requirement applies only to devices that do NOT support IMS.

If a device is attempting to attach to a given PLMN (for which T3402 is not running) but for which T3396 is running, the UE shall follow the procedures outlined in section 6.5.1.4 of 3GPP TS 24.301 for the scenario where the UE does not request a specific APN during the attach procedure and the attach is rejected due to ESM failure and T3396 is started. If the UE is unable to initiate an attach procedure for LTE in the current PLMN because T3396 is running, the UE shall go to the next, most preferred available system.

1.3.10 PERMANENT EMM FAILURES ACROSS POWER CYCLE

VZ_REQ_LTEDATARETRY_24594

1.3.10.1 In addition to the forbidden tracking area list and the forbidden PLMN list maint VZ_REQ_LTEDATARETRY_7799

NOTE: This requirement only applies to LTE.

In addition to the forbidden tracking area list and the forbidden PLMN list maintained by the device per 3GPP TS 24.301, the device shall maintain a list of permanent EMM failure events. This list of permanent EMM failure events shall contain the following for each event:

- Event Date and UTC Time Stamp
- EMM Cause Code
- PLMN ID
- Tracking Area
- Event Counter

The device shall store this list of permanent EMM failures in non-volatile memory. The device shall maintain this list across device power cycle and modem reset. The device vendor shall not allow the user to modify this list through the device user interface or the remote access user interface for tethered devices.

The device shall maintain:

- a parameter MAXLOGTIME which is the maximum number of minutes for which an event may be logged. The device shall not allow the user to update MAXLOGTIME through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of MAXLOGTIME during device acceptance testing. The range of allowed values for MAXLOGTIME shall be 0-360. The default value for MAXLOGTIME shall be 120.
- a parameter MAXEVENTCOUNTER which is the maximum length of the event counter. The device shall not allow the user to update MAXEVENTCOUNTER through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of MAXEVENTCOUNTER during device acceptance testing. The range of allowed values for MAXEVENTCOUNTER shall be 1-16. The default value for MAXEVENTCOUNTER shall be 5.

Upon receipt of an ATTACH REJECT message, a TRACKING AREA UPDATE REJECT message, a SERVICE REJECT message, or a network initiated DETACH REQUEST (with re-attach not required) with any of the following permanent failure EMM cause codes:

- 3 "Illegal UE"
- 6 "Illegal ME"
- 7 "EPS services not allowed"

- 8 "EPS services and non-EPS services not allowed"
- 11 "PLMN not allowed"
- 15 "No suitable cells in tracking area"

The device shall modify this list as follows:

- MAXLOGTIME after an event is first logged (based on the "Event Date and UTC Time Stamp"), the device shall delete the event.
- For EMM cause codes 3, 6, 7, 8, 11: If there is already an event for this EMM cause code included in the list for the given PLMN, the device shall increment the event counter for this event (the device shall not update any other parameters related to the given event). Otherwise, the device shall add this event to the list and set the event counter to 1.
- For EMM cause code 15: If there is already an event for this EMM cause code included in the list for the given PLMN and tracking area, the device shall increment the event counter for this event (the device shall not update any other parameters related to the given event). Otherwise, the device shall add this event to the list and set the event counter to 1.

On power cycle or reset of the modem, the device shall take the following actions prior to initiating system selection:

- All events that are MAXLOGTIME or older shall be deleted.
- If the UICC is replaced, all events associated with EMM cause codes 3, 6, 7, or 8 shall be deleted.
- For events that are not MAXLOGTIME or older and for which the event counter is greater than MAXEVENTCOUNTER:
    - The device shall declare the USIM invalid if the event involved EMM cause codes 3, 6, 7, or 8.
    - The device shall move the PLMN to the "Forbidden PLMNs for attach in S101 mode" list if the event involved EMM cause code 11. **NOTE:** This applies to roaming PLMN's only - per 3GPP standards, the UE is not allowed to place a HPLMN/EHPLMN in the PLMN forbidden list.
    - The device shall move the tracking area to the forbidden tracking area list if the event involved EMM cause code 15.
- For events that are not MAXLOGTIME or older and for which the event counter is less than or equal to MAXEVENTCOUNTER, the device shall not take any further action.

If the device successfully attaches to an LTE network (PLMN) associated with an event, the device shall:

- Delete all events associated with EMM cause codes 3, 6, 7, or 8 if the device successfully attaches to any LTE network.
- Delete all events associated with EMM cause code 11 for a given PLMN if the device successfully attaches to that PLMN.
- Delete all events associated with EMM cause code 15 for the given PLMN and tracking area if the device successfully attaches to that PLMN while in that tracking area.

1.3.11 CELL RESELECTION ON ATTACH/TAU/SERVICE REQUEST FAILURE VZ_REQ_LTEDATARETRY_39862

1.3.11.1 PROCEDURE FOR CELL RESELECTION ON ATTACH/TAU/SERVICE REQUEST FAILURE VZ_REQ_LTEDATARETRY_39861

NOTE 1: This requirement only applies to LTE.

If an attach, TAU, or service request procedure fails due to the failures listed below, the device shall support an algorithm for cell reselection when performing retries of the attach, TAU, and service request procedures:

- Lower layer failure RACH/RRC connection failure.
- RRC connection is rejected by the eNB and the eNB does not include the "deprioritization" IE in the RRCConnectionReject message.
- The procedure times out at the NAS layer (i.e. T3410, T3430, or T3417 expires).

Upon an attach, TAU, or service request procedure failing due to any of the the following events:

- Lower layer failure RACH/RRC connection failure.
- RRC connection is rejected by the eNB and the eNB does not include the "deprioritization" IE in the RRCConnectionReject message.
- The procedure times out at the NAS layer (i.e. T3410, T3430, or T3417 expires).

the device shall perform cell reselection in-between retries. The exact algorithm is left to UE implementation, but an example implementation is detailed below. Any algorithm shall be designed to insure that:

1) At least 3 cells (i.e. one initial serving cell and up to 2 alternate cells) are tried assuming at least 5 attempts of the attach, TAU, and service procedures before either T3402 or the generic throttling timer start. **NOTE 2:** For 3GPP Release 17 and later devices, T3402 is not triggered for attach and TAU failures due to lower layer RRC set up failure.

2) The device shall be able to retry on the same cell (after any RRC or NAS retry timers expires, e.g. waitTime, T3411) if no alternate cells are available.

NOTE 3: The retry behavior of the NAS procedures is per this document.

NOTE 4: A cell refers to the combination of a PCI and a carrier frequency.

Example Algorithm:

NOTE 5: NAS_COUNT and the logic below is only used to illustrate an example algorithm that achieves the desired device behavior. The exact variables and logic used in the UE is left to UE implementation. In this example, the device shall support a counter NAS_COUNT; and NAS_COUNT shall be reset to 0 upon power cycle or successful completion of an attach, TAU, service request, or detach procedure.

1.3.12 BACK-OFF TIMER AND RE-ATTEMPT INDICATOR VZ_REQ_LTEDATARETRY_40036

1.3.12.1 Back-Off Timer and Re-Attempt Indicator VZ_REQ_LTEDATARETRY_40037

Release 12 and later UEs shall support the back-off timer and re-attempt indicator per section 6.3.6 of the Release 12 version of 3GPP TS 24.301 (reference [5]).

1.3.13 eUICC and Data Retry VZ_REQ_LTEDATARETRY_41059993111629O1

For devices using a eUICC, for any LTE data retry events where a replacement or removal of the UICC is required, "eUICC profile deletion/switching" shall be equivalent to "until removal/replacement of the UICC". This equivalency shall also apply to 3GPP TS 24.301.

1.4 SCENARIOS VZ_REQ_LTEDATARETRY_2383

1.4.1 DATA RETRY REQUIREMENTS FOR SITUATIONS IN WHICH THE UE ENCOUNTERS RRC ERRORS VZ_REQ_LTEDATARETRY_2384

1.4.1.1 SITUATION: UE ENCOUNTERS RRC FAILURES DURING AN ATTACH ATTEMPT VZ_REQ_LTEDATARETRY_23767

1.4.1.1.1 If the device encounters any type of RRC related failure during an attach attempt VZ_REQ_LTEDATARETRY_7777

If the device encounters any type of RRC related failure during an attach attempt except an RRCConnectionReject message from the network, the device shall abort the attach attempt and increment its *attach attempt counter*. RRC failures shall include:

- Network fails to respond to RACH attempts from the device
- Random access procedure fails
- RRC connection release before the attach procedure completes

Per 3GPP TS 24.301, the device shall wait at least T3411 between attach attempts.

1.4.1.2 SITUATION: UE ENCOUNTERS RRC FAILURES DURING A TRACKING AREA UPDATE ATTEMPT VZ_REQ_LTEDATARETRY_23769

1.4.1.2.1 If the device encounters any type of RRC related failure during a tracking area u VZ_REQ_LTEDATARETRY_7778

If the device encounters any type of RRC related failure during a tracking area update attempt except an RRCConnectionReject message from the network, the device shall abort the tracking area update attempt and increment its *tracking area updating attempt counter*. RRC failures shall include:

- Network fails to respond to RACH attempts from the device
- Random access procedure fails
- RRC connection release before the tracking area update procedure completes

Per 3GPP TS 24.301, the device shall wait at least T3411 between tracking area update attempts.

1.4.1.3 SITUATION: UE ENCOUNTERS RRC FAILURES DURING A SERVICE ATTEMPT VZ_REQ_LTEDATARETRY_23771

1.4.1.3.1 If the device encounters any type of RRC related failure during a service attempt VZ_REQ_LTEDATARETRY_7779

If the device encounters any type of RRC related failure during a service attempt except an RRCConnectionReject message from the network, the device shall abort the service attempt and proceed as defined in section ***Other Abnormal Cases in the UE*** of this document. RRC failures shall include:

- Network fails to respond to RACH attempts from the device
- Random access procedure fails
- RRC connection release before the service procedure completes

See the Requirement Traceability

1.4.1.4 SITUATION: THE NETWORK SENDS AN 'RRCCONNECTIONREJECT' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23772

1.4.1.4.1 If the network sends an RRCConnectionReject message to the UE, the UE shall perform in accordance with section 5 VZ_REQ_LTEDATARETRY_7790

If the network sends an RRCConnectionReject message to the UE, the UE shall perform in accordance with section 5.3.3.8 of 3GPP TS 36.331: *Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification* and in accordance with 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*.

The UE shall support the *deprioritisationReq* IE in the RRCConnectionReject message per the release 11 version of 3GPP TS 36.331: *Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification*.

Per 3GPP TS 36.331: *Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification*, the UE shall not send another RRCConnectionRequest message prior to the expiration of a timer whose value is dictated by the "waitTime" parameter of the RRCConnectionReject message.

If the *deprioritisationReq* IE is present in the RRCConnectionReject message, the UE shall deprioritize the current LTE RAT within the PLMN or a particular LTE carrier frequency band within the current PLMN based on the contents of the *deprioritisationReq* IE while T325 is running per the release 11 version of 3GPP TS 36.304: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode*. If the *deprioritisationReq* IE is present in the RRCConnectionReject message, the UE shall attempt cell reselection with the updated priorities per the release 11 version of 3GPP TS 36.304: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode*.

The UE shall implement T325 on a per PLMN basis (for the LTE RAT within the PLMN). Once timer T325 is started for LTE on a particular PLMN or a particular LTE carrier frequency within a PLMN, the UE shall allow the timer to run in its entirety. The UE shall not reset T325 for LTE on any PLMN or a particular LTE carrier frequency band within a PLMN for any reason.

1.4.2 DATA RETRY REQUIREMENTS FOR CONDITIONS ENCOUNTERED DURING EMM COMMON PROCEDURES

VZ_REQ_LTEDATARETRY_2385

1.4.2.1 SITUATION: THE NETWORK SENDS AN 'AUTHENTICATION REQUEST' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23775

1.4.2.1.1 UE FAILS TO AUTHENTICATE THE NETWORK VZ_REQ_LTEDATARETRY_23789

1.4.2.1.1.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7744

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.4.2. If the UE determines that the network has failed the authentication check (UE believes the network to be fraudulent), the UE shall not attempt any further attachment attempts on the current cell (identified by the Cell ID value and PLMN ID) for at least 300 seconds per 3GPP TS 36.304.

1.4.2.1.2 NETWORK SENDS AN 'AUTHENTICATION REJECT' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23791

1.4.2.1.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7745

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.4.2. Specifically, the UE shall cease attempting to attach to any LTE network until it is power-cycled or the UICC is replaced.

1.4.2.2 SITUATION: THE NETWORK SENDS A 'SECURITY MODE

COMMAND' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23776

1.4.2.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7746

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.4.3 by default. When the on-going procedure that triggered the security mode control procedure is addressed by a section in this document, that section shall prevail when determining the retry behavior. If the device is sending an "Attach Request" message and fails while processing a "Security Mode Command" message, the device shall follow ***section 2386*** of this document to determine the retry rules in sending the "Attach Request" message; the device shall treat this failure as if timer T3410 had expired. If the device fails while processing the "Security Mode Command" in the process of sending a "Service Request" message, the device shall follow ***section 23889*** of this document; the device shall treat this failure as if a lower link failure had been received.

For situations that are not directly addressed in this document and in which the method of re-running the ongoing procedure that triggered the security mode control procedure is left to the UE implementation, (e.g. the UE encounters an abnormal case and the current TAI is still part of the TAI list), the UE shall re-run the ongoing procedure that triggered the security mode control procedure in a manner described in section ***Generic Throttling Algorithm*** of this document. In this case, the throttling algorithm shall apply to all communication attempts to the LTE RAT on this PLMN regardless of PDN.

See requirements traceability.

1.4.3 DATA RETRY REQUIREMENTS FOR CONDITIONS ENCOUNTERED DURING EMM SPECIFIC PROCEDURES

VZ_REQ_LTEDATARETRY_2386

1.4.3.1 SITUATION: USE SENDS AN 'ATTACH REQUEST' MESSAGE TO

THE NETWORK VZ_REQ_LTEDATARETRY_23802

1.4.3.1.1 NETWORK SENDS AN 'ATTACH REJECT' WITH AN EMM CAUSE CODE VZ_REQ_LTEDATARETRY_23804

1.4.3.1.1.1 Network sends an 'ATTACH REJECT' with an EMM Cause Code VZ_REQ_LTEDATARETRY_7747

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.1 by default when the device receives an ATTACH REJECT message from the network.

1.4.3.1.1.2 EMM Cause Codes 3, 6, 7, 8 VZ_REQ_LTEDATARETRY_7748

The UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]) and cease attempting to attach to any LTE network until it is power-cycled or the UICC is replaced if it receives any of the following cause codes in the "EMM Cause" field of an ATTACH REJECT message:

- 3: Illegal UE
- 6: Illegal ME
- 7: EPS services not allowed
- 8: EPS services and non-EPS services not allowed

1.4.3.1.1.3 EMM Cause Codes 11, 14 VZ_REQ_LTEDATARETRY_7749

The UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current roaming PLMN until it is power-cycled or the UICC is replaced, if it receives the following cause codes in the "EMM Cause" field of an ATTACH REJECT message:

- 11: PLMN not allowed
- 14: EPS services not allowed in this PLMN

Note 1: The device may choose not to attempt to attach to the PLMN even after a power cycle. At a minimum, though, the device must not attempt to attach until the next power cycle.
Note 2: This requirement applies to roaming PLMNs only. This requirement does not apply to the home PLMN(s). For roaming PLMNs, the UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]).

1.4.3.1.1.4EMM Cause Codes 12, 13, 15 VZ_REQ_LTEDATARETRY_7750

The UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current Tracking Area ID until it is power-cycled or the UICC is replaced or the UE erases the lists of forbidden tracking areas (after the 12-24 hour periodic erasure timer expires), if it receives the following cause codes in the "EMM Cause" field of an ATTACH REJECT message:

- 12: Tracking area not allowed
- 13: Roaming not allowed in this tracking area
- 15: No suitable cells in this tracking area

1.4.3.1.1.5EMM Cause Code 19 VZ_REQ_LTEDATARETRY_7751

Upon receipt of an ATTACH REJECT message with a cause code "19: ESM Failure" in the "EMM Cause" field, the UE shall increment the devices attach attempt counter. If the device fails on three consecutive attempts to attach to an LTE network and the EMM cause value for all three failures is cause value "19: ESM failure", the device shall set the attach attempt counter to 5 and follow the procedures in ***section 23850*** of this document.

Please look into the Requirement Traceability

1.4.3.1.1.6Receipt of ATTACH REJECT message with EMM Cause Code 19 piggybacked with PDN CONNECTIVITY REJECT message VZ_REQ_LTEDATARETRY_7752

Note: The following requirement does NOT apply to devices that do NOT support IMS.

Upon receipt of an ATTACH REJECT message with a cause code "19: ESM Failure" in the "EMM Cause" field and the ATTACH REJECT message is piggybacked with a PDN CONNECTIVITY REJECT message, the UE shall proceed as described below based on the cause codes in the "ESM Cause" field:

- "54: PDN Connection Does Not Exist": The UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall also set the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) to "Initial Request".
- "26: Insufficient Resources" and the T3396 IE is present:
    - If the Class APN 3 is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 3 APN in the given PLMN, nor 2. is the Class 3 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, nor 3. the Class 3 APN is disabled), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 3 APN instead of the Class 1 APN (i.e. the UE shall include the Class 3 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request". If the UE successfully attaches to the network by connecting to the Class 3 APN, the UE shall attempt to establish the IMS PDN connection after T3396 expires by sending a PDN CONNECTIVITY REQUEST message for the IMS PDN. Retry behavior for IMS PDN connection requests is per ***section IMS PDN*** of this document. Refer to ***section Reset of Attach APN*** for attach APN behavior if T3402 is started.
    - If the Class APN 3 is not available for a PDN CONNECTIVITY REQUEST message (i.e. either 1. T3396 is running for the Class 3 APN in the given PLMN or 2. the Class 3 APN in the given PLMN is barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, or 3. the Class 3 APN is disabled), then:
        - If the Class 1 APN is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 1 APN in the given PLMN, nor 2. is the Class 1 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT

message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 1 APN (i.e. the UE shall include the Class 1 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request".

- Otherwise, the device shall set the *attach attempt counter* to 5 and follow the procedures in ***section "ATTACH ATTEMPT COUNTER REACHES A VALUE OF 5"*** of this document. (**NOTE:** T3402 shall run in parallel with T3396).

- "27: Missing or Unknown APN" and the T3396 IE is present:
  - If the class APN 3 is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 3 APN in the given PLMN, nor 2. is the Class 3 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, nor 3. the Class 3 APN is disabled), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 3 APN instead of the Class 1 APN (i.e. the UE shall include the Class 3 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request". If the UE successfully attaches to the network by connecting to the Class 3 APN, the UE shall attempt to establish the IMS PDN connection after T3396 expires by sending a PDN CONNECTIVITY REQUEST message for the IMS PDN. Retry behavior for IMS PDN connection requests is per ***section IMS PDN*** of this document. Refer to ***section Reset of Attach APN*** for attach APN behavior if T3402 is started.
  - If the class APN 3 is not available for a PDN CONNECTIVITY REQUEST message (i.e. either 1. T3396 is running for the Class 3 APN in the given PLMN or 2. the Class 3 APN in the given PLMN is barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, or 3. the Class 3 APN is disabled), then:
    - If the Class 1 APN is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 1 APN in the given

PLMN, nor 2. is the class 1 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 1 APN (i.e. the UE shall include the Class 1 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request".

- Otherwise, the device shall set the *attach attempt counter* to 5 and follow the procedures in ***section "ATTACH ATTEMPT" COUNTER REACHES A VALUE OF 5*** of this document. (**NOTE:** T3402 shall run in parallel with T3396).

- All other ESM cause codes (including ESM cause codes 26 and 27 when the T3396 is absent or T3396 is set to 0):
  - If the Class APN 3 is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 3 APN in the given PLMN, nor 2. is the Class 3 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, nor 3. the Class 3 APN is disabled), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 3 APN instead of the Class 1 APN (i.e. the UE shall include the Class 3 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request". If the UE successfully attaches to the network by connecting to the Class 3 APN, the UE shall attempt to establish the IMS PDN connection by sending a PDN CONNECTIVITY REQUEST message for the IMS PDN. Retry behavior for IMS PDN connection requests is per ***section IMS PDN*** of this document. Refer to ***section Reset of Attach APN*** for attach APN behavior if T3402 is started.
  - If the Class APN 3 is not available for a PDN CONNECTIVITY REQUEST message (i.e. either 1. T3396 is running for the Class 3 APN in the given PLMN or 2. the Class 3 APN in the given PLMN is barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated, or 3. the Class 3 APN is disabled), then:

- If the Class 1 APN is available for a PDN CONNECTIVITY REQUEST message (i.e. neither 1. T3396 is running for the Class 1 APN in the given PLMN, nor 2. is the Class 1 APN in the given PLMN barred until power cycle as the result of a receipt of a PDN CONNECTIVITY REJECT message with ESM cause code 26 or 27 where the T3396 IE indicates that T3396 is deactivated), then the UE shall follow the procedures outlined in the paragraph above. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network using the Class 1 APN (i.e. the UE shall include the Class 1 APN in the ESM INFORMATION RESPONSE message during the network attach procedure) with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request".

Otherwise, the device shall set the *attach attempt counter* to 5 and follow the procedures in section ***"ATTACH ATTEMPT" COUNTER REACHES A VALUE OF 5*** of this document. (**NOTE:** T3402 shall run in parallel with T3396).

1.4.3.1.1.7ATTACH REJECT and data devices without SMS over IMS support

VZ_REQ_LTEDATARETRY_41013

Note: The following requirement applies only to devices that do NOT support IMS.

Upon receipt of an ATTACH REJECT message with a cause code "19: ESM Failure" in the "EMM Cause" field and the ATTACH REJECT message is piggybacked with a PDN CONNECTIVITY REJECT message, the UE shall proceed as described below based on the cause codes in the "ESM Cause" field:

- "54: PDN Connection Does Not Exist": The UE shall follow the procedures outlined in requirement 7751 above. On all subsequent attach attempts, the UE shall also set the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) to "Initial Request".
- All other ESM cause codes:
  - the UE shall follow the procedures outlined in requirement 7751 above and per section 6.5.1.4 of 3GPP TS 24.301. On all subsequent attach attempts, the UE shall attempt to attach to the LTE network with the "Request Type" information element in the PDN CONNECTIVITY REQUEST message (sent as part of the attach procedure) set to "Initial Request".

Otherwise, the device shall set the *attach attempt counter* to 5 and follow the procedures in section *"ATTACH ATTEMPT" COUNTER REACHES A VALUE OF 5* of this document. (**NOTE:** T3402 shall run in parallel with T3396).

1.4.3.1.1.8EMM Cause Code 95, 96, 97, 99, 100, 101, 111 VZ_REQ_LTEDATARETRY_7753

Upon receipt of an "ATTACH REJECT" message with any of the following cause codes in the "EMM Cause" field:

- 95: Semantically incorrect message
- 96: Invalid mandatory information
- 97: Message type non-existent or not implemented
- 99: Information element non-existent or not implemented
- 100: Conditional IE error
- 101: Message not compatible with protocol state
- 111: Protocol error, unspecified

The UE shall set its attach attempt counter to 5 and follow the procedures in ***section "ATTACH ATTEMPT" COUNTER REACHES A VALUE OF 5*** of this document.

1.4.3.1.1.9Upon receipt of an ATTACH REJECT with a cause code '42: Severe Network Failure', the device shall comply with se VZ_REQ_LTEDATARETRY_7754

Upon receipt of an ATTACH REJECT with a cause code "42: Severe Network Failure", the device shall comply with section 5.5.1.2.5 of the Release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*. The device shall not attempt to attach to this PLMN again until the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3)* has expired. The device shall implement the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) on a per PLMN basis. The device shall not reset the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) for any reason.

NOTE: The implementation specific timer associated with EMM #42 "Severe Network Failure" is per the release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*

1.4.3.1.1.10 Upon receipt of an ATTACH REJECT message with a cause code '22: Congestion' and with the T3346 value information VZ_REQ_LTEDATARETRY_7795

Upon receipt of an ATTACH REJECT message with a cause code "22: Congestion" and with the T3346 value information element present and the value indicating that this timer is neither zero nor deactivated, the UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current PLMN until T3346 expires. If the T3346 information element is absent or indicates the timer value is zero or deactivated, the UE shall UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]), i.e. increment it's *attach attempt counter*.

1.4.3.1.1.11 Upon receipt of an ATTACH REJECT message with a cause code '25: Not Authorized for this CSG ', the UE shall comp VZ_REQ_LTEDATARETRY_7796

Upon receipt of an ATTACH REJECT message with a cause code "25: Not Authorized for this CSG ", the UE shall comply with section 5.5.1.2.5 of 3GPP TS 24.301 (reference [5]).

1.4.3.1.2 UE ENCOUNTERS ACCESS CLASS BARRING WHILE ATTEMPTING TO SEND 'ATTACH REQUEST' VZ_REQ_LTEDATARETRY_23845

1.4.3.1.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7755

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.1.2.6 sub-clause a) if the UE encounters access class barring while attempting to initiate an attach procedure.

1.4.3.1.3 OTHER ABNORMAL CASES IN THE UE VZ_REQ_LTEDATARETRY_23847

1.4.3.1.3.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7756

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.1 by default for abnormal cases in the UE encountered during an attach procedure.

Release 17 and later devices shall support clause aa) in section 5.5.1.2.6 of 3GPP TS 24.301 (reference [5]) with the following settings:

- CustomLLFailureRetry: 1 (enabled)
- MinRetryTimer: 10 seconds
- MaxRetryTimer: 150 seconds
- MaxMinRetry: 10

Device shall attempt MaxMinRetry retries separated by MinRetryTimer.

1.4.3.1.4 'ATTACH ATTEMPT' COUNTER REACHES A VALUE OF 5 VZ_REQ_LTEDATARETRY_23850

1.4.3.1.4.1 If the attach attempt counter reaches a value of 5, the UE shall follow the proce VZ_REQ_LTEDATARETRY_7757

If the *attach attempt counter* reaches a value of 5, the UE shall follow the procedure detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.1.2.6. The device shall start timer T3402 and shall not attempt to attach to LTE on this PLMN again until T3402 has expired. The UE shall indicate a failure to the application requesting the attachment. Once timer T3402 is started for LTE on a particular PLMN, the device shall allow the timer to run in its entirety*. The device shall not reset T3402 for any reason*. If the UE cannot attach to an LTE network associated with a given PLMN because T3402 is running, the UE shall attach to another LTE network associated with a different PLMN (for which T3402 is not running) if indicated to do so by system selection. Refer to ***section Timer T3402*** for additional details on the implementation of timer T3402.

* **NOTE:** UE's that only support LTE and implement option 2) in requirement VZ_REQ_LTEDATARETRY_7743 shall ignore these sentences and follow 3GPP TS 24.301 (reference [5]) with respect to T3402 handling on PLMN changes.

1.4.3.2 SITUATION: UE SENDS A 'DETACH REQUEST' MESSAGE TO THE NETWORK VZ_REQ_LTEDATARETRY_23851

1.4.3.2.1 ABNORMAL SITUATIONS ENCOUNTERED BY THE UE VZ_REQ_LTEDATARETRY_23852

1.4.3.2.1.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7758

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.2.2 by default.

1.4.3.2.2 DETACH REQUEST ON UE POWER DOWN VZ_REQ_LTEDATARETRY_23853

1.4.3.2.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7759

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.2.2 by default when initiating a detach request procedure during UE power down.

1.4.3.3 SITUATION: NETWORK SENDS A 'DETACH REQUEST" MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23883

1.4.3.3.1 RE-ATTACH NOT REQUIRED AND EMM CAUSE CODE INCLUDED VZ_REQ_LTEDATARETRY_23884

1.4.3.3.1.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7760

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.2.3 by default during a network initiated detach procedure. If the detach IE indicates "re-attach not required" and an EMM cause code is included, the UE action shall depend on the EMM cause value:

The UE shall comply with section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]) and shall cease attempting to attach to any LTE network until it is power-cycled or the UICC is replaced if it receives

any of the following cause codes in the "EMM Cause" field of a DETACH REQUEST message from the network:

- 3: Illegal UE
- 6: Illegal ME
- 7: EPS services not allowed
- 8: EPS services and non-EPS services not allowed

The UE shall comply with section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current roaming PLMN until it is power-cycled or the UICC is replaced, if it receives the following cause codes in the "EMM Cause" field of a DETACH REQUEST message from the network:

- 11: PLMN not allowed
- 14: EPS services not allowed in this PLMN

Note 1: The device may choose not to attempt to attach to the PLMN even after a power cycle. At a minimum, though, the device must not attempt to attach until the next power cycle.
Note 2: This requirement applies to roaming PLMNs only. This requirement does not apply to the home PLMN(s). For roaming PLMNs, the UE shall comply with section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]).

The UE shall comply with section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current Tracking Area ID until it is power-cycled or the UICC is replaced or the UE erases the lists of forbidden tracking areas (after the 12-24 hour periodic erasure timer expires), if it receives the following cause codes in the "EMM Cause" field of a DETACH REQUEST message from the network:

- 12: Tracking area not allowed
- 13: Roaming not allowed in this tracking area
- 15: No suitable cells in this tracking area

Upon receipt of an DETACH REQUEST message with a cause code "25: Not Authorized for this CSG ", the UE shall comply with section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]).

If the network sends a "DETACH REQUEST" message with other EMM cause values than those treated above or in section 5.5.2.3.2 of 3GPP TS 24.301 (reference [5]) or no EMM cause IE is included, and the Detach type IE indicates "re-attach not required", the UE shall follow the procedures in section 5.5.2.3.4 of 3GPP TS 24.301 (reference [5]) and start T3402. The UE shall not attempt to re-attach to that LTE network until timer T3402 expires. Refer to ***section Timer T3402*** for additional details on the implementation of timer T3402.

1.4.3.4 SITUATION: UE SENDS A 'TRACKING AREA UPDATE REQUEST' MESSAGE TO THE NETWORK VZ_REQ_LTEDATARETRY_23885

1.4.3.4.1 NETWORK SENDS A 'TRACKING AREA UPDATE REJECT' WITH AN EMM CAUSE CODE VZ_REQ_LTEDATARETRY_23886

1.4.3.4.1.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7761

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.3 by default if the device receives a TRACKING AREA UPDATE REJECT from the network.

The UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]) and shall cease attempting to access any LTE network until it is power-cycled or the UICC is replaced if it receives any of the following cause codes in the "EMM Cause" field of a TRACKING AREA UPDATE REJECT message:

- 3: Illegal UE
- 6: Illegal ME
- 7: EPS services not allowed
- 8: EPS services and non-EPS services not allowed (Release 11 and higher UEs)

The UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further access attempts on any cell associated with the current roaming PLMN until it is power-cycled or the UICC is replaced, if it receives the following cause codes in the "EMM Cause" field of a TRACKING AREA UPDATE REJECT message:

- 11: PLMN not allowed
- 14: EPS services not allowed in this PLMN

Note 1: The device may choose not to attempt to attach to the PLMN even after a power cycle. At a minimum, though, the device shall not attempt to attach until the next power cycle.
Note 2: This requirement applies to roaming PLMNs only. This requirement does not apply to the home PLMN(s). For roaming PLMNs, the UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]).

The UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further access attempts on any cell associated with the current Tracking Area ID until it is power-cycled or the UICC is replaced or the UE erases the lists of forbidden tracking areas (after the 12-24 hour periodic erasure timer expires), if it receives the following cause codes in the "EMM Cause" field of a TRACKING AREA UPDATE REJECT message:

- 12: Tracking area not allowed
- 13: Roaming not allowed in this tracking area
- 15: No suitable cells in this tracking area

For the following cause codes in a TRACKING AREA UPDATE REJECT message, the UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]). The UE may attempt to re-attach per 3GPP TS 24.301, section 5.5.3.2.5. The retry logic of the attachment attempts shall be governed by section 4.3 of this document.

- 9: UE identity cannot be derived by the network*
- 10: Implicitly detached**
- 40: No EPS bearer context activated**

* If the UE attempts to re-attach, the UE shall perform an IMSI attach.
** If the UE attempts to re-attach, the UE shall perform a GUTI attach.

Upon receipt of a "TRACKING AREA UPDATE REJECT" message with any of the following cause codes in the "EMM Cause" field:

- 95: Semantically incorrect message
- 96: Invalid mandatory information
- 97: Message type non-existent or not implemented
- 99: Information element non-existent or not implemented
- 100: Conditional IE error
- 101: Message not compatible with protocol state
- 111: Protocol error, unspecified

The UE shall set its *tracking area updating attempt counter* to 5 and follow the procedures in section 4.3.4.3 of this document.

Upon receipt of a TRACKING AREA UPDATE REJECT message with a cause code "42: Severe Network Failure", the device shall comply with section 5.5.3.2.5 of the Release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*. The device shall not attempt to access this PLMN again until the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) has expired. The device shall implement the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) on a per PLMN

basis. The device shall not reset the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) for any reason.

NOTE: The implementation specific timer associated with EMM #42 "Severe Network Failure" is per the release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*.

Upon receipt of a TRACKING AREA UPDATE REJECT message with a cause code "22: Congestion" and with the T3346 value information element present and the value indicating that this timer is neither zero nor deactivated, the UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further access attempts on any cell associated with the current PLMN until T3346 expires. If the T3346 information element is absent or indicates the timer value is zero or deactivated, the UE shall UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]), i.e. increment it's *tracking area updating attempt counter*.

Upon receipt of a TRACKING AREA UPDATE REJECT message with a cause code "25: Not Authorized for this CSG ", the UE shall comply with section 5.5.3.2.5 of 3GPP TS 24.301 (reference [5]).

1.4.3.4.2 OTHER ABNORMAL CASES IN THE UE VZ_REQ_LTEDATARETRY_23887

1.4.3.4.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7762

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.3 by default for abnormal cases in the UE encountered during a tracking area update procedure.

Release 17 and later devices shall support clause aa) in section 5.5.3.2.6 of 3GPP TS 24.301 (reference [5]) with the following settings:

- CustomLLFailureRetry: 1 (enabled)
- MinRetryTimer: 10 seconds
- MaxRetryTimer: 150 seconds
- MaxMinRetry: 10

Device **shall attempt MaxMinRetry retries separated by MinRetryTimer.**

1.4.3.4.3 'TRACKING AREA UPDATING ATTEMPT COUNTER' REACHES A VALUE OF 5 VZ_REQ_LTEDATARETRY_23888

1.4.3.4.3.1 If the tracking area updating attempt counter reaches a value of 5, the UE shall VZ_REQ_LTEDATARETRY_7763

If the *tracking area updating attempt counter* reaches a value of 5, the UE shall follow the procedure detailed in the document 3GPP TS 24.301 (reference [5]), section 5.5.3.2.6. The device shall start timer T3402 and shall not attempt to access this PLMN again until T3402 has expired. Once timer T3402 is started for a particular PLMN, the device shall allow the timer to run in its entirety*. The device shall not reset T3402 for any reason*. If the UE cannot access an LTE network associated with a given PLMN because T3402 is running, the UE shall attach to another LTE network associated with a different PLMN (for which T3402 is not running) if indicated to do so by system selection. Refer to ***section Timer T3402*** for additional details on the implementation of timer T3402.

* **NOTE:** UE's that only support LTE and implement option 2) in requirement VZ_REQ_LTEDATARETRY_7743 shall ignore these sentences and follow 3GPP TS 24.301 (reference [5]) with respect to T3402 handling on PLMN changes.

1.4.4 DATA RETRY REQUIREMENTS FOR CONDITIONS ENCOUNTERED DURING EMM CONNECTION MANAGEMENT PROCEDURES VZ_REQ_LTEDATARETRY_2387

1.4.4.1 SITUATION: UE SENDS A 'SERVICE REQUEST' OR 'EXTENDED SERVICE REQUEST' MESSAGE TO THE NETWORK VZ_REQ_LTEDATARETRY_23889

1.4.4.1.1 SERVICE REQUEST ATTEMPT COUNTER VZ_REQ_LTEDATARETRY_40038

1.4.4.1.1.1 Service Request Attempt Counter VZ_REQ_LTEDATARETRY_40039

For LTE Release 12 and later UEs, the UE shall support a *service request attempt counter* as detailed in the document 3GPP TS 24.301 (reference [5]), Release 12, section 5.6.1.1.

1.4.4.1.2 NETWORK SENDS A 'SERVICE REJECT' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23890

1.4.4.1.2.1 The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7764

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 5.6.1 by default if the device receives a SERVICE REJECT message from the network.

The UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]) shall cease attempting to attach to any LTE network until it is power-cycled or the UICC is replaced if it receives any of the following cause codes in the "EMM Cause" field of a SERVICE REJECT message:

- 3: Illegal UE
- 6: Illegal ME
- 7: EPS services not allowed
- 8: EPS services and non-EPS services not allowed (Release 11 and higher UEs)

The UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment attempts on any cell associated with the current roaming PLMN until it is power-cycled or the UICC is replaced, if it receives the following cause codes in the "EMM Cause" field of a SERVICE REJECT message:

- 11: PLMN not allowed

Note 1: The device may choose not to attempt to attach to the PLMN even after a power cycle. At a minimum, though, the device must not attempt to attach until the next power cycle.
Note 2: This requirement applies to roaming PLMNs only. This requirement does not apply to the home PLMN(s). For roaming PLMNs, the UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]).

The UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further attachment/connection attempts on any cell associated with the current Tracking Area ID until it is power-cycled or the UICC is replaced or the UE erases the lists of forbidden tracking areas (after the 12-24 hour periodic erasure timer expires), if it receives the following cause codes in the "EMM Cause" field of a SERVICE REJECT message:

- 12: Tracking area not allowed
- 13: Roaming not allowed in this tracking area
- 15: No suitable cells in this tracking area

For the following cause codes in a SERVICE REJECT message, the UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]). The UE may attempt to re-attach per 3GPP TS 24.301, section 5.6.1.5. The retry logic of the attachment attempts shall be governed by section 4.3 of this document.

- 9: UE identity cannot be derived by the network*
- 10: Implicitly detached**

* If the UE attempts to re-attach, the UE shall perform an IMSI attach.
** If the UE attempts to re-attach, the UE shall perform a GUTI attach.

If the network sends a "SERVICE REJECT" message with the EMM cause code #39 "CS domain temporarily not available", the UE shall wait a time dictated by the timer T3442 (included in the

"SERVICE REJECT" message) before re-sending the "SERVICE REQUEST" or "EXTENDED SERVICE REQUEST" message to the network.

Upon receipt of an SERVICE REJECT message with a cause code "42: Severe Network Failure", the device shall comply with section 5.6.1.5 of the Release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*. The device shall not attempt to attach to this PLMN again until the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) has expired. The device shall implement the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) on a per PLMN basis. The device shall not reset the implementation specific timer (detailed in 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*) for any reason.

NOTE: The implementation specific timer associated with EMM #42 "Severe Network Failure" is per the release 11 version of 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*.

Upon receipt of a SERVICE REJECT message with a cause code "22: Congestion" and with the T3346 value information element present and the value indicating that this timer is neither zero nor deactivated, the UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]), i.e. the UE shall not attempt further access attempts on any cell associated with the current PLMN until T3346 expires. If the T3346 information element is absent or indicates the timer value is zero or deactivated, the UE shall UE shall comply with section 4.4.1.2 of this document.

Upon receipt of a SERVICE REJECT message with a cause code "25: Not Authorized for this CSG ", the UE shall comply with section 5.6.1.5 of 3GPP TS 24.301 (reference [5]).

For LTE Release 12 and later UEs, on receipt of the SERVICE REJECT message, if the message is integrity protected or contains a reject cause other than EMM cause value #25, the UE shall reset the service request attempt counter, stop timer T3417, or T3417ext if running.

Refer to Requirement Traceability.

1.4.4.1.3 OTHER ABNORMAL CASES IN THE UE VZ_REQ_LTEDATARETRY_23891

1.4.4.1.3.1 If the device encounters any of the following during a service request procedure: VZ_REQ_LTEDATARETRY_7780

If the device encounters any of the following during a service request procedure:

- The network fails to respond to the SERVICE REQUEST message on LTE Release 11 and earlier UEs only.
- The device receives a SERVICE REJECT message with a cause code "22: Congestion" and the T3346 information element is absent or indicates the timer value is zero or deactivated

and the device has user data pending (including new PDN connection requests), any subsequent attempts at retransmission of the "SERVICE REQUEST" or "EXTENDED SERVICE REQUEST" message shall use the retry logic described in sections 3.3 and 4.1.3 of this document. In this case, the throttling algorithm shall apply to all communication attempts to LTE on this PLMN regardless of PDN.

For Release 11 and earlier devices, if the SERVICE REQUEST was sent because the device had a PDN CONNECTIVITY REQUEST message pending and the network does not respond to the SERVICE REQUEST, then the device shall make up to 4 retries of the SERVICE REQUEST message (as the device is allowed to make 4 retries of the PDN CONNECTIVITY request per section 6.5.1.5 of the document 3GPP TS 24.301, reference [5]). After the fourth retry, the UE shall increment the throttling counter for LTE on this PLMN as defined below and start the throttling timer for LTE on this PLMN as defined in section 3.3 of this document:

- If the throttling counter for LTE on this PLMN is less than 3, the device shall set the throttling counter for LTE on this PLMN to 3.
- If the throttling counter for LTE on this PLMN is greater than or equal to 3, then increment the throttling counter for LTE on this PLMN.

For all devices, if the UE attempts to send a SERVICE REQUEST message and encounters a lower layer failure or RRC failure, the UE shall make up to 9 retries (Total 10 attempts, assuming all retries fail due to lower layer or RRC failures). After the ninth retry, the UE shall start a throttling timer. No service request procedures shall be attempted in the given PLMN while this throttling timer is running. The throttling timer shall be started with a value of Timer_SR_LLF plus a random value; the random value shall have an upper bound of 15 seconds. Timer_SR_LLF shall be device configurable with a range of 0-60 seconds (in increments of 5 seconds) with a default value of 30 seconds. (**NOTE:** The generic throttling algorithm in section 3.3, i.e. requirement VZ_REQ_LTEDATARETRY_7735, of this document does NOT apply for this scenario.)

The device vendor shall provide a lab application to modify the default value of Timer_SR_LLF during device acceptance testing. The device vendor shall not allow the user to modify the value of Timer_SR_LLF through the device user interface or the remote access user interface for tethered devices.

For Release 12 and later devices, if the network fails to respond to a SERVICE REQUEST message and T3417 expires, the device shall comply with 3GPP TS 24.301 (reference [5]) and increment the *service request attempt counter*. If the *service request attempt counter* is greater than or equal to 5, then requirement VZ_REQ_LTEDATARETRY_40042 shall take precedence.

1.4.4.1.4 'SERVICE REQUEST ATTEMPT COUNTER' REACHES A VALUE OF 5 VZ_REQ_LTEDATARETRY_40041

1.4.4.1.4.1 Service Request Attempt Counter Reaches a Value of 5 VZ_REQ_LTEDATARETRY_40042

For LTE Release 12 and later UEs, if the *service request attempt counter* is greater than or equal to 5, then then the device shall start a throttling timer (T3325). The length of the throttling timer (T3325) shall be one minute (per 3GPP TS 24.008). No service request procedures shall be initiated while this throttling timer (T3325) is running (**NOTE:** The generic throttling algorithm in section 3.3, i.e. requirement VZ_REQ_LTEDATARETRY_7735, of this document does NOT apply for this scenario).

The UE shall continue to throttle service requests as described above unless:

- the service request is initiated in response to paging from the network;
- the UE is a UE configured to use AC11 15 in selected PLMN;
- the service request is initiated to establish a PDN connection for emergency bearer services;
- the UE has a PDN connection for emergency bearer services established; or
- the UE is registered in a new PLMN.

1.4.5 DATA RETRY REQUIREMENTS FOR CONDITIONS ENCOUNTERED DURING EPS SESSION MANAGEMENT VZ_REQ_LTEDATARETRY_2388

1.4.5.1 SITUATION: UE ACHIEVES PDN CONNECTIVITY BUT TIMES OUT WITHOUT AN IP ADDRESS ASSIGNED VZ_REQ_LTEDATARETRY_23892

VOID

1.4.5.2 SITUATION: UE SENDS A 'PDN CONNECTIVITY REQUEST' MESSAGE TO THE NETWORK VZ_REQ_LTEDATARETRY_23893

1.4.5.2.1 UE RECEIVES A 'PDN CONNECTIVITY REJECT' MESSAGE FROM THE NETWORK VZ_REQ_LTEDATARETRY_23894

1.4.5.2.1.1 IMS PDN VZ_REQ_LTEDATARETRY_23895

1.4.5.2.1.2 If the UE receives a 'PDN CONNECTIVITY REJECT" message after sending a 'PDN CONNE VZ_REQ_LTEDATARETRY_7765

Note: The following requirement does NOT apply to devices that do NOT support IMS.

If the UE receives a "PDN CONNECTIVITY REJECT" message after sending a "PDN CONNECTIVITY REQUEST" message to establish a connection to the IMS PDN, then the UE shall use the same retry behavior as for non-IMS PDN's per section 4.5.2.1.2 of this document. If the "PDN CONNECTIVITY REJECT" message is piggybacked with an "ATTACH REJECT" message, then the requirements in section 4.3.1 shall take precedence.

Refer to Requirement Traceability.

1.4.5.2.1.3NON-IMS PDN VZ_REQ_LTEDATARETRY_23896

1.4.5.2.1.4Non-IMS PDN VZ_REQ_LTEDATARETRY_7766

If the UE receives a "PDN CONNECTIVITY REJECT" message after sending a "PDN CONNECTIVITY REQUEST" message to the network, the UE behavior shall depend on the ESM Cause Code contained in the message. The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 6.5.1 by default. In all cases, the UE shall report an error to the application that requested the connection. If the "PDN CONNECTIVITY REJECT" message is piggybacked with an "ATTACH REJECT" message, then the requirements in section 4.3.1 shall take precedence.

Refer to Requirement Traceability.

1.4.5.2.1.5Two consecutive PDN CONNECTIVITY REJECT with Cause Code 8, 27, 29, 32, 33, 112 VZ_REQ_LTEDATARETRY_7767

For LTE Release 11 and earlier UEs, upon receipt of two consecutive "PDN CONNECTIVITY REJECT" messages (for two consecutive "PDN CONNECTIVITY REQUEST" messages with the same APN) with the same ESM Cause Code where the ESM Cause Code is any of the following cause codes:

- 8: operator determined barring

- 27: missing or unknown APN when the T3396 IE is absent or T3396 is set to 0
- 29: user authentication failed
- 32: service option not supported
- 33: requested service option not subscribed
- 112: APN restriction value incompatible with active EPS bearer context (for the case where the UE is already attached)

The UE shall cease to make PDN connection requests using this APN while in the current PLMN until the UE is power cycled or the UICC is replaced. If the UE is an IoT device that cannot be power cycled, the UE shall behave as described in requirement 41002.

1.4.5.2.1.6Permanent ESM Cause Codes--LTE Release 12 and Later UEs

VZ_REQ_LTEDATARETRY_40043

For LTE Release 12 and later UEs, upon receipt of a "PDN CONNECTIVITY REJECT" message where the ESM Cause Code is any of the following cause codes and the Backoff Timer IE indicates that the backoff timer is neither zero nor deactivated, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall replace the throttling timer with the Backoff Timer value and start the Backoff Timer for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

:

- 8: operator determined barring
- 27: missing or unknown APN
- 29: user authentication failed
- 32: service option not supported
- 33: requested service option not subscribed
- 112: APN restriction value incompatible with active EPS bearer context (for the case where the UE is already attached)

If the Back-off timer value in the "PDN CONNECTIVITY REJECT" message is zero, then the UE shall process the requests in the manner described in ***section Generic Throttling Algorithm*** of this document.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT" message is deactivated, then the UE shall cease to make PDN connection requests using this APN while in the current PLMN until the UE is power cycled or the UICC is replaced.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, and the SM_Retry_Timer parameter in the USIM NAS CONFIG file is neither zero nor deactivated, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall replace the throttling timer with the SM_Retry_Timer value and start the Backoff Timer for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, and the SM_Retry_Timer parameter in the USIM NAS CONFIG file is zero, then the UE shall process the requests in the manner described in ***section Generic Throttling Algorithm*** of this document.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, and the SM_Retry_Timer parameter in the USIM NAS CONFIG file is deactivated, then the UE shall cease to make PDN connection requests using this APN while in the current PLMN until the UE is power cycled or the UICC is replaced.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, and the SM_Retry_Timer parameter in the USIM NAS CONFIG file is not present, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall set the throttling timer to 24 hours and start the timer for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

1.4.5.2.1.7PDN CONNECTIVITY REJECT with cause code 28 VZ_REQ_LTEDATARETRY_7768

Upon receipt of a PDN CONNECTIVITY REJECT message with a cause code "28: Unknown PDN type" in the "ESM Cause" field, the device shall make another PDN connection request to the same PDN if an application requests additional PDN connectivity attempts. However, on the next PDN connection request to the same PDN (for the current LTE attach) the UE shall set the "PDN Type" information element in the PDN CONNECTIVITY REQUEST message to "IPv4v6". The

device shall not change the "APN IP Type" stored in the devices APN table (refer to ***section APN's*** of the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements for additional details, reference [28]). On subsequent successful attaches to the LTE network, the device shall populate the "PDN Type" for all PDN connection requests per the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements (reference [28]) unless indicated otherwise by the network in a PDN CONNECTIVITY REJECT message.

1.4.5.2.1.8PDN CONNECTIVITY REJECT with cause code 50 VZ_REQ_LTEDATARETRY_7769

Upon receipt of a PDN CONNECTIVITY REJECT message with a cause code "50: PDN type IPv4 only allowed" in the "ESM Cause" field, the device shall make another PDN connection request to the same PDN if an application requests additional PDN connectivity attempts. However, on the next PDN connection request to the same PDN (for the current LTE attach) the UE shall set the "PDN Type" information element in the PDN CONNECTIVITY REQUEST message to "IPv4". The device shall not change the "APN IP Type" stored in the devices APN table (refer to section APN's of the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements for additional details, reference [28]). On subsequent successful attaches to the LTE network, the device shall populate the "PDN Type" for all PDN connection requests per the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements (reference [28]) unless indicated otherwise by the network in a PDN CONNECTIVITY REJECT message.

1.4.5.2.1.9PDN CONNECTIVITY REJECT with cause code 51 VZ_REQ_LTEDATARETRY_7770

Upon receipt of a PDN CONNECTIVITY REJECT message with a cause code "51: PDN type IPv6 only allowed" in the "ESM Cause" field, the device shall make another PDN connection request to the same PDN if an application requests additional PDN connectivity attempts. However, on the next PDN connection request to the same PDN (for the current LTE attach) the UE shall set the "PDN Type" information element in the PDN CONNECTIVITY REQUEST message to "IPv6". The device shall not change the "APN IP Type" stored in the devices APN table (refer to ***section APN's*** of the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements for additional details, reference [28]). On subsequent successful attaches to the LTE network, the device shall populate the "PDN Type" for all PDN connection requests per the Verizon Wireless LTE 3GPP Band 13 Network Access Requirements (reference [28]) unless indicated otherwise by the network in a PDN CONNECTIVITY REJECT message.

1.4.5.2.1.10 PDN CONNECTIVITY REJECT with cause code 54

VZ_REQ_LTEDATARETRY_7771

Upon receipt of a PDN CONNECTIVITY REJECT message with a cause code "54: PDN Connection Does Not Exist" in the "ESM Cause" field, on all subsequent PDN connection requests to the same PDN the UE shall also set the "Request Type" information element in the PDN CONNECTIVITY REQUEST message to "Initial Request".

1.4.5.2.1.11 PDN CONNECTIVITY REJECT with cause codes 26, 30, 31, 34, 38, 95-101 or 111 VZ_REQ_LTEDATARETRY_7772

For LTE Release 11 and earlier UEs, if the UE receives a "PDN CONNECTIVITY REJECT" message with any of the following cause codes in the "ESM Cause" field and the application requests additional PDN connectivity attempts, the UE shall process those requests in a manner described in *section Generic Throttling Algorithm* of this document. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

- 26: insufficient resources when the T3396 IE is absent or T3396 is set to 0
- 30: activation rejected by Serving GW or PDN GW
- 31: activation rejected, unspecified
- 34: service option temporarily out of order
- 35: PTI already in use.
- 38: network failure
- 95: Semantically incorrect message
- 96: Invalid mandatory information
- 97: Message type non-existent or not implemented
- 98: Message type not compatible with protocol state
- 99: Information element non-existent or not implemented
- 100: Conditional IE error
- 101: Message not compatible with protocol state
- 111: Protocol error, unspecified

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "35: PTI Already in Use " in the "ESM Cause" field, the UE also shall clear the PTI before the next retry,

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "26: Insufficient Resources" in the "ESM Cause" field and the T3396 IE indicates that T3396 is neither zero nor deactivated, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall replace the throttling timer with T3396 and start T3396 for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "26: Insufficient Resources" in the "ESM Cause" field and the T3396 IE indicates that T3396 is deactivated, the UE shall cease to make PDN connection requests using this APN while in the current PLMN until the UE is power cycled or the UICC is replaced.

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "27: Missing or Unknown APN" in the "ESM Cause" field and the T3396 IE indicates that T3396 is neither zero nor deactivated, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall replace the throttling timer with T3396 and start T3396 for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "27: Missing or Unknown APN" in the "ESM Cause" field and the T3396 IE indicates that T3396 is deactivated, the UE shall cease to make PDN connection requests using this APN while in the current PLMN until the UE is power cycled or the UICC is replaced.

The UE shall not send a PDN CONNECTIVITY REQUEST message for a PDN if the UE already has an existing connection to that PDN. If the UE has no connection to a given PDN and receives a PDN CONNECTIVITY REJECT message with a cause code "55: Multiple PDN connections for a given APN not allowed " in the "ESM Cause" field, the UE shall assume that an out-of-sync condition has occurred between the UE and the network. The UE shall send a TRACKING AREA UPDATE REQUEST message including the "EPS bearer context status" ID indicating which EPS bearer contexts are active in the UE, and then send a new PDN CONNECTIVITY REQUEST message for the given PDN if an application on the UE re-requests a connection to the given PDN.

Refer to the Requirement Traceability.

1.4.5.2.1.12 Transient ESM Cause Codes--LTE Release 12 and Later UEs

VZ_REQ_LTEDATARETRY_40044

For LTE Release 12 and later UEs, if the UE receives a "PDN CONNECTIVITY REJECT" message with any of the following cause codes in the "ESM Cause" field and the Back-off timer value IE is neither zero nor deactivated, then the UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall replace the throttling timer with the Back-off timer value and start the Back-off timer for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

- 26: insufficient resources. Note: for this cause code, the timer is not stopped upon a PLMN or inter-system change.
- 30: activation rejected by Serving GW or PDN GW
- 31: activation rejected, unspecified
- 34: service option temporarily out of order
- 35: PTI already in use.
- 38: network failure
- 95: Semantically incorrect message
- 96: Invalid mandatory information
- 97: Message type non-existent or not implemented
- 98: Message type not compatible with protocol state
- 99: Information element non-existent or not implemented
- 100: Conditional IE error
- 101: Message not compatible with protocol state
- 111: Protocol error, unspecified

If the UE receives a "PDN CONNECTIVITY REJECT" message with any of the above cause codes in the "ESM Cause" field and the Back-off timer value IE is absent, the UE shall process those requests in a manner described in ***section Generic Throttling Algorithm*** of this document. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted.

If the UE receives a PDN CONNECTIVITY REJECT message with a cause code "35: PTI Already in Use" in the "ESM Cause" field, the UE also shall clear the PTI before the next retry.

1.4.5.2.1.13 PDN CONNECTIVITY REJECT piggybacked with an ATTACH REJECT message VZ_REQ_LTEDATARETRY_7773

If the "PDN CONNECTIVITY REJECT" message is piggybacked with an "ATTACH REJECT" message, then the requirements for the attach procedure in section 4.3.1 shall take precedence for the attach procedure. In this scenario, throttling of PDN connection requests based on the generic throttling timer, timer T3396, or the (3GPP Release 12) Back-off Timer as defined in this document shall NOT apply unless indicated in 3GPP TS 24.301 that such a throttling timer applies.

1.4.5.2.1.14 Re-Attempt Indicator Configurations and RAT System Change VZ_REQ_LTEDATARETRY_40045

Note: the below requirements do not apply for ESM cause codes 26, 50, 51, 54, 65, or 66.

For LTE Release 12 and later UEs, if the UE receives a "PDN CONNECTIVITY REJECT" message with either permanent or temporary cause codes in the "ESM Cause" field, and both the Back-off timer value and the Re-Attempt Indicator IE are present and the Re-Attempt Indicator IE indicates that re-attempts are allowed, then the UE may immediately attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running. If the Re-Attempt Indicator IE indicates that re-attempts are not allowed, then the UE shall not attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is present and the Re-Attempt Indicator IE is not present, but the SM_RetryAtRATChange parameter in the USIM NAS CONFIG file indicates re-attempts are allowed, then the UE may attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running. If the SM_RetryAtRATChange parameter indicates that re-attempts are not allowed, then the UE shall not attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is present but both the Re-Attempt Indicator IE and the SM_RetryAtRATChange parameter in the USIM NAS CONFIG file

are not present, then the UE shall not attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running.

If the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, but the SM_Retry_Timer parameter in the USIM NAS CONFIG file is present, and the SM_RetryAtRATChange parameter indicates that re-attempts are allowed, then the UE may attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running. If the SM_RetryAtRATChange parameter indicates that re-attempts are not allowed, then the UE shall not attempt to connect to the given PDN upon 3GPP RAT change while the Back-off timer is running.

If both the Back-off timer value in the "PDN CONNECTIVITY REJECT message is not present, and the SM_Retry_Timer parameter is not present, the UE may re-attempt to connect to this PDN upon RAT system change.

Upon successful connection to the PDN upon RAT system change (between LTE and non-LTE systems), the UE shall NOT stop the throttling timer for this PDN and shall NOT reset the throttling counter for this PDN for the source RAT per 3GPP standards and VZ_REQ_LTEDATARETRY_7741.

1.4.5.2.1.15 PDN CONNECTIVITY REJECT with IoT Devices that cannot be power-cycled VZ_REQ_LTEDATARETRY_41002

For LTE Release 11 and earlier IoT devices that cannot be power cycled, upon receipt of a "PDN CONNECTIVITY REJECT" message where the ESM Cause Code is any of the following cause codes:

- 8: operator determined barring
- 27: missing or unknown APN when the T3396 IE is absent or T3396 is set to 0
- 29: user authentication failed
- 32: service option not supported
- 33: requested service option not subscribed
- 112: APN restriction value incompatible with active EPS bearer context (for the case where the UE is already attached)

The UE shall process the requests in a manner described in ***section Generic Throttling Algorithm*** of this document with the following exception: the UE shall set the throttling timer to the value specified in $T_{PDN_Reject_IoT}$ and start the timer for the given PDN in the current PLMN. In this case, the throttling algorithm shall apply to all communication attempts to this PDN. Attempts to connect to other PDNs within this PLMN shall not be impacted. The device shall not allow the user to update $T_{PDN_Reject_IoT}$ through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of $T_{PDN_Reject_IoT}$ during device acceptance testing. The default value for $T_{PDN_Reject_IoT}$ shall be 24 hours. The range shall be 0-48 hours.

1.4.5.2.2 NETWORK DOES NOT RESPOND TO THE 'PDN CONNECTIVITY REQUEST' MESSAGE FROM THE UE OR THE NETWORK RESPONDS WITH A 'PDN CONNECTIVITY REJECT' MESSAGE WITH NO ESM CAUSE CODE VZ_REQ_LTEDATARETRY_23897

1.4.5.2.2.1 If the UE sends a PDN CONNECTIVITY REQUEST message and either:

Ø the ne VZ_REQ_LTEDATARETRY_7787

If the UE sends a PDN CONNECTIVITY REQUEST message and either:

- the network does not respond to the request

[or]

- the network responds with a PDN CONNECTIVITY REJECT message with no ESM cause code provided

the UE shall make up to 4 retries as defined in section 6.5.1.5 of the document 3GPP TS 24.301 (reference [5]). After the fourth retry, the UE shall increment the throttling counter for this PDN as defined below and start the throttling timer for this PDN as defined in section 3.3 of this document:

- If the throttling counter for this PDN is less than 3, the device shall set the throttling counter for this PDN to 3.
- If the throttling counter for this PDN is greater than or equal to 3, then increment the throttling counter for this PDN.

Upon expiration of the throttling timer, the device shall send another PDN CONNECTIVITY REQUEST message if an application on the device requests a connection to this PDN. If the network fails to respond to the request or if the network rejects the request without providing an ESM cause code, retry behavior shall be per the paragraph above. Otherwise, if the network rejects the request and provides an ESM cause code, retry behavior shall be per ***section UE receives a "PDN Connectivity Reject" Message from the Network*** of this document.

Refer to the Requirement Traceability.

1.4.5.2.3 THROTTLING STATE OF AN ATTACH PDN VZ_REQ_LTEDATARETRY_23898

1.4.5.2.3.1 If the device is required to make an attach request using a given PDN and the device is throttling connection re VZ_REQ_LTEDATARETRY_7789

If the device is required to make an attach request using a given PDN and the device is throttling connection requests to this PDN, the device shall make the attach request using the given PDN and the requirements in section 4.3.1 shall take precedence. If the device successfully attaches to the LTE network using the given PDN, the device shall reset the throttling counter for the given PDN.

Refer to the Requirement Traceability.

1.4.5.2.4 UE MAKES EXCESSIVE PDN CONNECTION REQUESTS TO THE NETWORK VZ_REQ_LTEDATARETRY_23899

1.4.5.2.4.1 To prevent the excessive PDN connection requests to the network, the UE shall com VZ_REQ_LTEDATARETRY_7791

To prevent the excessive PDN connection requests to the network, the UE shall comply with the following. For each PDN, the device shall maintain (**NOTE:** *These parameters/timers shall be implemented per PDN but not per PLMN.*):

- A counter PDN_CONN_COUNTER for the number of successful PDN connection requests made by the device. The device shall consider a PDN connection to be successful and increment this counter upon receipt of an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message (in response to a PDN CONNECTIVITY REQUEST message for the given PDN). At power cycle, the device shall reset this counter to 0.
- A parameter PDN_CONN_TIME which is the time elapsed in seconds since the first time a PDN CONNECTIVITY REQUEST is made for the given PDN after both PDN_CONN_COUNTER and PDN_CONN_TIME for the given PDN are reset to 0. The device shall reset the value of PDN_CONN_TIME to 0 upon power cycle. The device shall

reset the value of PDN_CONN_TIME to 0 and the value of PDN_CONN_COUNTER to 0 when the value of PDN_CONN_TIME reaches MAX_CONN_T seconds. The device shall not allow the user to update MAX_CONN_T through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of MAX_CONN_T during device acceptance testing. The range of allowed values for MAX_CONN_T shall be 0-3600. The default value for MAX_CONN_T shall be 300.

- A parameter MAX_CONN which is the maximum number of connections allowed to the given PDN in a MAX_CONN_T time period. MAX_CONN shall be stored in non-volatile memory. The device shall not allow the user to update MAX_CONN through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of MAX_CONN during device acceptance testing. The range of allowed values for MAX_CONN shall be 0-1023. The default value for MAX_CONN shall be 20.
- A parameter WAIT_TIME which is the required wait time in seconds after a successful UE initiated disconnect of a given PDN connection before the device can send a new PDN connection request for that given PDN. WAIT_TIME shall be stored in non-volatile memory. The device shall not allow the user to update WAIT_TIME through the device user interface or the remote access user interface (for devices operating in a tethered mode). The vendor shall provide a lab application to modify the value of WAIT_TIME during device acceptance testing. The range of allowed values for WAIT_TIME shall be 0-1023 seconds. The default value for WAIT_TIME shall be 0.
- A WAIT_TIME timer whose initial value is equal to the value of WAIT_TIME. Upon a successful UE initiated PDN disconnect procedure for a given PDN (i.e. the network responds to the device's PDN DISCONNECT REQUEST with a DEACTIVATE EPS BEARER CONTEXT REQUEST), the device shall reset the value of the WAIT_TIME timer to its initial value and the start the WAIT_TIME timer for the given PDN. If the network responds to the PDN DISCONNECT REQUEST with a PDN DISCONNECT REJECT, the WAIT_TIME timer for the given PDN shall not be started (i.e. the WAIT_TIME timer is set to 0) and the procedures in 3GPP TS 24.301 (reference [5]) and this document shall take precedence.
- **NOTE:** If the PDN CONNECTIVITY REQUEST message is piggybacked with an ATTACH REQUEST message, then the requirements for the attach procedure in section 4.3.1 shall take precedence. That is, even if the device is throttling connections to a given PDN based on the requirements in this section, the device shall make an ATTACH REQUEST piggybacked with a PDN CONNECTIVITY REQUEST message for the given PDN if indicated by higher layers to do so, After attach, any PDN CONNECTIVITY REQUEST messages for the given PDN shall comply with the requirements in this section. The

PDN_CONN_COUNTER and PDN_CONN_TIME parameters and the WAIT_TIME timer for the given PDN shall not be reset by the attach procedure.

If higher layers requests a connection for a given PDN and PDN_CONN_COUNTER is greater than or equal to 1 for that PDN, the device shall check if the WAIT_TIME timer for the given PDN has expired. If the WAIT_TIME timer for the given PDN has not expired, then the device shall not send the PDN connection request and shall report an error to higher layers. If the WAIT_TIME timer for the given PDN has expired, the device shall check the following:

- Is PDN_CONN_COUNTER+1 greater than MAX_CONN?

If the above is true, the device shall not make the PDN connection request and report an error to higher layers. The device shall block PDN connection requests to the given PDN for 15 minutes. At the expiration of the 15 minute throttling timer, the device shall reset both PDN_CONN_COUNTER and PDN_CONN_TIME to 0 for the given PDN. If the device is switched off when the 15 minute timer for a given PDN is running, the device shall behave as follows when the device is switched on:

- Let t1 be the time remaining for timer timeout for the given PDN at switch off and let t be the time elapsed between switch off and switch on. If t1 is greater than t, then the timer timer shall be restarted for the given PDN with the value t1 t. If t1 is equal to or less than t, then the timer shall not be restarted for the given PDN. If the UE is not capable of determining t, then the UE shall restart the timer with the value t1for the given PDN.

The vendor shall provide a lab application to modify the default value of this throttling timer during device acceptance testing. The device vendor shall not allow the user to modify the value of this throttling timer through the device user interface or the remote access user interface for tethered devices.

The parameters PDN_CONN_COUNTER and PDN_CONN_TIME and the WAIT_TIME timer shall be maintained across system transitions and shall not be reset when the device enters/exits airplane mode (for devices that support airplane mode).

If the PDN connection is unsuccessful (i.e. the network rejects the PDN connection request with a PDN CONNECTIVITY REJECT message or the network does not respond to the PDN connection request), the value of PDN_CONN_COUNTER shall not be incremented and the retry behavior in this document shall take precedence.

1.4.5.3 SITUATION: UE SENDS A 'BEARER RESOURCE ALLOCATION REQUEST' MESSAGE TO THE NETWORK VZ_REQ_LTEDATARETRY_23900

1.4.5.3.1 UE RECEIVES A 'BEARER RESOURCE ALLOCATION REJECT' MESSAGE FROM THE NETWORK VZ_REQ_LTEDATARETRY_23901

1.4.5.3.1.1 If the UE receives a 'BEARER RESOURCE ALLOCATION REJECT' message after sending a VZ_REQ_LTEDATARETRY_7774

If the UE receives a "BEARER RESOURCE ALLOCATION REJECT" message after sending a "BEARER RESOURCE ALLOCATION REQUEST", the UE behavior shall depend on the ESM Cause Code contained in the message. The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 6.5.3 by default.

If any of the following cause codes are received in the "ESM Cause" field, the UE shall report a failure to the application that requested the resource allocation. If the application makes additional requests for resource allocation, the UE shall process those requests in a manner described in ***section Generic Throttling Algorithm*** of this document. In this case, the throttling algorithm shall apply only to this PDN. Attempts to allocate resources from other PDNs within this PLMN shall not be impacted.

- 30: activation rejected by Serving GW or PDN GW
- 31: activation rejected, unspecified
- 32: Service option not supported
- 33: Requested service option not subscribed
- 34: service option temporarily out of order

Refer to Requirement Traceability.

1.4.5.3.2 UE RECEIVES AN 'ESM STATUS' MESSAGE FROM THE NETWORK VZ_REQ_LTEDATARETRY_23902

1.4.5.3.2.1 If the UE receives an ESM STATUS message with an ESM Cause Code value of '97: Message type non-existent or not i VZ_REQ_LTEDATARETRY_7775

If the UE receives an ESM STATUS message with an ESM Cause Code value of "97: Message type non-existent or not implemented" in response to a "BEARER RESOURCE ALLOCATION REQUEST" message, the UE shall cease to attempt the UE-initiated bearer resource allocation procedure while in the current PLMN until the UE is power cycled.

If the UE receives an ESM STATUS message with an ESM Cause Code value of "97: Message type non-existent or not implemented" in response to a "BEARER RESOURCE MODIFICATION REQUEST" message, the UE shall cease to attempt the UE-initiated bearer resource modification procedure while in the current PLMN until the UE is power cycled.

1.4.5.4 SITUATION: NETWORK SENDS A 'DEACTIVATE EPS BEARER CONTEXT REQUEST' MESSAGE TO THE UE VZ_REQ_LTEDATARETRY_23903

1.4.5.4.1 If the network sends a DEACTIVATE EPS BEARER CONTEXT REQUEST to the UE, the UE shall follow the steps detailed i VZ_REQ_LTEDATARETRY_7788

If the network sends a DEACTIVATE EPS BEARER CONTEXT REQUEST to the UE, the UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference [5]), section 6.4.4.2 by default.

If the ESM cause code included in the DEACTIVATE EPS BEARER CONTEXT REQUEST is "39: reactivation requested" and the request has deactivated the default bearer for a PDN, the device shall make a PDN CONNECTIVITY REQUEST for the this PDN to re-establish the default bearer

for this PDN if an application on the device re-requests a connection to the PDN. Retry behavior for the PDN connection request is per this document. The device shall not initiate reactivation of any dedicated bearers.

1.4.6 DATA RETRY REQUIREMENTS FOR CONDITIONS ENCOUNTERED DURING IPV6 ADDRESS FORMATION

VZ_REQ_LTEDATARETRY_2389

1.4.6.1 SITUATION: NETWORK FAILS TO SEND 'ROUTER ADVERTISEMENT' MESSAGE, INITIAL IPV6 ADDRESS FORMATION FOR CLASS 1 APN ON NETWORK ATTACH

VZ_REQ_LTEDATARETRY_23904

1.4.6.1.1 If the network fails to send a Router Advertisement message after the device has exhausted its solicitations dur VZ_REQ_LTEDATARETRY_7783

Note: The following requirement does NOT apply to devices that do NOT support IMS.

If the network fails to send a *Router Advertisement* message after the device has exhausted its solicitations during initial IPv6 address formation for the PDN connection associated with the Class 1 APN (i.e. the IMS PDN) as part of a successful LTE network attach using the Class 1 APN (i.e. the IMS PDN), the device shall detach from the LTE network using standard 3GPP messaging and attempt to re-attach to the LTE network using the Class 3 APN (i.e. the UE shall include the class 3 APN in the ESM INFORMATION RESPONSE message during the network attach procedure).

1.4.6.2 SITUATION: NETWORK FAILS TO SEND 'ROUTER ADVERTISEMENT' MESSAGE, INITIAL IPV6 ADDRESS FORMATION FOR CLASS 3 APN ON NETWORK ATTACH

VZ_REQ_LTEDATARETRY_23905

1.4.6.2.1 If the network fails to send a Router Advertisement message after the device has exhausted its solicitations dur VZ_REQ_LTEDATARETRY_7784

If the network fails to send a *Router Advertisement* message after the device has exhausted its solicitations during initial IPv6 address formation for the PDN connection associated with the Class 3 APN as part of a successful LTE network attach using the Class 3 APN, and the network has assigned an IPv4 address, then the device shall use the IPv4 address for all communication to PDN. If the network fails to send a *Router Advertisement* message after the device has exhausted its solicitations during initial IPv6 address formation for the PDN connection associated with the Class 3 APN as part of a successful LTE network attach using the Class 3 APN, and the network has not assigned an IPv4 address, then the device shall detach from the LTE network using standard 3GPP messaging and start timer T3402. The device shall not re-attach to that LTE network until T3402 expires. The device shall use a default value of 12 minutes for T3402 unless otherwise instructed by the network.

1.4.6.3 SITUATION: NETWORK FAILS TO SEND 'ROUTER ADVERTISMENT' MESSAGE, INITIAL IPV6 ADDRESS FORMATION FOR ANY PDN CONNECTION ATTEMPT AFTER NETWORK ATTACHE VZ_REQ_LTEDATARETRY_23909

1.4.6.3.1 For any PDN connection attempt after network attach, if the network fails to send VZ_REQ_LTEDATARETRY_7776

For any PDN connection attempt after network attach, if the network fails to send a *Router Advertisement* message after the device has exhausted its solicitations (either during initial IPv6 address formation or during IPv6 address refresh) and the network has assigned an IPv4 address, the device shall use the IPv4 address for all communication to that PDN. If the network fails to send a *Router Advertisement* message after the device has exhausted its solicitations (during initial IPv6 address formation) and the network has not assigned an IPv4 address the device shall disconnect from

the PDN, increment the throttling counter for this PDN and start the throttling timer for this PDN. If the application requests additional connection attempts to this PDN, the UE shall process those requests in a manner described in ***section Generic Throttling Algorithm*** of this document. In this case, the throttling algorithm shall apply only to this PDN.

1.4.6.4 SITUATION: NETWORK FAILS TO SEND 'ROUTER ADVERTISEMENT' MESSAGE, IPV6 ADDRESS REFRESH VZ_REQ_LTEDATARETRY_23912

1.4.6.4.1 If the device is unsuccessful in refreshing its IPv6 address for any PDN connecti VZ_REQ_LTEDATARETRY_7786

If the device is unsuccessful in refreshing its IPv6 address for any PDN connection (i.e. the device exhausts its attempts to solicit a *Router Advertisement* message from the network) and the addresss lifetime expires, then:

- If an IPv4 address has been provided by the network, the device shall only use the IPv4 address for the duration of that PDN connection. If an application was using the IPv6 address, the lower layers of the device should provide feedback to the application to indicate that the IPv6 data stack is no longer available for use.
- If no IPv4 address has been provided by the network and the device has two or more PDN connections, the device shall disconnect from the PDN, increment the throttling counter for the PDN, and start the throttling timer for the PDN. If an application requests additional connection attempts to this PDN, the UE shall process those requests in a manner described in section 3.3 of this document. In this case, the throttling algorithm shall apply only to this PDN.
- If no IPv4 address has been provided by the network and the device has only one PDN connection, the device shall detach from the LTE network using standard 3GPP messaging and attempt to re-attach to the LTE network.

1.4.7 DATA RETRY REQUIREMENTS FOR IMS-RELATED NAS CONDITIONS ENCOUNTERED DURING PDN CONNECTION SETUP VZ_REQ_LTEDATARETRY_2390

1.4.7.1 SITUATION: NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS(ES) IN THE 'ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST' MESSAGE FOR THE IMS PDN VZ_REQ_LTEDATARETRY_23921

1.4.7.1.1 If the network fails to include the IMS P-CSCF address(es) in the PCO information element of the ACTIVATE DEFAUL VZ_REQ_LTEDATARETRY_7785

Note: The following requirement does NOT apply to devices that do NOT support IMS.

If the network fails to include the IMS P-CSCF address(es) in the PCO information element of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN during the LTE network attach procedure, the device shall accept the bearer context request. The device shall then detach from the LTE network using standard 3GPP messaging and attempt to re-attach to the LTE network using the Class 3 APN.

If the network fails to include the IMS P-CSCF address(es) in the PCO information element of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message for the IMS PDN during an IMS PDN connection attempt that is not part of the LTE network attach procedure, the device shall accept the bearer context request. The device shall then disconnect from the PDN, increment the throttling counter for the PDN, and start the throttling timer for the PDN. If an application requests additional connection attempts to this PDN, the UE shall process those requests in a manner described in *section Generic Throttling Algorithm* of this document. In this case, the throttling algorithm shall apply only to this PDN.

1.4.8 IMPLEMENTATION OF NAS UPSTREAM ESM CAUSE CODES VZ_REQ_LTEDATARETRY_23928

1.4.8.1 If the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message with an EPS bearer VZ_REQ_LTEDATARETRY_7800

The UE shall support transmission of all "ESM Cause" values as specified in the document 3GPP TS 24.201 (reference [5]), sections 6.4 and 7 by default.

If the UE receives a MODIFY EPS BEARER CONTEXT REQUEST message with an EPS bearer identify that does not match any of the current bearer identities known to the UE, the UE shall send a MODIFY EPS BEARER CONTEXT REJECT message with an "ESM Cause" field of "43: Invalid EPS bearer identity" per section of 3GPP TS 24.301 (reference [5]).

If the UE receives any ESM message with a message type the UE does not recognize either because it is a message not defined, or defined but not implemented by the UE, the UE shall either reject the request and include an "ESM Cause" field of "97: Message type non-existent or not implemented" or send an ESM STATUS message to the network with an "ESM Cause" field of "97: Message type non-existent or not implemented" as directed by 3GPP TS 24.301 (reference [5]).

Under no circumstances shall the UE ever reject an ESM request with an "ESM Cause" field of "40: Feature Not Supported".

1.5 ~~PROVISIONING~~VZ_REQ_LTEDATARETRY_2391

1.6 ~~PERFORMANCE~~VZ_REQ_LTEDATARETRY_2392

1.7 ~~REQUIRED VERIZON WIRELESS DEVICE COMPLIANCE TEST PLANS~~VZ_REQ_LTEDATARETRY_2393

1.8 REFERENCES VZ_REQ_LTEDATARETRY_2394

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

1. 3GPP TS 23.003: *Numbering, addressing and identification*, Release 9
2. 3GPP TS 23.122: *Non-Access Stratum (NAS) functions related to Mobile Station (MS) in idle mode*, Release 9
3. 3GPP TS 23.401: *General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access*, Release 9
4. 3GPP TS 24.008: *Mobile radio interface Layer 3 specification; Core network protocols; Stage 3, Release 9*
5. 3GPP TS 24.301: *Non-Access-Stratum (NAS) protocol for Evolved Packet System (EPS); Stage 3*, Release 8.1.0
6. 3GPP TS 31.101: *UICC-terminal interface; Physical and logical characteristics*, Release 9
7. 3GPP TS 31.102: *Characteristics of the Universal Subscriber Identity Module (USIM) application*, Release 9
8. 3GPP TS 31.103: *Characteristics of the IP Multimedia Services Identity Module (ISIM) application*, Release 9
9. 3GPP TS 31.111: *Universal Subscriber Identity Module (USIM) Application Toolkit (USAT)*, Release 9
10. 3GPP TS 33.401: *3GPP System Architecture Evolution (SAE); Security architecture*, Release 9
11. 3GPP TS 36.133: *Evolved Universal Terrestrial Radio Access (E-UTRA); Requirements for support of radio resource management*, Release 9
12. 3GPP TS 36.213: *Evolved Universal Terrestrial Radio Access (E-UTRA); Physical Layer Procedures*, Release 9
13. 3GPP TS 36.300: *Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2*, Release 9
14. 3GPP TS 36.304: *Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode*, Release 9

15. 3GPP TS 36.321: *Evolved Universal Terrestrial Radio Access (E-UTRA); Medium Access Control (MAC) protocol specification*, Release 9
16. 3GPP TS 36.323: *Evolved Universal Terrestrial Radio Access (E-UTRA); Packet Data Convergence Protocol (PDCP) specification*, Release 9
17. 3GPP TS 36.331: *Evolved Universal Terrestrial Radio Access (E-UTRA); Radio Resource Control (RRC); Protocol specification*, Release 9
18. ETSI TS 102 221: *Smart Cards UICC-Terminal Interface; Physical and Logical Characteristics, Release 8*
19. ETSI TS 102 223: *Smart cards; Card Application Toolkit (CAT), Release 8*

<Verizon Specific Documentation References>

20. "Verizon Wireless LTE 3GPP Band 13 Supplementary RF Conformance Test Plan"
21. "Verizon Wireless LTE Supplementary Signaling Conformance Test Plan"
22. "Verizon Wireless LTE Over the Air Radiated Performance Test Plan"
23. "Verizon Wireless LTE IntraRAT Performance Test Plan"
24. "Verizon Wireless LTE Data Retry Test Plan"
25. "Verizon Wireless LTE 3GPP Band 13 Safe for Network Test Plan"
26. "Verizon Wireless LTE Device-UICC (USIM, ISIM) Interaction Test Plan"
27. "Verizon Wireless LTE SMS Device Requirements"
28. "Verizon Wireless LTE 3GPP Band 13 Network Access Requirements"
29. "Verizon Wireless LTE 3GPP Band 13 Lab Conformance Test Plan"

<Other Applicable References>

30. N/A

TestPlanCoverageForRequirement

Generic Throttling Algorithm VZ_REQ_LTEDATARETRY_7732

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV$_4$ ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV$_4$ ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV$_4$ ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013

			00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

General Rules VZ_REQ_LTEDATARETRY_7733

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6	DATARTRY	Admin	11-20-

ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED		User	2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT	DATARTRY	Admin	11-20-

MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT		User	2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Algorithm Details - Notes VZ_REQ_LTEDATARETRY_7734

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Algorithm Details VZ_REQ_LTEDATARETRY_7735

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00

DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00

UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7736

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE	DATARTRY	Admin User	11-20-2013 00:00:00

DURING AN IMS PDN CONNEC			
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example1 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7737

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00

UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example2 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7738

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00

UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example3 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7739

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN	DATARTRY	Admin	11-20-2013

CONNECTIVITY REQUEST		User	00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example 4 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7740

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNEC			
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example 5 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7741

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

Example 6 - Per System Nature of Throttling VZ_REQ_LTEDATARETRY_7742

Test Case Name	Test Plan Id	Created By	Created Date

CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall implement T3402 on a PLMN basis. Once timer T3402 is started for a p
VZ_REQ_LTEDATARETRY_7743

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE INTERNET PDN ON NETWORK ATTACH, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall use a period of 12 to 24 hours for the periodical erasing of the lis
VZ_REQ_LTEDATARETRY_7781

Test Case Name	Test Plan Id	Created By	Created Date
External Certification Process	VZWRC	Admin User	10-28-2013 00:00:00
Standards Requirement Doc	VZWRC	Admin User	10-28-2013 00:00:00
Standards Test Doc	VZWRC	Admin User	11-20-2013 00:00:00

If the device is instructed by any requirement in this document to switch to the
VZ_REQ_LTEDATARETRY_7782

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE IMS AND INTERNET PDNS ON NETWORK ATTACH, IPV4 ADDRESS ASSIGNED TO INTERNET	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall support T3346 per the Release 10 version of 3GPP TS 24.301 (referenc
VZ_REQ_LTEDATARETRY_7792

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE WITH T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

TIMER T3245 VZ_REQ_LTEDATARETRY_2381

Test Case Name	Test Plan Id	Created By	Created Date
UE WITH T3245 TIMER RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 8	DATARTRY	Joseph Kuhn	10-13-2016 13:25:33

The device shall support T3245 per section 5.3.7a of Release 10 version of 3GPP T VZ_REQ_LTEDATARETRY_7793

Test Case Name	Test Plan Id	Created By	Created Date

UE WITH T3245 TIMER RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 11	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3245 TIMER RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 14	DATARTRY	Admin User	02-01-2016 00:00:00

The UE shall support T3396 per the Release 10 version of 3GPP TS 24.301 (referenc
VZ_REQ_LTEDATARETRY_7794

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE WITH T3396 TIMER SET FOR THE IMS AND INTERNET PDNS- INITIAL ATTACHMENT	MMDATARTRY	Admin User	11-08-2013 00:00:00

If a device is attempting to attach to a given PLMN (for which T3402 is not runni
VZ_REQ_LTEDATARETRY_7797

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE WITH T3396 TIMER SET FOR THE IMS AND INTERNET PDNS- INITIAL ATTACHMENT	MMDATARTRY	Admin User	11-08-2013 00:00:00

In addition to the forbidden tracking area list and the forbidden PLMN list maint
VZ_REQ_LTEDATARETRY_7799

Test Case Name	Test Plan Id	Created By	Created Date
PERMANENT ATTACH FAILURES ACROSS POWER CYCLE	DATARTRY	Admin User	05-29-2015 00:00:00
PERMANENT EMM FAILURES ACROSS POWER CYCLE WITH DETACH REQUEST	DATARTRY	Admin User	05-29-2015 00:00:00
PERMANENT EMM FAILURES ACROSS POWER CYCLE WITH SERVICE REQUEST	DATARTRY	Admin User	05-29-2015 00:00:00
PERMANENT EMM FAILURES ACROSS POWER CYCLE WITH TRACKING AREA UPDATE	DATARTRY	Admin User	05-29-2015 00:00:00

If the device encounters any type of RRC related failure during an attach attempt
VZ_REQ_LTEDATARETRY_7777

Test Case Name	Test Plan Id	Created By	Created Date
2.352.352.35VOID CONNECTION FAILURE PRIOR TO IMS REGISTRATION	IMSREGRTY	Admin User	04-02-2014 00:00:00
DEVICE ENCOUNTERS RACH FAILURES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
MULTIPLE RRC FAILURES	DATARTRY	Admin User	11-20-2013

			00:00:00
NETWORK DOES NOT RESPOND TO RACH	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00

If the device encounters any type of RRC related failure during a tracking area u VZ_REQ_LTEDATARETRY_7778

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE ENCOUNTERS RACH FAILURES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00

If the device encounters any type of RRC related failure during a service attempt VZ_REQ_LTEDATARETRY_7779

Test Case Name	Test Plan Id	Created By	Created Date
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00

If the network sends an RRCConnectionReject message to the UE, the UE shall perform in accordance with section 5 VZ_REQ_LTEDATARETRY_7790

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING ATTACH ATTEMPT AND RESELECTS AMONG 3 LTE FREQUENCIES	MMDATARTRY	Admin User	02-04-2015 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING ATTACH ATTEMPT AND RESELECTS TO ALTERNATE LTE FREQUENCY	MMDATARTRY	Admin User	01-16-2015 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES FOR MULTIPLE LTE FREQUENCIES_Test 1	MMDATARTRY	Admin User	02-04-2015 00:00:00
External Certification Process	VZWRC	Admin User	10-28-2013 00:00:00
Standards Requirement Doc	VZWRC	Admin User	10-28-2013 00:00:00
Standards Test Doc	VZWRC	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7744

Test Case Name	Test Plan Id	Created By	Created Date
UE FAILS TO AUTHENTICATE THE NETWORK INVALID MAC CODE	DATARTRY	Admin User	11-20-2013 00:00:00
UE FAILS TO AUTHENTICATE THE NETWORK INVALID VALUE FOR SEPARATION BIT	DATARTRY	Admin User	11-20-2013 00:00:00
UE FAILS TO AUTHENTICATE THE NETWORK INVALID VALUE FOR SQN FIELD	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7746

Test Case Name	Test Plan Id	Created By	Created Date
UE SENDS SECURITY MODE REJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00

Network sends an 'ATTACH REJECT' with an EMM Cause Code VZ_REQ_LTEDATARETRY_7747

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE ENCOUNTERS LCP CONFIGURATION REQUEST ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS LTE AND EHRPD AUTHENTICATION ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS LTE AND EHRPD	MMDATARTRY	Admin	11-08-2013

AUTHENTICATION ERRORS		User	00:00:00
DEVICE ENCOUNTERS LTE AUTHENTICATION FAILURE AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS LTE, EHRPD, AND HRPD AUTHENTICATION ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS MULTIPLE PPP-LCP LEVEL ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 17	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RESETS PPP-LCP LEVEL FAILURE COUNTER	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE RECEIVES ATTACH REJECT AND PDN CONNECTIVITY REJECT MESSAGES FROM THE NETWORK	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODES 95, 96, 97, 99, AND 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

EMM Cause Codes 3, 6, 7, 8 VZ_REQ_LTEDATARETRY_7748

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE ENCOUNTERS LTE AND EHRPD AUTHENTICATION FAILURES AND FALLS BACK TO HRPD--CODE 7	MMDATARTRY	Admin User	05-20-2014 00:00:00
DEVICE ENCOUNTERS LTE AUTHENTICATION FAILURE AND DOES NOT FALL BACK TO UMTS, GSM	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE ENCOUNTERS LTE AUTHENTICATION FAILURES AND FALLS BACK TO GSM--CODE 7	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODES 3, 6, 7, AND 8	DATARTRY	Admin User	02-26-2014 00:00:00

EMM Cause Codes 11, 14 VZ_REQ_LTEDATARETRY_7749

Test Case Name	Test Plan Id	Created By	Created Date
UE WITH T3245 TIMER RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 11	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3245 TIMER RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 14	DATARTRY	Admin User	02-01-2016 00:00:00

EMM Cause Codes 12, 13, 15 VZ_REQ_LTEDATARETRY_7750

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES ATTACH REJECT AND PDN CONNECTIVITY REJECT MESSAGES FROM THE NETWORK	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODES 95, 96, 97, 99, AND 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

EMM Cause Code 19 VZ_REQ_LTEDATARETRY_7751

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES ATTACH REJECT AND PDN CONNECTIVITY REJECT MESSAGES FROM THE NETWORK	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODES 95, 96, 97, 99, AND 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK CODE 54	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

Receipt of ATTACH REJECT message with EMM Cause Code 19 piggybacked with PDN CONNECTIVITY REJECT message VZ_REQ_LTEDATARETRY_7752

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES ATTACH REJECT AND PDN CONNECTIVITY REJECT MESSAGES FROM THE NETWORK	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK CODE 54	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE WITH T3396 TIMER SET FOR THE IMS AND INTERNET PDNS- INITIAL ATTACHMENT	MMDATARTRY	Admin User	11-08-2013 00:00:00

EMM Cause Code 95, 96, 97, 99, 100, 101, 111 VZ_REQ_LTEDATARETRY_7753

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODES 95, 96, 97, 99, AND 111	DATARTRY	Admin User	11-20-2013 00:00:00

Upon receipt of an ATTACH REJECT with a cause code '42: Severe Network Failure', the device shall comply with se VZ_REQ_LTEDATARETRY_7754

Test Case Name	Test Plan Id	Created By	Created Date

CR in Queue	VZWRC	Admin User	10-28-2013 00:00:00

Upon receipt of an ATTACH REJECT message with a cause code '22: Congestion' and with the T3346 value information VZ_REQ_LTEDATARETRY_7795

Test Case Name	Test Plan Id	Created By	Created Date
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITHOUT T3346 TIMER SUPPORT RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 22	MMDATARTRY	Admin User	11-08-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7755

Test Case Name	Test Plan Id	Created By	Created Date
External Certification Process	VZWRC	Admin User	10-28-2013 00:00:00
Standards Requirement Doc	VZWRC	Admin User	10-28-2013 00:00:00

Standards Test Doc	VZWRC	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7756

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE ATTACH ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3402	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS MULTIPLE ATTACH AND AUTHENTICATION ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS RACH FAILURES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS RACH FAILURES DURING ATTACH ATTEMPT AND FALLS BACK TO UMTS, GSM	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
MULTIPLE RRC FAILURES	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK DOES NOT RESPOND	DATARTRY	Admin	11-20-

TO RACH		User	2013 00:00:00
RRCCONNECTIONREJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00
UE SENDS SECURITY MODE REJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00

If the attach attempt counter reaches a value of 5, the UE shall follow the proce
VZ_REQ_LTEDATARETRY_7757

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE ATTACH ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3402	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICES LTE ATTACH ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3402	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE ENCOUNTERS MULTIPLE ATTACH AND AUTHENTICATION ERRORS	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS RACH FAILURES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00

DEVICE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 17	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING ATTACH ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
MULTIPLE RRC FAILURES	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK DOES NOT RESPOND TO RACH	DATARTRY	Admin User	11-20-2013 00:00:00
RRCCONNECTIONREJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE SENDS SECURITY MODE REJECT MESSAGE INITIAL ATTACH	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7758

Test Case Name	Test Plan Id	Created By	Created Date
External Certification Process	VZWRC	Admin User	10-28-2013 00:00:00
Standards Requirement Doc	VZWRC	Admin User	10-28-2013 00:00:00
Standards Test Doc	VZWRC	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7759

Test Case Name	Test Plan Id	Created By	Created Date
External Certification Process	VZWRC	Admin User	10-28-2013 00:00:00
Standards Requirement Doc	VZWRC	Admin User	10-28-2013 00:00:00
Standards Test Doc	VZWRC	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7760

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE STARTS T3402 UPON DETACH	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE STARTS T3402 UPON DETACH	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
UE RECEIVES DETACH REQUEST MESSAGE FROM THE NETWORK CODES 11 AND 14	DATARTRY	Admin User	11-20-2013 00:00:00

UE RECEIVES DETACH REQUEST MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES DETACH REQUEST MESSAGE FROM THE NETWORK CODES 3, 6, 7, AND 8	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7761

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 15	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 17	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODES 17 AND 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE WITH T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE WITH T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE WITHOUT T3346 TIMER	MMDATARTRY	Admin	11-08-

SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22		User	2013 00:00:00
TRACKING AREA UPDATE REQUEST FAILS TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAX VALUE	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7762

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3402	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE ENCOUNTERS RACH FAILURES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00

DEVICE ENCOUNTERS RACH FAILURES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO UMTS, GSM	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
TRACKING AREA UPDATE REQUEST FAILS TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAX VALUE	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITHOUT T3346 TIMER SUPPORT RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

If the tracking area updating attempt counter reaches a value of 5, the UE shall
VZ_REQ_LTEDATARETRY_7763

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3402	MMDATARTRY	Admin User	11-08-2013 00:00:00

DEVICE ENCOUNTERS RACH FAILURES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES RRCCONNECTIONREJECT MESSAGES DURING TRACKING AREA UPDATE ATTEMPT AND FALLS BACK TO EHRPD	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODES 17 AND 22	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICES LTE TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAXIMUM VALUE AND DEVICE STARTS T3042	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
TRACKING AREA UPDATE REQUEST FAILS TRACKING AREA UPDATE ATTEMPT COUNTER REACHES MAX VALUE	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODE 17	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES TRACKING AREA UPDATE REJECT MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00

The UE shall follow the steps detailed in the document 3GPP TS 24.301 (reference VZ_REQ_LTEDATARETRY_7764

Test Case Name	Test Plan Id	Created By	Created Date
LOWER LAYER FAILURE DURING IMS REGISTRATION RETRY	IMSREGRTY	Admin User	04-02-2014 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 11	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITH T3346 TIMER SUPPORT RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITHOUT T3346 TIMER SUPPORT RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

If the device encounters any of the following during a service request procedure:
VZ_REQ_LTEDATARETRY_7780

Test Case Name	Test Plan Id	Created By	Created Date
DEVICES LTE SERVICE ATTEMPT IGNORED	MMDATARTRY	Admin User	11-08-2013 00:00:00
DEVICES LTE SERVICE ATTEMPT IGNORED	CDMALESSMMDATARTRY	Admin User	10-22-2015 00:00:00
RRCCONNECTIONREJECT MESSAGE SENDING DATA TO A CONNECTED PDN	DATARTRY	Admin User	11-20-2013 00:00:00

SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODES 12, 13, AND 15	DATARTRY	Admin User	11-20-2013 00:00:00
UE WITHOUT T3346 TIMER SUPPORT RECEIVES SERVICE REJECT MESSAGE FROM THE NETWORK CODE 22	DATARTRY	Admin User	11-20-2013 00:00:00

If the UE receives a 'PDN CONNECTIVITY REJECT' message after sending a 'PDN CONNE
VZ_REQ_LTEDATARETRY_7765

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00

Non-IMS PDN VZ_REQ_LTEDATARETRY_7766

Test Case Name	Test Plan Id	Created By	Created Date
DEVICE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE INTERNET PDN	MMDATARTRY	Admin User	11-08-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR IMS	DATARTRY	Admin User	11-20-2013

PDN CODES 8, 27, 29, 32, 33, AND 112			00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 8, 27, 29, 32, 33, AND 112	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- INITIAL ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00

Two consecutive PDN CONNECTIVITY REJECT with Cause Code 8, 27, 29, 32, 33, 112
VZ_REQ_LTEDATARETRY_7767

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR ADMIN PDN CODE 33	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR IMS PDN CODES 8, 27, 29, 32, 33, AND 112	DATARTRY	Admin User	11-20-2013 00:00:00

UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 8, 27, 29, 32, 33, AND 112	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with cause code 28 VZ_REQ_LTEDATARETRY_7768

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with cause code 50 VZ_REQ_LTEDATARETRY_7769

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with cause code 51 VZ_REQ_LTEDATARETRY_7770

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with cause code 54 VZ_REQ_LTEDATARETRY_7771

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with cause codes 26, 30, 31, 34, 38, 95-101 or 111
VZ_REQ_LTEDATARETRY_7772

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODE 55	DATARTRY	Joseph Kuhn	10-13-2016 16:52:03
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26, 30, 31, 34, 38, 95, 96, 97, 98, 99, 100, 101, and 111	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR THE IMS PDN- SUBSEQUENT ATTACHMENT	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT piggybacked with an ATTACH REJECT message
VZ_REQ_LTEDATARETRY_7773

Test Case Name	Test Plan Id	Created By	Created Date

UE RECEIVES ATTACH REJECT MESSAGE FROM THE NETWORK CODE 19	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR NON-IMS PDN CODES 26 AND 27 WITH T3396 TIMER SET	DATARTRY	Admin User	11-20-2013 00:00:00

PDN CONNECTIVITY REJECT with IoT Devices that cannot be power-cycled VZ_REQ_LTEDATARETRY_41002

Test Case Name	Test Plan Id	Created By	Created Date
IOT UE RECEIVES PDN CONNECTIVITY REJECT MESSAGE FROM THE NETWORK FOR IMS PDN CODES 8, 27, 29, 32, AND 33	DATARTRY	Joseph Kuhn	10-13-2016 16:45:34

If the UE sends a PDN CONNECTIVITY REQUEST message and either: Ø the ne VZ_REQ_LTEDATARETRY_7787

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO RESPOND TO PDN CONNECTIVITY REQUEST	DATARTRY	Admin User	11-20-2013 00:00:00
SERVICE REQUEST FAILS GENERIC THROTTLING ALGORITHM INVOKED	DATARTRY	Admin User	11-20-2013 00:00:00

If the device is required to make an attach request using a given PDN and the device is throttling connection re VZ_REQ_LTEDATARETRY_7789

Test Case Name	Test Plan Id	Created By	Created Date
CR in Queue	VZWRC	Admin	10-28-2013

		User	00:00:00
UE MAKES ATTACH REQUEST WHILE THROTTLING ON PDN	DATARTRY	Admin User	11-20-2013 00:00:00

To prevent the excessive PDN connection requests to the network, the UE shall com VZ_REQ_LTEDATARETRY_7791

Test Case Name	Test Plan Id	Created By	Created Date
UE MAKES EXCESSIVE PDN CONNECTIVITY REQUESTS	DATARTRY	Admin User	11-20-2013 00:00:00

If the network sends a DEACTIVATE EPS BEARER CONTEXT REQUEST to the UE, the UE shall follow the steps detailed i VZ_REQ_LTEDATARETRY_7788

Test Case Name	Test Plan Id	Created By	Created Date
UE RECEIVES DEACTIVATE EPS BEARER CONTEXT REQUEST MESSAGE FROM THE NETWORK 2 PDN CONNECTIONS OPEN	DATARTRY	Admin User	11-20-2013 00:00:00
UE RECEIVES DEACTIVATE EPS BEARER CONTEXT REQUEST MESSAGE FROM THE NETWORK CODE 39	DATARTRY	Admin User	11-20-2013 00:00:00

If the network fails to send a Router Advertisement message after the device has exhausted its solicitations dur VZ_REQ_LTEDATARETRY_7783

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION,	DATARTRY	Admin User	11-20-2013 00:00:00

IPV4 ADDRESS ASSIGNED			
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE IMS AND INTERNET PDNS ON NETWORK ATTACH, IPV4 ADDRESS ASSIGNED TO INTERNET	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE IMS PDN	DATARTRY	Admin User	11-20-2013 00:00:00

If the network fails to send a Router Advertisement message after the device has exhausted its solicitations dur VZ_REQ_LTEDATARETRY_7784

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE IMS AND INTERNET PDNS ON NETWORK ATTACH, IPV4 ADDRESS ASSIGNED TO INTERNET	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR THE INTERNET PDN ON NETWORK ATTACH, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

For any PDN connection attempt after network attach, if the network fails to send VZ_REQ_LTEDATARETRY_7776

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

If the device is unsuccessful in refreshing its IPv6 address for any PDN connecti VZ_REQ_LTEDATARETRY_7786

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO ASSIGN AN IPV6 ADDRESS FOR A NON-IMS PDN- INITIAL CONNECTION, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO REFRESH THE IPV6 ADDRESS FOR THE IMS PDN, NO IPV4 ADDRESS ASSIGNED	DATARTRY	Admin User	11-20-2013 00:00:00

If the network fails to include the IMS P-CSCF address(es) in the PCO information element of the ACTIVATE DEFAUL VZ_REQ_LTEDATARETRY_7785

Test Case Name	Test Plan Id	Created By	Created Date
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE DURING AN IMS PDN CONNEC	DATARTRY	Admin User	11-20-2013 00:00:00
NETWORK FAILS TO INCLUDE IMS P-CSCF ADDRESS IN ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST MESSAGE FOR THE IMS PDN, INITIAL	DATARTRY	Admin User	11-20-2013 00:00:00